

# **KJWW MASTER**

## **FIRE PROTECTION MATERIAL LIST**

by: Fire Protection Committee

revised: November, 2005

Each item is provided a description and manufacturer's cut sheets. Pages are numbered at the bottoms on a per-item basis.

To print an item, input its page number(s), as indicated at the bottom of the Acrobat window, into the Print Range field.

If you have any questions or concerns, please contact the Fire Protection Committee.

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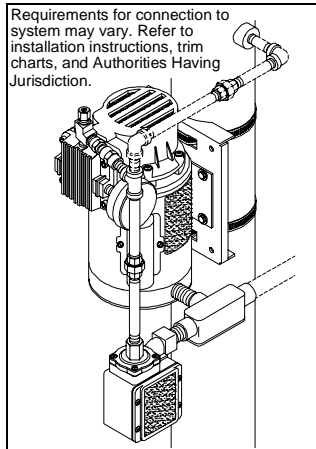
**DESCRIPTION:** MAINTENANCE AIR COMPRESSOR, SINGLE STAGE, AIR COOLED, OIL-LESS, SINGLE POLE DOUBLE THROW PRESSURE SWITCH WITH 1.5-75 PSI ADJUSTABLE RANGE, RELIEF VALVE SET FOR 65 PSI, AND MOUNTING BRACKET. 1/4 HP 115 V, 1 PHASE, DIRECT DRIVE, PERMANENTLY LUBRICATED BEARINGS. CAPACITY: 2.0 SCFM AT 0 PSI AND 1.4 SCFM AT 50 PSI, UL/FM.

**MANUFACTURER & CATALOG NO.:** VIKING 08650, RELIABLE MODEL A.

March 25, 1999

131 a

	<b>TECHNICAL DATA</b>	<b>MODEL E-1 MAINTENANCE AIR COMPRESSOR</b>
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**1. PRODUCT NAME**

Viking Model E-1  
Maintenance Air Compressor  
Available since 1994.

**2. MANUFACTURED FOR**

The Viking Corporation  
210 N. Industrial Park Road  
Hastings, Michigan 49058 U.S.A.  
Telephone: (616) 945-9501  
(877)384-5464  
Fax: (616) 945-9599  
e-mail: techsvcs@vikingcorp.com

**3. PRODUCT DESCRIPTION**

The Viking Model E-1 Maintenance Air Compressor is an electric motor-driven, air-cooled, single-stage, oil-less compressor.

The unit is equipped with a check valve and provides a regulated (by pressure switch setting) and restricted (2.0 SCFM at 0.0 psi gauge to 1.4 SCFM at 50 psi gauge) air supply. A pressure relief valve is factory installed to prevent pressurizing system piping above 65 psi (448 kPa).

The Viking Model E-1 Maintenance Air Compressor may be used to automatically maintain air pressure in a dry system after the system has been filled from a non-continuous air supply. It may be used as a basic air supply for dry systems of 150 gallons capacity or smaller.

**4. TECHNICAL DATA**

Motor Compressor Unit:  
Manufactured by: T I Pneumatic, Inc.  
• 1/4 Horsepower, direct drive.

- Permanently lubricated bearings.
- Self-lubricating pistons.
- Stainless Steel valves.
- Automatically resetting thermal protection.
- Compressor produces 1.4 SCFM at 50 psi (345 kPa) continuous operating pressure. (Performance indicated is for 60 cycle units. De-rate approximately 20% for 50 cycle units.)
- Safety Relief Valve set at 65 psi (448 kPa).
- Shipping weight of complete assembly: 34 pounds (15,4 kg).
- Recommended ambient temperature range: 35 °F to 95 °F (2 °C to 35 °C).

Motor Electrical Ratings:  
Switch Manufactured by: Square D

Part No. 08650: 115V single phase, 60 Cycle AC Service Factor Amperage: 6.3/3.15 Factory Wired 115 V
Part No. 09803: 230V single phase, 60 Cycle AC Service Factor Amperage: 6.3/3.15 Factory Wired 230 V
Part No. 08771: (For export) 110 V single phase, 50 Cycle AC Service Factor Amperage: 6.3/3.15 Factory Wired 110 V
Part No. 09802: (For export) 220 V single phase, 50 Cycle AC Service Factor Amperage: 6.3/3.15 Factory Wired 220 V

- One single-pole double-throw (SPDT) snap switch with two double break elements (1 N.O. and 1 N.C.). When using both N.O. and N.C. contacts, both circuits must be of same polarity.
- Pressure Connection: 1/4" (8 mm) NPT, brass base, internal threads.
- Adjustable Pressure Range: 1.5 to 75 psi (10.5 to 517,0 kPa).  
**CAUTION:** Compressor pressure relief valve is set to open at 65 psi (448 kPa). Compressor will run continuously when the switch is set at or above 65 psi (448 kPa).
- Factory Setting: Switch is set to transfer contacts at approximately 40 psi (275,8 kPa) on pressure drop.  
**CAUTION:** Cycle switch to determine actual setting before proceeding with readjustment.
- Proof-tested to maintain accuracy and withstand occasional maximum pressure of 240 psi (1 655 kPa), to allow hydrostatic testing after installation.

Switch on/off Differential: Adjustable.  
**WARNING: Never adjust the differential below 5 psi!**

**5. FEATURES**

- A. Stainless steel mounting bracket with stainless steel adjustable straps. One size bracket fits all sizes of pipe.
- B. Adjustable pressure switch.
- C. Check valve factory installed at the compressor outlet.
- D. A pressure relief valve is factory installed at compressor outlet to prevent pressurizing system piping above 65 psi (448 kPa).

**6. AVAILABILITY AND SERVICE**

The Viking Model E-1 Maintenance Air Compressor is available through a network of domestic, Canadian, and international distributors. See the Yellow Pages of the telephone directory for a local distributor (listed under "Sprinklers-Automatic-Fire") or contact The Viking Corporation.

Viking technical data may be found on The Viking Corporation's Web site at <http://www.vikingcorp.com>. The Web site may include a more recent edition of this technical data page.

**7. GUARANTEES**

For details of warranty, refer to Viking's current list price schedule or contact The Viking Corporation directly.

**8. INSTALLATION**

The compressor is for indoor use and must be installed in an area not exposed to the weather, freezing temperatures, or physical damage.

When corrosive atmospheres and/or contaminated water supplies are present, it is the owner's responsibility to verify compatibility with the Air Maintenance Compressor and associated equipment.

The compressor outlet includes a check valve. Output is regulated (by pressure switch setting) and restricted (2.0 SCFM

Part No.		UL <sup>1</sup>	ULC <sup>2</sup>	NYC <sup>2</sup>	FM
08650	115V/60 Hz	Yes	--	--	Yes
09803	230V/60 Hz	Yes	--	--	Yes
08771 <sup>3</sup>	110V/50 Hz	--	--	--	Yes
09802 <sup>3</sup>	220V/50 Hz	--	--	--	Yes

<sup>1</sup> UL Listed Guide No. VDUR.  
<sup>2</sup> ULC and NYC acceptance is pending.  
<sup>3</sup> 50 Hz compressor for export.

Form No. F\_062593

Replaces page 131 a-b, dated August 20, 1997  
(added warning concerning differential adjustment).



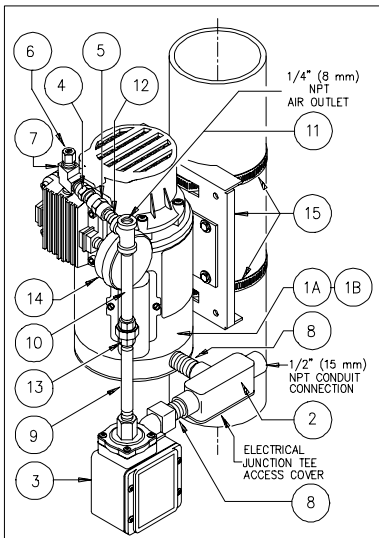
## TECHNICAL DATA

### MODEL E-1 MAINTENANCE AIR COMPRESSOR

at 0.0 psi gauge to 1.4 SCFM at 50 psi gauge).

For low volume systems, such as pneumatic release lines, it is recommended to install a receiver tank between the compressor and the system being supplied.

The Model E-1 Maintenance Air Compressor may be installed vertically or horizontally. When installing the compressor on the sprinkler system riser, locate the unit above the level of the dry valve with the compressor end up (refer to Figure 1).



REPLACEMENT PARTS MODEL E-1 AIR MAINTENANCE COMPRESSOR			
ITEM	PART NO.	DESCRIPTION	REQ.
1A	08645	60 CYCLE MOTOR FOR COMPRESSORS 08650 AND 08803	1
1B	08772	50 CYCLE MOTOR FOR COMPRESSORS 08771 AND 09802	1
2	---	JUNCTION TEE	1
3	04945A	SWITCH, PRESSURE	1
4	02851A	CHECK VALVE	1
5	08952	COUPLING, BRASS, 1/4"	1
6	01099A	RELIEF VALVE	1
7	08951	STREET TEE, BRASS, 1/4"	1
8	---	NIPPLE, GALV., 1/2" X CL.	2
9	---	NIPPLE, GALV., 1/4" X 4"	1
10	---	NIPPLE, GALV., 1/4" X 3 1/2"	1
11	---	TEE, GALV., 1/4"	1
12	---	NIPPLE, GALV., 1/4" X 1-1/2"	1
13	---	UNION, GALV., 1/4"	1
14	05990A	AIR FILTER ASSEMBLY	1
15	06924A	MOUNTING BRACKET, KIT	1
--- INDICATES REPLACEMENT PART NOT AVAILABLE FROM VIKING.			

Figure 1

1. Place the "V" notches of mounting bracket against riser.
  - a. Place mounting straps around riser, and through the square slots provided in the mounting base.
  - b. Tighten mounting straps.
2. Mount the compressor unit to the mounting bracket.
  - a. Tighten all bolts—four mounting bolt sets are provided.
3. Install air supply piping from the 1/4" (8 mm) NPT galvanized outlet tee of the compressor to the dry system piping.
  - a. When connecting to dry systems equipped with a Viking Model E Accelerator and Model B Anti-flood Device, refer to the appropriate Model E Accelerator trim chart. Connect compressor outlet to the trim as indicated in the trim chart.
  - b. Apply a small amount of pipe-joint compound or tape to the external threads of all pipe connections required. Take care not to allow any compound, tape, or other foreign matter inside any of the nipples or compressor outlet.

De-energize electrical supply circuits before servicing or connecting the unit.

4. Connect the electrical supply from an uninterrupted, dedicated circuit.
  - a. Compressor motor and pressure switch are factory wired. Line, neutral, and ground wire leads for connection to power supply are located inside the junction tee.
  - b. Remove junction tee access cover (straight screw driver is required).
  - c. Connect wire leads as shown in Figure 2 wiring diagram.
 

**Note:** Comply with all national and local codes and requirements of the Authority Having Jurisdiction.
  - d. Reinstall junction tee access cover prior to operating the compressor.
  - e. Do not exceed electrical ratings shown on switch or motor nameplates.
5. Test the compressor pressure switch setting, noting the pressure at which the compressor starts and shuts off. Adjust the pressure switch to the required setting
6. To adjust the set point of the pressure switch:

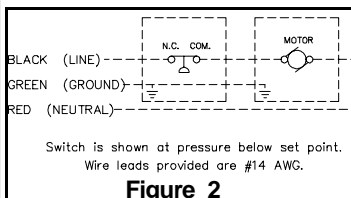


Figure 2

- a. De-energize electrical supply and remove the switch cover (screw driver is required).
- b. To adjust the set point of the switch, insert the blade of a straight screw driver into one of the slots in the range adjustment nut (see Figure 3).
 

**To raise the set point,** turn the range adjustment nut, moving the slot toward the center of the switch (see Figure 3).

**To lower the set point,** turn the range adjustment nut, moving the slot away from the center of the switch (see Figure 3).
- c. Re-install switch cover. Test the compressor pressure switch setting, noting the pressure at which the compressor starts and shuts off. If necessary, repeat steps 6 a-c.

### 9. MAINTENANCE

The compressor motor is equipped with thermal protectors that reset automatically. **WARNING:** Disconnect electrical power before servicing. Thermal protector can automatically start motor when device resets.

1. The motor compressor unit should be kept dirt-free.
2. The compressor inlet filter should be cleaned or replaced as required.
  - a. To inspect the inlet filter, pull the plastic cap to remove it from the filter case.
  - b. Filter can be removed for inspection. Do not clean filter elements with petroleum-based products.
  - c. Re-install filter and cap. Do not operate compressor without a filter.
3. Do not lubricate the compressor or motor. The bearings are permanently lubricated and sealed.

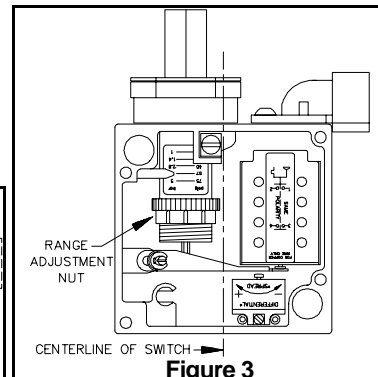


Figure 3

Replaces page 131 a-b, dated August 20, 1997 (added warning concerning differential adjustment).

Form No. F\_062593

**DESCRIPTION:** ACCELERATOR, PILOT OPERATED, 2500 GALLON MAXIMUM SYSTEM CAPACITY, AUTOMATIC RESET, BUILT-IN ANTI-FLOOD ASSEMBLY, UL/FM.

**MANUFACTURER & CATALOG NO.:** VIKING D-2, TYCO ACC-1, RELIABLE B1

January 28, 1999

111 a

	<b>TECHNICAL DATA</b>	<b>MODEL D-2 ACCELERATOR</b>
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**1. PRODUCT NAME**

Viking Model D-2 Accelerator  
Part Number 09881  
Available since 1998.

**2. MANUFACTURER**

The Viking Corporation  
210 N. Industrial Park Road  
Hastings, Michigan 49058 U.S.A.  
Telephone: (616) 945-9501  
(877) 384-5464  
Fax: (616) 945-9599  
e-mail: techsvcs@vikingcorp.com

**3. PRODUCT DESCRIPTION**

The Viking Model D-2 Accelerator is a quick-opening device, with an integral anti-flood assembly, used to increase the operating speed of a differential type dry pipe valve. An accelerator (quick-opening device) is recommended on all differential dry pipe valves and is required on dry pipe systems of certain capacities. Refer to NFPA Standards and authorities having jurisdiction. The Viking Model D-2 Accelerator is a direct replacement for the Model D-1 Accelerator. The Viking Model D-2 Accelerator may also be used to speed the action of a pneumatic release system on a deluge, flow control, or pre-action system.

**4. TECHNICAL DATA LISTINGS AND APPROVALS**

UL Listed, Guide No. VJPZ, UL Control No. 956A  
FM Approved: Consult FM Approval guide for acceptable applications.  
Factory Tested  
Shipping Weight: 6.2 lbs. (2,8 kg)  
Material Specifications: See Figure 2 on page 111 f.  
Related Items: Model F-1 Dry Pipe Valve and Model D-2 Accelerator Trim

**5. FEATURES**

- A. Pilot responsive,
- B. Refer to NFPA-13 for maximum system size.
- C. Automatically resets.
- D. Integral anti-flood assembly.

**6. AVAILABILITY AND SERVICE**

Viking products are available through a network of domestic and international distributors.  
For proper operation and approval, the Accelerator must be installed with trim in accordance with the current Viking trim chart for the valve used. Where difficulty in performance is experienced, verify



**MODEL D-2 ACCELERATOR**

that the accelerator and trim are installed properly. Contact Viking or Viking's authorized representative before any field adjustments are made. See the Yellow Pages of the telephone directory for a local distributor (listed under "Sprinklers-Automatic-Fire") or contact Viking.

Viking technical data may be found on The Viking Corporation's Web site at <http://www.vikingcorp.com>. The Web site may include a more recent edition of this technical data page.

**7. GUARANTEES**

For details of warranty, refer to Viking's current list price schedule or contact The Viking Corporation directly.

**8. OPERATION**

(Refer to Figure 1.)  
The accelerator operates on the principle of unbalanced pressures. When the accelerator is pressurized, air enters the inlet, goes through the screen filter into the lower chamber and through the anti-flood assembly into the middle chamber. From the middle chamber, the air slowly enters the upper chamber through an orifice restriction in the cover diaphragm. In the SET position the system air pressure is the same in all chambers. The accelerator outlet is at atmospheric pressure. When a sprinkler or release operates, the pressure in the middle and lower chambers will reduce at the same rate as the system. The orifice restriction in the cover diaphragm restricts the air flow from the upper chamber, causing a relatively higher pressure in the upper chamber. The pressure differential

forces the cover diaphragm down, pushing the actuator rod down. This action vents the pressure from the lower chamber to the outlet, allowing the inlet pressure to force the clapper diaphragm open. The pressure in the accelerator outlet forces the anti-flood assembly closed.

On a dry pipe system the air pressure from the accelerator outlet is directed to the dry pipe valve intermediate chamber. As the air pressure increases in the intermediate chamber of the dry valve, the dry valve pressure differential is destroyed and the dry valve trips, allowing water to enter the dry pipe system.

After the dry valve trips, water entering the intermediate chamber of the dry valve will fill the trim piping connecting the accelerator to the dry system. However, when the anti-flood assembly is pressurized closed, water is prevented from entering the middle and upper chambers of the accelerator.

On a pneumatic release system, when the accelerator operates, the outlet pressure is vented to atmosphere, speeding the release system operation.

**9. INSTALLATION**

**A. On Dry Valve Trim**

Verify that the Model D-2 Accelerator Trim Chart available is for the dry valve model used.  
Verify that the water supply piping has been adequately flushed to reduce the opportunity for foreign matter to contaminate sprinkler piping and/or trim components.

Install the Model D-2 Accelerator in the dry valve trim piping according to the Model D-2 Accelerator Trim Chart for the dry valve model used. The dry system air supply must be connected as shown on the trim chart for the dry valve model used.

DO NOT expose the accelerator to the hydrostatic test.

**Caution:** The dry valve clapper must be latched open during performance of the hydrostatic test.

**Follow installation instructions below in Paragraph 9C: General Installation Instructions.**

**B. On Pneumatic Release System**

Use a 1/2" (15 mm) NPT nipple to connected the Model D-2 Accelerator to the pneumatic release system at the location shown on drawings provided in the Technical Data Page for system used.



## TECHNICAL DATA

## MODEL D-2 ACCELERATOR

A 1/2" (15 mm) NPT ball valve should be installed between the accelerator and the point of connection to the pneumatic release system to allow the accelerator to be removed without placing the pneumatic release system out of service. The 1/2" (15 mm) NPT ball valve should be normally open and tagged to inform personnel.

A nipple and 90° elbow should be installed at the discharge outlet of the accelerator with the outlet of the elbow turned down to direct any airborne matter downward when the accelerator trips.

### Follow installation instructions below in Paragraph 9C: General Installation Instructions.

#### C. General Installation Instructions

Air supply should be from an automatic, regulated and restricted source supplied with clean, dry, oil-free air (or nitrogen). Devices used should be specifically listed for such service. A Viking air maintenance device and an appropriately sized dehydrator are recommended.

When corrosive atmospheres and/or contaminated water supplies are present, it is the owner's responsibility to verify compatibility with the Model D-2 Accelerator and associated equipment.

1. Remove all plastic thread protectors from the openings of the accelerator.
2. Apply a small amount of pipe-joint compound or tape to the external threads of all pipe connections required. Take care not to allow any compound, tape, or other foreign matter inside any of the nipples or openings of the accelerator or trim.
3. The Model D-2 Accelerator must be installed upright (with the air gauge opening at the top) as shown on the trim chart. Observe flow arrow, on bottom of accelerator, below the 1/2" NPT inlet.
4. Install a 0-80 psi retard to 250 psi (0-550 kPa, retard to 1 750 kPa) air gauge in the 1/4" (8 mm) NPT opening in the top of the accelerator.

#### 5. DO NOT expose the accelerator to the hydrostatic test.

**CAUTION:** The accelerator isolation valves are to be kept in the normally open position. DO NOT CLOSE, except during hydrostatic testing or to service the accelerator.

### 10. PLACING THE ACCELERATOR IN SERVICE

#### A. On Dry Valve Trim

When the dry pipe system is ready to be placed in service, verify that all equip-

ment is adequately heated and protected to prevent freezing and physical damage.

1. With the water supply main control valve CLOSED, drain all water from the dry pipe system. If the system has operated, open all auxiliary drains and the system test valve. Allow enough time to completely drain the system.
2. Verify that the intermediate chamber of the dry valve is free of water. No water should flow from the drip check when the plunger is pushed.
3. Reset the dry valve (see Technical Data for the dry valve model used).
4. Close all auxiliary drains, the system test valve, and the priming water level test valve in the dry valve trim.
5. Observe the air pressure gauge on top of the accelerator. The gauge must read zero before the accelerator will automatically reset. It may be necessary to loosen, remove, and re-install the accelerator air gauge (use the appropriate wrench) to vent trapped air pressure from the upper chamber, even when the gauge indicates zero if the air supply is on while performing this step.
6. Pressurize the system in accordance with recommended settings. See Technical Data for dry system used. **Do not exceed 60 psi (414 kPa).**
7. When the air pressure on the accelerator air gauge equals the system set pressure, perform Dry Pipe Valve Priming Water Level Test described in Paragraph 11B-1 to verify that water is not present above the priming level test valve in the dry valve trim. Priming water is NOT required for Viking dry valves.

If the presence of water is detected above the priming level test valve, the system may not have been properly drained. To verify that the system has been properly drained, repeat Steps 1 through 7 above as required.

**NOTE:** Step 7 is required any time water has entered the sprinkler piping. If no water has been allowed to enter the system since the previous priming water level test, this step may not be required.

8. Open the main drain valve (located on the inlet of the dry valve).
9. Slowly open the water supply main control valve.
10. When flow is developed from the main drain, close the main drain valve.

11. Fully open and secure the water supply main control valve supplying the dry valve.
12. Secure all valves in their normal operating position.
13. Notify authorities having jurisdiction and those in the affected area that the system is in service.

#### B. On a Pneumatic Release System

When the pneumatic release system is ready to be placed in service, verify that all equipment is adequately heated and protected to prevent freezing and physical damage.

1. Observe the air pressure gauge on top of the accelerator. The gauge must read zero before the accelerator will automatically reset. (It may be necessary to loosen the air gauge to vent the trapped air pressure in the upper chamber.)
2. Pressurize the system according to recommended settings. See Technical Data for pneumatic release operation of the system used.
3. Open the 1/2" (15 mm) NPT ball valve (if provided) located between the accelerator and the point of connection to the pneumatic release system.
4. When the air pressure on the accelerator gauge equals the system set pressure, proceed with placing the system in service. Refer to Technical Data for the system used.
5. Verify that the water supply main control valve is open and secure, drain valves are closed, and all other valves are secured in their normal operating position.
6. Notify authorities having jurisdiction and those in the affected area that the system is in service.

### 11. INSPECTIONS AND TESTS

**Prior to performing any work on the system in which the Model D-2 Accelerator is installed, refer to Technical Data for the system and equipment used.**

**NOTICE:** The owner is responsible for maintaining the fire protection system and devices in proper operating condition.

The Viking Model D-2 Accelerator must be kept free of foreign matter, freezing conditions, corrosive atmospheres, contaminated water supplies, and any condition that could impair its operation or damage the device.

It is imperative that the system be inspected and tested on a regular basis. The frequency of the inspections may



TECHNICAL DATA

MODEL D-2 ACCELERATOR

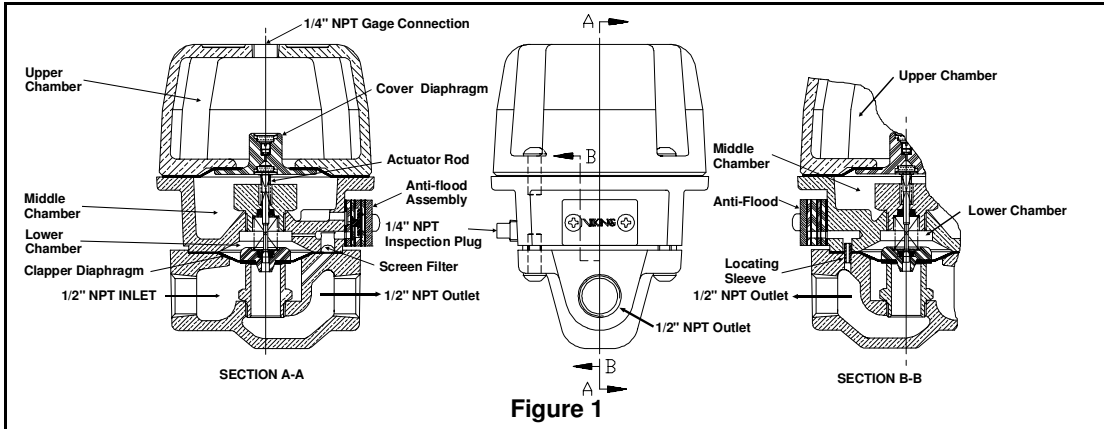


Figure 1

vary due to contaminated water supplies, corrosive water supplies, corrosive atmospheres, as well as the condition of the air supply to the system. For minimum maintenance and inspection requirements, refer to the National Fire Protection Association's pamphlet that describes care and maintenance of sprinkler systems. In addition, the authority having jurisdiction may have additional maintenance, testing, and inspection requirements that must be followed.

**WARNING:** Any system maintenance that involves placing a control valve or detection system out of service may eliminate the fire protection capabilities of that system. Prior to proceeding, notify all authorities having jurisdiction. Consideration should be given to employment of a fire patrol in the affected areas.

**After every operation, and each time water is allowed to enter the system:**

1. Inspect the interior of the accelerator for the presence of water. Dampness or condensation may indicate that the air supply is not being dried adequately. If water is allowed to enter the middle and/or upper chamber of the accelerator, it may contaminate the accelerator orifices and prevent it from operating properly.
2. Remove the 1/4" NPT inspection plug. If water or dampness is present, the accelerator must be disassembled (as described in Section 12C: Disassembly), cleaned, and dried.

**A. Inspection of Accelerators Installed on Dry Systems or Pneumatic**

**Release Systems:**

Weekly inspection is recommended. If the system is equipped with a low air (or nitrogen) alarm, monthly inspections may be adequate.

1. Check the air pressure gauge located on the top of the accelerator. Air pressure in the upper chamber of the accelerator should equal the air pressure maintained in the system on which it is installed.

**NOTE:** Standard tolerance allowance in pressure gauge calibration may result in a slight variation when pressure readings of any two gauges are compared.

- a. A difference in pressures other than slight variation due to gauge calibration tolerance may indicate gauge malfunction, plugged accelerator orifices and/or filters, or other maintenance is required. See Paragraph 12A and / or Paragraph 12B of ACCELERATOR MAINTENANCE.
2. Verify that all other trim valves are in their normal operating position.
3. Check for signs of mechanical damage and/or corrosive activity. If detected, perform maintenance as required or, if necessary, replace the device.
4. Verify that the accelerator and trim are adequately heated and protected to prevent freezing and physical damage.
5. Verify that the water supply main control valve is open and secure.

**B-1. Dry Pipe Valve Priming Water Level Test, Low Air Alarm Test, and Non-Flow Accelerator Test for Dry Valves Equipped with a Model D-2 Accelerator**

**and Installed According to Model D-2 Accelerator Trim Charts:**

The priming water level test is recommended quarterly and each time the system is placed in service after water has entered the system. Also, each time the system is placed in service after water has entered the system, it is good practice to repeat the priming water level test within one week. Testing is used to verify that the system has been properly drained and that no water is present above the priming level test valve in the dry valve trim after draining the system. Any water columning (accumulation of water above the priming level test valve) can slow or even prevent the dry valve clapper from opening when the dry system operates.

Quarterly testing of low air alarms is recommended.

Semi-annual testing of accelerators is recommended. Conduct non-flow test when partial flow test or full flow test is not required (see Paragraph 11B-3: Flow Testing on Dry Valves).

1. Notify the authority having jurisdiction and those in the area affected by the test.
2. Close the water supply main control valve supplying the dry valve.
3. Open the main drain valve (located on the inlet of the dry valve).

**NOTE: Performing Steps 4 or 5 of this test will cause the accelerator to operate.** However, with the water supply main control valve CLOSED, and the main drain valve OPEN, operation of the accelerator should not trip the dry valve.





## TECHNICAL DATA

## MODEL D-2 ACCELERATOR

### 4. Dry valve priming water level test:

- Verify that the water supply main control valve is closed and the main drain valve is open.
- Close the air supply.
- Fully open the priming level test valve in the dry valve trim to check for the presence of water. If the presence of water is detected, the system may not have been properly drained. Perform steps 1 through 7 in Paragraph 10A of PLACING ACCELERATOR IN SERVICE on Dry Valve Trim.
- When test is complete: If/when no water is detected, open the air supply and continue to Step 6.

### 5. Low air alarm test and non-flow accelerator test:

- Verify that the water supply main control valve is closed and the main drain valve is open.
  - Gradually open the priming level test valve in the trim of the dry valve to simulate operation of the dry system.
    - Observe and record the pressure at which the low air alarm operates.
  - When test is complete, continue to Step 6.
- Close the priming level test valve.
  - Loosen (use the appropriate wrench), and remove the accelerator air gauge to release pressure from the upper chamber of the accelerator, allowing it to reset.
  - Re-install, and tighten (use the appropriate wrench) the accelerator air gauge.
  - Allow pressure to be restored to the dry pipe system and accelerator.
  - When air pressure on the accelerator air gauge equals the system set pressure, verify that the intermediate chamber of the dry valve is free of water. No water should flow from the drip check when the plunger is pushed.
  - When testing is complete, return the system being tested to service. Perform Steps 8 through 13 of Paragraph 10A: PLACING ACCELERATOR IN SERVICE on Dry Valve Trim.

### B-2. Non-Flow Accelerator Test on Pneumatic Release Systems:

Semi-annual testing of accelerators is recommended. Conduct non-flow test when full flow test is not required.

- Notify the authority having jurisdiction and those in the area affected by the test.
- Close the water supply main control valve to prevent unwanted operation of the system.
- Open the necessary drain test valve to relieve pressure from the inlet chamber of valve being controlled by the pneumatic release system.
- Operate a detector or open a test valve to relieve pressure from the pneumatic release system, (simulating operation of the detection system).
- When testing is complete, perform Steps 1 through 6 of Paragraph 10B: PLACING ACCELERATOR IN SERVICE on a Pneumatic Release System.

### B-3. Flow Testing on Dry Valves:

Partial flow tests are conducted with the water supply main control valve (supplying the dry valve being tested) partially closed to minimize the amount of water entering the system during the test. The water supply control valve is closed immediately after the dry valve operates to keep water from filling the system piping. A partial flow test may verify operation of equipment and devices, but does not simulate operation of the system in fire conditions. Full flow tests are conducted with the water supply main control valve fully open. The dry valve is operated by opening the system test valve to simulate the opening of a sprinkler in fire conditions.

Conduct a partial flow test during warm weather at least annually. Conduct a full flow test during warm weather at least once every three years. More frequent testing may be required by the authority having jurisdiction:

- Notify the authority having jurisdiction and those in the area affected by the test.
 

**Caution: Performing Step 2 of this test procedure will cause the dry valve to open. The accelerator will operate, the dry valve will trip, and water will enter the sprinkler system piping.**
- Operate the accelerator by performing the steps indicated below for the test procedure desired.

#### a. For full flow test:

- With the water supply main control valve open, fully open the main drain. Allow the flow to

continue long enough to flush any foreign material from the water supply piping.

- Close the main drain.
- Open the system test valve to simulate operation of sprinkler.
- Close the water supply main control valve after the accelerator operates and test is complete. Proceed to Step 3.

#### b. For partial flow test:

- With the water supply main control valve fully open, open the main drain. Allow the full flow to continue long enough to flush any foreign material from the water supply piping.
  - With the main drain fully open, slowly close the water supply main control valve until flow from the main drain is reduced as far as possible while maintaining the full flow from the main drain.
  - Close the main drain.
  - Fully open the priming level test valve to simulate operation of a sprinkler.
  - Close the water supply main control valve IMMEDIATELY after the accelerator operates and the dry valve trips.
- Record operating times as required by the authority having jurisdiction.
  - When operation time testing is complete, return the system being tested to service. Perform Steps 1 through 13 of Paragraph 10A: PLACING ACCELERATOR IN SERVICE on Dry Valve Trim, and Technical Data for the dry valve and equipment used.

### B-4. Flow Testing on Pneumatic Release Systems:

- Notify the authority having jurisdiction and those in the area affected by the test.
- Perform PERIODIC NON-FLOW TEST to verify proper operation of the Accelerator. Refer to Paragraph 11B-2: Non-Flow Accelerator Test.
 

**Caution: Performing Step 3 of this test procedure will cause the valve controlled by the pneumatic release system to open. Water will enter the system piping.**
- Operate a detector or open a test valve to relieve pressure from the pneumatic release system (simulating operation of the detection system).
- When operation testing is complete, return the system being tested to



## TECHNICAL DATA

## MODEL D-2 ACCELERATOR

service. Refer to Technical Data for the system used:

- a. Close the water supply main control valve.
- b. Open all main drains and auxiliary drains. Allow enough time to completely drain the system.
- c. Close all drains opened in step "b" above.
- d. Close the detector or test valve opened in step 3 above.
- e. Perform steps 1 through 6 of Paragraph 10B: PLACING ACCELERATOR IN SERVICE on a Pneumatic Release System.

### 12. ACCELERATOR MAINTENANCE

(Refer to Figure 2.)

#### A. On Dry Valves

To remove a Model D-2 Accelerator from the trim of the dry valve for inspection and/or maintenance:

1. Isolate the accelerator from the system by closing the shut-off valves on the accelerator trim.
2. Loosen the accelerator air gauge to vent the trapped air pressure from the accelerator.
3. Refer to Paragraph 12C: Disassembly.

#### B. On Pneumatic Release Systems

For installations with a 1/2" (15 mm) NPT ball valve between the accelerator and the point of connection to the pneumatic release system: The accelerator may be disassembled without taking the pneumatic release system out of service.

1. Close the 1/2" (15 mm) ball valve located between the accelerator and the pneumatic release system.
2. Loosen the accelerator air gauge to vent the trapped air pressure from the accelerator.
3. Refer to Paragraph 12C: Disassembly.

#### C. Disassembly

(Refer to Figure 2.)

1. To inspect and/or remove cover diaphragm assembly (2), or actuator rod (4) with spring (5):

- a. Remove the four round-head screws (16a) from cover (1) and lift off cover (1) from housing (7).
- b. Remove cover diaphragm assembly (2) for inspection. Blow air through filters and orifice. Replace the assembly if unit is plugged or damaged. Do not attempt to wash or clean the filters or orifice. Water may cause them to become plugged, requiring replacement of the assembly.
- c. Remove actuator rod (4) with spring (5) for inspection and cleaning. Replace the actuator rod (4) if it is pitted, corroded, or damaged.

**NOTE:** Replace both U-cups (10), whenever actuator rod (4) is replaced. See Step 2-c.

2. To inspect and/or clean seat (14) or inspect and/or remove clapper diaphragm (13):
  - a. Remove four round-head screws (16b) from base (15) and separate housing (7) from base (15).
  - b. Remove clapper diaphragm (13) and housing spring (12) for inspection.
  - c. To remove the lower U-cup retainer (11), and lower U-cup (10) for inspection, carefully push them out of their seat from the opposite side of the clapper diaphragm (13). Upper U-cup retainer (11) and U-cup (10) may be removed by pushing them out of their seat from the opposite side of the housing insert (6).

**CAUTION:** Use only a blunt tool, not more than 1/8" (3,2 mm) diameter, to push U-cups from their seats. Replace U-cups if damaged, and whenever actuator rod (4) is replaced.

- d. Inspect housing (7) and clean orifices as required. If necessary, remove screen filter (9) from housing (7) for cleaning. Replace the

screen filter (9) if it is plugged or damaged.

- e. Inspect seat (14). If contamination is detected, wipe clean. If the seat is damaged, remove the damaged seat by turning it counterclockwise, threading it out of base (15). A 7/8" socket wrench is required.

#### D. Reassembly

(Refer to Figure 2.)

1. To re-install seat (14), reverse Disassembly Step 2 e.
2. To re-install clapper diaphragm (13), reverse Disassembly Steps 2.a. through 2.c. as required.
  - a. Apply a non-petroleum based lubricant to U-cups and U-cup retainers to hold them in place during reassembly.
  - b. Verify that locating pin and screen filter holes are properly aligned.
3. To re-install cover diaphragm (2), reverse Disassembly Steps 1.a. through 1.c.
  - a. Hold actuator rod down so retaining ring (3) is flush with top of housing insert (6) when installing cover diaphragm assembly (2).
4. Perform steps described in Paragraphs 9A and / or 9B and 9C of INSTALLATION as required to re-install the accelerator.
5. Refer to Paragraph 10A and/or 10B of PLACING ACCELERATOR IN SERVICE, and Technical Data for the system used.
6. Verify that the water supply main control valve is open and all other valves are in their normal operating position.
7. Perform flow test and/or non-flow test (as appropriate) to verify proper operation of the accelerator. Refer to Paragraph 11B-1: Non-Flow Test and / or Paragraph 11B-3: Flow Testing on Dry Valves.

VIKING<sup>®</sup>

TECHNICAL DATA

MODEL D-2  
ACCELERATOR

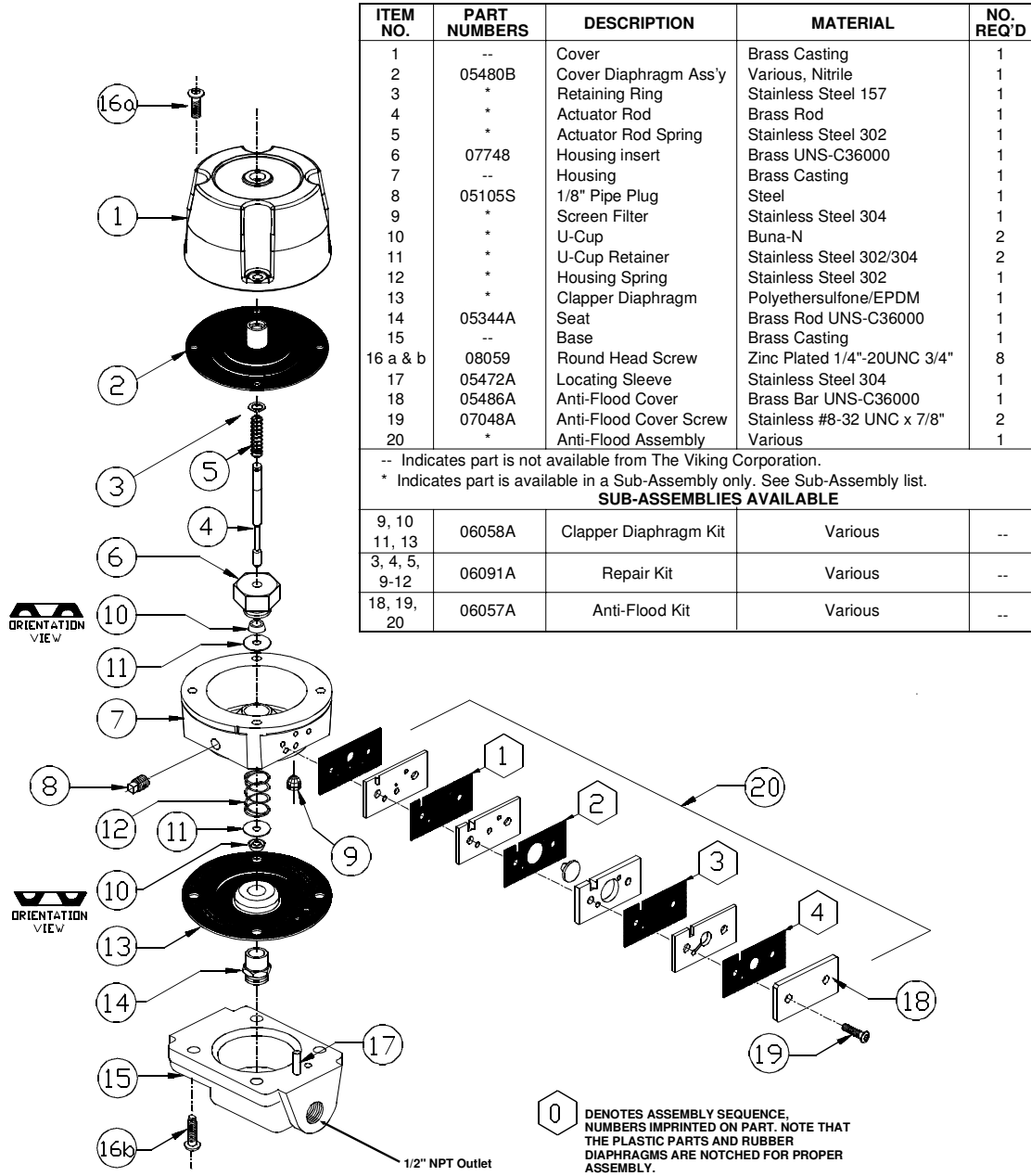


Figure 2

Replaces page 111 a-f, dated March 12, 1998 (modified Note B in Paragraph 5).

Form No. F\_010898

**DESCRIPTION:** AIR PRESSURE MAINTENANCE DEVICE, ADJUSTABLE AIR PRESSURE SETTING, REPLACEABLE AIR FILTER, BALL CHECK TO PREVENT BACKFLOW, 1/4" TAPPED INLET AND OUTLET, UL/FM.

**MANUFACTURER & CATALOG NO.:** VIKING D-2, TYCO AMD-1, RELIABLE A-2.

January 28, 1999

127 a

<b>VIKING®</b>	<b>TECHNICAL DATA</b>	<b>MODEL D-2 AIR PRESSURE MAINTENANCE DEVICE</b>
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**1. PRODUCT NAME**

Viking Model D-2 Air Pressure Maintenance Device  
Part Number 02280C  
Available since 1973

**2. MANUFACTURER**

The Viking Corporation  
210 N. Industrial Park Road  
Hastings, Michigan 49058 U.S.A.  
Telephone: (616) 945-9501  
(877) 384-5464  
Fax: (616) 945-9599  
e-mail: techsvcs@vikingcorp.com



**3. PRODUCT DESCRIPTION**

The Viking Model D-2 Air Pressure Maintenance Device is a pressure regulator that automatically reduces the supply air pressure to a preset requirement when connected to a constantly maintained air supply.

**4. TECHNICAL INFORMATION**

**LISTINGS AND APPROVALS**

UL listed, Guide No. VIOT, Control No. 955A  
C-UL Listed and FM Approved  
Approved by the New York City Board of Standards and Appeals, Calendar No. 219-76-SA  
VDS Approved

**MATERIAL STANDARDS**

Refer to Figure 1 on page 127 b.  
Minimum Recommended Ambient Temperature: 40 °F (4 °C)

Shipping weight of Model D-2 Air Pressure Maintenance Device (Viking Part No. 02280C): 3 pounds, 8 ounces (1.59 kg).

**5. FEATURES**

- A. Replaceable air filter.
- B. Air pressure setting is factory set at 40 psi (276 kPa) [inlet pressure to 175 psi (1207 kPa)]. **Outlet pressure setting range is 5 to 75 psi (± 2 psi) (34,47 to 517,11 kPa).** Air pressure setting may be readjusted after installation. See paragraph 9-A, RESETTING.
- C. Ball check to prevent back flow.
- D. Restriction 1/16" (1,59 mm) to prevent rapid repressurization of a system.
- E. 1/4" (8 mm) tapped inlet and outlet.
- F. Available preassembled with bypass trim. Order Viking Part Number 07459 (includes Model D-2 Air Pressure Maintenance Device, Part Number 02280C). See Figure 2 on page 127 b.

**6. AVAILABILITY AND SERVICE**

Viking Model D-2 Air Pressure Maintenance Devices are available through a network of domestic and international distributors. See the Yellow Pages of the telephone directory for closest distributor (listed under "Sprinklers- Automatic-Fire") or contact Viking.

Viking technical data may be found on The Viking Corporation's Web site at <http://www.vikingcorp.com>. The Web site may include a more recent edition of this technical data page.

**7. GUARANTEES**

For details of warranty, refer to Viking's current list price schedule or contact The Viking Corporation directly.

**8. INSTALLATION**

The Viking Model D-2 Air Pressure Maintenance Device regulates and restricts air flow.

- 1. The air or nitrogen supply provided to the Viking Model D-2 Air Pressure Maintenance Device must be continuous, clean, dry, and oil free.
- 2. Install the Viking Model D-2 Air Pressure Maintenance Device in the air or nitrogen supply piping between two valves to allow isolation of the device for maintenance and adjustment.
  - a. A union should be installed between the outlet of the Air Pressure Maintenance Device and

**Product Note:** The Viking Model D-2 Air Pressure Maintenance Device, preassembled with bypass trim (Viking Part Number 07459), provides the necessary isolation valves, union, and bypass trim valve. Refer to Figure 2 on page 127 b.

the downstream isolation valve for servicing.

- 3. Bypass piping may be provided to allow initial pressurization of system piping more rapidly than the restricted air flow through the Air Pressure Maintenance Device will allow.
  - a. Bypass trim must include a valve which must be closed for the Air Pressure Maintenance Device to function. See Product Note above.
- 4. The Air Pressure Maintenance Device must be located in an area where the minimum ambient temperature is 40 °F (4 °C) or higher, and not subject to mechanical damage.
- 5. Determine the appropriate pressure to be maintained in the system. Refer to System Data and Technical Data for the system and components used.
- 6. If adjustment is necessary, refer to paragraph 9-A RESETTING.

**9. MAINTENANCE**

The Viking Model D-2 Air Pressure Maintenance Device should be checked for correct pressure regulation after installation or repair by noting the air pressure reading within the system. If adjustment is necessary, refer to paragraph 9-A RESETTING. The filter should also be inspected and replaced or cleaned as required.

**A. RESETTING**

(Refer to Figure 1 on page 127 b)  
On installation or after repair, adjustment may be necessary.

- 1. Turn air supply on and check downstream pressure for desired reading.
- 2. If adjustment of downstream pressure is necessary:
  - a. Loosen lock nut (No. 3)
  - b. Turn adjusting screw (No. 1) clockwise to increase pressure or counter clockwise to decrease pressure.
  - c. Tighten lock nut.

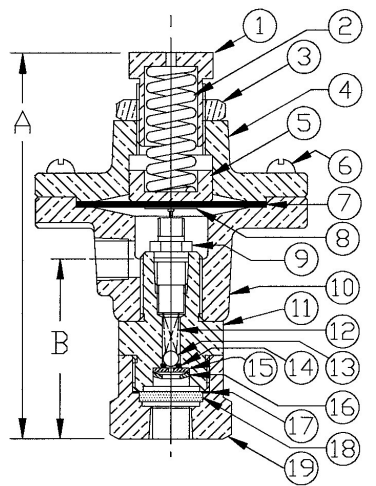
**B. DISASSEMBLY**

- 1. **WARNING:** Do not disconnect or disassemble the Air Pressure Maintenance Device without closing the inlet and outlet isolation valves (Refer to Figure 2, page 127 b).
- 2. **CAUTION:** System air pressure will be trapped between the outlet of the Air Pressure Maintenance Device



## TECHNICAL DATA

MODEL D-2  
AIR PRESSURE  
MAINTENANCE DEVICE



A = 4-13/16" (122 mm) +/- 1/4" (6,4 mm)  
depending on pressure setting

B = 2-5/32" (54,8 mm)

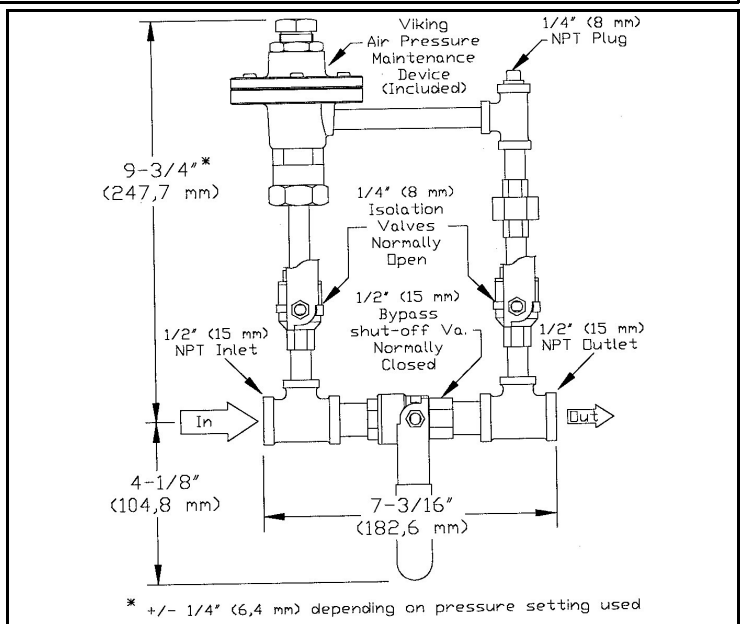
Item No.	Part No.	Description	Material Specification	No. Req'd
1	02273A	Adjustment Screw	Brass, UNS-C36000	1
2	01791A	Spring	Stainless Steel, UNS-S30200	1
3	02275A	Lock Nut	Brass, UNS-C36000	1
4	--	Cover	Brass, UNS-C84400	1
5	02276A	Spring Retainer	Brass, UNS-C36000	1
6	04505A	#10-24 x 5/8" (15,9 mm) Lg R.H.P.D.	Stainless Steel, UNS-S30200	6
7	*	Diaphragm	Neoprene, ASTM D2000	1
8	*	Diaphragm Plate	Stainless Steel, UNS-S31600	1
9	06418A	Schrader Valve Core Assembly	Brass, UNS-C26000 Brass, UNS-C36000 Stainless Steel, UNS-S30200	1
10	--	Body	Brass, UNS-C84400	1
11	*	Valve Housing	Brass, UNS-C36000	1
12	*	Spring	Stainless Steel, UNS-S30200	1
13	*	Ball	Stainless Steel, UNS-S30200	1
14	*	O-Ring	Nitrile, (Buna-N)	1
15	*	Retainer Plate	Brass, UNS-C26000	1
16	*	Retainer	Brass, UNS-C26000	1
17	*	Filter Seal	Copper, UNS-C11000	1
18	*	Filter	Sintered Bronze	1
19	02271B	Filter Cap	Brass, UNS-C36000	1

\* Indicates part is available in Sub-Assembly  
-- Indicates replacement part not available

Sub-Assemblies				
7, 8	01792A	Diaphragm Assembly		1
9, 11-16	07240	Housing Kit		1
17, 18	03007A	Filter Kit		1

**Figure 1**  
**Viking Air Pressure Maintenance Device (Viking Part Number 02280C)**

- and the downstream control valve. Relieve pressure before proceeding with disassembly.
- a. Carefully loosen the union between the outlet of the Air Pressure Maintenance Device and the downstream control valve to relieve pressure.
  3. To prevent accidental tripping of the system, manually maintain system air pressure at a constant level while the Air Maintenance Device is out of service.
  4. When placing system in operation, open the INLET globe valve first!



**Figure 2**  
**Air Maintenance Device and Preassembled Trim with Bypass**  
**(Viking Part Number 07459)**

Replaces page 127 a-b, dated September 26, 1996 (added outlet pressure range).

Form No. F\_041989

**DESCRIPTION:** AIR SUPERVISORY SWITCH (HIGH/LOW), 10 TO 175 PSI ADJUSTABLE RANGE, 2 TO 5 PSI ACTUATION DIFFERENTIAL, DUAL SINGLE POLE DOUBLE THROW SNAP ACTION SWITCH, METAL HOUSING, INDOOR/OUTDOOR RATED, UL/FM.

**MANUFACTURER & CATALOG NO.:** VIKING 09473, POTTER PS40A, RELIABLE J54A-8305.

August 18, 1999

Supervisory Devices 706 a



### 1. PRODUCT NAME

PRESSURE SUPERVISORY SWITCHES

- Single SPDT: Part Number 09472
- Dual SPDT: Part Number 09473

### 2. MANUFACTURED FOR:

THE VIKING CORPORATION  
210 N. Industrial Park Road  
Hastings, Michigan 49058 U.S.A.  
Telephone: (616) 945-9501

(877) 384-5464  
Fax: (616) 945-9599  
e-mail: techsvcs@vikingcorp.com

### 3. PRODUCT DESCRIPTION

Viking Pressure Supervisory Switches are designed to initiate an electric signal at a predetermined low pressure setting, or a predetermined high pressure setting on any system pressurized with air, nitrogen, or water. These systems include dry-pipe systems, preaction systems, pneumatic release lines, and any other system pressurized with air or nitrogen, as well as pressure tanks and waterflow control systems. The switches may also initiate signals to release control panels, annunciator panels, or any other auxiliary equipment that can be controlled by the opening or closing of an electrical switch. Two models of the Viking Pressure Supervisory Switch are available. The first is equipped with one single-pole double-throw (SPDT) snap action switch; the other with dual SPDT switches. Both models can be wired for normally open or normally closed circuits and are field adjustable. Use the single SPDT model to initiate a signal or activate auxiliary equipment at either a pre-determined low-pressure setting or pre-determined high-pressure setting. The dual SPDT model includes one SPDT switch to actuate at a pre-determined low-pressure setting, and another to actuate at a pre-determined high-pressure setting. Both models are equipped with 1/2" (15 mm) NPT pressure connections manufactured from brass to ensure mechanical strength and endurance.

### 4. TECHNICAL DATA

#### LISTINGS AND APPROVALS

UL and ULC Listed  
FM Approved

Dimensions:  
4-3/4" (120,7 mm) W x 2-1/4"  
(57,2 mm) D x 4-3/8" (111,1 mm) H  
See Figure A

Note: Units of measure in parentheses may be approximations.

Form No. F\_100995



Pressure Connection:

1/2" Brass NPT, male

Cover:

Die-cast with textured red powder-coat finish

Base:

Plated Steel

Electrical Connection:

7/8" (22 mm) diameter hole through base

Wrench Flats:

1-5/8" (41,3 mm) across flats

Factory Settings:

- Single SPDT (Part No. 09472): Switch operates at 25 PSI (172 kPa) on pressure decrease.
- Dual SPDT (Part No. 09473): One Switch operates at 25 PSI (172 kPa) on pressure decrease. One Switch operates at 50 PSI (345 kPa) on pressure increase.

Maximum Differential:

Approximately 2 PSI (14 kPa) at 20 PSI (138 kPa) and approximately 5 PSI (35 kPa) at 175 PSI (1 207 kPa).

Available Adjustment:

Switches can be adjusted to operate at any pressure between 10 and 175 PSI (68,9 kPa and 1 207 kPa).

Maximum System Pressure:

250 PSI (1 723 kPa)

Switch Contacts:

SPDT (Form C)  
15.0 Amps at 125/250VAC  
2.5 AMPS at 30 VDC

Environmental Specifications:

- Indoor or outdoor use
- NEMA 4 Rated Enclosure/IP55
- Temp.: -40 °F (-40 °C) to 140 °F (60 °C)  
(Not for use in hazardous locations.)
- NEMA 4 conduit hub required for outdoor installations.

Tamper Resistance:

Cover incorporates tamper-resistant fasteners that require a special key for removal. One key is supplied with each device.

Accessories:

- Optional cover tamper switch kit, Viking Part Number 09601
- Cover access key, Viking Part Number 09600

### 5. AVAILABILITY & SERVICE

Viking Pressure Supervisory Switches are available through a network of domestic and international distributors. See the Yellow Pages of the telephone directory under "Sprinklers-Automatic-Fire" or contact The Viking Corporation.

Viking Technical data may be found on The Viking Corporation's Web site at: <http://www.vikingcorp.com>  
The Web site may include a more recent edition of this Technical Data page.

### 6. GUARANTEES

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

### 7. INSTALLATION

**WARNING:** The Pressure Supervisory Switches described on this data page are general service switches, not designed for use in explosive atmospheres. Refer to the technical data page for the Explosion-Proof/Watertight Pressure Supervisory Switches intended for use in those environments. Viking Supervisory Pressure Switches equipped with one SPDT switch can be used to initiate a signal at either a pre-determined low-pressure setting or a pre-determined high-pressure setting. The model equipped with dual SPDT switches can be used to monitor both low and high pressure limits (see Figure C).

1. Refer to current Viking System Data, schematic drawings, and Technical Data for the system used to determine the appropriate location for installing the Viking Pressure Supervisory Switch.
2. When installing the Pressure Supervisory Switch, apply Teflon® tape sealant to the male threads only. Install the Pressure Supervisory Switch in a 1/2" (15 mm) pipe fitting. Use a wrench applied to the wrench flats to tighten the unit. Do not over-tighten.

Replaces pages 706 a-c, dated February 5, 1998  
(Added ULC Listing).



## TECHNICAL DATA

## PRESSURE SUPERVISORY SWITCHES

- a. Mount the Pressure Supervisory Switch in the upright position (threaded connection down).
3. To raise or lower the actuation setting of the switch, see MAINTENANCE paragraph B.
4. To wire the unit proceed as follows:
  - a. De-energize electrical circuits involved.
  - b. Use the special wrench supplied with the switch to loosen and remove the tamper-resistant screws. Remove cover. Use care not to lose the rubber O-ring screw retainers.
  - c. Connect conduit to the conduit opening provided. See Technical Data for size of opening.
  - d. Connect electrical circuitry for the signaling device and any auxiliary equipment being controlled by the switch. Refer to Figures B, C, and D.

Note: Wire all devices to national and local codes and requirements of the Authority Having Jurisdiction.

5. Verify pressure settings of the switch. To test for proper settings without energizing the circuit, connect an ohm meter to the circuit used. Alternately raise and lower system pressure to verify proper operation of the switch. Note: For adjustment procedure see MAINTENANCE, paragraph B.
6. Replace cover and tamper-resistant screws.
7. Energize the circuits.
8. Test for proper operation of the device. See MAINTENANCE.

### 8. MAINTENANCE

Operate and test the Supervisory Switch after installation, prior to start-up, and periodically as required by the standards and/or the Authority Having Jurisdiction.

Quarterly testing of Pressure Supervisory Switches is recommended. NOTICE: The owner is responsible for maintaining the fire-protection system and devices in proper operating condition. For minimum maintenance and inspection requirements, refer to the appropriate National Fire Protection Association pamphlet that describes care and maintenance of sprinkler systems.

#### A. PERIODIC TEST AND MAINTENANCE:

**CAUTION:** If auxiliary equipment is controlled by operation of the switch, take the steps necessary to prevent unwanted operation or shutdown of those devices when testing.

**WARNING:** Any system maintenance which involves placing a control valve or detection system out of service may eliminate the fire-protection capabilities of that system. Prior to proceeding, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected areas.

1. Close the main water-supply control valve, placing the system out of service.
2. Test operation of a high-pressure switch by increasing the pressure above the set point of the switch. The signaling device should activate.
3. Test operation of a low-pressure switch by reducing the pressure below the set point of the switch. The signaling device should activate.

**CAUTION:** When reducing pressure in pneumatic release lines, be careful not to operate the release and activate the system. Refer to the appropriate technical data for the system being tested.

4. When testing is complete, return the system to normal operating pressure. Signaling devices should stop.
5. If adjustment is necessary, see instructions below.

If test is satisfactory, reset all necessary equipment, and place the system in service.

#### B. SUPERVISORY SWITCH ADJUSTMENT

Consult the appropriate technical data for recommended pressure for the system used. Viking Supervisory Switches are factory set. If adjustment is necessary, proceed according to the instructions given below.

1. Loosen the tamper-resistant lock screw, with the wrench supplied, and remove the switch cover. Use care not to lose the rubber O-ring screw retainers.
2. To adjust the set point, turn the adjustment knob(s) clockwise to raise the actuation setting, or counterclockwise to lower the actuation setting. See Figure A.
3. Verify pressure settings of the switch. To test for proper settings without energizing the circuit, connect an ohm meter to the circuit used. Alternately raise and lower system pressure to verify proper operation of the switch. If further adjustment is necessary, repeat steps 2 and 3.
4. Replace cover and tighten the tamper-resistant screws.
5. Energize the circuits.
6. Test for proper operation of the device.
7. Reset all necessary equipment and place the system in service. Refer to the appropriate technical data for the system used.

### Engineer/Architect Specifications

Pressure Supervisory Switches shall be Viking labeled Pressure Supervisory Switches as manufactured for The Viking Corporation and shall be installed on the sprinkler systems as shown on current Viking System Data and Technical Data for the system used.

Switches shall be provided with a brass 1/2" NPT male pressure connection.

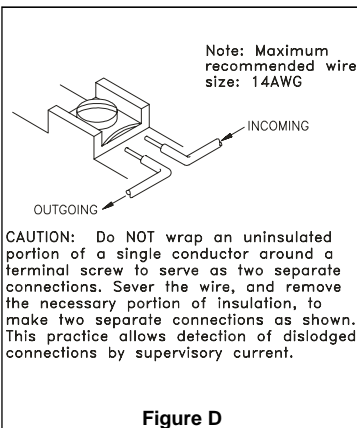
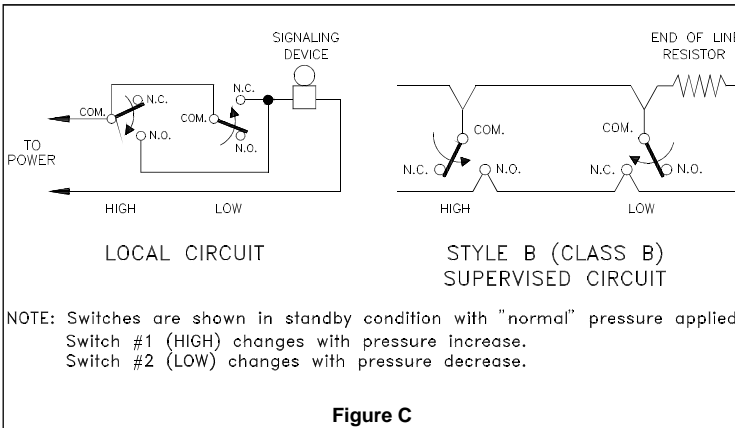
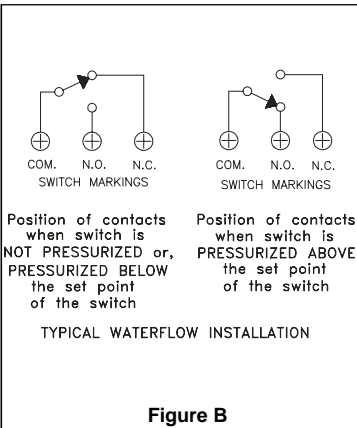
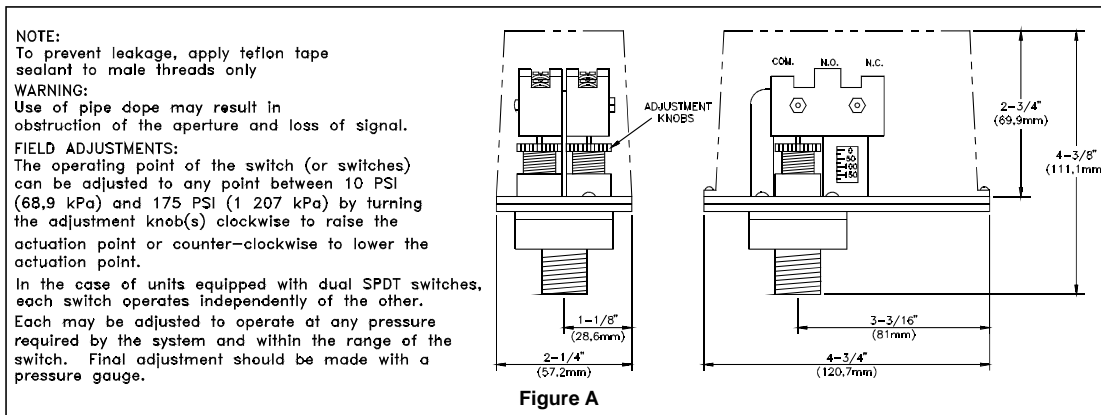
The switch unit shall contain SPDT (Form C) switch(es). Switches shall operate at pressure settings referenced in Viking System Data and Technical Data for the system used. Switch contacts shall be rated at 15.0 Amps at 125/250VAC and 2.5 Amps at 30VDC. The units shall have a maximum pressure rating of 250 PSI and shall be adjustable from 10 to 175 PSI.

The switch housing shall be metallic, NEMA 4 rated, and oil resistant. The cover shall incorporate tamper-resistant screws.



## TECHNICAL DATA

## PRESSURE SUPERVISORY SWITCHES





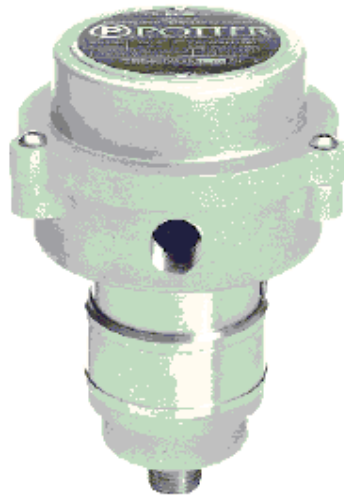
**DESCRIPTION:** AIR SUPERVISORY SWITCH (HIGH/LOW), 10 TO 130 PSI ADJUSTABLE RANGE, 1 TO 5 PSI ACTUATION DIFFERENTIAL, [NORMALLY OPEN] [NORMALLY CLOSED], SINGLE POLE DOUBLE THROW SNAP ACTION SWITCH, EXPLOSION PROOF/WATER TIGHT, TAMPER RESISTANT, METAL HOUSING, UL/FM.

**MANUFACTURER & CATALOG NO.:** POTTER PS40-EX, RELIABLE J120X5835.

Note to Specifier: Switch shall be wired normally closed if used as low pressure switch or wired normally open if used as high pressure switch.



**MODEL PS40-EX**  
EXPLOSION PROOF HIGH/LOW  
PRESSURE SWITCH



PS40-EX Stock No. 1350402

UL and CSFM Listed, FM Approved and NYMEA Accepted

Dimensions: 6" Dia. x 7" H

Enclosure: Cast Aluminum

Pressure Connection: 1/2" NPT Male Brass Fitting

Factory Adjustment:

One switch operates on decrease at 30 PSI and one switch operates on increase at 50 PSI.

Pressure Range: 10 - 175 PSI

Maximum Differential: Approx. 2 lbs. at 20 PSI  
5 lbs. at 175 PSI

Maximum System Pressure: 250 PSI

Switch Contacts: Two sets of SPDT (Form C)  
15.0 Amps at 125/250 VAC  
2.5 Amps at 30 VDC

Environmental Specifications:

For use in hazardous locations classified as:

Class I: Groups B, C, D, Div. 1

Class II: Groups E, F, G, Div. 1

Class III: Div. 1

NEMA 4 and 9 Rated Enclosure

Temperature range: -40°F to 140°F (-40°C to 60°C)

Service Use:

Automatic Sprinkler

NFPA-13

National Fire Alarm Code

NFPA-72

The Potter PS40-EX is a pressure actuated switch designed primarily to detect a 10 PSI increase and/or decrease from normal system pressure in automatic fire sprinkler systems located in hazardous locations classified as shown above.

Typical applications are air pressure supervision in dry pipe systems and pressure supervision of pressure tanks, air supply or water supply.

**INSTALLATION AND TEST PROCEDURE**

Mounting: Device should be mounted in upright position (threaded connection down).

Requires NEMA Type 4 conduit hub for outdoor installation.

tions.

Dry System: Connect PS40-EX in air supply line on the system side of any shutoff or check valve.

Provision for testing the unit can be accomplished with the installation of a Potter Bleeder Valve (Model BVL) in the line to the PS40-EX.

Testing: The operation of the pressure supervisory switch should be tested upon completion of installation and periodically thereafter in accordance with the applicable NFPA codes and standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).

**CAUTION:** Testing the PS40-EX may activate other system connected devices.

Potter Electric Signal Company 2081 Craig Road, St. Louis, MO, 63146-4161 Phone: 800-325-3936/Canada 905-882-1833 www.pottersignal.com

PRINTED IN USA

MKT. #8880011 - REV M  
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PAGE 1 OF 3

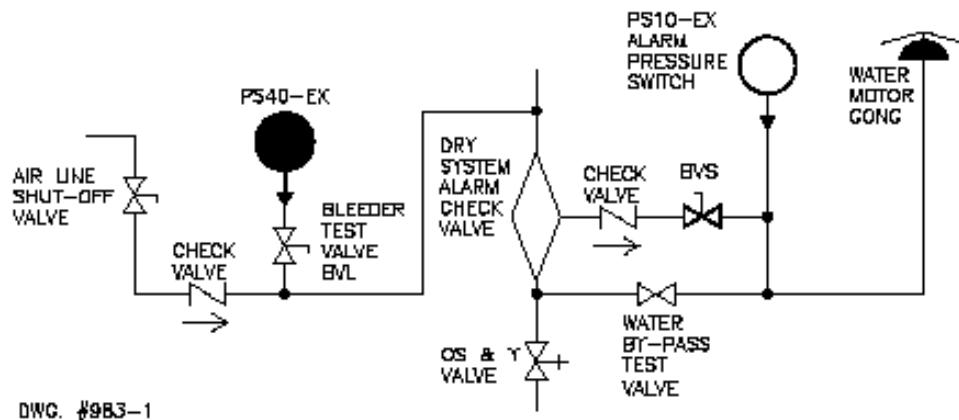


**MODEL PS40-EX**  
EXPLOSION PROOF HIGH/LOW  
PRESSURE SWITCH

Ordering Information

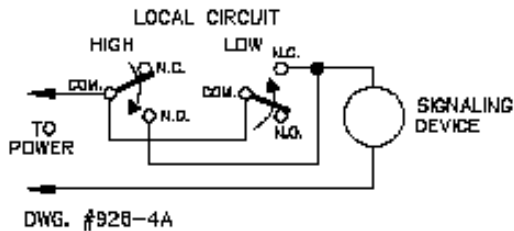
Model	Description	Stock No.
PS40-EX	Pressure switch with two sets SPDT contacts	1350402
BVL	Bleeder Valve	1000018
	Hex Key	5250073

TYPICAL SPRINKLER APPLICATION - DRY SYSTEM

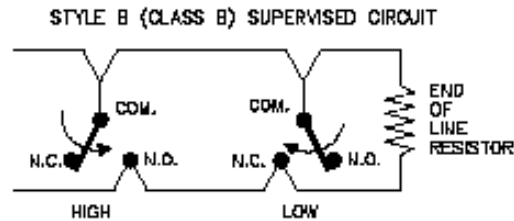


DWG. #983-1

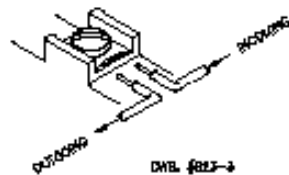
TYPICAL ELECTRICAL CONNECTIONS



DWG. #928-4A



SWITCH TERMINAL CONNECTIONS  
CLAMPING PLATE TERMINAL



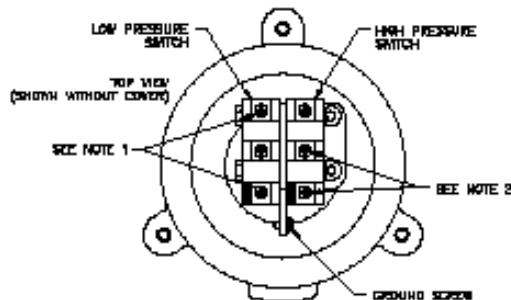
DWG. #823-3

CAUTION:

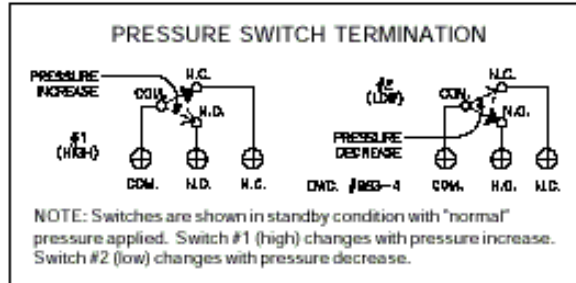
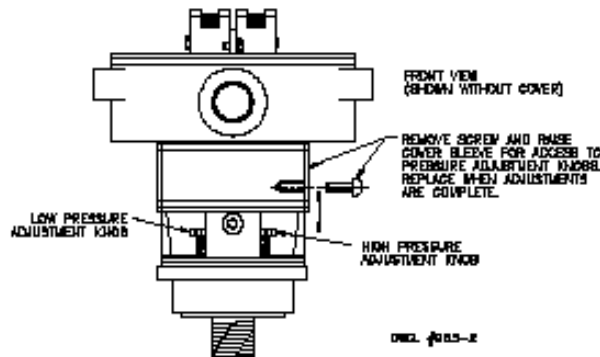
An uninsulated section of a single conductor should not be looped around the terminal and serve as two separate connections. The wire must be severed, thereby providing supervision of the connection in the event that the wire becomes dislodged from under the terminal.



# MODEL PS40-EX EXPLOSION PROOF HIGH/LOW PRESSURE SWITCH



**NOTES:**  
1. THESE CONTACTS CLOSE ON A PRESSURE DECREASE.  
2. THESE CONTACTS CLOSE ON A PRESSURE INCREASE.



**NOTE:** Switches are shown in standby condition with "normal" pressure applied. Switch #1 (high) changes with pressure increase. Switch #2 (low) changes with pressure decrease.

### FIELD ADJUSTMENTS

The operating point of the switches on the PS40-EX can be adjusted to any point between 10 and 175 PSI by turning the adjustment knob(s) clockwise to raise the actuation point, and counter-clockwise to lower the actuation point. The two switches operate completely independently of one another, and each switch may be adjusted to actuate at any point the system requires. Final adjustment should be made with a pressure gauge.

**NOTE:** To prevent leakage, apply teflon tape sealant to male threads only.

**WARNING:** Use of pipe joint cement may result in obstruction of aperture and loss of signal.

**CAUTION:** When this device is to be installed in an area that is classified as "HAZARDOUS", the person responsible for safety in the area should be contacted to determine if the tools and operations required for the installation of the device and associated components are permitted in the area. To reduce the risk of ignition of hazardous atmospheres, disconnect supply circuits before opening cover. Keep cover tight while circuits are live. Cover screws must be torqued to 45-50 in. lbs.

### ENGINEER/ARCHITECT SPECIFICATIONS

Air pressure supervisory switch shall be a Model PS40-EX as manufactured by Potter Electric Signal Co. of St. Louis, Mo. and shall be installed on the sprinkler systems as shown on the drawings and/or as specified herein.

Switches shall be provided with a 1/2" NPT male pressure connection to be connected into the air supply line on the system side of any shut-off valve. A Model BVL bleeder valve as supplied by Potter Electric Signal Co. of St. Louis, Mo. or equivalent shall be connected between the air line to provide a means of testing the operation of the supervisory switch.

The switch unit shall contain SPDT (Form C) switches. One switch shall operate at a pressure decrease of 10 PSI from normal. The second switch shall operate at a pressure increase of 10 PSI from normal. Switch contacts shall be rated at 15.0 Amps at 125/250 VAC and 2.5 Amps at 30 VDC. The units shall have a maximum pressure rating of 250 PSI and shall be adjusted from 10 to 175 PSI.

The switch housing shall be weatherproof and oil resistant with a NEMA 4 rating. The cover shall incorporate tamper resistant screws.

The unit shall be listed by Underwriters Laboratories, Inc. and CSFM and approved by Factory Mutual. It shall be rated for use in hazardous locations classified as Class I, Groups B, C, D, Div. 1; Class II, Groups E, F, G, Div. 1; Class III, Div. 1.

AV-1

**DESCRIPTION:** ANGLE VALVE, 1/2" TO 2", 175 PSI, BRONZE BODY, INTEGRAL SEAT, SOFT DISC, HANDWHEEL, THREADED. UL.

**MANUFACTURER & CATALOG NO.:** UNITED 126S UL, NIBCO KT-67-UL / T-301-W, KENNEDY 98 SD, FPPI.

Notes to Specifier:

1. UL listed for trim and drain use.
2. When used as a riser or main drain, this valve will act as a test valve. It will be full open until flow stabilizes and pressures can be determined. Route to outside the building - NOT to a floor drain.
3. Do not locate valve in an area subject to freezing.



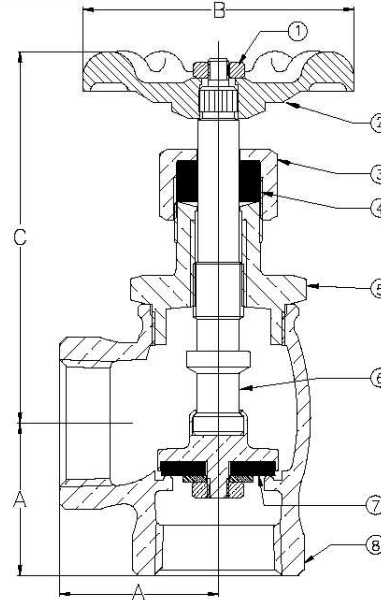
**UNITED BRASS WORKS, INC.**

714 S. Main St., Randleman, NC 27317  
 Tel: 800-334-3035 Fax: 800-498-4696 www.ubw.com



**Model 126SUL Angle Valve  
 Soft Disc**

**UL** US UL Listed for Fire Sprinkler Service at 250 WOG  
**200 WOG @ 180 ° Max**  
**100% Pressure Tested**  
**Threaded Ends**  
**Rising Stem • Integral Seat**



**MATERIAL LIST**

NO.	DESCRIPTION	MATERIAL
1	Hex Nut	Steel
2	Hand Wheel	Aluminum
3	Packing Nut	Brass
4	Packing	Graphite Non-Asbestos
5	Bonnet (1/2" - 1") Bonnet (1 1/4" - 2")	Brass Bronze
6	Stem & Seat Assembly	Brass
7	Disc	Buna N
8	Body	Bronze

Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
A	1.03	1.22	1.47	1.75	2.00	2.34
B	2.03	2.38	2.75	3.00	3.72	3.72
C (closed)	3.13	3.25	4.38	4.50	5.25	5.63
Ship Wt. (lbs.)	0.69	0.94	1.76	2.50	3.26	5.32
Qty. Unit Pack	12	6	6	4	2	2
Qty. Per Case	72	60	36	24	12	12

**DESCRIPTION:** AUTOMATIC DRIP VALVE, 175 PSI WP, BRASS BAR, BERYLLIUM COPPER SPRING AND RETAINING RING, CLOSING PRESSURE 7 PSI WITH INCREASING PRESSURE, OPENING PRESSURE 5 PSI WITH DECREASING PRESSURE, 1/2" NPT INLET AND 1/4" NPT DRAIN OUTLET.

**MANUFACTURER & CATALOG NO.:** VIKING B-1, TYCO AD-1, RELIABLE C.

February 16, 2000

829a

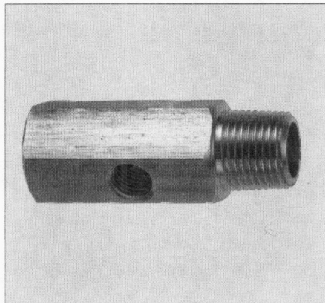
	<b>TECHNICAL DATA</b>	<b>AUTOMATIC BALL DRIP VALVE MODEL B-1</b>
---	-----------------------	--

**1. PRODUCT NAME**

Automatic Ball Drip Valve, 1/2" Model B-1  
Manufactured since 1978  
Part Number 04292B

**2. MANUFACTURER**

The Viking Corporation  
210 N Industrial Park Road  
Hastings MI 49058 U.S.A.  
Telephone: (616) 945-9501  
(877) 384-5464  
Fax: (616) 945-9599  
Email: techsvcs@vikingcorp.com



**3. PRODUCT DESCRIPTION**

The Automatic Ball Drip Valve is designed to drain water automatically which may leak past a normally closed check valve or gate valve. It closes, however, against an increase in flow pressure and will open automatically at a predetermined decrease in pressure. Automatic ball drip valves are used, for example, on the inlet side of fire department check valve or pumper connections to prevent water from collecting and freezing.

**4. TECHNICAL DATA**

Designed to Underwriter's Laboratory and Factory Mutual requirements.

Form F\_062289

Working water pressure 175 PSI (1 207 kPa)

**Materials:**

Bar: Brass UNS-C36000  
Spring: Stainless Steel UNS-S30200

Retaining Ring: Stainless Steel UNS-S15700

Closing pressure: 13.5 PSI (93 kPa) with increasing pressure

Opening pressure: 12.5 PSI (86 kPa) with decreasing pressure

**5. AVAILABILITY AND SERVICE**

The Automatic Ball Drip Valve is available through a network of domestic and international distributors. See the Yellow Pages of the telephone directory for your closest distributor (listed under "Sprinklers-Automatic-Fire), or write The Viking Corporation, Hastings, Michigan U.S.A. 49058. Attention: Sales Department.

Viking Technical Data may be found on The Viking Corporation's Web site at <http://www.vikingcorp.com>. The Web site may include a more recent edition of this Technical Data page.

**6. GUARANTEES**

For details of warranty, refer to Viking's current price schedule or contact Viking directly.

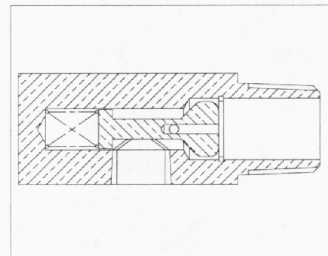
**7. MAINTENANCE**

The Automatic Ball Drip Valve should be inspected annually.

**8. INSTALLATION**

Install the automatic ball drip in a horizontal position. If desirable, pipe discharge to an open drain. 1/4" NPT is provided in the drain outlet.

**NOTE:** This valve is not designed to shut completely and will continue to drip when pressurized.



Replaces page 829-830 dated February 19, 1990. Updated text, photos and drawings.



## TECHNICAL DATA

## AUTOMATIC DRIP CHECK

### 1. PRODUCT NAME

Automatic Drip Check, 3/4"

Model D-1

(Deluge & Flow Control Valves)  
Part Number 10730

Model D-2

(Dry Valve Replacement with  
Model B-1 Accelerator)  
Part Number 10731

Model D-3

(Dry Valve)  
Part Number 10732

Model D-4

(Deluge, Electroless Nickel  
Plated)

Part Number 10733

Manufactured since 1980

### 2. MANUFACTURER

The Viking Corporation  
210 N Industrial Park Road  
Hastings MI 49058 U.S.A.

Telephone: (616) 945-9501  
(877) 384-5464

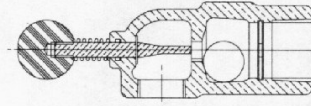
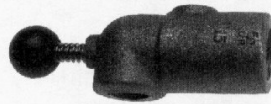
Fax: (616) 945-9599  
Email: techsvcs@vikingcorp.com

### 3. PRODUCT DESCRIPTION

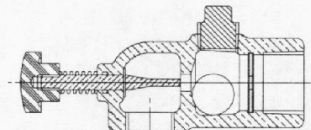
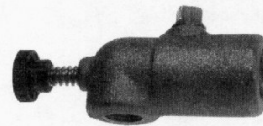
The Automatic Drip Checks are designed to drain water automatically, which may leak past a normally closed dry valve or deluge valve. They close, however, against an increase in flow pressure and will open automatically at a predetermined decrease in pressure. The devices are used with dry and deluge valves to drain any water that may seep by the valve clapper.

Model D-1 Drip Check is used with a valve that does not have an automatic alarm line drain. It has a notched seat so that a slight amount of water will discharge through the Drip Check when the valve trips. When the control valve is closed, the alarm line will automatically drain through the Drip Check. This unit is normally used with the Viking Deluge Valves.

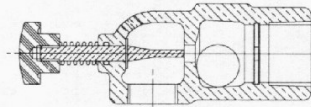
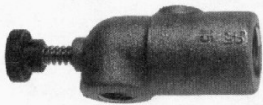
Model D-2 Drip Check is normally used with Viking Model C dry valves with iron trim. The Drip Check has a 3/8" pipe plug installed for use with the Model B-1 Accelerator. When the valve trips, no water will discharge through the Drip Check. When the control valve is closed and the



Model D-1 & Model D-4



Model D-2



Model D-3

system is drained, the Drip Check will open and drain off any excess water in the valve.

Model D-3 Drip Check is used with a Model D or E dry valve that has an automatic drain for the alarm line. When the valve trips, no water will discharge through the Drip Check. When the control valve is closed and the system is drained, the Drip Check will open and drain off any excess water in the valve.

### 4. TECHNICAL DATA

Designed to Underwriter's Laboratory and Factory Mutual requirements.

Working water pressure 175 PSI  
(1 207 kPa)

#### Materials:

Body: Brass casting UNS-C84400

Ball: Stainless Steel

Spring: Phosphor Bronze

Retaining Ring: Stainless Steel

Model D-4: Electroless Nickel  
Plated

### 5. AVAILABILITY AND SERVICE

The Automatic Ball Drip Valve is available through a network of domestic

and international distributors. See the Yellow Pages of the telephone directory for your closest distributor (listed under "Sprinklers-Automatic-Fire"), or write The Viking Corporation, Hastings, Michigan U.S.A. 49058. Attention: Sales Department.

Viking Technical Data may be found on The Viking Corporation's Web site at <http://www.vikingcorp.com>. The Web site may include a more recent edition of this Technical Data page.

### 6. GUARANTEES

For details of warranty, refer to Viking's current price schedule or contact Viking directly.

### 7. MAINTENANCE

During each inspection of valve, push plunger to make sure no water is trapped.

### 8. INSTALLATION

- Install in outlet provided in valve trim.
- Unit should be level.

**DESCRIPTION:** REDUCED PRESSURE BACKFLOW PREVENTER, SPRING LOADED CHECKS WITH A DIFFERENTIAL PRESSURE RELIEF VALVE BETWEEN THE CHECK VALVES, OS&Y RISING STEM GATE VALVES ON BOTH SIDES OF CHECK VALVES, AND AIR GAP DRAIN. FDA APPROVED EPOXY COATED CAST IRON CONSTRUCTION, WITH BRONZE, PLASTIC OR STAINLESS STEEL INTERNAL PARTS AND STAINLESS STEEL SPRINGS. UNITS SHALL INCLUDE FOUR TEST COCKS WITH SHUT-OFF VALVES AND SHALL BE BACKFLOW TESTED AT THE FACTORY. RATED FOR 175 PSI AT 33 DEGREES F. TO 140 DEGREES F. MAXIMUM PRESSURE DROP 15 PSI AT 10 FPS REGARDLESS OF SIZE. FLOW PRESSURE DROP CURVES SHALL BE SUBMITTED. ALL PARTS TO BE SERVICEABLE WITHOUT REMOVING UNIT FROM LINE. APPROVED BY: USC FCCC & HR, AWWA C511-92, ASSE 1013, IAPMO AND SBCCI LISTED, UL/FM. UNIT SHALL BE SAME SIZE AS PIPE IF NO SIZE IS SHOWN ON THE DRAWING.

**MANUFACTURER & CATALOG NO.:** WATTS SERIES 009 & 909, CONBRACO SERIES 40-200, FEBCO 825YD, WILKINS 975XL & 375.

Notes to Specifier:

1. Available in 2 1/2" size and above. Smaller sizes are not UL listed and FM approved.
2. Some models are approved for vertical applications. Check with local code official.

ES-909L

**For Health Hazard Applications**

## Series 909 Reduced Pressure Zone Backflow Preventer

Sizes: 2 1/2", 3", 4", 6", 8", 10"  
(65, 80, 100, 150, 200, 250mm)

The Watts 909 Series Reduced Pressure Zone Backflow Preventers are designed to provide cross-connection control protection of the potable water supply in accordance with national plumbing codes. This series can be utilized in a variety of installations, including high hazard cross-connections in plumbing systems or for containment at the service line entrance. With its exclusive patented relief valve design incorporating the "air-in/water-out" principle, it provides substantially improved relief valve discharge performance during the emergency conditions of combined back siphonage and back pressure with both checks fouled.

**FEATURES**

- Replaceable bronze seats
- Stainless steel internal parts
- No special tools required for servicing
- Captured spring check assemblies
- Fused epoxy coated & lined checks
- Industrial strength sensing hose
- Field reversible relief valve

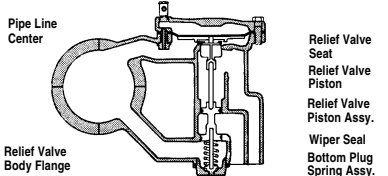
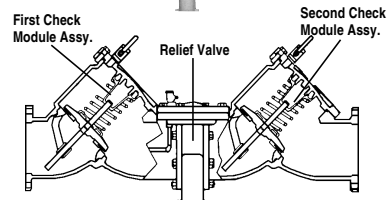
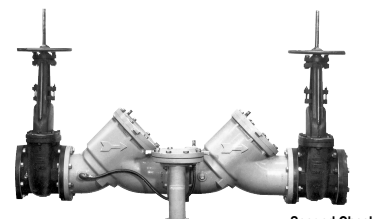
**AVAILABLE MODELS**

- Suffix:
- BB - with bronze body (2 1/2", 3")(64, 76mm)
  - LF - without shutoffs
  - NRS - with non-rising stem resilient wedge gate valves
  - OS&Y - with UL/FM resilient seated outside stem and yoke gate valves
  - QT - with quarter-turn, full port, resilient seated ball valve shutoffs
  - QT-FDA - with FDA approved epoxy coated ball valve shutoffs
  - S - with non-epoxy strainer
  - S-FDA - with FDA approved epoxy coated strainer

**Note:** The installation of a drain line is recommended. When installing a drain line, an air gap is necessary.

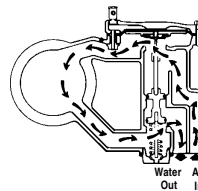
**SPECIFICATIONS**

**For Reduced Pressure Zone Backflow Preventers**  
A reduced pressure zone backflow preventer shall be installed at each cross-connection to prevent backsiphonage and backpressure backflow of hazardous materials into the potable water supply. The assembly shall consist of a pressure differential relief valve located in a zone between two positive seating check valves and captured springs. Backsiphonage protection shall include provision to admit air directly into the reduced pressure zone via a separate channel from the water discharge channel. The assembly shall include two tightly closing shutoff valves before and after the valve and test cocks. The assembly shall meet the requirements of ASSE Std. 1013; AWWA Std. C511-92; CSA B64.5; and UL Classified File No. EX3185. Listed by IAPMO (UPC). Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California. The valve shall be a Watts Regulator Company Series 909.



**How it Operates**

The unique relief valve construction incorporates two channels: one for air, one for water. When the relief valve opens, as in the accompanying air-in/water-out diagram, the right-hand channel admits air to the top of the reduced pressure zone, relieving the zone vacuum. The channel on the left then drains the zone to atmosphere. Thus, should both check valves foul, and simultaneous negative supply and positive back pressure develop, the relief valve uses the air-in/water-out principle to stop potential backflow.



Patent #4,241,752

**Now Available,  
WattsBox Insulated Enclosures.**  
For more information, send for ES-WB or ES-WB-T.



— Since 1874 —  
Watts Industries, Inc.  
Water Products Division • Safety & Control Valves  
USA: 815 Chestnut Street, North Andover, MA 01845-6098  
Canada: 5435 North Service Road, Burlington, Ontario L7L 5H7

## MATERIALS

No. 909 sizes: 2½" - 10" (65-250mm) have FDA approved epoxy coated cast iron check valve bodies with bronze seats, and 4" - 10" (100-250mm) FDA approved epoxy coated cast iron relief valve with stainless steel trim.

No. 909NRS-BB and 909OS&Y-BB have bronze body construction with stainless steel trim. Sizes 2½" - 3" (60-80mm). All sizes furnished with bronze body ball valve test cocks.

## PRESSURE-TEMPERATURE

Suitable for supply pressure up to 175 psi (12 bars) and water temperatures to 110°F (43°C) continuous and 140°F (60°C) intermittent.

## STANDARDS

ASSE No. 1013, AWWA C511-92, CSA B64.5  
 UL Classified File No. EX3185  
 IAPMO PS 31, SBCCI (Standard Plumbing Code)  
 USC manual for Cross-Connection Control, 8th Edition

## APPROVALS

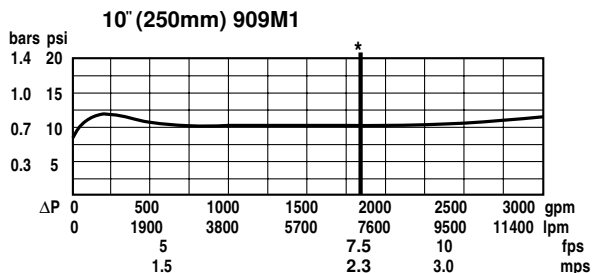
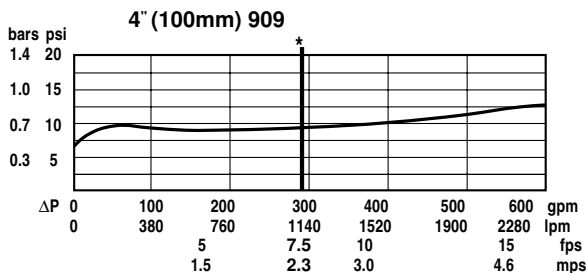
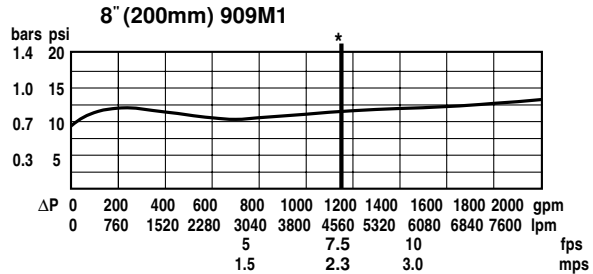
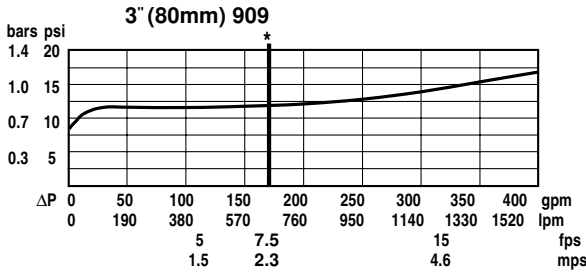
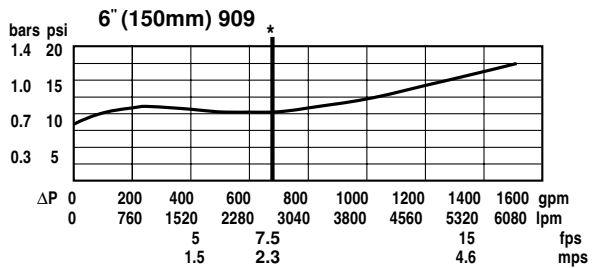
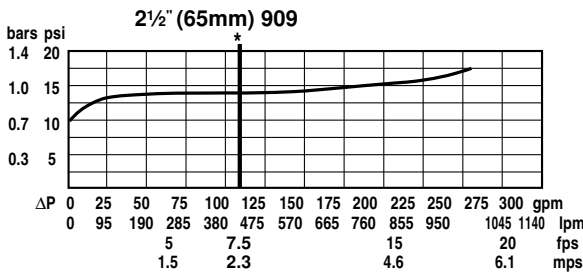
ASSE, AWWA, CSA, IAPMO  
 UL Classified (Sizes 2½" - 10")(65-250mm)  
 Approved by the Foundation for Cross-connection Control and Hydraulic Research at the University of Southern California.  
**IMPORTANT: INQUIRE WITH GOVERNING AUTHORITIES FOR LOCAL INSTALLATION REQUIREMENTS.**



With OS&Y gate valves

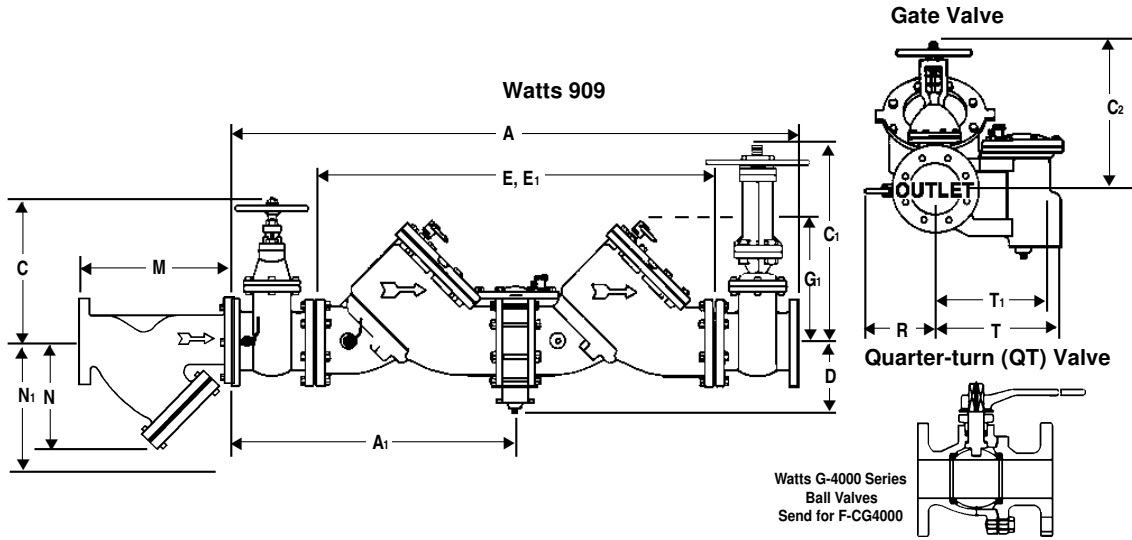
## CAPACITY

\*Typical maximum system flow rate (7.5 feet/sec.)





# DIMENSIONS-WEIGHT



Size (DN)		Dimensions								Service Clearance for Gate OS&Y Open				Service Clearance for Gate NRS				Service Clearance For Check			
in.	mm	A		A <sub>1</sub>		NRS		OS&Y*		C <sub>1</sub>		C <sub>2</sub>		D		E, E <sub>1</sub>		G <sub>1</sub>		M	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
2½	65	41¼	1048	20 5/8	524	11 3/8	289	15 7/8	403	16 3/8	416	14	356	5 ¼	133	26 1/8	663	11	279	10.0	254
3	80	42¼	1073	21 ¼	540	12 ¾	324	18 ½	470	18 7/8	479	14	356	5 ¼	133	26 1/8	663	11	279	10 1/8	257
4	100	55 1/8	1400	27 5/8	702	15 3/8	603	23 ¾	603	22 ¾	578	17	432	6	152	37	940	14	356	12 1/8	308
6	150	65 1/2	1664	32 ¾	832	19 ¾	825	32 1/2	825	30 1/8	765	21	533	6	152	44 1/2	1130	16	406	18 1/2	470
8	200	78 ¾	2000	39 3/8	1000	24 1/2	622	39 1/4	997	37 ¾	959	26	660	9 ¾	248	55 1/4	1403	21	533	21 5/8	549
10	250	93 5/8	2378	46 7/8	1190	29 1/4	743	48	1220	45 ¾	1162	32	813	9 ¾	248	67 3/8	1711	21	533	26	660

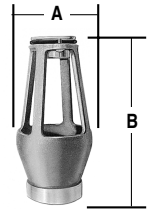
Size		Dimensions												Weight						Strainer Weight			
in.	mm	N <sub>1</sub> †		N		QT		R		R*		T		T <sub>1</sub>		NRS		OS&Y		QT		lbs.	kgs.
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.	lbs.	kgs.	lbs.	kgs.
2½	64	10	254	6 1/2	165	7	178	4	102	16	406	9 1/16	230	7 5/8	194	195	88.4	198	89.8	182	82.6	28	12.7
3	76	10	254	7	178	7	178	5	127	16	406	9 1/16	230	7 5/8	194	225	102	230	104	190	86	34	15.4
4	102	12	305	8 1/4	210	10	254	6	152	19 3/4	502	14 3/8	365	12 1/2	318	455	206	470	213	352	160	60	27
6	152	20	508	13 1/2	343	15	381	11	279	26	660	14 3/8	365	12 1/2	318	718	326	798	362	762	346	133	60
8	203	22 3/4	578	15 1/2	394	19	483	11 1/4	286	11 1/4	286	19 1/4	489	17 3/8	441	1350	612	1456	660	2286	1037	247	112
10	254	28	711	18 1/2	470	22	559	12 1/2	318	12 1/2	318	21	533	19 1/8	486	2160	980	2230	1011	3716	1685	370	168

\*UL, FM approved backflow preventers must include UL/FM approved OS&Y gate valves. † - Dimension required for screen removal  
 ‡ - Quarter-turn (QT) Valve dimensions

## Air Gap Dimensions

When installing a drain line on No. 909 backflow preventers that are installed horizontally, use 909 AG series Air Gaps.

Iron Body No.	Drain Outlet For No. 909, 990 & 009 Sizes	Size		Dimensions				Weight	
		in.	mm	A	B	in.	mm	lbs.	kg.
909-AG-F	2 1/2" & 3" 909	2	51	4 3/8	111	6 3/4	171	3 1/4	1.5
*909AG-K	4" & 6" 909, 8" & 10" 909M1	3	76	6 15/16	160	9 9/16	249	6 1/4	2.8
*909-AG-M	8" & 10" 909	4	102	7 5/16	186	11 1/4	286	15 1/2	7.0



NOTES: Relief valve section is reversible, therefore, dimension "F" can be on either side and is furnished standardly as shown.  
 For flange size backflow preventers installed vertically, a fabricated air gap is recommended.

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

**DESCRIPTION:** DOUBLE CHECK BACKFLOW PREVENTER WITH SPRING LOADED CHECK VALVES. CAST IRON CONSTRUCTION, WITH BRONZE, PLASTIC OR STAINLESS STEEL INTERNAL PARTS AND STAINLESS STEEL SPRINGS. OS&Y RISING STEM SHUTOFF GATE VALVES ON BOTH SIDES OF CHECK VALVES. UNITS SHALL INCLUDE FOUR TEST COCKS WITH SHUT-OFF VALVES AND SHALL BE BACKFLOW TESTED AT THE FACTORY. RATED FOR 175 PSI AT 33 DEGREES F. TO 140 DEGREES F. MAXIMUM PRESSURE DROP 8 PSI AT 10 FPS REGARDLESS OF SIZE. FLOW PRESSURE DROP CURVES SHALL BE SUBMITTED. ALL PARTS TO BE SERVICEABLE WITHOUT REMOVING UNIT FROM LINE. APPROVED BY: USC FCCC & HR, AWWA C510-92, ASSE 1015, IAPMO AND SBCCI LISTED, UL/FM.

**MANUFACTURER & CATALOG NO.:** WATTS SERIES 007 & 709, CONBRACO SERIES 40-100, FEBCO 850, WILKINS 950XL & 350.

Notes to Specifier:

1. Use only if accepted by authorities having jurisdiction and in only non-toxic applications.
2. Available in 2 1/2" size and above. Smaller sizes are not UL listed and FM approved.
3. Some models are approved for vertical applications. Check with local code official.

ES-709L

**For Non Health Hazard Applications**

Job Name _____	Contractor _____
Job Location _____	Approval _____
Engineer _____	Contractor's P.O. No. _____
Approval _____	Representative _____

## Series 709 Double Check Valve Backflow Preventer

**Sizes: 2 1/2", 3", 4", 6", 8", 10"**  
(65, 80, 100, 150, 200, 250mm)

Series 709 Double Check Valve Backflow Preventer is designed to prevent the reverse flow of polluted water from entering into the potable water system. This series can be applied, where approved by the local authority having jurisdiction, on non health hazard installations. Series 709 features a modular check design concept to facilitate easy maintenance. Check with local jurisdictional authority as to installation requirements.

**FEATURES**

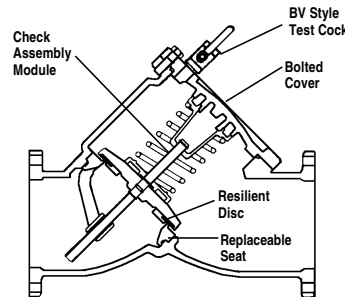
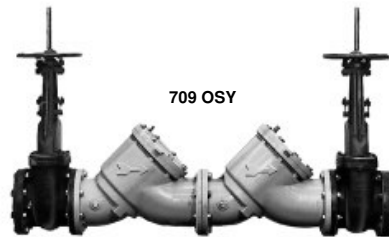
- Replaceable bronze seats
- Maximum flow at low pressure drop
- Design simplicity for easy maintenance
- No Special Tools Required for Servicing
- Captured spring assemblies for safety
- Approved for vertical flow up installation

**AVAILABLE MODELS**

- Suffix:**
- NRS** - with non-rising stem resilient seated gate valves
  - OS&Y** - with UL/FM resilient seated outside stem and yoke gate valves
  - S-FDA** - with FDA approved epoxy coated strainer
  - BB** - with bronze body - 2 1/2", 3" (64-76mm)
  - QT** - with quarter-turn, full port, resilient seated ball valve shutoffs
  - QT-FDA** - with FDA approved epoxy coated ball valve shutoffs
  - LF** - without shutoffs

**SPECIFICATIONS**

**FOR DOUBLE CHECK VALVE BACKFLOW PREVENTERS**  
A double check valve backflow preventer shall be installed at referenced cross-connections to prevent the backflow of polluted water into the potable water supply. The cross-connections shall be determined by local inspection authority for use where a high hazard situation does not exist. Valve shall feature modular check assemblies with center stem guiding. Each check module shall have a captured spring and be accessible through a bolted cover plate. Seats shall be replaceable without special tools. It shall be a complete assembly including tight-closing resilient seated shutoff valves, test cocks, and a strainer is recommended. The assembly shall meet the requirements of ASSE No. 1015; AWWA C510-92; CSA B64.5 and UL Classified File No. EX3185. Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California and shall be a Watts Regulator Series 709.



**CHECK ASSEMBLY MODULE**

No. 709 Series features a modular design concept which facilitates complete maintenance and assembly by retaining the spring load. Also, the first and second check module are identical and can be interchanged.

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**IMPORTANT: Inquire with governing authorities  
for local installation requirements.**

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USA: 815 Chestnut Street, North Andover, MA 01845-6098  
Canada: 5435 North Service Road, Burlington, Ontario L7L 5H7

## MATERIALS

Epoxy coated (FDA approved) cast iron check valve bodies with bronze seats.

## PRESSURE - TEMPERATURE

Suitable for supply pressures up to 175 psi (12.1 bars) and water temperatures to: 110°F (43°C) continuous, 140°F (60°C) intermittent

## STANDARDS

ASSE No. 1015, AWWA C510-92  
 CSA B64.5, IAPMO PA 31  
 UL Classified File No. EX3185  
 USC Manual for Cross-Connection Control, 8th Edition

## APPROVALS

ASSE  
 AWWA  
 UL

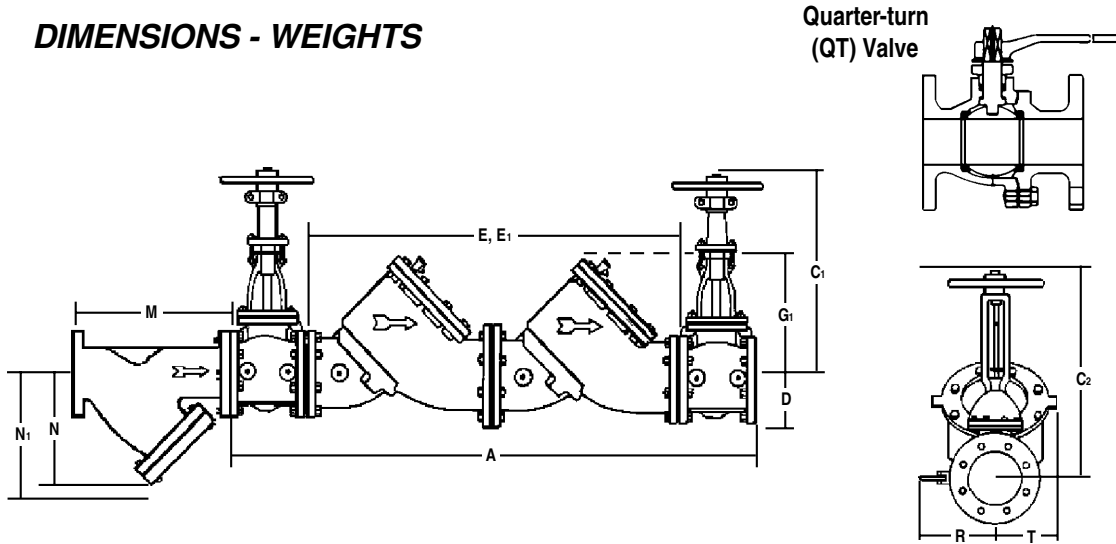


Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California. Sizes 4" - 10" (100 - 250mm) approved horizontal and vertical "flow up". Size 2 1/2" and 3" (65 - 80mm) approved horizontal only. Factory Mutual approved 4"-10" (80-250mm) vertical "flow up"

### Note: Model "S" not listed

NOTE: Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

## DIMENSIONS - WEIGHTS



### 2 1/2" - 10" (65-250mm) 709 Dimensions

Size (DN)		A		Service Clearance for Gate OS&Y Open C <sub>1</sub>				for Gate NRS C <sub>2</sub>				D		E, E <sub>1</sub>		Service Clearance For Check G <sub>1</sub>		M		N	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
2 1/2	65	39 3/8	1000	16 3/8	416	14	356	3 1/2	89	24 1/8	613	11	279	10	254	6 1/2	165				
3	80	40 3/8	1025	18 7/8	479	14	356	3 3/4	95	24 1/8	613	14	356	10 1/8	257	7	178				
4	100	52 3/8	1330	22 3/4	578	17	432	4 1/2	114	34 1/8	867	14	356	12 1/8	308	8 1/4	210				
6	150	62 7/8	1597	30 1/8	765	21	533	5 1/2	140	41 5/8	1057	16	406	18 1/2	470	13 1/2	343				
8	200	75	1905	37 3/4	959	26	660	6 1/2	165	52	1321	21	533	21 5/8	549	15 1/2	394				
10	250	90	2286	45 3/4	1162	32	813	8	203	64	1626	25	635	26	660	18 1/2	470				

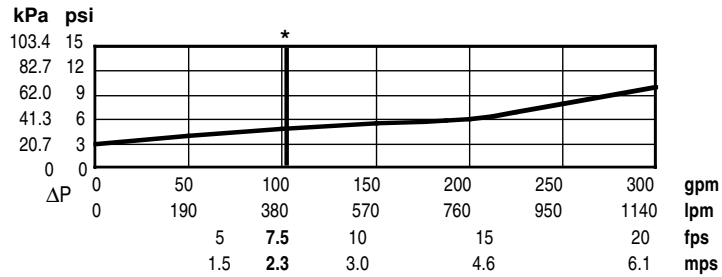
Size		N <sup>†</sup>		QT		R		R*		T		Weight						Strainer Weight			
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.	lbs.	kgs.	lbs.	kgs.	lbs.	kgs.
2 1/2	65	10	254	7	178	4	102	16	406	3	76	167	76	170	77	154	70	28	13		
3	80	10	254	7	178	5	127	16	406	3	76	167	76	170	77	154	70	34	15		
4	100	12	305	10	254	6	152	19 3/4	502	6	152	368	167	383	174	275	125	60	27		
6	150	20	508	15	381	11	279	26	660	7 1/2	191	627	284	707	321	611	277	122	55		
8	200	22 3/4	578	19	483	11 1/4	286	11 1/4	286	9	229	1201	545	1307	593	1419	644	247	112		
10	250	28	711	22	559	12 1/2	318	12 1/2	318	10 1/4	260	2003	909	2073	940	2466	1119	370	168		

† - Dimension required for screen removal. \*Quarter-turn (QT) valve dimensions.

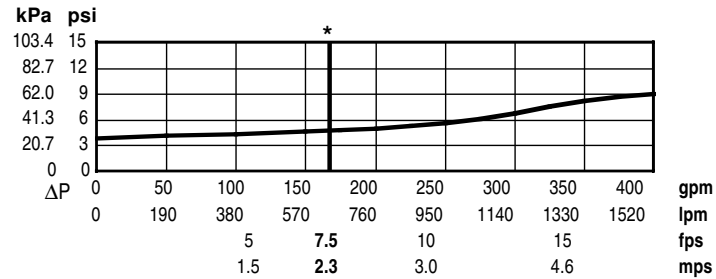
# CAPACITY

\*Typical maximum system flow rate (7.5 feet/sec.)

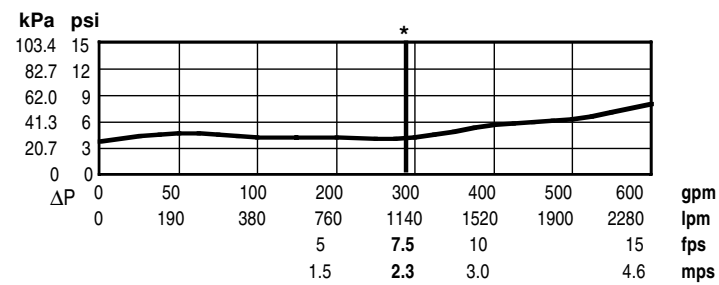
## 2½" (65mm) No. 709



## 3" (80mm) No. 709



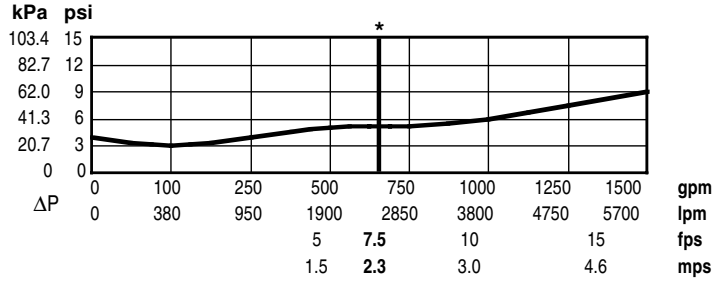
## 4" (100mm) No. 709



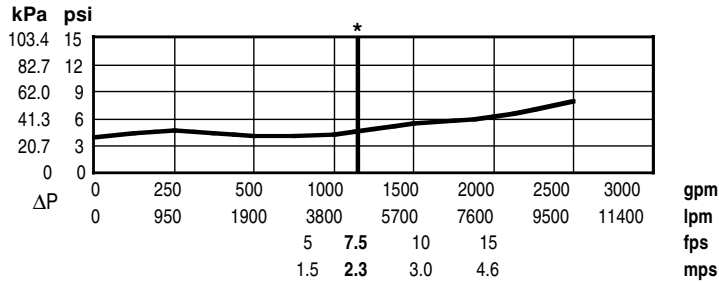
# CAPACITY

\*Typical maximum system flow rate (7.5 feet/sec.)

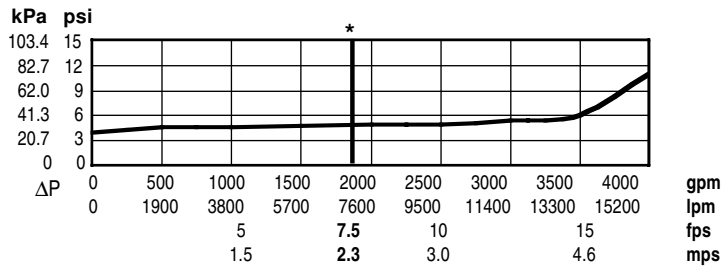
## 6" (150mm) No. 709



## 8" (200mm) No. 709



## 10" (250mm) No. 709



USA: 815 Chestnut Street, North Andover, MA 01845-6098  
 Canada: 5435 North Service Road, Burlington, Ontario L7L 5H7  
 www.wattsind.com



**DESCRIPTION:** REDUCED PRESSURE DETECTOR ASSEMBLY BACKFLOW PREVENTER, SPRING LOADED CHECKS WITH DIFFERENTIAL PRESSURE RELIEF VALVE BETWEEN THE CHECK VALVES, OS&Y RISING STEM GATE VALVES ON BOTH SIDES OF CHECK VALVES, AND AIR GAP DRAIN. CAST IRON CONSTRUCTION WITH BYPASS LINE WITH BRONZE [5/8"] [3/4"] METER AND REDUCED PRESSURE BACKFLOW PREVENTER, BYPASS UNIT SHALL MATCH CONSTRUCTION OF MAIN LINE UNIT WITH QUARTER TURN VALVES, RATED FOR 175 PSI AT 33 TO 140 DEGREE F, PRESSURE DROP LESS THAN 15 PSI AT 10 FPS. APPROVED BY: USC FCCC & HR, AWWA C-511-92, ASSE 1013, CSA B64.5, UL/FM.

SAME SIZE AS PIPE IF NO SIZE IS SHOWN ON THE DRAWING.

**MANUFACTURER & CATALOG NO.:** WATTS SERIES 909RPDA, CONBRACO SERIES 40-700, FEBCO 826YD, CLA-VAL RD7L.

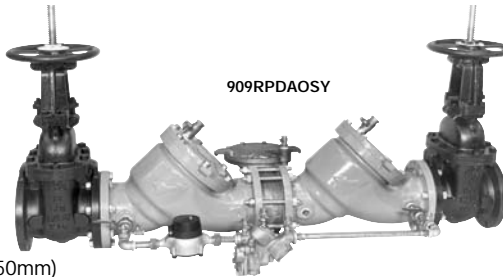
**Notes to Specifier:**

1. Available in 2 1/2" size and above. Smaller sizes are not UL listed and FM approved.
2. Some models are approved for vertical applications. Check with local code official.
3. Not very common. Verify use with water provider. Verify size of bypass with water provider.

ES-909RPDA

**For Health Hazard Applications**

**Series 909RPDA**  
**Reduced Pressure Detector Assembly**



Sizes: 2 1/2", 3", 4", 6", 8", 10"  
 (65, 80, 100, 150, 200, 250mm)

Series 909RPDA are designed exclusively for use in accordance with water utility authority containment requirements. It is mandatory to prevent the reverse flow of fire protection system substances, i.e., glycerin wetting agents, stagnant water and water of non-potable quality from being pumped or siphoned into the potable water line. **BENEFITS:** Detects leaks... with emphasis on the cost of unaccountable water; incorporates a meter which allow the water utility to:

- Detect leaks that historically create great annual cost due to waste.
- It provides a detection point for unauthorized use. It can help locate illegal taps.

Modular check design concept facilitates maintenance and assembly access. All sizes are standardly equipped with AWWA epoxy coated, UL/FM listed OS&Y resilient seated gate valves, CFM (cubic feet per minute) or GPM (gallon per minute) meter and ball type test cocks. A pressure differential relief valve is located in a zone between the check valves.

**MODULAR DESIGN**

Features a modular design concept which facilitates maintenance and assembly access. All sizes are standardly equipped with gate valves and ball type test cocks.

**FEATURES**

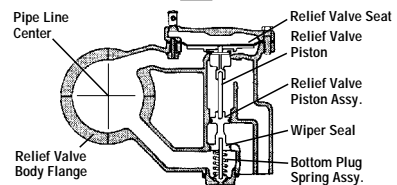
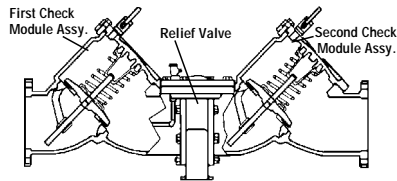
- Body construction fused epoxy coated cast iron
- Replaceable bronze seats
- Maximum flow at low pressure drop
- Compact for economy combined with performance
- Design simplicity for easy maintenance
- Furnished with 3/8 x 3/4 (16 x 19mm) recordall meter Model 25, bronze
- NO SPECIAL TOOLS REQUIRED

**AVAILABLE MODELS**

- Suffix:**
- OSY - with outside stem & yoke resilient seated gate valves
  - CFM - with cubic feet per minute meter
  - GPM - with gallons per minute meter
  - LF - less gate valves (4" - 10")(100-250mm)

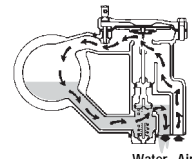
**SPECIFICATIONS**

A Reduced Pressure Detector Check Valve/Backflow Preventer shall be installed on fire protection systems when connected to a public water supply. Degree of hazard present is determined by the local authority having jurisdiction. The unit shall be a complete assembly including UL listed OS&Y shutoff valves with FM approval. Including an auxiliary line consisting of an approved backflow preventer and water meter. The assembly shall meet the requirements of AWWA C511-92: UL Classified File No. EX3185: CSA B64 and USC Manual 8th. Edition. Watts Regulator Co. Series 909RPDA.



**HOW IT OPERATES**

The unique relief valve construction incorporates two channels: one for air, one for water. When the relief valve opens, as in the accompanying air-in/water-out diagram, the right-hand channel admits air to the top of the reduced pressure zone, relieving the zone vacuum. The channel on the left then drains the zone to atmosphere. Therefore, if both check valves foul, and simultaneous negative supply and positive back pressure develops, the relief valve uses the air-in/water-out principle to stop potential backflow.



Patent #4,241,752

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 Canada: 5435 North Service Rd., Burlington, ONT. L7L 5H7; www.wattscca.com

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## MATERIALS

Size 2½" to 10" (65-250mm) have epoxy coated cast iron body, bronze seat and disc holder; stainless steel trim and durable, tight-seating rubber check valve discs.

All sizes furnished with bronze body ball valve test cocks. Furnished with outside stem and yoke (OS&Y) gate valves UL/FM listed. No. 909RPDA bypass line unit consists of an approved No. 909 reduced pressure backflow preventer assembly and CFM ⅝ x ¼ (16 x 19mm) water meter.

## STANDARDS

AWWA C511-92; CSA B64

UL Classified File No. EX3185; UL/FM

USC Manual for Cross-connection Control, 8th Edition

## APPROVALS

UL/FM



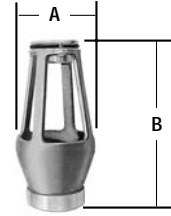
Approved by the foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

## PRESSURE - TEMPERATURE

Sizes 2½" through 10" (64-250mm) are suitable for supply pressures up to 175 psi (12.1 bars) and water temperatures to 140°F (60°C) maximum.

## Series 909AG AIR GAPS

When installing a drain line, use Series 909 air gaps on No. 909 backflow preventers.

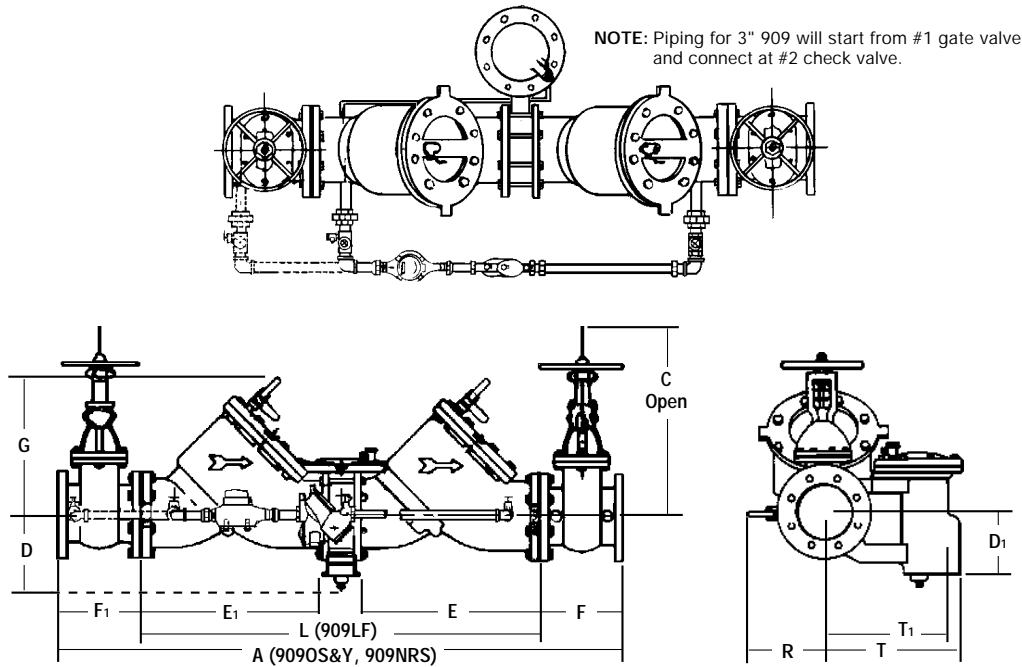


### Air Gap Dimensions

Iron Body No.	For No. 909 Sizes		Drain Outlet Size		Dimensions				Weight	
	in.	mm	in.	mm	A in.	A mm	B in.	B mm	lbs.	kgs.
909AG-F	2½, 3	64, 76	2	51	4⅜	111	6¾	172	3.3	1.5
*909AG-K	4, 6	102, 152	3	76	6⅝	160	9⅞	243	6.3	2.8
*909AG-M	8, 10	203, 254	4	102	7⅞	186	11¼	286	15.5	7.0

\*Epoxy coated

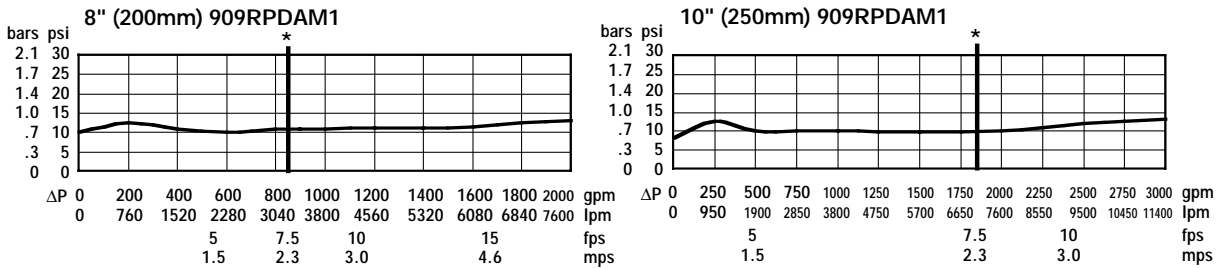
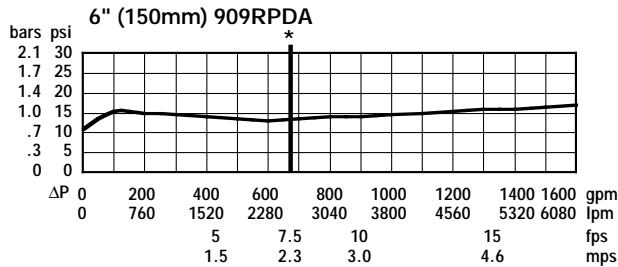
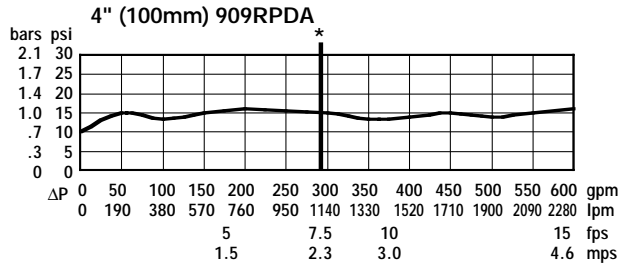
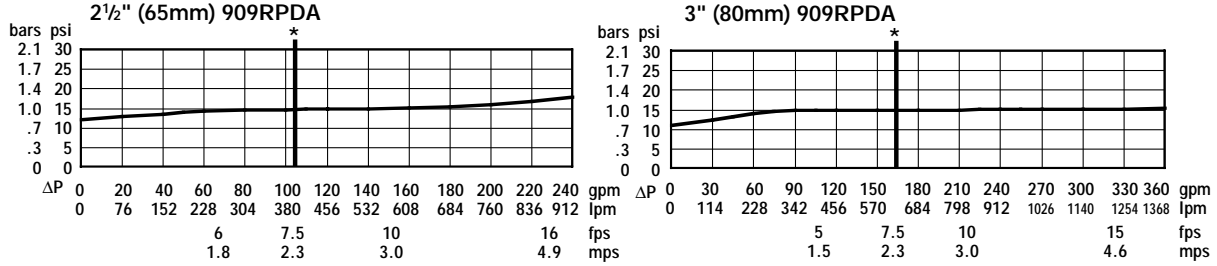
## DIMENSIONS - WEIGHTS



Size (Dn)	Dimensions														Weight										
	A		C		D		D <sub>1</sub>		E, E <sub>1</sub>		F, F <sub>1</sub>		G				L		R		T		T <sub>1</sub>		
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.		
2½	65	42⅝	1070	16⅞	416	5¼	133	4¼	114	12	305	8	203	7	178	26⅞	664	14	356	9	229	7⅝	194	230	104
3	80	42⅝	1070	18⅞	479	5¼	133	4¼	114	12	305	8	203	7	178	26⅞	664	14	356	9	229	7⅝	194	230	104
4	100	55⅞	1400	22¾	578	6	152	5⅞	149	17	432	9	229	9½	241	37	940	15	381	13⅞	346	11¾	299	470	213
6	150	65½	1664	30⅞	765	6	152	6	152	20¾	527	10½	267	14½	368	44½	1130	16	406	13⅞	346	11¾	299	798	362
8	200	78¼	1988	37¾	959	9¾	248	8⅞	219	26	660	11½	292	18½	470	55¼	1403	17	432	18½	470	16⅞	416	1456	660
10	250	93⅞	2378	45¾	1162	9¾	248	8⅞	219	32	813	13	330	21½	546	67½	1715	18	457	18½	470	16⅞	416	2230	1012

# CAPACITY

\*Typical maximum flow rate (7.5 feet/sec.)



Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.



**BFP-4**

**DESCRIPTION:** DOUBLE CHECK DETECTOR ASSEMBLY BACKFLOW PREVENTER WITH SPRING LOADED CHECK VALVES AND OS&Y RISING STEM SHUTOFF GATE VALVES ON BOTH SIDES OF CHECK VALVES. CAST IRON CONSTRUCTION, WITH BYPASS LINE WITH BRONZE [5/8"] [3/4"] METER AND DOUBLE CHECK BACKFLOW PREVENTER, BYPASS UNIT SHALL MATCH CONSTRUCTION OF MAIN LINE UNIT WITH QUARTER TURN VALVES, RATED FOR 175 PSI AT 33 TO 140 DEGREE F, PRESSURE DROP LESS THAN 6 PSI AT 10 FPS. APPROVED BY: USC FCCC & HR, AWWA C-510-92, ASSE 1015, CSA B64.5, UL/FM.

SAME SIZE AS PIPE IF NO SIZE IS SHOWN ON THE DRAWING.

**MANUFACTURER & CATALOG NO.:** WATTS SERIES 709DCDA, CONBRACO SERIES 40-600, FEBCO 856, CLA-VAL DD7L.

**Notes to Specifier:**

1. Use only if accepted by authorities having jurisdiction and in only non-toxic applications.
2. Available in 2 1/2" size and above. Smaller sizes are not UL listed and FM approved.
3. Some models are approved for vertical applications. Check with local code official.
4. Verify use with water provider. Verify size of bypass with water provider.

ES-709DCDA

**For Non Health Hazard Applications**

---

Job Name _____	Contractor _____
Job Location _____	Approval _____
Engineer _____	Contractor's P.O. No. _____
Approval _____	Representative _____

## Series 709DCDA

### Double Check Detector Assembly Backflow Preventer

Sizes: 3", 4", 6", 8", 10"  
(80, 100, 150, 200, 250mm)

Series 709DCDA is designed exclusively for use in accordance with water authority containment requirements. It is mandatory to prevent the reverse flow of fire protection system substances, i.e. glycerin wetting agents, stagnant water and water of non-potable quality from being pumped or siphoned into the potable water line.

**BENEFITS:** Detects leaks . . . with emphasis on the cost of unaccountable water; incorporates a meter which allows the water utility to:

- Detect leaks underground that historically create great annual cost due to waste.
- It provides a detection point for unauthorized use. It can help locate illegal taps.

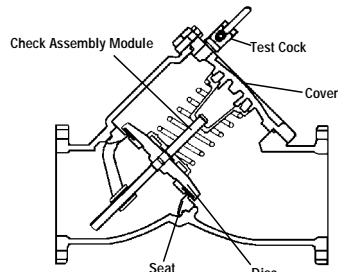
Modular check design concept facilitates maintenance and assembly access. All sizes are standardly equipped with resilient seated OS&Y shutoff valves, 3/8 x 3/4 (16 x 19mm ) meter and ball type test cocks.

**FEATURES**

- Body construction fused epoxy coated cast iron.
- Replaceable bronze seats.
- Maximum flow at low pressure drop.
- Compact for economy combined with performance.
- Design simplicity for easy maintenance.
- Furnished with 3/8 x 3/4 (16 x 19mm) meter Model 25, bronze.
- No special tools required for servicing.

**SPECIFICATIONS**

A double check detector backflow preventer shall be installed on fire protection systems when connected to a potable water supply. Degree of hazard present is determined by the local authority having jurisdiction. The unit shall be a complete assembly including UL listed resilient seated OS&Y shutoff valves and test cocks. The unit shall be UL/FM approved with UL/FM approved OS&Y shutoff valves. The auxiliary line shall consist of an approved backflow preventer and water meter. The assembly shall meet the basic requirements of ASSE 1048; AWWA Std. C510 for Double Check Valves. Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California and shall be a Watts Regulator Company Series 709DCDA OSY.



**CHECK ASSEMBLY MODULE**

Features a modular design concept which facilitates complete maintenance and assembly by retaining the spring load. First and second check valve spring modules are **not** interchangeable.

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WattsBox Insulated Enclosures.**  
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Water Products Division • Safety & Control Valves

USA: 815 Chestnut Street, North Andover, MA 01845-6098  
Canada: 5435 North Service Road, Burlington, Ontario L7L 5H7

## MATERIALS

Size 3" to 10" (76-250mm) have epoxy coated cast iron body, replaceable bronze seat and disc holder; stainless steel trim and durable, tight-seating rubber check valve discs.

All sizes furnished with bronze body ball valve test cocks, outside stem and yoke (OS&Y) shutoff valves UL/FM listed. No. 709DCDA bypass line unit consists of an approved No. 007 double check valve and  $\frac{5}{8}$  x  $\frac{3}{4}$ " (16 x 19mm) water meter.

## AVAILABLE MODELS

Suffix:

OS&Y - outside stem & yoke resilient seated gate valves

CFM - with cubic feet per minute

GPM - with gallons per minute meter

LF - less gate valves (4" - 10")(100-250mm)

## PRESSURE - TEMPERATURE

Sizes 3" through 10" (76-250mm) are suitable for supply pressures up to 175 psi (12.06 bars) and water temperatures to 110°F (43°C) constant, 140°F (60°C) intermittent.

## STANDARDS

AWWA Standard C510

CSA B.64, ASSE 1048

UL Classified file No. EX 3185



With OS&Y gate valves.

## APPROVALS

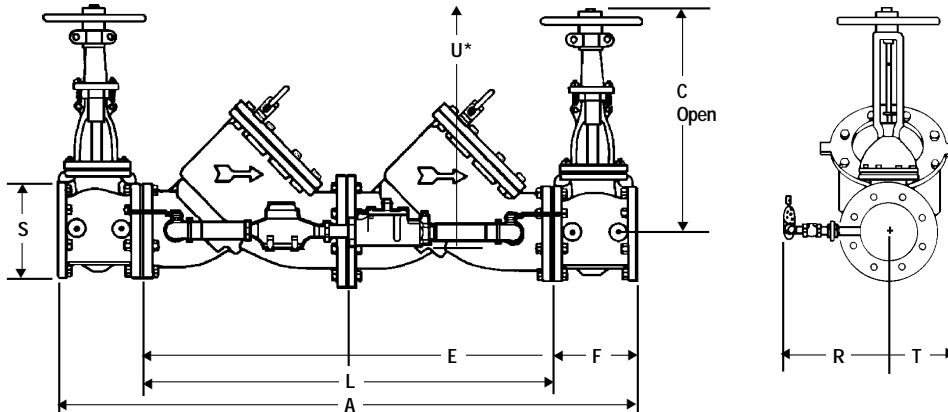
AWWA, CSA, UL Classified, FM approved

Approved by the foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California. (Sizes 4" through 10" (100-250mm) approved for horizontal and vertical "flow up". Size 3" (76mm) approved for horizontal only.)

Factory Mutual approved 4" - 10" vertical "flow up".

**IMPORTANT: INQUIRE WITH GOVERNING AUTHORITIES FOR LOCAL INSTALLATION REQUIREMENTS.**

## DIMENSIONS - WEIGHTS



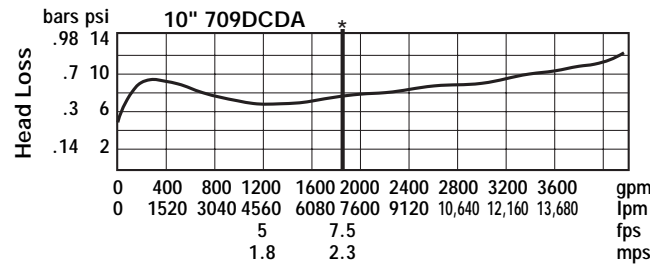
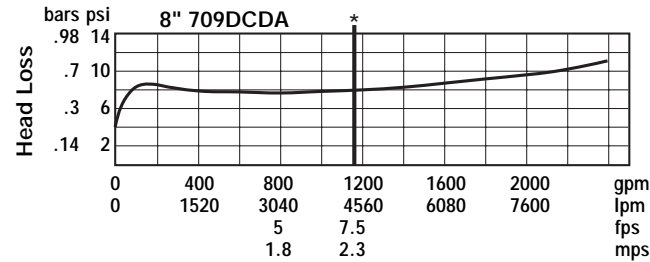
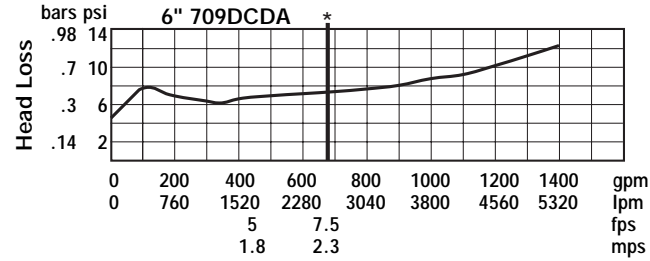
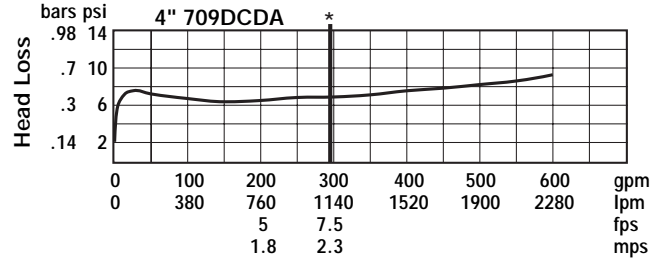
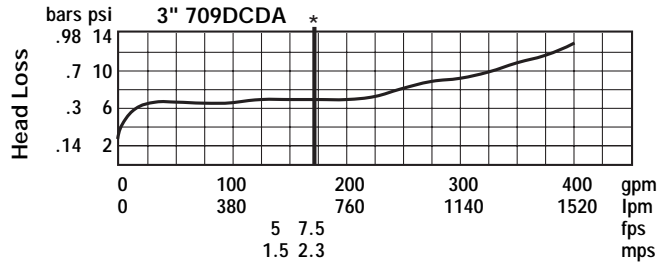
Size (DN)	Dimensions																		Weight OS&Y <sup>†</sup>		
	In.	mm	A	C	E	F	L	R	S	T	U*	lbs.	kgs.								
3	80	40	1016	18 <sup>7</sup> / <sub>8</sub>	479	12	305	8	203	24	610	14	356	7 <sup>1</sup> / <sub>2</sub>	191	3	76	14	356	190	86
4	100	52	1321	22 <sup>3</sup> / <sub>4</sub>	578	17	432	9	229	34	864	15	381	9	229	6	152	14	356	403	183
6	150	62 <sup>1</sup> / <sub>2</sub>	1588	30 <sup>1</sup> / <sub>8</sub>	765	21	533	10 <sup>1</sup> / <sub>2</sub>	267	41 <sup>1</sup> / <sub>2</sub>	1054	16	406	11	279	7 <sup>1</sup> / <sub>2</sub>	191	16	406	727	330
8	200	75	1905	37 <sup>3</sup> / <sub>4</sub>	959	26	660	11 <sup>1</sup> / <sub>2</sub>	292	52	1321	17	432	13	330	9	229	21	533	1327	602
10	250	90	2286	45 <sup>3</sup> / <sub>4</sub>	1162	32	813	13	330	64	1626	18	457	16	406	10 <sup>1</sup> / <sub>4</sub>	260	25	635	2093	949

\* Service clearance for check assembly from center.

<sup>†</sup>UL/FM approved backflow preventers must include UL/FM approved OS&Y.

# CAPACITY

\*Typical maximum system flow rate (7.5 ft./Sec.)



Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

**BF-1**

**DESCRIPTION:** 2" TO 12" BUTTERFLY VALVE, 175 PSI WP, LUGGED OR GROOVED TYPE, IRON BODY, ALUMINUM BRONZE OR EPDM COATED IRON DISC, STAINLESS STEEL STEM AND SCREWS, EPDM SEAT, INTEGRAL MONITOR SWITCH, RATED FOR DEAD END SERVICE, UL/FM.

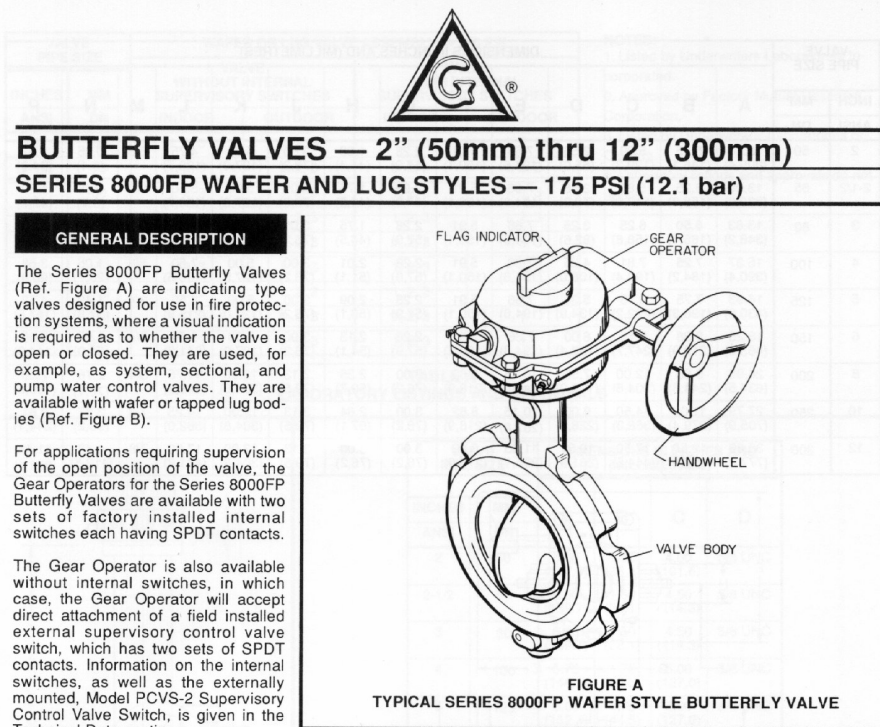
**MANUFACTURER & CATALOG NO.:** GEM 8000FP, TYCO BFV, KENNEDY 01, NIBCO LD3510-8, GD-4765-8N, VICTAULIC 705-W, KENNEDY

**DESCRIPTION:** 1" TO 2-1/2" SLOW CLOSE BUTTERFLY VALVE, 175 PSI WP, BRONZE BODY, TYPE 304 STAINLESS STEEL ELASTOMER COATED DISK, SLOW CLOSE MANUAL OPERATOR WITH INTEGRAL TAMPER SWITCH, GROOVED OR THREADED ENDS. UL/FM.

**MANUFACTURER & CATALOG NO.:** MILWAUKEE BB-SCS OR APPROVED EQUAL

**Notes to Specifier:**

- 1. 1" to 2-1/2" conforms with NFPA for flow control in sprinkler systems.
- 2. Most sprinkler system manufacturers market the 1" to 2-1/2" model valve with proprietary label.



**BUTTERFLY VALVES — 2" (50mm) thru 12" (300mm)**  
**SERIES 8000FP WAFER AND LUG STYLES — 175 PSI (12.1 bar)**

**GENERAL DESCRIPTION**

The Series 8000FP Butterfly Valves (Ref. Figure A) are indicating type valves designed for use in fire protection systems, where a visual indication is required as to whether the valve is open or closed. They are used, for example, as system, sectional, and pump water control valves. They are available with wafer or tapped lug bodies (Ref. Figure B).

For applications requiring supervision of the open position of the valve, the Gear Operators for the Series 8000FP Butterfly Valves are available with two sets of factory installed internal switches each having SPDT contacts.

The Gear Operator is also available without internal switches, in which case, the Gear Operator will accept direct attachment of a field installed external supervisory control valve switch, which has two sets of SPDT contacts. Information on the internal switches, as well as the externally mounted, Model PCVS-2 Supervisory Control Valve Switch, is given in the Technical Data section.

**APPROVALS AND STANDARDS**

The Series 8000FP Butterfly Valves are listed by Underwriters Laboratories Inc. and Underwriters Laboratories of Canada, as well as approved by Factory Mutual Research Corporation as indicated in Table A.

The Series 8000FP Butterfly Valves are accepted by the City of New York under MEA 349-93-E.

The Series 8000FP Butterfly Valves with internal supervisory switches are listed by the California State Fire Marshal under Listing No. 7770-0090.103.

The factory installed SPDT internal switches are listed by Underwriters Laboratories Inc. as "Supervisory Tamper Switches" when the normally open contacts (for valve full open) are used for connection to the supervisory circuit of an alarm control panel or indicating device.

The Model PCVS-2 Supervisory Control

Printed in U.S.A. 1-94

Control Valve Switch is listed by Underwriters Laboratories Inc. and Underwriters Laboratories of Canada. It is approved by the Factory Mutual Research Corporation. The listings and approval are under the name of Potter Electric Signal Company.

**WARNING**  
*The Series 8000FP Butterfly Valves described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the integrity of these devices.*

*The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or manufacturer should be contacted relative to any questions.*

*Removing or disabling the tamper resistant fasteners used to secure either the cover of a Gear Operator with internal switches or the cover of the*

*Model PCVS-2 Supervisory Control Valve Switch will void the applicable listings and approval.*

**TECHNICAL DATA**

**Valve Assemblies:**  
The 2 inch (50mm) through 12 inch (300mm) Series 8000FP Butterfly Valves are rated for a maximum service pressure of 175 psi (12.1 bar). The valves may be installed with flow from either direction and are left hand opening (i.e. the handwheel turns counterclockwise to open). A flag-type indicator on the Gear Operator visually indicates both open and closed positions of the valve. The Valve Body and Gear Operator including the Handwheel is painted red, and the Flag Indicator is painted yellow.

The Valve dimensions are shown in Figure B-1, and Table B provides the stud and bolt dimensions.

The Series 8000FP Butterfly Valves may be installed with any schedule or pressure class of pipe or tubing that is

TD353

VALVE PIPE SIZE		DIMENSIONS IN INCHES AND (MILLIMETRES)													
INCH	MM	A	B	C	D	E	F	G	H	J	K	L	M	N	P
ANSI	DN														
2	50	12.18 (309,4)	5.75 (146,1)	5.09 (129,3)	2.56 (65,0)	7.66 (194,6)	5.91 (150,1)	2.28 (57,9)	1.63 (41,4)	3.00 (76,2)	5.00 (127,0)	4.75 (120,7)	5/8	0.25 (6,4)	1.37 (34,8)
2-1/2	65	13.00 (330,2)	6.25 (158,8)	5.81 (147,6)	2.88 (73,2)	7.66 (194,6)	5.91 (150,1)	2.28 (57,9)	1.75 (44,5)	3.00 (76,2)	5.00 (127,0)	5.50 (139,7)	5/8	0.38 (9,7)	1.79 (45,7)
3	80	13.63 (346,2)	6.50 (165,1)	6.25 (158,8)	3.25 (82,6)	7.66 (194,6)	5.91 (150,1)	2.28 (57,9)	1.75 (44,5)	3.00 (76,2)	5.00 (127,0)	6.00 (152,4)	5/8	0.69 (17,5)	2.58 (65,5)
4	100	15.37 (390,4)	7.25 (184,2)	7.81 (198,4)	4.25 (108,0)	7.66 (194,6)	5.91 (150,1)	2.28 (57,9)	2.01 (51,1)	3.00 (76,2)	5.00 (127,0)	7.50 (190,5)	5/8	1.05 (26,7)	3.58 (90,9)
5	125	16.93 (430,0)	7.75 (196,9)	8.75 (222,2)	5.31 (134,9)	7.66 (194,6)	5.91 (150,1)	2.28 (57,9)	2.09 (53,1)	3.00 (76,2)	5.00 (127,0)	8.50 (215,9)	3/4	1.49 (37,8)	4.63 (117,6)
6	150	18.25 (463,6)	8.38 (212,9)	9.75 (247,7)	6.00 (152,4)	7.66 (194,6)	5.91 (150,1)	2.28 (57,9)	2.13 (54,1)	3.00 (76,2)	5.00 (127,0)	9.50 (241,3)	3/4	1.97 (50,0)	5.68 (144,3)
8	200	24.98 (634,5)	9.63 (244,6)	12.00 (304,8)	7.56 (192,0)	10.15 (257,8)	8.62 (218,9)	3.00 (76,2)	2.35 (59,7)	3.13 (79,5)	12.00 (304,8)	11.75 (298,5)	3/4	2.76 (70,1)	7.50 (190,5)
10	250	27.79 (705,9)	11.00 (279,4)	14.50 (368,3)	9.00 (228,6)	10.15 (257,8)	8.62 (218,9)	3.00 (76,2)	2.64 (67,1)	3.13 (79,5)	12.00 (304,8)	14.25 (362,0)	7/8	3.67 (93,2)	9.61 (244,1)
12	300	30.60 (777,2)	12.50 (317,5)	17.50 (444,5)	10.31 (261,9)	11.65 (295,1)	8.62 (218,9)	3.00 (76,2)	3.00 (76,2)	3.13 (79,5)	12.00 (304,8)	17.00 (431,8)	7/8	4.43 (112,5)	11.46 (291,1)

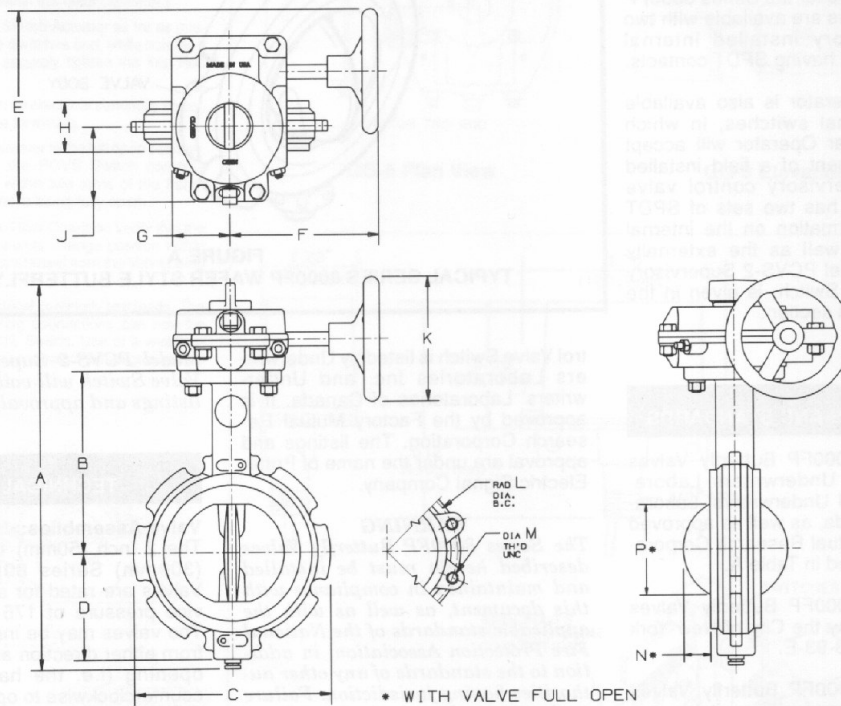


FIGURE B-1  
VALVE DIMENSIONS

listed or approved for fire protection service, provided that its wall thickness is no greater than that for Schedule 40 pipe.

The nominal pressure loss versus flow rate and approximate friction loss expressed in equivalent length of pipe for each size valve are given in Figure C.

The Series 8000FP components are illustrated in Figure D-1 and D-2. The Body is cast iron per ASTM A126 Class B, and the Liner is EPDM with a phenolic backing. The Disc is aluminum bronze per ASTM B148 (C95400). The Drive Shaft and Lower Shaft are Type 416 stainless steel, and the retention Pins are plated steel. The Upper and

Lower Bearings are bronze per ASTM B438 Grade I, Type II.

The 2 inch (50mm) through 6 inch (150mm) size valves are provided with a GG-4 Gear Operator (Ref. Figure D-1) and the 8 inch (200mm) through 12 inch (300mm) size valves are provided with a GG-8 Gear Operator (Ref.

VALVE PIPE SIZE		WAFER OR LUG VALVE ASSEMBLY — 175 PSI			
INCHES	MM	VALVE WITHOUT INTERNAL SUPERVISORY SWITCHES		VALVE WITH INTERNAL SUPERVISORY SWITCHES	
		INDOOR	OUTDOOR	INDOOR	OUTDOOR
2	50	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3
2-1/2	65	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3
3	80	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3
4	100	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3
5	125	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3
6	150	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3
8	200	1, 2, 3	1, 2, 3	1, 2, 3	†
10	250	1, 2, 3	1, 2, 3	1, 2, 3	†
12	300	1, 2, 3	1, 2, 3	1, 2, 3	†

**NOTES:**

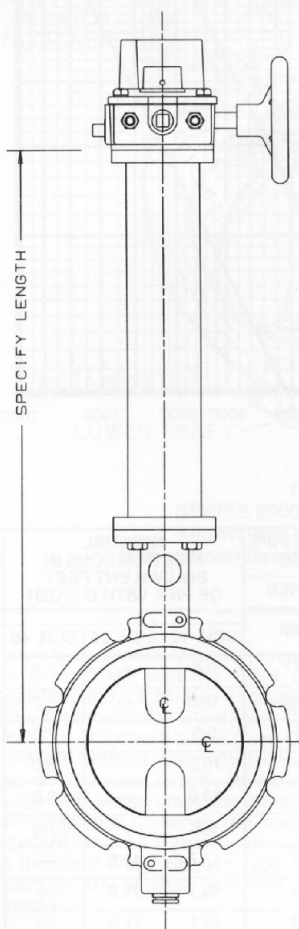
1. Listed by Underwriters Laboratories Incorporated.

2. Approved by Factory Mutual Research Corporation.

3. Listed by Underwriters' Laboratories of Canada.

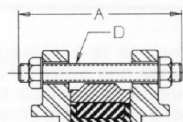
† Laboratory listings and approvals do not apply.

**TABLE A  
LABORATORY LISTINGS AND APPROVALS**

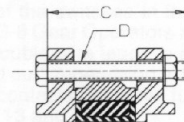


**FIGURE B-2  
POST INDICATOR VALVE  
ASSEMBLY  
(Series 8000FP Butterfly Valve  
with Stem Extension)**

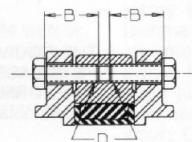
VALVE PIPE SIZE		DIMENSIONS IN INCHES AND (MILLIMETRES)			
INCHES	MM	A	B	C	D
		ANSI	DN		
2	50	5.00 (127.0)	1.50 (38.1)	4.00 (101.6)	5/8 UNC
2-1/2	65	5.50 (139.7)	1.50 (38.1)	4.50 (114.3)	5/8 UNC
3	80	5.50 (139.7)	1.50 (38.1)	4.50 (114.3)	5/8 UNC
4	100	5.75 (146.1)	1.75 (44.5)	5.00 (127.0)	5/8 UNC
5	125	6.00 (152.4)	1.75 (44.5)	5.00 (127.0)	3/4 UNC
6	150	6.50 (165.1)	2.00 (50.8)	5.00 (127.0)	3/4 UNC
8	200	7.00 (177.8)	2.75 (69.9)	5.50 (139.7)	3/4 UNC
10	250	7.50 (190.5)	2.25 (57.2)	6.00 (152.4)	7/8 UNC
12	300	8.00 (203.2)	2.50 (63.5)	7.00 (177.8)	7/8 UNC



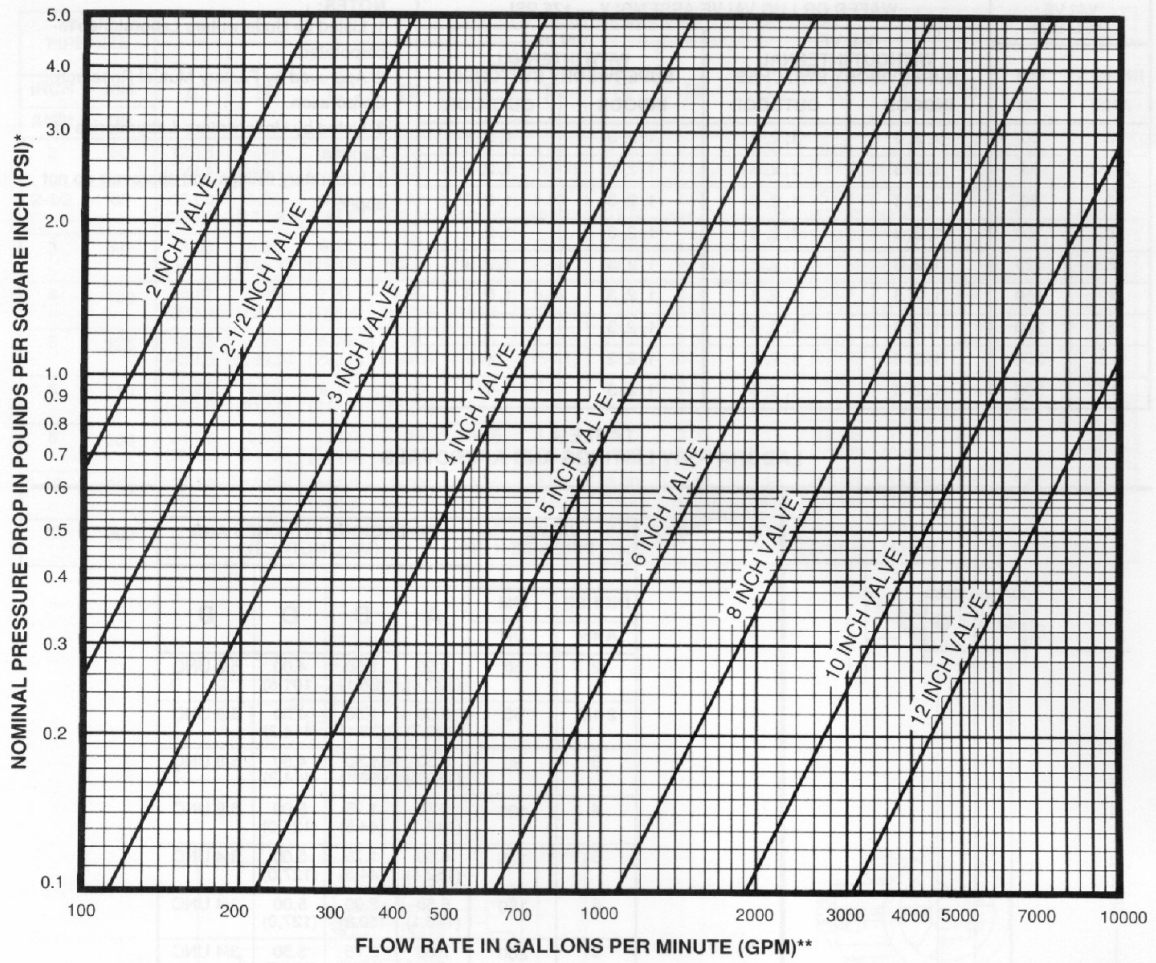
**STUD  
WAFER TYPE BUTTERFLY VALVE**



**ALTERNATE BOLT  
WAFER TYPE BUTTERFLY VALVE**



**LUG TYPE BUTTERFLY VALVE  
TABLE B  
STUD AND BOLT DIMENSIONS**



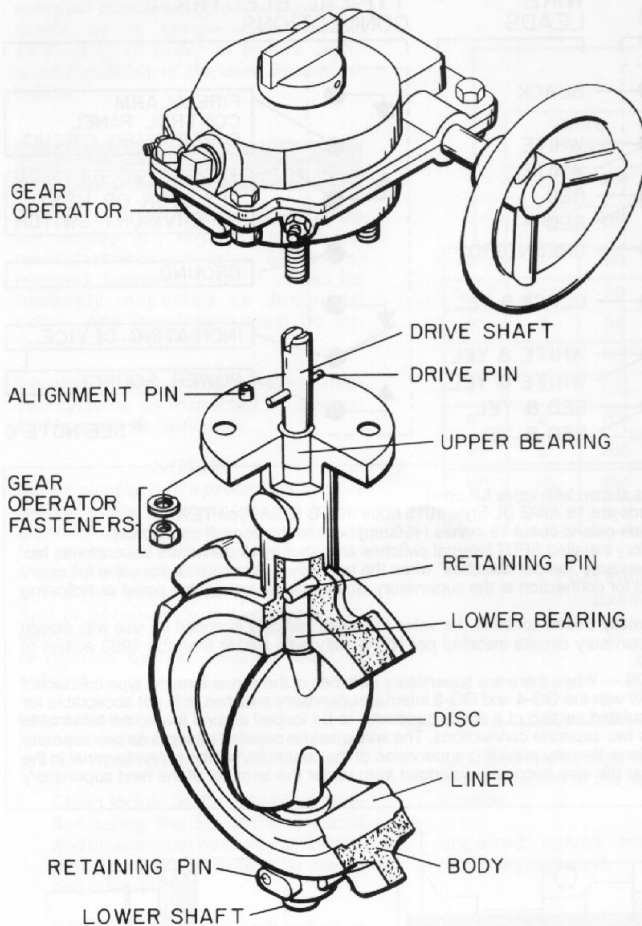
\* 1 PSI = 0,06895 BAR = 6,895 kPa

\*\* 1 GPM = 3,785 LPM

VALVE PIPE SIZE INCHES	NOMINAL FRICTION LOSS IN EQUIVALENT FEET OF PIPE WITH C = 120†			
	ANSI	SCH. 10	SCH. 30	SCH. 40
2		9.5	—	7.7
2-1/2		10.5	—	7.7
3		9.5	—	7.0
4		10.5	—	8.0
5		10.9	—	8.6
6		9.8	—	7.8
8		12.8	11.5	—
10		13.1	11.8	—
12		12.7	11.3	—

† THE EQUIVALENT LENGTH IN FEET OF PIPE IS BASED ON THE HAZEN AND WILIAMS FORMULA AND THE FLOW RATES TYPICALLY USED WITH EACH SIZE VALVE.

FIGURE C  
NOMINAL FRICTION LOSS



**FIGURE D-1**  
**SERIES 8000FP VALVE ASSEMBLY**  
 Shown with GG-4 Gear Operator for  
 2 Inch (50mm) through 6 Inch (150mm) Valve Sizes

Figure D-2). A steel Drive Pin engages the Drive Shaft with the GG-4 Gear Operator, and a steel Key engages the Drive Shaft with the GG-8 Gear Operator. The GG-4 and GG-8 Gear Operators are lifetime internally lubricated and are mounted directly to the valve flange with plated steel fasteners. The cast gray iron housings are weather resistant, and the Handwheels as well as Indicator Flags of each type Gear Operator are of cast gray iron construction.

**Stem Extensions:**

Figure B-2 illustrates the Stem Extensions that are available for the Series 8000FP Valves so that they may be used as a post indicator valve for underground, thru-wall, and remote operation applications. The Stem Extension

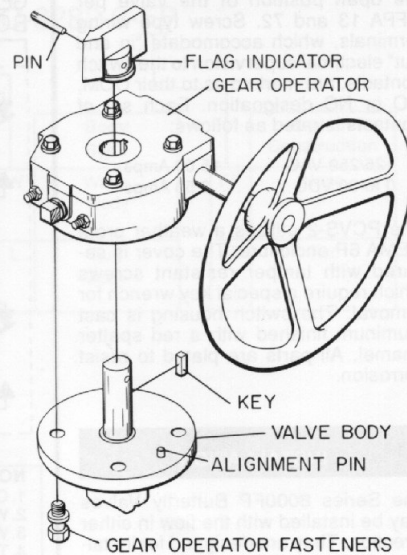
is gasketed at its connection to the 8000FP Valve and sealed with an O-ring at the Gear Operator. All other components of the Stem Extension are cast iron or carbon steel. The external surfaces of the Stem Extension are painted red.

**Supervisory Switches:**

The Series 8000FP is available with or without internal supervisory switches for supervising the Valve in the open position. The internal switches are only available as factory installed original equipment.

**—Internal—**

Figure E illustrates the general arrangement of the two internal switches, as well as the color coding for the wire leads. When provided with



**FIGURE D-2**  
**GG-8 GEAR OPERATOR FOR**  
**8 INCH (200mm)**  
 through  
**12 INCH (300mm)**  
**VALVE SIZES**

internal switches, the covers of both the GG-4 and GG-8 Gear Operators are secured with tamper resistant bolts and nuts. The electrical ratings for the switch contacts are UL/ULC Listed and FM Approved as follows:

125/250 VAC . . . . .	10.00 Amps
125 VDC . . . . .	0.50 Amps
250 VDC . . . . .	0.25 Amps
0 to 30 VDC* . . . . .	1.50 Amps

\* Maximum ULC rating

Both of the switches in the GG-4 and the GG-8 Gear Operators are provided with double wire leads to accommodate "in and out" supervision of the normally open contacts (for valve full open) per NFPA 13 and 72.

**—External—**

The Series 8000FP, when ordered without factory installed internal supervisory switches, will accept direct attachment of a field installed, externally mounted, supervisory control valve switch for supervising the Valve in the open position. Figure F illustrates attachment of the Model PCVS-2 Supervisory Control Valve Switch.

The PCVS-2 has two switches with SPDT (Form C) contacts. The set of contacts that are in the normally open position, when the valve is full open, can be used to provide supervision of



the open position of the valve per NFPA 13 and 72. Screw type wiring terminals, which accommodate "in and out" electrical supervision to the switch contacts, are marked as to their COM, NO or NC designation. Each set of contacts is rated as follows:

125/250 VAC . . . 15.00 Amps  
0 to 30 VDC . . . . . 2.50 Amps

The PCVS-2 utilizes a weather proof NEMA 6P enclosure. The cover is secured with tamper resistant screws which require a special key wrench for removal. The switch housing is cast aluminum finished with a red spatter enamel. All parts are plated to resist corrosion.

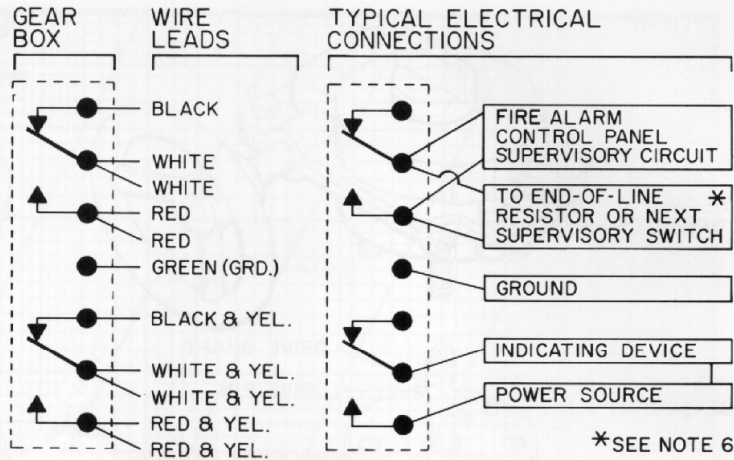
### INSTALLATION

The Series 8000FP Butterfly Valves may be installed with any schedule or pressure class of pipe or tubing that is listed or approved for fire protection service, provided that its wall thickness is no greater than that for Schedule 40 pipe.

The Series 8000FP Butterfly Valves may be installed with any schedule or pressure class of pipe or tubing that is listed or approved for fire protection service, provided that its wall thickness is no greater than that for Schedule 40 pipe.

The wafer bodies have locating lugs to ensure proper centering of the valve body when flange bolts are installed. Lug bodies have bolt hole locations that are the same as mating flanges. Flange fasteners must meet the dimensional specifications of Table B. Bolts and studs must meet the minimum strength requirements of ASTM A307 (Grade B), and the nuts must meet the minimum strength requirements of ASTM A563 (Grade A).

Prior to installation, close the valve. Spread the flanges apart far enough to allow the valve to slip easily between the flanges. Insert the valve between the flanges. Be sure to center the valve and not damage the liner. Allow the flanges to return to their unspread state. Install and hand-tighten all flange bolts. Slowly open the valve, checking for free movement of the disc. If no obstruction is encountered, leave the valve in the open position, and using a cross-draw sequence, tighten all flange bolts until the valve is metal-to-metal all around with both mating flanges. Be certain to keep flange faces as parallel as possible during and after tightening bolts or studs. After final tightening, again check the valve for full opening and closing



### NOTES

1. Contacts shown with valve full open.
2. Wire leads are 18 AWG UL Style 1015 600V 105°C (CSA Type TEW).
3. Wire leads extend about 18 inches (450mm) beyond the conduit connection.
4. The factory installed SPDT internal switches are listed by Underwriters Laboratories Inc. as "Supervisory Tamper Switches" when the normally open contacts (for valve full open) are used for connection to the supervisory circuit of an alarm control panel or indicating device.
5. The normally closed contacts (for valve full open) are only intended for use with closed loop supervisory circuits installed per NFPA standards earlier than the 1990 edition of NFPA 72.
6. **CAUTION** — When there are supervisory switches of the screw terminal type connected in parallel with the GG-4 and GG-8 internal supervisory switches, it is not acceptable for an uninsulated section of a single conductor to be looped around the screw terminal to serve as two separate connections. The wire must be severed to serve as two separate connections, thereby providing supervision of the connection at the screw terminal in the event that the wire becomes dislodged from under the terminal of the next supervisory switch.

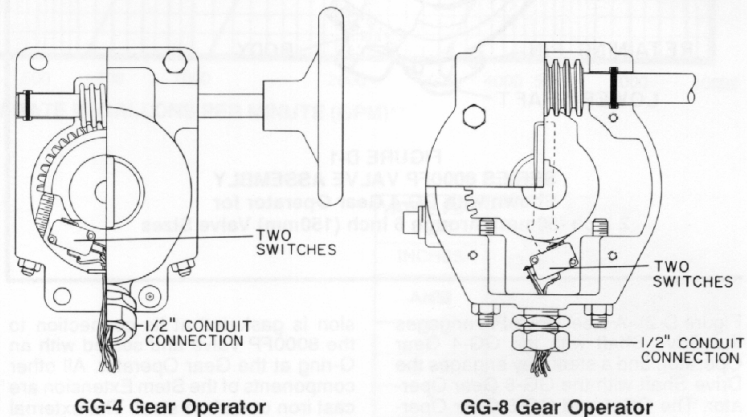


FIGURE E  
INTERNAL SUPERVISORY SWITCH ARRANGEMENT  
(Optional)

Refer to Figure F for installation instructions for the externally mounted, Model PCVS-2 Supervisory Switch.

Conduit and electrical connections are to be made in accordance with the requirements of the authority having jurisdiction and/or the National Electrical Code.

### NOTES

*For outdoor applications utilizing the Model PCVS-2 Supervisory Switch, use of a weathertight conduit connector with a gasket seal is recommended.*

*For outdoor applications with internal supervisory switches, it is recom-*

# BB-SC 100 & S02

# 1" - 2-1/2"

## butterball® SLOW CLOSE

Approved by: NYC Board of Stds. & Appeals,  
Cal. #996-81-SM (175psi)  
720-83-SA (350 & 500 psi)

**BRONZE BUTTERFLY VALVE**  
**ONE-PIECE, FULL-PORT**  
**175 PSI**  
**THREADED ENDS**



### DIMENSIONS

Valve Size					
DIM	1"	1-1/4"	1-1/2"	2"	2-1/2"
A	2.13	2.63	2.88	3.25	4.13
B <sup>1</sup>	3.16	3.31	3.41	3.63	3.82
C	1.56	1.94	2.19	2.75	3.19
D	1.72	2.11	2.38	3.07	3.50
J <sup>2</sup>	4.16	4.16	4.51	4.76	4.66
K	.66	.73	.73	.79	1.18
L	.83	.90	.10	1.41	1.29
M-40 <sup>3</sup>	1.10	1.38	1.61	2.07	2.47
M-80 <sup>4</sup>	.96	1.28	1.50	1.94	2.32
N-40 <sup>5</sup>	2.25	2.00	2.50	2.25	10.00
W <sup>6</sup>	1.13	1.25	1.41	1.69	1.75

ALL DIMENSIONS-INCHES

<sup>1</sup> Pertains to BB-SC100 only.

<sup>2</sup> Pertains to BB-SCS02 only.

<sup>3</sup> M-40 ARE DIMENSIONS USING SCHEDULE 40 PIPE

<sup>4</sup> M-80 ARE DIMENSIONS USING SCHEDULE 80 PIPE

<sup>5</sup> N-40 IS FLOW RESISTANCE EXPRESSED IN EQUIVALENT LENGTH OF SCHEDULE 40 PIPE

<sup>6</sup> W IS THE WRENCH MAKE-UP LENGTH

### FEATURES

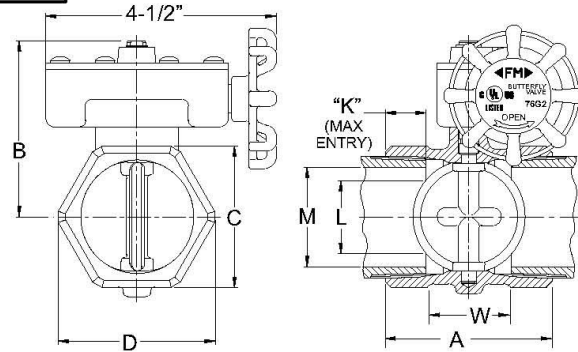
- Slow opening and closing
- Quarter turn operation
- Water Hammer elimination
- Optional internal tamper switch (Indoor use only).
  - Signals disc movement
  - Factory or Field installation
  - 10 Amp / 115 VAC-60 Hz
  - 0.5 Amp / 28 VDC
- Grooved Ends Available in Sizes 2" and 2-1/2"

### MATERIALS LIST

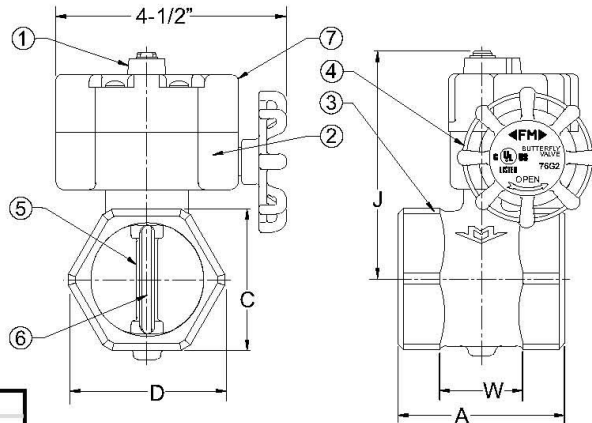
ITEM	PART	MATERIALS	ASTM SPEC.
1	Indicator	Iron	F0008P
2	Housing	Bronze	ASTM 584 UNS
3	Body		C8440
4	Handle	Brass	ASTM B176 UNS C85800
5	Disk	Stainless Steel	ASTM A276, Type 304
6	Disk Seal		EPDM
7	Switch Housing (BB-SCS02)	Aluminum	

The information presented on this sheet is correct at the time of publication. Milwaukee Valve reserves the right to change design, and/or material specifications without notice. For the most current information access [www.milwaukeevalve.com](http://www.milwaukeevalve.com).

BBSC100\_rev0.CDR



**BB-SC100**  
**Sizes 1", 1-1/4", 1-1/2", 2", 2-1/2"**



**BB-SCS02**  
**(Includes Switch)**

MILWAUKEE VALVE



**DESCRIPTION:** 2-1/2" TO 12" SWING CHECK VALVE, 175 PSI WP, FLANGED OR GROOVED, IRON BODY, BRONZE MOUNTED, BRONZE SEAT RING AND RUBBER CLAPPER FACING, SWING TYPE, UL/FM.

**MANUFACTURER & CATALOG NO.:** VIKING D-1/G-1, TYCO CV-2, RELIABLE D OR G, KENNEDY 126A OR 426.

**DESCRIPTION:** 1-1/2" TO 2" CHECK VALVE, 250 PSI WP, THREADED OR GROOVED, BRASS BODY, BRASS SEAT AND RUBBER CLAPPER FACING, SPRING LOADED IN-LINE TYPE, UL/FM.

**MANUFACTURER & CATALOG NO.:** VIKING L-1/K-1.

**Notes to Specifier:**

1. Some of the manufacturers listed for the 2-1/2" to 8" valve have spring load clappers and some do not. Either is acceptable.
2. The 1-1/2" to 2" valve is not FM approved for threaded connections.
3. The 1-1/2" to 2" valve must be spring loaded to operate in a horizontal position.

March 4, 1999

Check Valve 803 a

<b>VIKING®</b>	<b>TECHNICAL DATA</b>	<b>SWING CHECK VALVE</b>
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**1. PRODUCT NAME**  
 Viking Swing Check Valve  
 Model D-1: 2-1/2" (65 mm)  
 Available since 1992.  
 Model G-1: 3" (80 mm), 4" (100 mm),  
 6" (150 mm), and 8" (200 mm)  
 Available since 1994.

**2. MANUFACTURER**  
 The Viking Corporation  
 210 N. Industrial Park Road  
 Hastings, Michigan 49058, U.S.A.  
 Telephone: (616) 945-9501  
 (877) 384-5464  
 Fax: (616) 945-9599  
 e-mail: techsvcs@vikingcorp.com

**3. PRODUCT DESCRIPTION**  
 The Viking Swing Check Valve is a general purpose rubber-faced check valve approved for use in fire-service systems.  
 The Swing Check Valve is manufactured with a ductile iron body, brass seat, and a rubber-faced clapper assembly, hinged to a removable access cover for easy inspection and maintenance.  
 The valve may be installed vertically or horizontally. For availability of flanged-flanged and grooved-grooved options, refer to Table 1. Tapped openings (with plugs) and gauge connections are provided on both the inlet and outlet chambers of the valve.

**4. TECHNICAL DATA**

For listings and approvals, see the approval chart below.  
 Rated to 250 psi (1 724 kPa) water working pressure.  
 Factory tested hydrostatically to 500 psi (3 447 kPa).  
 Standard flanged connections  
 ANSI B16.42 Class 150  
 (Mates with ANSI Class 125 and Class 150 flanges).

**Systems with water working pressures above 175 psi (1 207 kPa) may require extra-heavy pattern fittings. Viking Swing Check Valve flanges are Ductile Iron ANSI B16.42 Class 150 with a maximum water working pressure of 250 psi. ANSI B16.42 Class 150 flanges are not compatible with ANSI Class 250 or Class 300 flanges. To mate the Viking Swing Check Valve with ANSI Class 250 or Class 300 flanges, use the grooved-inlet/grooved-outlet style installed with listed grooved/flanged adapters of the appropriate pressure rating. For piping with grooved connections, the grooved-inlet/grooved-outlet style Swing Check Valve may be installed with listed grooved couplings of the appropriate pressure rating.**

Standard Grooved connections:  
 ANSI/AWWA C606  
 Tapped Bosses:  
**Two 1/2" (15 mm) NPT:**  
 Model D-1: 2-1/2"(65 mm)  
 Model G-1: 3"(80 mm) and 4"(100 mm);  
**Two 3/4" (20 mm) NPT:**  
 Model G-1: 6" (150 mm) and 8" (200 mm)

Viking Swing Check Valve Approval Chart			
UL <sup>1</sup>	C-UL <sup>2</sup>	FM	NYC <sup>3</sup>
Yes	Yes	Yes	Yes

1 UL listed Guide No. HMER  
 2 Listed by Underwriters Laboratories Inc. for use in Canada  
 3 Accepted for use, City of New York Department of Buildings, MEA 89-92-E, Vol. XI.

**Material Standards:**  
 (Refer to Figure 1 on page 803 c.)

- 5. FEATURES**
1. Ductile iron body for less weight and extra strength.
  2. Rated to 250 psi (1 724 kPa) water working pressure.

Table 1					
Size Valve	Inlet Type	Outlet Type	Friction Loss*	Shipping Weight	Part No.
2-1/2" (65 mm)	Groove	Groove	6 ft. (1.8 m)	16 lbs. (7 kg)	05497C
3" (80 mm)	Flange	Flange	Not Available		
3" (80 mm)	Groove	Groove	10 ft. (3.1 m)	20 lbs. (9 kg)	08536
4" (100 mm)	Flange	Flange	13 ft. (4.0 m)	47 lbs. (21 kg)	08538
4" (100 mm)	Groove	Groove	13 ft. (4.0 m)	27 lbs. (12 kg)	08539
6" (150 mm)	Flange	Flange	20 ft. (6.0 m)	75 lbs. (34 kg)	08542
6" (150 mm)	Groove	Groove	20 ft. (6.0 m)	51 lbs. (23 kg)	08543
8" (200 mm)	Flange	Flange	23 ft. (7.0 m)	135 lbs. (61 kg)	08546
8" (200 mm)	Groove	Groove	23 ft. (7.0 m)	106 lbs. (48 kg)	08547

\* Expressed in equivalent length of schedule 40 pipe based on Hazen & Williams formula: C=120.

Viking Swing Check Valves are available outside of North America with flanges drilled according to European PN10 specifications or Table E specifications. Contact manufacturer for availability.

3. Rubber-faced clapper hinged to access cover for quick removal and easy servicing. All moving parts can be serviced without removing the valve from the installed position.
  4. With the cover/clapper assembly removed, the clapper rubber replacement requires removal of only one screw.
  5. Can be installed vertically or horizontally.
- 6. AVAILABILITY AND SERVICE**  
 The Viking Check Valve and accessories are available through a network of domestic, Canadian, and international distributors. See the Yellow Pages of the telephone directory for a local distributor (listed under "Sprinklers-Automatic-Fire") or contact The Viking Corporation.

Viking technical data may be found on The Viking Corporation's Web site at <http://www.vikingcorp.com>. The Web site may include a more recent edition of this technical data page.

- 7. GUARANTEES**  
 For details of warranty, refer to Viking's current list price schedule or contact The Viking Corporation directly.



## TECHNICAL DATA

## SWING CHECK VALVE

### 8. OPERATION

(Refer to Figure 1 on page 803 c.)

Flow through the Viking Swing Check Valve lifts the rubber-gasketed clapper (8, and 9) off the seat (12) to enter the sprinkler piping. When flow through the valve stops, the clapper (8) closes quickly. The rubber gasket (9) forms a tight seal against the brass water seat (12), trapping pressure above the clapper and preventing reverse flow from sprinkler piping.

### 9. INSTALLATION

The Swing Check Valve must be installed in an area not subject to physical damage. When corrosive atmospheres and/or contaminated water supplies are present, it is the owner's responsibility to verify compatibility with the Check Valve and associated equipment.

Prior to installing the valve, thoroughly flush the water supply piping to verify that no foreign matter is present.

The Check Valve may be installed in the vertical position with direction of flow up, or in the horizontal position with the access cover up.

Systems with water working pressures above 175 psi (1 207 kPa) may require extra-heavy pattern fittings. Viking Swing Check Valve flanges are Ductile Iron ANSI B16.42 Class 150 with a maximum water working pressure of 250 psi. ANSI B16.42 Class 150 flanges are **not** compatible with ANSI Class 250 or Class 300 flanges. To mate the Viking Swing Check Valve with ANSI Class 250 or Class 300 flanges, use the grooved-inlet/grooved-outlet style installed with listed grooved/flanged adapters of the appropriate pressure rating. For piping with grooved connections, the grooved-inlet/grooved-outlet style Swing Check Valve may be installed with listed grooved couplings of the appropriate pressure rating.

#### Hydrostatic Test:

The Check Valve is manufactured and listed for use at a maximum water working pressure of 250 psi (1 724 kPa). The valve is factory tested at 500 psi (3 447 kPa). Check Valves may be hydrostatically tested at 300 psi (2 069 kPa) and/or 50 psi (345 kPa) above the normal water working pressure, for limited periods of time (two hours), for the purpose of acceptance by the Authority Having Jurisdiction. If air testing is required, do not exceed 40 psi (276 kPa) air pressure.

### 10. INSPECTIONS and TESTS

**NOTICE:** The owner is responsible for maintaining the fire-protection system and devices in proper operating condition.

The Viking Swing Check Valve must be kept free of foreign matter, freezing conditions (when used on wet systems), corrosive atmospheres, contaminated water supplies, and any condition that could impair its operation or damage the device.

It is imperative that the system be inspected and tested on a regular basis. The frequency of the inspections may vary due to contaminated water supplies, corrosive water supplies, and corrosive atmospheres. For minimum maintenance and inspection requirements, refer to the National Fire Protection Association's pamphlet that describes care and maintenance of sprinkler systems. In addition, the Authority Having Jurisdiction may have additional maintenance, testing, and inspection requirements which must be followed.

**WARNING:** Any system maintenance which involves placing a control valve or detection system out of service may eliminate the fire-protection capabilities of that system. Prior to proceeding, notify all the Authority Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected areas.

#### 10-A Five-Year Internal Inspection

Internal inspection of Check Valves is recommended every five years unless inspections and tests indicate more frequent inspections are required.

Refer to Figure 1 on page 803 c.

1. Notify the Authority Having Jurisdiction, remote station alarm monitors, and those in the area affected that the system will be taken out of service. Consideration should be given to employment of a fire patrol in the affected areas.
2. Close the water supply Main Control Valve, placing the system out of service.
3. Open the main drain. If necessary, open the system test valve to vent and completely drain the system.
4. Use the appropriate wrench to loosen and remove the cover screws (14), and remove the cover/clapper assembly (2-11).
5. Inspect the water seat (12). Wipe away all contaminants, dirt, and mineral deposits. Do not use solvents or abrasives.

eral deposits. Do not use solvents or abrasives.

6. Inspect the cover/clapper assembly (2-11) and the cover gasket (13). Test the hinged clapper (8) for freedom of movement.

Renew or replace damaged or worn parts as required.

**Caution:** NEVER apply any lubricant to seats, gaskets, or any internal operating parts of the valve. Petroleum-based grease or oil will damage rubber components and may prevent proper operation.

7. When Internal inspection of the Check Valve is complete, perform step 6 of paragraph 11. VALVE MAINTENANCE to re-install the cover/clapper assembly (2-11).

### 11. VALVE MAINTENANCE

(Refer to Figure 1 on page 803 c.)

1. Perform steps 1 through 5 of paragraph 10-A FIVE-YEAR INTERNAL INSPECTION.

2. To remove clapper rubber (9):

A. Use the appropriate wrenches to loosen and remove the button-head socket screw (11), hex nut (6), sealing washer (7), and rubber retainer (10).

B. Remove the clapper rubber (9) for inspection. If the clapper rubber shows signs of wear, such as cracking, cuts, or excessively deep grooves where the rubber contacts the water seat, replace the rubber.

3. To re-install clapper rubber (9):

A. Place the clapper rubber (9) over the center hub of the rubber retainer (10).

B. Position the retainer (10) (with rubber in place) against the clapper (8) as shown in Figure 1.

C. Replace and tighten the button-head socket screw (11), sealing washer (7), and hex nut (6). The sealing washer (7) and hex nut (6) must be located on the top side of the clapper as shown in Figure 1. Do not over-tighten.

4. To remove clapper (8), and/or hinge pin (4):

A. Remove the hinge pin retaining rings (5), to free the hinge pin (4) for removal. After the hinge pin (4) is removed, the clapper (8) can be removed.

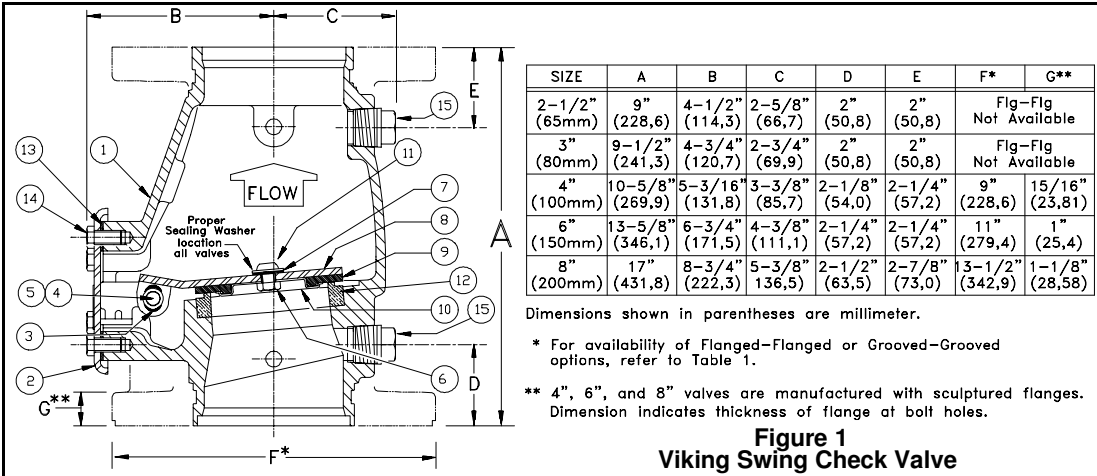
5. To re-install clapper (8), and/or hinge pin (4):

(continued on page 803 d)



TECHNICAL DATA

SWING CHECK VALVE



**Figure 1**  
**Viking Swing Check Valve**

Item No.	Part Numbers					Description	Material	No. Req'd				
	2-1/2" (65 mm)	3" (80 mm)	4" (100 mm)	6" (150 mm)	8" (200 mm)			2-1/2"	3"	4"	6"	8"
1	--	--	--	--	--	Body	Ductile Iron, AS A536 (65-45-12)	1	1	1	1	1
2	09944	09945	09946	09947	09948	Cover Assembly	E-Coated HSLA Steel, A715 and Stainless Steel, UNS-S30400	1	1	1	1	1
3	*	*	*	*	*	Bushing	Lubricomp 189 Ryton	2	2	2	2	0
4	05355A	05355A	04900A	04991A	05334A	Clapper Hinge Pin	Stainless Steel, UNS-S30400	1	1	1	1	1
5	05445A	05445A	05445A	05445A	05369A	Hinge Pin Retaining Ring	Stainless Steel, UNS-S15700	2	2	2	2	2
6	*	*	*	*	*	Clapper Hex Jam Nut#10-24 UNC	Stainless Steel, UNS-S30400	1	0	0	0	0
						Clapper Hex Jam Nut 3/8"-16 UNC	Stainless Steel, UNS-S30400	0	1	1	0	0
						Clapper Hex Jam Nut 1/2"-13 UNC	Stainless Steel, UNS-S30400	0	0	0	1	1
7	*	*	*	*	*	Sealing Washer	EPDM and Stainless Steel	1	1	1	1	1
8	*	*	*	*	*	Clapper	Teflon Coated HR Steel, UNS-G1018	1	1	1	1	1
9	05360B	05348B	06109B	05801B	08075	Clapper Rubber	EPDM	1	1	1	1	1
10	05361B	08552	06110B	08553	08076	Clapper Rubber Retainer	Stainless Steel, UNS-S30400	1	1	1	1	1
11	*					H.H.C. Screw #10-24 UNC x 1/2" (12,7 mm) Lg.	Stainless Steel, UNS-S30400	1	0	0	0	0
		*	*			Screw, Button Head, Socket 3/8"-24 UNF x 1/2" (12,7) Lg.	Stainless Steel, UNS-S30400	0	1	1	0	0
				10308		Screw, Button Head, Socket, 1/2"-20 UNF x 3/4" (19,0 mm) Lg.	Stainless Steel, UNS-S30400	0	0	0	1	0
					10686	Screw, Button Head, Socket, 1/2"-20 UNF x 7/8" (22,2 mm) Lg.	Stainless Steel, UNS-S30400	0	0	0	0	1
12	--	--	--	--	--	Seat	Brass, UNS-C84400	1	1	1	1	1
13	05354B	05354B	04649B	04992B	05339C	Cover Gasket	SBR Rubber	1	1	1	1	1
14	01517A	01517A	01517A			H.H.C. Screw 3/8"-16 UNC x 3/4" (19,0 mm) Lg.	Steel, Zinc Plated	4	4	6	0	0
				04993A		H.H.C. Screw 1/2"-13 UNC x 7/8" (22,2 mm) Lg.	Steel, Zinc Plated	0	0	0	6	0
					01922A	H.H.C. Screw 5/8"-11 UNC x 1-1/4" (31,8 mm) Lg.	Steel, Zinc Plated	0	0	0	0	6
15	--	--	--	--	--	1/2" (15 mm) NPT Pipe Plug	Steel	2	2	2	0	0
						3/4" (20 mm) NPT Pipe Plug	Steel	0	0	0	2	2

-- Indicates part is not available from The Viking Corporation.  
 \* Indicates part is available in a Sub-Assembly only--see Sub-Assembly list below.

SUB-ASSEMBLIES AVAILABLE						
Item Nos.	2-1/2"	3"	4"	6"	8"	Description
2-11	09939	09940	09941	09942	09943	Cover/Clapper Assembly
3,6-11	05499B	08554	08555	08556	08521	Clapper Assembly
6,7,9-11	06343A	08558	08559	08560	08525	Clapper Rubber Kit
6,7,11	08819					Clapper Screw, Sealing Washer, Nut Assembly
6,7,11		08735	08735	08736	10309	Clapper Screw, Sealing Washer, Nut Assembly

	<b>TECHNICAL DATA</b>	<b>SWING CHECK VALVE</b>
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- A. Verify that the clapper rubber (9) is in good condition and that it is properly installed.
- B. Position the clapper (8) with the elongated hinge holes aligned between the holes of the hinge bracket welded inside the cover (2). The system (top) side of the clapper (8) must face the direction indicated by the flow arrow stamped inside the cover (2).
- C. Insert the hinge pin (4) through the holes at one end of the hinge assembly. Continue to push the hinge pin (4) through the holes at the remaining end of the hinge assembly.

- D. Re-install the hinge pin retaining rings (5).
- 6. **To re-install cover/clapper assembly (2-11):**
  - A. Verify that cover gasket (13) is in position and in good condition.
  - B. Slide the cover/clapper assembly (2-11) into the Check Valve so that the clapper rubber (9) contacts the water seat (12).
  - C. Replace the cover screws (14). Use the appropriate wrench to cross-tighten all screws to the torque value shown in Table 2 for the valve used. Do not over-tighten.

<b>Size Valve</b>	<b>Size Screw</b>	<b>Torque Values</b>
2-1/2" (65 mm)	3/8"-16 H.H.C.	19 ft-lbs 2,63 kg-m
3" (80 mm)	3/8"-16 H.H.C.	19 ft-lbs 2,63 kg-m
4" (100 mm)	3/8"-16 H.H.C.	19 ft-lbs 2,63 kg-m
6" (150 mm)	1/2"-13 H.H.C.	45 ft-lbs 6,23 kg-m
8" (200 mm)	5/8"-11 H.H.C.	93 ft-lbs 12,9 kg-m

Replaces page 803 a-d, dated March 10,1998 (updated clapper screw length).

	<b>TECHNICAL DATA</b>	<b>1-1/2" &amp; 2" SPRING LOADED IN-LINE CHECK VALVE</b>
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**1. PRODUCT NAME**

Viking Spring Loaded In-Line Check Valve  
 Model K-1 NPT Threaded  
 Model L-1 Groove/Groove  
 Manufactured 2002 -

**2. MANUFACTURER**

The Viking Corporation  
 210 N. Industrial Park Road  
 Hastings, Michigan 49058, U.S.A.  
 Telephone: (616) 945-9501  
 (877) 384-5464  
 Fax: (616) 945-9599  
 e-mail: techsvcs@vikingcorp.com

**3. PRODUCT DESCRIPTION**

The Viking Spring Loaded In-Line Check Valve is a general purpose rubber-faced check valve approved for use in fire-service systems. The Spring Loaded In-Line Check Valve is manufactured with a brass body, brass seat, and a rubber-faced clapper assembly.

The valve may be installed vertically or horizontally. For availability of threaded and grooved-grooved options, refer to Table 1. A tapped opening (with plug) is provided on the outlet chamber of the valve for system drain.

The 1-1/2" and 2" check valves should be installed on the outlet riser of the 1-1/2" and 2" deluge valve when installing a listed and approved preaction system. Refer to preaction data pages for current riser schematic.

**4. TECHNICAL DATA**

For listings and approvals, see the approval chart below.

Viking Spring Loaded In-Line Check Valve Approval Chart			
Valve	UL	ULC	FM
1-1/2" Threaded	Yes	Yes	No
2" Threaded	Yes	Yes	No
1-1/2" Groove/Groove	Yes	Yes	Yes
2" Groove/Groove	Yes	Yes	Yes

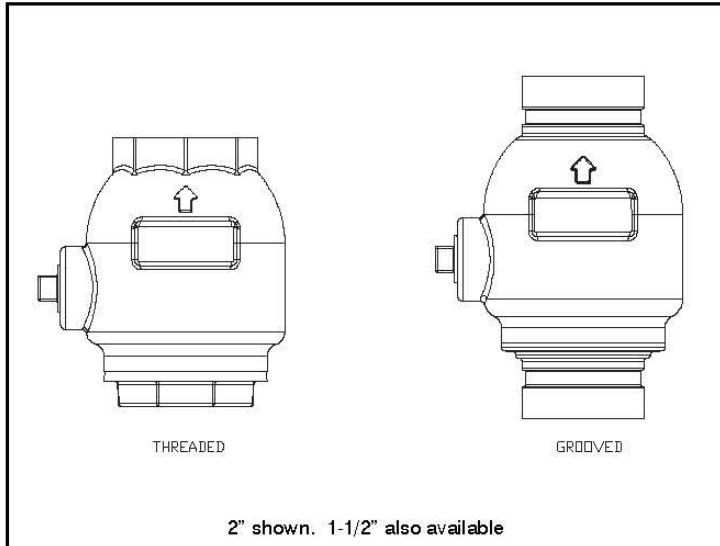
Rated to 250 psi (1 724 kPa) water working pressure.

Factory tested hydrostatically to 500 psi (3 447 kPa).

Standard threaded connections: NPT  
 Standard Grooved connections: ANSI/AWWA C606-87

For piping with grooved connections, the grooved-inlet/grooved-outlet style Spring Loaded In-Line Check Valve may be installed with listed grooved couplings of the appropriate pressure rating.

Form No. F\_012202



**Tapped Bosses:**

One 3/4" (19 mm) NPT:

**Material Standards:**

(Refer to Figure 1 on page 804c or Figure 2 on page 804d.)

**5. FEATURES**

1. Low friction loss.
2. Rated to 250 psi (1 724 kPa) water working pressure.
3. Can be installed vertically or horizontally.
4. 3/4" NPT drain connection above the clapper.
5. 1 PSI cracking pressure

**6. AVAILABILITY AND SERVICE**

The Viking Check Valve and accessories are available through a network of

domestic, Canadian, and international distributors. See the Yellow Pages of the telephone directory for a local distributor (listed under "Sprinklers-Automatic-Fire") or contact The Viking Corporation.

Viking technical data may be found on The Viking Corporation's Web site at <http://www.vikingcorp.com>. The Web site may include a more recent edition of this technical data page.

**7. GUARANTEES**

For details of warranty, refer to Viking's current list price schedule or contact The Viking Corporation directly.

Size Valve	Connection Type	C <sub>v</sub> Factor	Friction Loss*	Shipping Weight	Part No.
1-1/2"	Threaded	57	7	4 lbs	10659
2"	Threaded	105	8	5.5 lbs	10667
1-1/2"	Groove	68	5	4.5 lbs	11054
2"	Groove	102	8	6 lbs	11059

\*Expressed in equivalent length of schedule 40 pipe based on Hazen & Williams formula: C=120

New page issued March 18, 2002.  
 New product.



## TECHNICAL DATA

### 1-1/2" & 2" SPRING LOADED IN-LINE CHECK VALVE

#### 8. OPERATION

(Refer to Figure 1 on page 804c or Figure 2 on page 804d.)

Flow through the Viking Spring Loaded In-Line Check Valve lifts the rubber-gasketed clapper (4 and 5) off the seat (7) to enter the sprinkler piping. When flow through the valve stops, the spring loaded clapper (4) closes quickly. The rubber gasket (5) forms a tight seal against the brass water seat (7), trapping pressure above the clapper and preventing reverse flow from sprinkler piping.

#### 9. INSTALLATION

The Spring Loaded In-Line Check Valve must be installed in an area not subject to physical damage. When corrosive atmospheres and/or contaminated water supplies are present, it is the owner's responsibility to verify compatibility with the Check Valve and associated equipment.

Prior to installing the valve, thoroughly flush the water supply piping to verify that no foreign matter is present.

The Check Valve may be installed in the vertical or horizontal position in line with the directional flow arrow.

#### Hydrostatic Test:

The Check Valve is manufactured and listed for use at a maximum water working pressure of 250 psi (1 724 kPa). The valve is factory tested at 500 psi (3 447 kPa). Check Valves may be hydrostatically tested at 300 psi (2 069 kPa) and/or 50 psi (345 kPa) above the normal water working pressure, for limited periods of time (two hours), for the purpose of acceptance by the Authority Having Jurisdiction. If air testing is required, do not exceed 60 psi (415 kPa) air pressure.

#### 10. INSPECTIONS and TESTS

**NOTICE:** The owner is responsible for maintaining the fire-protection system and devices in proper operating condition.

The Viking Spring Loaded In-Line Check Valve must be kept free of foreign matter, freezing conditions (when used on wet systems), corrosive atmospheres, contaminated water supplies, and any condition that could impair its operation or damage the device.

It is imperative that the system be inspected and tested on a regular basis. The frequency of the inspections may vary due to contaminated water supplies, corrosive water supplies, and corrosive atmospheres. For minimum maintenance and inspection requirements, refer to the National Fire Protection Association's pamphlet that describes care and maintenance of sprinkler systems. In addition, the Authority Having Jurisdiction may have additional maintenance, testing, and inspection requirements which must be followed.

**WARNING:** Any system maintenance which involves placing a control valve or detection system out of service may eliminate the fire-protection capabilities of that system. Prior to proceeding, notify all the Authority Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected areas.

#### 10-A Five-Year Internal Inspection

Internal inspection of Check Valves is recommended every five years unless inspections and tests indicate more frequent inspections are required.

Refer to Figure 1 on page 804c or Figure 2 on page 804d.

1. Notify the Authority Having Jurisdiction, remote station alarm monitors, and those in the area affected that the system will be taken out of service. Consideration should be given to employment of a fire patrol in the affected areas.
2. Close the water supply Main Control Valve, placing the system out of service.
3. Open the main drain. If necessary, open the system test valve to vent and completely drain the system.
4. Remove necessary fittings and/or piping to allow visual inspection.
5. Inspect the water seat (7). Wipe away all contaminants, dirt, and mineral deposits. Do not use solvents or abrasives.
6. Inspect the clapper for debris. Test the clapper (4) for freedom of movement.

**Caution:** NEVER apply any lubricant to seats, gaskets, or any internal operating parts of the valve. Petroleum-based grease or oil will damage rubber components and may prevent proper operation.

#### 11. VALVE MAINTENANCE

(Refer to Figure 1 on page 804c or Figure 2 on page 804d.)

1. Perform steps 1 through 5 of paragraph 10-A FIVE-YEAR INTERNAL INSPECTION.
2. To remove clapper rubber (5):
  - A. Use proper wrench and disassemble valve from system piping.
  - B. Inspect the clapper and rubber from inlet end. If the clapper rubber shows signs of wear, such as cracking, cuts, or excessively deep grooves where the rubber contacts the water seat, replace the valve.



	<b>TECHNICAL DATA</b>	<b>1-1/2" &amp; 2" SPRING LOADED IN-LINE CHECK VALVE</b>
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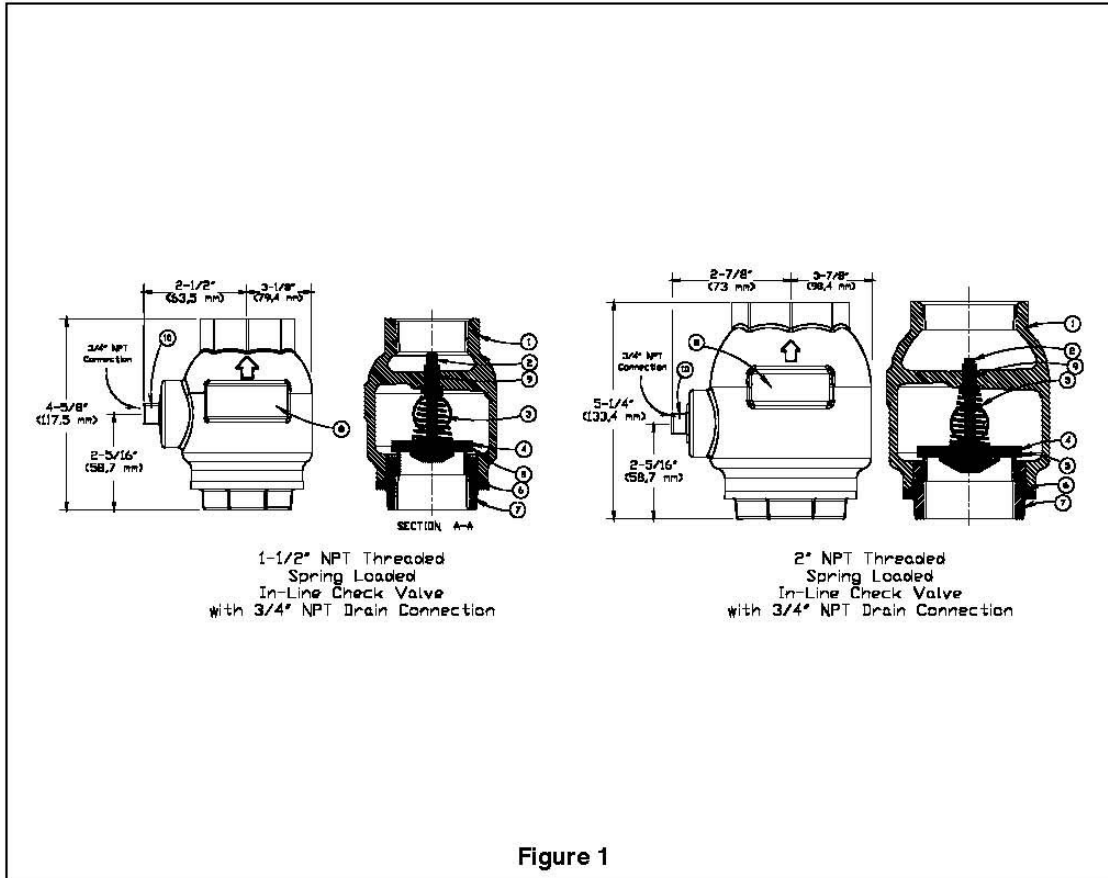


Figure 1

Item No.	Description	Material	No. Req'd.
1	Body, Threaded	Brass, ASTM C-83600	1
2	Guide Pin	UNS-S30300 Stainless Steel	1
3	Spring	302 Stainless Steel	1
4	Clapper, (2" valve)	UNS-C46400 Naval Brass	1
	Clapper, (1-1/2" valve)	UNS-C83600 Naval Brass	1
5	Seat Rubber	EPDM, ASTM D2000	1
6	O-ring	Buna-N	1
7	Seat	Brass, ASTM C-83600	1
8	Data Plate	Aluminum Etched	1
9	Bushing, Guide Rod	Stainless Steel, Type 17-4	1
<b>No replacement parts available. Replace complete valve.</b>			

<b>VIKING<sup>®</sup></b>	<b>TECHNICAL DATA</b>	1-1/2" & 2" SPRING LOADED IN-LINE CHECK VALVE
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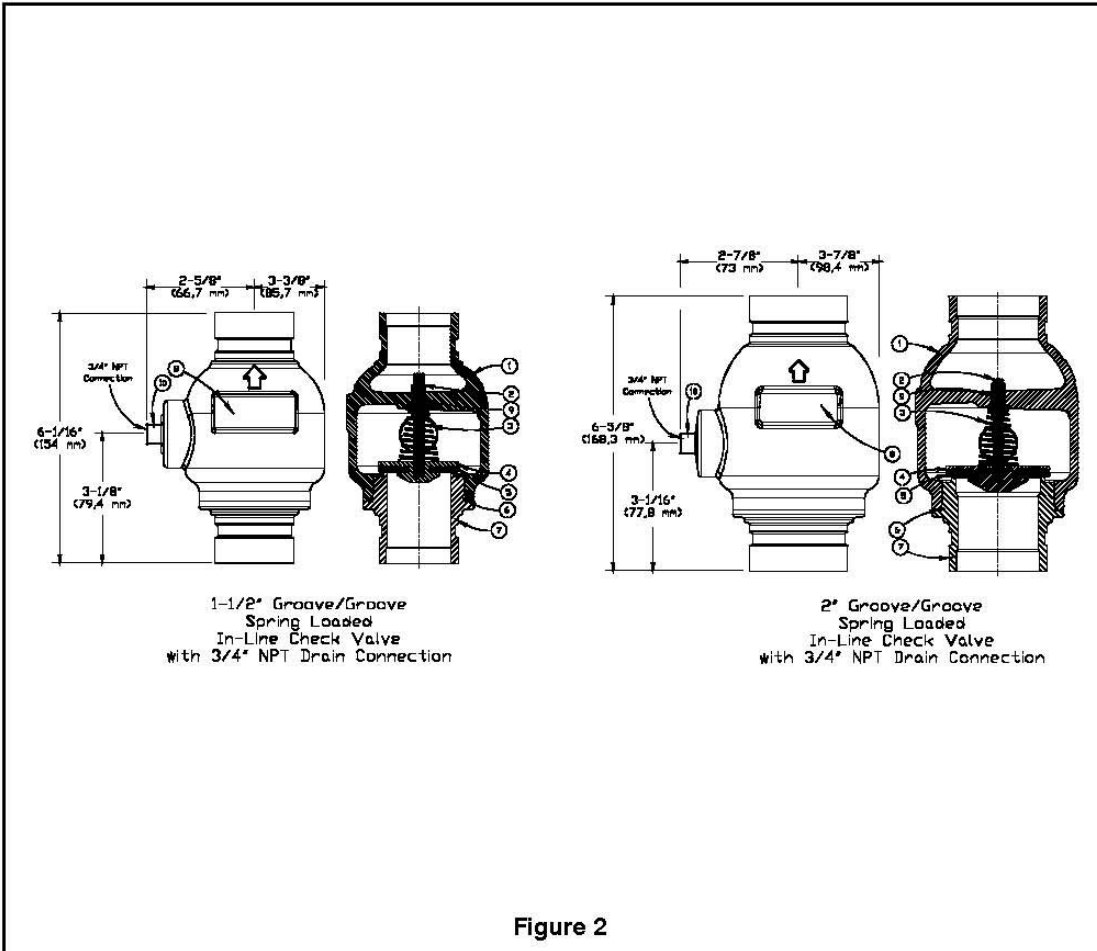


Figure 2

Item No.	Description	Material	No. Req'd.
1	Body, Grooved	Brass, ASTM C-83600	1
2	Guide Pin	UNS-S30300 Stainless Steel	1
3	Spring	302 Stainless Steel	1
4	Clapper, (2" valve)	UNS-C46400 Naval Brass	1
4	Clapper, (1-1/2" Valve)	UNS-C83600 Naval Brass	1
5	Seat Rubber	EPDM, ASTM D2000	1
6	O-ring	Buna-N	1
7	Seat	Brass, ASTM C-83600	1
8	Data Plate	Aluminum Etched	1
9	Bushing, Guide Rod	Stainless Steel, Type 17-4	1
No replacement parts available. Replace complete valve.			

New page issued March 18, 2002.  
New product.

Form No. F\_012202

DIPS-1

**DESCRIPTION:** DOUBLE INTERLOCKED PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC RELEASE, COMPLETELY PREASSEMBLED WITH RELEASE CONTROL SYSTEM IN FINISHED STEEL FLOOR MOUNTED CABINET. UL/FM.

SYSTEM SHALL INCLUDE A DELUGE VALVE, SWING TYPE CHECK VALVE, DRY PIPE ACTUATOR, SOLENOID, WATER PRESSURE AND LOW AIR PRESSURE ALARM SWITCHES, [ACCELERATOR,] AIR SUPPLY, RE-PRESSURE GAUGES FOR SYSTEM AIR AND WATER, AND DELUGE VALVE PRIMING CHAMBER, RELEASE CONTROL PANEL, AND POWER CONNECTIONS.

AIR SUPPLY SHALL BE [AIR COMPRESSOR, AIR PRESSURE MAINTENANCE DEVICE, AIR COMPRESSOR WITH AIR MAINTENANCE DEVICE].

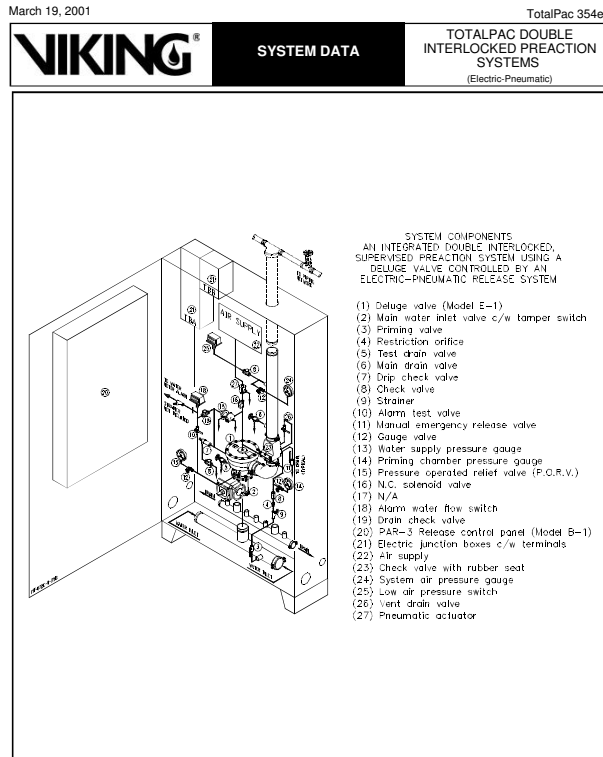
[AIR COMPRESSOR SHALL BE SIZED FOR CAPACITY TO FILL SYSTEM TO REQUIRED PRESSURE IN LESS THAN 30 MINUTES.]

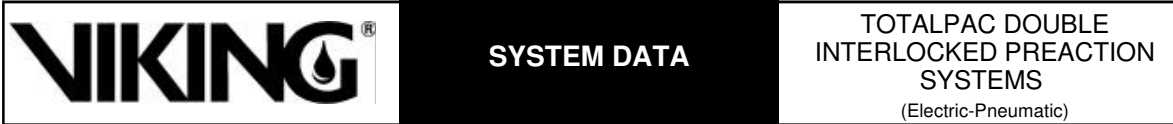
RELEASE CONTROL PANEL, 115V/60 HZ., BATTERY BACKUP WITH CHARGER, FOUR INPUT CIRCUITS, FOUR OUTPUT CIRCUITS, ALARM RELAY, TROUBLE RELAY, TONE SILENCE, ALARM SILENCE [AND DISCHARGE TIMER].

MANUFACTURER & CATALOG NO.: VIKING TOTALPAC, TYCO RED-E, STARFIRE SAFE

Notes to Specifier:

1. Accelerator needed on large systems with volumes > 500 gal. to increase dry pipe actuator response.
2. Air supply requirements must be verified. Air pressure maintenance device required if using central air system or large compressor with pressure fluctuations.
3. contact equipment supplier for list of compatible heat detectors (N.O.) and/or smoke detectors.
4. Verify discharge timer requirements with owner.





## 1. PRODUCT NAME

TotalPac Preaction Systems  
1-1/2" (40mm), 2" (50mm),  
3" (80mm), 4" (100mm), 6" (150mm)  
Manufactured 1994-present

## 2. MANUFACTURED FOR THE VIKING CORPORATION

210 N. Industrial Road  
Hastings, Michigan 49058 U.S.A.  
Telephone: (616) 945-9501

(877) 384-5464

Fax Number: (616) 945-9599

Email: techsvcs@vikingcorp.com

## 3. SYSTEM DESCRIPTION

This TotalPac Double interlocked, supervised, preaction system utilizes an electrically controlled deluge valve on a pneumatically pressurized automatic sprinkler system. The system piping is pneumatically pressurized for supervisory purposes only. If the system piping or sprinkler is damaged, supervisory pressure is reduced and an alarm is actuated.

Actuation of the solenoid valve alone will not open the deluge valve. Fusing of a sprinkler head must also happen in order to operate the pneumatic actuator included in the valve trim, depressurize the priming chamber and opening the main valve. TotalPac units are pre-trimmed, pre-wired and factory tested for quick and easy installation. Components are installed in a sturdy red cabinet for compact placement and protection from dust and oil, eliminating the need for a special closet or room. The unit is complete with the Viking Par-3 control panel.

Neoprene gaskets on doors eliminates vibration.

The only connections required for installation are the water supply, water discharge outlet, main drain, the detection and alarm connections, and the electrical power supply. The discharge outlet is designed to be connected to a fixed piping system of automatic sprinklers. Water is the primary extinguishing agent.

A choice of two types of air supply is also available; A: direct tankless air compressor, and B: air maintenance device (for outside air supply).

The air compressor is available in four sizes for various system sizes up to 550 gallons capacity. See paragraph 8 for further information.

## 4. TECHNICAL DATA

### Approvals:

UL Listed, Guide number VKYL

cUL Listed

ULC Listed Components only

FM Approved components

Accepted by New York Department  
of Buildings MEA 89-92-S Vol.  
XIII.

### Ordering Information:

Part Numbers: See Table 1

Shipping Weights: See Table 1

## 5. SYSTEM OPERATION

When a fire occurs, at least one detector reaches its trip point. One detection circuit is then automatically activated; in crossed zones mode, both detection zones have to be activated. The system alarm audible devices operate and, if desired can be silenced manually. The normally closed (N.C.) solenoid valve (16) of the system is energized, but no water will enter the system since there is still air pressure in the piping network. When a sprinkler head opens causing a loss of air pressure, it allows the opening of the pneumatic actuator (27). Water then escapes from the priming chamber of the deluge valve (1) faster than the supply of the priming line through the restriction orifice (4). The clapper of the deluge valve opens, filling the outlet chamber and causing water to be discharged. Discharge pressure holds the P.O.R.V. (15) open, continuously venting the priming chamber to ensure the deluge valve does not automatically reset. Water flow audible devices and the water motor gong (if installed) will sound.

## 6. GENERAL INSTRUCTIONS AND WARNINGS

- A. Refer to the technical data, system description, applicable codes, and the AHJ for additional installation, operation and maintenance instructions.
- B. Inspections: It is imperative that the system be inspected and tested on a regular basis. The following recommendations are minimum requirements. The frequency of the inspections may vary due to contaminated or corrosive atmospheres. In addition, the alarm devices, detection systems or other connected trim may require more frequent inspections. Refer to the technical data, system description, applicable codes and AHJ for minimum requirements.
- C. **WARNING** – Any system maintenance or testing which involves placing a control valve or detection system out of service may eliminate the Fire Protection of that system. Prior to proceeding, notify all AHJs. Consideration should be given to employment of a Fire Patrol in the affected area.
- D. The assembly must be installed in an area not subject to freezing temperatures or physical damage.
- E. The factory installed trim components must not be changed or altered in any way or the factory warranty may be voided.
- F. The drain header of the TotalPac must be connected to an open drain to prevent back pressuring of the system.

## 7. RELEASE SYSTEM DESIGN

See deluge system and release system design sections. For specific requirements, limitations and applications pertaining to electrical equipment, refer to Installation Guides, applicable codes and AHJs.



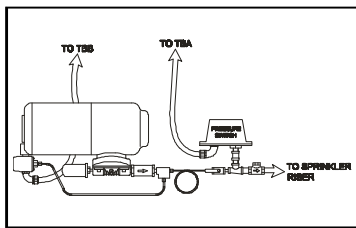
## SYSTEM DATA

## TOTALPAC DOUBLE INTERLOCKED PREACTION SYSTEMS

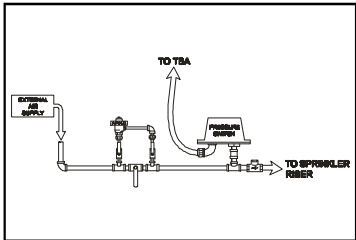
(Electric-Pneumatic)

### 8. AIR SUPPLY DESIGN

Refer to the dry pipe air supply design section, Installation Guides, applicable codes and standards and the AHJ. Air compressor should establish total required air pressure in 30 minutes. The air supply must be maintained automatically. Two basic options are available in TotalPac systems:



**OPTION A**  
DIRECT TANKLESS / AUTOMATIC  
AIR COMPRESSOR



**OPTION B**  
AIR PRESSURE MAINTENANCE  
DEVICE KIT  
(VIKING MODEL D-2)

### 9. PLACING THE SYSTEM IN SERVICE

**NOTE:** The following instructions apply when all connections have been completed but the main water inlet valve (2) is closed. Verify that installation is complete and the system is ready to be placed in service.

- A. If AC power is present, proceed to item B, otherwise turn on the circuit breakers for the control panel and air compressor. Open door to control panel. Silence the alarm audible devices. The green lamp

identified "POWER" is illuminated.

The yellow lamps identified "SUPERVISORY", "SYSTEM TROUBLE" and "POWER TROUBLE" are illuminated. The yellow lamp identified "LOW AIR PRESS. / VALVE SUPV" is flashing.

- B. If battery connections are in place, proceed to item C, otherwise connect the batteries. The yellow lamps for "SYSTEM TROUBLE" and "POWER TROUBLE" go out.
- C. Operate the N.C. solenoid valve (16) by activating either or both detection circuits.
- D. The red lamps identified "DETECTION ZONE 1", "DETECTION ZONE 2", "SYSTEM ALARM" and "SOLENOID OPERATED" will light up. Silence the alarm audible devices. The yellow lamp identified "ALARM SILENCED" lights up.
- E. Open door to hydraulic components. Open test drain valve (5). Open priming valve (3). Make sure that water flows freely from the outlet of the pneumatic actuator (27).
- F. Reset the control panel (20).
- G. Silence the audible signal. The yellow lamp identified "SUPERVISORY" will light up. The yellow lamp identified "LOW AIR PRESS. / VALVE SUPV" is flashing.
- H. Draining will cease from the outlet of pneumatic actuator (27). Open the manual emergency release (11). Make sure that water flows freely through the manual emergency release (11). Close the manual emergency release (11). The priming chamber pressure (14) should be at water supply pressure.
- I. Close main drain valve (6). Open air supply. When air

stops flowing, the system air pressure gauge (24) should read 30 psi  $\pm$  2 psi. Adjust air supply if necessary.

- J. Partially open main water inlet valve (2) until a flow is developed from the drain. Close test drain valve (5).
- K. Open main water inlet valve (2) until fully opened. Priming chamber pressure (14) should be equal to, or higher than, water supply pressure (13).
- L. Make sure there are no leaks inside the cabinet. If necessary, make repairs.
- M. Reset the control panel (20). Close doors to hydraulic components and control panel.
- N. Verify the TotalPac<sup>®</sup> system according to NORMAL CONDITION.

### 10. REMOVING SYSTEM FROM SERVICE

- A. Open door to hydraulic components. CLOSE main water inlet valve (2).
- B. Open door to control panel. Silence the intermittent audible signal. The yellow lamp identified "SUPERVISORY" will light up and the yellow lamp identified "LOW AIR PRESS. / VALVE SUPV" is flashing.
- C. Close air supply. Open test drain valve (5) and main drain valve (6).
- D. Close priming valve (3). Open manual emergency release (11) (placing handle in horizontal position). Priming chamber pressure (14) should read 0 psi. Close manual emergency release (11) (placing handle in vertical position).
- E. When it is necessary to turn off all electrical power to the system, disconnect battery cables and turn off the AC power to the control panel and air compressor. It may be



## SYSTEM DATA

## TOTALPAC DOUBLE INTERLOCKED PREACTION SYSTEMS (Electric-Pneumatic)

necessary to locate and turn off the proper circuit breakers in the electrical distribution panel.

When not actually working on the system, keep all doors of the cabinet closed.

- F. Follow instructions regarding placing the system in service.

### 11. EMERGENCY INSTRUCTIONS

**IMPORTANT:** Make sure the fire is completely extinguished and that placing the system out of service is authorized by the appropriate Authorities Having Jurisdiction.

Placing the system out of service could eliminate the Fire Protection capabilities of the system. If required, place a Fire Patrol in areas covered by the system.

Sprinkler systems that have been subjected to fire must be placed back in service as soon as possible.

The entire system must be inspected for damage, and repaired or replaced as necessary.

- Open door to hydraulic components. Close the main water inlet valve (2). Close air supply. Close priming valve (3).
- Open door to control panel. Silence the audible signal.
- Open main drain valve (6). Open vent drain valve (26) and completely drain the system. Press black button on drip check valve (7). Verify that all water has been drained from the outlet chamber of the deluge valve (1) before attempting to place the system back in service.

**Note:** Open all auxiliary drains and the system test connection to vent the system and drain any low points of the system piping. Allow enough time for the system to drain completely.

- Replace all fused sprinkler heads and detectors damaged by fire.

- Reset the control panel (20). Silence the intermittent audible signal.

**Note:** If the alarm condition reappears, check the TotalPac system for TROUBLESHOOTING.

- Close main drain valve (6). Close vent drain valve (26). Open air supply (see appendix D). The system air pressure gauge (24) should read 30 psi  $\pm$  2 psi.
- Open test drain valve (5). Open priming valve (3). The priming chamber pressure (14) should be at water supply pressure.
- Partially open main water inlet valve (2) until a flow is developed from the drain. Close test drain valve (5).
- Open main water inlet valve (2) until fully opened. Priming chamber pressure (14) should be equal to, or higher than, water supply pressure (13).
- Reset the control panel (20). Close doors to hydraulic components and control panel.
- Verify the TotalPac system according to the NORMAL CONDITION.

### 12. INSPECTION AND MAINTENANCE

- Refer to Item 6. GENERAL INSTRUCTIONS / WARNINGS

#### 12-A WEEKLY TEST

- Open door to hydraulic components. Open the alarm test valve (10). The water motor gong and system pressurized audible devices should sound. The red lamps identified "SYSTEM ALARM" and "WATER FLOW" are flashing.
- Close the alarm test valve (10). The water motor gong will silence. Close door to hydraulic components.
- Open door to control panel. Reset the control panel (20). The system pressurized audible devices will be

deactivated. Close door to control panel.

- Verify the TotalPac system according to the NORMAL CONDITION.

#### 12-B MONTHLY TEST

- Check and register the reading on the static water supply pressure (13).
- Open door to hydraulic components. Open fully test drain valve (5). After a full flow has been established, record the residual (flowing) water supply pressure (13).
- Slowly close test drain valve (5).
- Close door to hydraulic components.
- Compare residual pressure reading recorded in step 2 with readings from previous tests. A large drop in residual pressure from previous readings may indicate that a valve is partially closed or that the main water supply has become obstructed. If so, report the condition and take appropriate action to restore normal water supply conditions.

#### 12-C SEMI ANNUAL TEST

- Open door to hydraulic components. Close main water inlet valve (2). The yellow lamps identified "SUPERVISORY" and "LOW AIR PRESS. / VALVE SUPV" are flashing.
- Open door to control panel. Silence the audible signal.
- Activate a detector on detection zone 1 and/or zone 2. Open main drain valve (6) to simulate the opening of a sprinkler head. System air pressure (24) should read 0 psi.
- The red lamps identified "SYSTEM ALARM", "DETECTION ZONE 1", "DETECTION ZONE 2" and "SOLENOID OPERATED" are illuminated. Silence the alarm audible devices.

	<b>SYSTEM DATA</b>	<b>TOTALPAC DOUBLE INTERLOCKED PREACTION SYSTEMS</b> (Electric-Pneumatic)
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5. The priming chamber pressure (14) is 0 psi. Water will drain from the outlet of the pneumatic actuator (27).
 

**IMPORTANT:** If water does not flow freely from the pneumatic actuator (27), it is possible that the water is extremely hard. Make the necessary repairs or replace the solenoid valve (16) and repeat this test until everything functions properly. When hard water conditions exist, conduct SEMI-ANNUAL TEST more frequently.
  6. Reset the control panel (20). Silence the audible signal.
- Water flow from N.C. solenoid valve (16) will stop. Close main drain valve (6). When air stops flowing into the system, system air pressure should indicate 30 psi ±2 psi.
7. Close priming valve (3). Open manual emergency release (11) (handle in horizontal position) to relieve pressure from the priming chamber of the deluge valve (1). Clean strainer (9) on valve trim.
  8. Close manual emergency release (11) (handle in vertical position). Open priming valve (3). The priming chamber pressure (14) should be at water supply pressure.
  9. Slowly open main water inlet valve (2) until fully opened. Priming chamber pressure (14) should be equal to, or higher than, water supply pressure (13).
  10. Reset the control panel (20). Close doors to hydraulic components and control panel.
  11. Perform monthly test.

<b>Table 1</b> <b>DOUBLE INTERLOCKED</b> <b>TotalPac PREACTION SYSTEM</b>					
SYSTEM SIZE	PART NUMBER	VOLTAGE/Hz	SHIPPING WEIGHT *	CABINET SIZE (D x W x H)	EQUIVALENT FT. OF PIPE
1-1/2" (40 mm)	09771	110VAC 60 HZ	340 lbs. (154 kg)	12" x 24" x 72" (305 mm x 610 mm x 1,829 mm)	37' (11,28 m)
1-1/2" (40 mm)	09772	220VAC 50 HZ	340 lbs. (154 kg)	12" x 24" x 72" (305 mm x 610 mm x 1,829 mm)	37' (11,28 m)
2" (50 mm)	09075	110VAC 60 HZ	520 lbs (236 kg)	16" x 36" x 72" (406 mm x 915 mm x 1,829 mm)	52' (15,85 m)
2" (50 mm)	09083	220VAC 50 HZ	520 lbs (236 kg)	16" x 36" x 72" (406 mm x 915 mm x 1,829 mm)	52' (15,85 m)
3" (80 mm)	09076	110VAC 60 HZ	630 lbs (286 kg)	16" x 36" x 72" (406 mm x 915 mm x 1,829 mm)	71' (21,65 m)
3" (80 mm)	09084	220VAC 50 HZ	630 lbs (286 kg)	16" x 36" x 72" (406 mm x 915 mm x 1,829 mm)	71' (21,65 m)
4" (100 mm)	09077	110VAC 60 HZ	740 lbs (336 kg)	16" x 36" x 72" (406 mm x 915 mm x 1,829 mm)	90' (27,43 m)
4" (100 mm)	09085	220VAC 50 HZ	740 lbs (336 kg)	16" x 36" x 72" (406 mm x 915 mm x 1,829 mm)	90' (27,43 m)
6" (150 mm)	09078	110VAC 60 HZ	900 lbs (409 kg)	20" x 44" x 72" (508 mm x 1,118 mm x 1,829 mm)	100' (30,48 m)
6" (150 mm)	09086	220VAC 50 HZ	900 lbs (409 kg)	20" x 44" x 72" (508 mm x 1,118 mm x 1,829 mm)	100' (30,48 m)

\* Shipping weights include Air Maintenance Device (Option B) and batteries for the control panel. See Deluge page 211a-b for Power Calculations. Shipping weights do not include air compressor (Option A) which can add from 20-60 lbs (9-28 kg) depending on system and compressor size selection. Refer to price sheet for weights on air supply options.

DIPS-2

**DESCRIPTION:** DOUBLE INTERLOCKED PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC RELEASE, COMPLETELY PREASSEMBLED WITH RELEASE CONTROL SYSTEM WITHOUT CABINET. UL/FM.

SYSTEM SHALL INCLUDE A DELUGE VALVE, SWING TYPE CHECK VALVE, DRY PIPE ACTUATOR, SOLENOID, WATER PRESSURE AND LOW AIR PRESSURE ALARM SWITCHES, [ACCELERATOR,] AIR SUPPLY, RE-PRESSURE GAUGES FOR SYSTEM AIR AND WATER, AND DELUGE VALVE PRIMING CHAMBER, RELEASE CONTROL PANEL, AND POWER CONNECTIONS.

AIR SUPPLY SHALL BE [AIR COMPRESSOR, AIR PRESSURE MAINTENANCE DEVICE, AIR COMPRESSOR WITH AIR MAINTENANCE DEVICE].

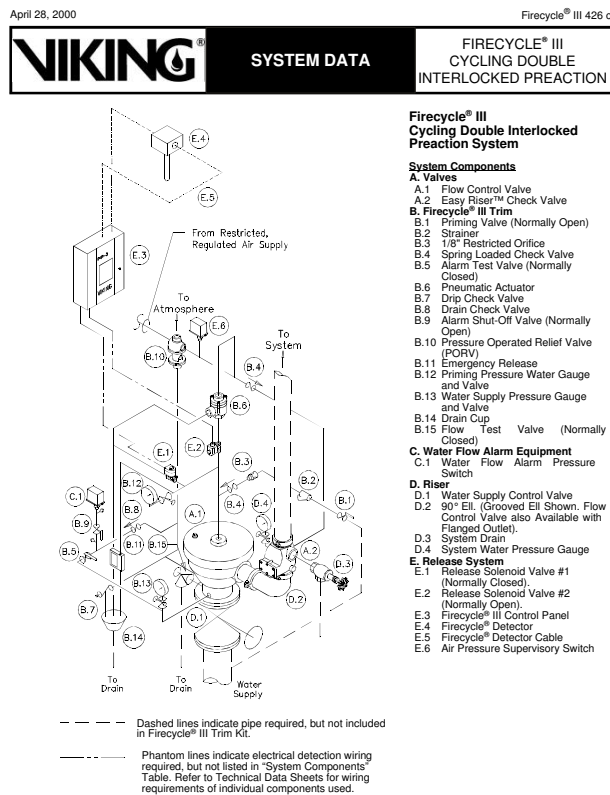
[AIR COMPRESSOR SHALL BE SIZED FOR CAPACITY TO FILL SYSTEM TO REQUIRED PRESSURE IN LESS THAN 30 MINUTES.]

RELEASE CONTROL PANEL, 115V/60 HZ., BATTERY BACKUP WITH CHARGER, FOUR INPUT CIRCUITS, FOUR OUTPUT CIRCUITS, ALARM RELAY, TROUBLE RELAY, TONE SILENCE, ALARM SILENCE [AND DISCHARGE TIMER].

**MANUFACTURER & CATALOG NO.:** VIKING FIRECYCLE III, TYCO F445/F470, RELIABLE TYPE D, STARFIRE SAFE

Notes to Specifier:

1. Accelerator needed on large systems with volumes > 500 gal. to increase dry pipe actuator response.
2. Air supply requirements must be verified. Air pressure maintenance device required if using central air system or large compressor with pressure fluctuations.
3. contact equipment supplier for list of compatible heat detectors (N.O.) and/or smoke detectors.
4. Verify discharge timer requirements with owner.







## SYSTEM DATA

## FIRECYCLE® III CYCLING DOUBLE INTERLOCKED PREACTION

### A. SYSTEM DESCRIPTION

(Refer to Figure 1 on page 426 c.)

The Viking Firecycle® III Cycling Double Interlocked Preaction System utilizes a Viking Model H-1 Flow Control Valve (A.1), a Viking Easy Riser™ Check Valve (A.2), and a Firecycle® III Control Panel (E.3), with additional valves, devices, and trim to form a unique operating system. The system piping is normally dry and may be installed in locations subject to freezing. The system piping is pneumatically pressurized [minimum 30 psi (207 kPa)] to monitor the integrity of the piping, fittings, and sprinklers and to act as a fail-safe emergency backup to the electrical detection system.

In addition to automatically detecting a fire and turning the system on, Firecycle® III has the added ability to sense when the fire has been controlled, and automatically turn off the water flow once a preprogrammed "Soak Timer" has been satisfied. If the fire rekindles, the Firecycle® III will initiate the sequence again. This unique cycling feature will repeat as long as power is available to the panel, helping to minimize water usage, water damage, and the danger of pollution to surrounding areas. Batteries are available to provide up to ninety (90) hours of emergency power. If the A.C. Power fails and the battery backup power expires while the system is operating, the deluge system will "fail-safe", and continue flowing until A.C. Power is restored or the system is manually shut-off.

The Firecycle® III Cycling Double Interlocked Preaction system has several fail-safe features, some of which are not available on other preaction systems. Refer to Section B "System Operation" for details.

Preaction systems are commonly used to help minimize accidental water damage and still provide fast water discharge during a fire. Consult all Authorities Having Jurisdiction prior to installing a Firecycle® III Preaction System. The system requires use of a Viking Flow Control Valve and trim kit with two electric Release Solenoid Valves (E.1) and (E.2) controlled by the Firecycle® III Control Panel (E.3), Firecycle® Detectors (E.4), and Detector Cable (E.5). The detector temperature must be lower than the lowest temperature rated sprinkler being used. For proper location, spacing, and positioning of detectors, refer to Technical Data describing Viking Firecycle® Detectors.

A "Double Interlocked" system requires both electrical detection and loss of sys-

tem air pressure before water is allowed to enter the system piping.

#### NOTE:

Firecycle® III is a complete system, and is listed as a unit. As such, it is normally not possible to modify the components of the system controls or their inter-relation without compromising the listing.

#### Approvals:

UL Listed, Category VLLA

### B. SYSTEM OPERATION

(Refer to Figure 1 on page 426 c.)

#### In the SET condition:

System water supply pressure enters the priming chamber of the Flow Control Valve (A.1) through the 1/4" (8 mm) priming line, which includes a **normally open** priming valve (B.1), strainer (B.2), restricted orifice (B.3), and check valve (B.4). In the SET condition, water supply pressure is trapped in the priming chamber by a check valve (B.4), normally closed Release Solenoid Valve #1 (E.1), Pneumatic Actuator (B.6), and normally closed Emergency Release (B.11). Water Supply pressure in the priming chamber holds the clapper of the Flow Control Valve (A.1) on the seat due to the differential design of the valve and spring pressure. The clapper separates the inlet chamber from the outlet chamber, keeping the outlet chamber and system piping dry.

#### In fire conditions:

In fire conditions, when the Firecycle® III detection system (E.4 and E.5) operates, the Firecycle® III Control Panel (E.3) activates a piezo sounder and initiates the appropriate detection alarms. No water enters the system piping at this time. When a sprinkler operates, as from a fire, system supervisory air pressure is lost, and the Low Air Pressure Supervisory Switch (E.6) is activated only after both indicating circuits have operated. The Firecycle® III Control Panel (E.3) energizes normally closed Release Solenoid Valve #1 (E.1) open and normally open Release Solenoid Valve #2 (E.2) closed. Pressure is released from the priming chamber faster than it is supplied through a restricted orifice (B.3). The Flow Control Valve (A.1) clapper opens to allow water to flow into the system piping and to any optional alarm devices, such as an alarm pressure switch and/or a water motor gong. Water entering the system operates and hydraulically latches the Pressure Operated Relief Valve (PORV) (B.10) open. Water will flow from any open sprinklers or nozzles. Water discharges until all Firecycle® Detectors have reset. (cooled below their set point). After all

detectors have reset, the Firecycle® III Control Panel (E.3) activates the "Soak Timer", allowing the system to continue discharging water for a preset time period. When the "Soak Timer" has expired, the Firecycle® III Control Panel (E.3) de-energizes normally closed Release Solenoid Valve #1 (E.1), allowing it to close. (The normally open Release Solenoid Valve #2 (E.2) remains energized closed until the Firecycle® III Control Panel is manually reset, or both A.C. Power and battery backup have failed.) The Flow Control Valve (A.1) re-primed and closes, stopping the flow of water through the system piping.

If a Firecycle® Detector goes into alarm, the Firecycle® III Control Panel (E.3) re-energizes normally closed Release Solenoid Valve #1 (E.1) open, and the entire cycle repeats.

To return the system to "Normal" conditions, drain the system piping and replace any sprinklers that may have operated. Replace any Firecycle® Detectors that have been damaged and re-establish system air pressure. Press the "System Reset" button on the Firecycle® III Control Panel (E.3) to clear all alarms.

#### Trouble conditions:

If the system piping and/or the sprinklers are damaged and either the AC Power and/or Standby Battery Power is available, the low air supervisory switch will initiate a trouble alarm at the Firecycle® III Control Panel (E.3).

If the detection system is damaged or malfunctions, the Firecycle® III Control Panel will initiate all appropriate alarms. The Flow Control Valve (A.1), however, will not open, and **no water will enter the system piping**. If a sprinkler operates during this condition, water will fill the system piping, activating any connected alarms, and will discharge from

**For Technical Data,  
Installation, Maintenance,  
and Testing Instructions for  
individual system compo-  
nents, refer to current  
Viking Technical Data  
describing individual  
components of the  
system used.**

Viking Technical Data may be found on  
The Viking Corporation's Web site at  
<http://www.vikingcorp.com>.

The Web site may include a more recent  
edition of this Technical Data Page.



## SYSTEM DATA

## FIRECYCLE® III CYCLING DOUBLE INTERLOCKED PREACTION

any opened sprinklers attached to the system. The cycling function of the Firecycle® III System will not operate in this condition, and the system will need to be manually turned off. All alarms will operate normally.

### Loss of AC Power Prior to Operation:

If the AC power fails, the Firecycle® III System continues to operate on the standby batteries. The Firecycle® III Control Panel (E.3) will initiate a trouble alarm and activate the piezo sounder. If the AC power and the standby batteries fail prior to the operation of the system, all alarms will be lost. As long as air pressure remains in the system piping, the Pneumatic Actuator (B.6) will keep the Flow Control Valve (A.1) from opening. If the system air pressure is lost in this condition, the Flow Control Valve (A.1) will open, allowing water to flow into the system piping and be discharged from any open sprinklers. The cycling function of the system will not operate in this condition, and the system must be manually shut-off.

### Loss of Power During Operation:

If all power fails while the system is flowing water, the normally open Release Solenoid #2 will fail open. The cycling function of the system will not operate in this condition, and the system must be manually shut-off.

### Manual Operation:

Any time the handle inside Emergency Release (B.11) is pulled, pressure is released from the priming chamber faster than it can be replaced through the priming line; the Flow Control Valve (A.1) will open. Water will fill the system piping, activating any connected alarms, but will not discharge from any closed sprinklers attached to the system until a sprinkler has operated, as in a fire. The cycling function of the Firecycle® III System will not operate in this condition due to the open Emergency Release (B.11). All alarms will operate normally. After operating the Emergency Release (B.11), do not close the Emergency Release until the system is ready to be reset.

These fail-safe features ensure that the Firecycle® III System continues to provide sprinkler protection even when the detection system and/or the system piping have been damaged.

## C. INSTALLATION

Refer to current Viking Technical Data describing individual components of the Viking Firecycle® III System. Technical Data describing the Viking Flow Control Valve and other system components are packed with product and in the *Viking Engineering and Design Data* book.

Also, refer to applicable installation standards, codes, and Authorities Having Jurisdiction.

1. The Flow Control Valve (A.1) and Trim must be installed only in areas where they will not be subjected to freezing temperatures.
2. All initiating devices (detectors), indicating appliances, and releasing devices must be compatible and approved for use with the Firecycle® III System. Refer to appropriate Fire Protection Equipment Approval Guides and current Viking Technical Data describing individual components of the Viking Firecycle® III System.

## D. EMERGENCY INSTRUCTIONS

(Refer to Figure 1 on page 426 c.)

### Taking System Out of Service:

**WARNING:** Placing a control valve or detection system out of service may eliminate the fire protection capabilities of the system. Prior to proceeding, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected areas. After a fire, verify that the fire is OUT and that placing the system out of service has been authorized by the appropriate Authority Having Jurisdiction.

Sprinkler systems that have been subjected to a fire must be returned to service as soon as possible. The entire system must be inspected for damage and repaired or replaced as necessary.

1. If All System Components Are Operational:
  - A. Open System Drain (D.3).
  - B. Silence alarms (optional).
    1. To silence electric alarms controlled by Firecycle® III Control Panel (E.3), open the panel and press "ALARM SILENCE"
    2. To silence electric alarms not controlled by Firecycle® III Control Panel (E.1), close the Alarm Shut-Off Valve (B.9).
 

**Note:** Electric Alarms controlled by a pressure switch installed in the 1/2" (15 mm) NPT connection for a Non-interruptible Alarm Pressure Switch cannot be shut off until the Flow Control Valve is reset or taken out of service.
- C. To return to service immediately (when no maintenance or repairs are required):
  1. Close System Drain (D.3) if opened in Step 1-A.
  2. Restore system air pressure.
  3. Open the Firecycle® III Control Panel (E.3) and press "RESET".

4. Open the Alarm Shut-Off Valve (B.9) (if it was closed in step 1-B.2 above).

5. Close the System Drain (D.3).
6. Verify that all valves are secured in their normal operating position. (Refer to Figure 1 on page 426 c.)

2. If it is necessary to remove the Firecycle® III System from service:

- A. Close the Main Water Supply control Valve (D.1).

- B. Close Priming Valve (B.1) (optional). If necessary, open the System Drain (D.3) to drain system and/or Test Valve (B.15) to drain the inlet chamber of the Flow Control Valve (A.1).

- C. Disconnect all power sources to the Firecycle® III Panel prior to performing any maintenance or repairs to the detection system (E.4, E.5), the panel (E.3), solenoid valves (E.1, E.2), or any electrical component of the system.

3. Perform all maintenance procedures recommended in Firecycle® III Owner's Manual and Technical Data Pages for the individual components of the system that has operated.

- A. Replace any piping, detectors (E.4), or sections of detection cable (E.5) that have been damaged.

**Note:** The complete system operation must be tested after servicing, changing programming, addition or deletion of system components, or after any modification, repair, or adjustment to system hardware or wiring. All components, circuits, system operation, or software functions known to be affected by a change must be 100% tested.

- B. Replace any sprinklers and/or spray nozzles that have been damaged or exposed to fire conditions.

4. Restore AC power to Firecycle® III Control Panel (E.3). Ensure that standby batteries are charged or charging.

Always connect and turn on AC power source prior to connecting the standby batteries. Connecting the standby batteries to the Firecycle® III Control Panel (E.3) before the AC power is connected and turned on may damage the panel.

5. Return the system to service. Refer to Section E: "PLACING THE SYSTEM IN SERVICE".



## SYSTEM DATA

## FIRECYCLE® III CYCLING DOUBLE INTERLOCKED PREACTION

### E. PLACING THE SYSTEM IN SERVICE AT INITIAL START-UP

(Refer to Figure 1 on page 426 c.)

**Note:** Refer to Firecycle® III Owner's Manual, and instructions provided in Technical Data describing the Viking Flow Control Valve and other system components.

#### To Return the System to Service:

1. Verify that the Firecycle® III Control Panel (E.3), Detector Circuits, and Detectors have been properly installed and energized according to instructions provided in Viking Technical Data and the Firecycle® III Owner's Manual.
2. Verify that the system has been properly drained. (When plunger is depressed on drip check (B.7), no water should flow.) System Drain (D.3) should be open. Verify that Emergency Release (B.11) is closed.
3. Verify that the System Main Water Supply Control Valve (D.1) is closed and the Flow Control Valve (A.1) is trimmed according to current Viking Trim Charts and schematic drawings for the system used.
4. Verify that the system water supply piping is pressurized up to the closed System Main Water Supply Control Valve (D.1) and the priming line is pressurized up to the closed Priming Valve (B.1).
5. Restore system air pressure.
6. Open the Priming Valve (B.1).
7. Reset the Firecycle® III Control Panel (E.3) (open the panel and press "RESET").  
Release Solenoid Valve #1 (E.1) should close. Flow from Release Solenoid Valve #1 (E.1) to Drain Cup (B.14) should stop.
8. Open the Flow Test Valve (B.15).
8. Partially open the Main Water Supply Control Valve (D.1).
10. When full flow develops from the Flow Test Valve (B.15), close the Flow Test Valve.
  - a. Verify that there is no flow from the open Auxiliary Drain (B.6).
11. Close the Auxiliary Drain (B.6).
12. Fully open and secure the Main Water Supply Control Valve (D.1).
13. Verify that the Alarm Shut-off Valve (B.9) is open and that all other valves are in their normal operating position.
14. Depress the plunger of Drip Check (B.7). No water should flow from the

Drip Check when the plunger is pushed.

### F. INSPECTIONS and TESTS

It is imperative that the system be inspected and tested on a regular basis. Refer to INSPECTIONS and TESTS recommended in current Viking Technical Data describing individual components of the Viking Firecycle® III System. Where difficulty in performance is experienced, the manufacturer or their authorized representative shall be contacted if any field adjustment is to be made. The frequency of the inspections may vary due to contaminated or corrosive water supplies or corrosive atmospheres. For minimum maintenance and inspection requirements, refer to the National Fire Protection Association's pamphlet that describes care and maintenance of sprinkler systems. In addition, the Authority Having Jurisdiction may have additional maintenance, testing, and inspection requirements that must be followed.

**WARNING:** Any system maintenance that involves placing a control valve or detection system out of service may eliminate the fire protection capabilities of that system. Prior to proceeding, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected areas.

### G. MAINTENANCE

**NOTICE:** The owner is responsible for maintaining the fire protection system and devices in proper operating condition.

#### Repairs:

To perform maintenance on Detection cable or Detectors without taking the entire system out of service:

Disable input zone #1. Disabling input zone #1 disables the detection cable and detectors, leaving the ability to operate the Preaction System manually by use of the Emergency Release. The cycling feature normally provided by the Firecycle Detectors will be disabled.

**Note:** When zone #1 alone is disabled, if it is necessary to activate the system using the Emergency, do not reset the Emergency Release. If the Emergency Release is reset, the system may cycle off.

If both input zone #1 and input zone #3 are disabled, the system will operate as a dry. If air pressure in the system is reduced, the Flow Control Valve will trip

and water will flow into the sprinkler system. The cycling option will be disabled. To disable input circuits and associated output circuits for maintenance, refer to Firecycle® III Owner's Manual and applicable Firecycle® III wiring diagram to determine which output circuits are activated by each input circuit.

1. Open the Firecycle® III Control Panel.
2. Press and hold TONE SILENCE button.
3. While holding the TONE SILENCE button, press the following buttons in sequence: ALARM SILENCE, ALARM ACTIVATE, SYSTEM RESET.
  - A. The zone #1 LED will flash indicating Zone #1 is selected. To disable zone #1, continue holding the TONE SILENCE button and press SYSTEM RESET once (again). The yellow LED will flash indicating zone #1 is disabled.
  - B. To disable subsequent zones, continue holding the TONE SILENCE button, and press the ALARM SILENCE button to select the next zone (the LED will flash on the zone selected) or ALARM ACTIVATE button to select the previous zone. Continue to holding ALARM SILENCE and press SYSTEM RESET to disable a selected zone. When disabled, the yellow LED will flash indicating the zone is disabled.

4. When desired zones are disabled, release the TONE SILENCE button. The Piezo sounder will sound.
5. To silence the Piezo, press TONE SILENCE.
6. To re-enable a disabled zone, repeat the procedure.

**Note:** If any zone has been disabled, the Trouble Relay will activate and the System Trouble LED will flash. If a zone has been disabled, an alarm that occurs on that zone will flash the red zone LED, but will not sound the Piezo or activate any output circuit. If both power sources are removed from the system, all zones will be re-enabled upon restoration of power. Disable status is lost. Refer also to MAINTENANCE INSTRUCTIONS provided in current Viking Technical Data describing individual components of the Viking Firecycle® III System.

**DESCRIPTION:** DRY PIPE VALVE, 4" GROOVED OR FLANGED, 175 PSI WP, AIR PRESSURE TO WATER PRESSURE AREA DIFFERENTIAL IS APPROXIMATELY 6 TO 1, EPDM RUBBER TO BRASS AIR AND WATER SEATS, SPRING-LOADED CLAPPER WITH FULLY OPEN LATCH, 1" NPT TAPPED OUTLET, UL/FM.

**MANUFACTURER & CATALOG NO.:** VIKING F-1, TYCO DPV-1, RELIABLE D.

April 15, 2002

Dry Systems 120 a

	<b>TECHNICAL DATA</b>	<b>MODEL F-1 DRY VALVE</b>
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**1. PRODUCT NAME**

VIKING MODEL F-1 DRY VALVE  
 3" (80 mm) Available since 1997  
 4" (100 mm) Available since 1993  
 6" (150 mm) Available since 1994  
 Flange Inlet with Flange Outlet  
 Flange Inlet with Groove Outlet

**2. MANUFACTURER**

THE VIKING CORPORATION  
 210 N. Industrial Park Road  
 Hastings, Michigan 49058 U.S.A.  
 Telephone: (616) 945-9501  
 (877) 384-5464  
 Fax: (616) 945-9599  
 e-mail: techsvcs@vikingcorp.com

**3. PRODUCT DESCRIPTION**

The Viking Model F-1 Dry Pipe Valve is a latching differential valve used to separate the water supply from the dry pipe sprinkler system. The valve combines a positive latching clapper and air plate assembly, with a differential air to water seat design. The latching clapper and air plate assembly provides a positive mechanical seal for the air pressure in the dry pipe system. The differential design allows an air supply of moderate pressure to control a higher water supply pressure. When the air pressure in the dry pipe system is lowered sufficiently to destroy the pressure differential, the valve opens allowing water to enter the dry pipe system. The valve is also designed to operate a water motor alarm and/or an electric pressure alarm switch. The Viking accelerator with external Anti-flood Device can be used to speed the operation of the valve on large capacity systems or where faster action is required.

**4. TECHNICAL DATA**

**LISTINGS AND APPROVALS**

See Approval Chart  
 Rated to 175 PSI (1 207 kPa) Water Working Pressure.  
 Factory tested hydrostatically at 350 PSI (2 413 kPa) with the clapper open.  
 Air pressure to water pressure area differential: Approximately 6 to 1.  
 Standard Flange Connections  
 ANSI B16.1.  
 Standard Groove Connections.  
 ANSI/AWWA C606  
 Dry Valve is painted red for identification purposes.

**MATERIAL STANDARDS**

Material Specifications:  
 Refer to TABLE 2

**5. ACCESSORIES**

Note: Units of measure in parentheses may be approximations.  
 Form No. F\_070392



Valve Size	UL <sup>1</sup>	ULC	FM <sup>2</sup>	NYC
3" Model F-1	Yes	Yes	Yes	Yes <sup>3</sup>
4" Model F-1	Yes	Yes	Yes	Yes <sup>3</sup>
6" Model F-1	Yes	Yes	Yes	Yes <sup>3</sup>

<sup>1</sup> UL listed, Guide VPZV, Control No. 958A.  
<sup>2</sup> Consult FM Approval Guide for acceptable applications.  
<sup>3</sup> Accepted by City of New York Department of Buildings MEA 89-92-E, Vol. 22.

Valve Size	Inlet Type	Outlet Type	Friction Loss*	Shipping Weight	P/N
3" (80 mm)	Flange	Flange	1.6 ft. (0,49 m)	130 lbs (59 kg)	09441
3" (80 mm)	Flange	Groove	1.6 ft. (0,49 m)	125 lbs (57 kg)	09446
4" (100 mm)	Flange	Flange	5.9 ft. (1,80 m)	130 lbs (59 kg)	07628
4" (100 mm)	Flange	Groove	5.9 ft. (1,80 m)	125 lbs (57 kg)	07627
6" (150 mm)	Flange	Flange	48.0 ft. (14,6 m)	197 lbs (89 kg)	08464
6" (150 mm)	Flange	Groove	48.0 ft. (14,6 m)	184 lbs (84 kg)	08491

\* Expressed in equivalent length of Schedule 40 pipe based on Hazen & Williams formula: C = 120.

The following Viking Model F-1 Dry Valves are available outside North America with flanges drilled according to European P/N 10 specifications\*\*.

Valve Size	Inlet Type	Outlet Type	Friction Loss*	Shipping Weight	P/N
3" (80 mm)	Flange	Flange	1.6 ft. (0,49 m)	130 lbs (59 kg)	09969
3" (80 mm)	Flange	Groove	1.6 ft. (0,49 m)	125 lbs (57 kg)	09970
4" (100 mm)	Flange	Flange	5.9 ft. (1,80 m)	130 lbs (59 kg)	08841
4" (100 mm)	Flange	Groove	5.9 ft. (1,80 m)	125 lbs (57 kg)	09538
6" (150 mm)	Flange	Flange	48.0 ft. (14,6 m)	197 lbs (89 kg)	08923

\* Expressed in equivalent length of Schedule 40 pipe based on Hazen & Williams formula: C = 120.  
 \*\* Flange diameters and thickness are manufactured to ANSI B16.1 specifications and dimensions.

- Model F-1 Dry Valve CONVENTIONAL TRIM PACKAGE:  
 3" Trim Package: Part No. 10158 (galvanized steel)  
 4" & 6" Trim Package: Part No. 08395 (galvanized steel)  
 For use when the Model F-1 Dry Valve is used on systems with fresh water supplies.
  - Model F-1 Dry Valve FOAM SYSTEM TRIM PACKAGE:  
 3" Trim Package: Part No. 10159  
 4" & 6" Trim Package: Part No. 08396  
 For use when the Model F-1 Dry Valve is used on pre-mixed foam systems.
  - Model F-1 Dry Valve ACCESSORY PACKAGE: Part No. 08397  
 Includes required trim components. This package is needed when Viking Trim Packages are not used.
  - E-1 ACCELERATOR AND B-1 ANTI-FLOOD ASSEMBLY PACKAGE: Part No. 08116 Includes: Model E-1 Accelerator and Model B-1 Anti-flood Device.
  - E-1 ACCELERATOR TRIM KIT: Part No. 08264 (galvanized steel) Package includes trim components and air gauge required to install the Viking Model E-1 Accelerator and B-1 Anti-flood Device.
  - E-1 ACCELERATOR FOAM SYSTEM TRIM KIT: Part No. 08400 Package includes trim components required when the Viking Model E-1 Accelerator and B-1 Anti-flood Device are installed on pre-mixed foam systems.
- Additional accessories are available and may be required for operation or supervision. Refer to the system description for complete operating trim requirements.

**6. AVAILABILITY & SERVICE**

The Viking Model F-1 Dry Pipe Valve and accessories are available through a network of domestic, Canadian, and international distributors. See the Yellow Pages of the telephone directory for a local distributor (listed under "Sprinklers-Automatic-Fire") or contact The Viking Corporation.

**7. GUARANTEES**

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

**8. OPERATION** (Refer to Figure 2.)

The clapper (5) and air plate (11) assemblies combine to form a floating member assembly. With the clapper assembly (5) latched closed, system air pressure forces the member assembly

Replaces page 120 a-h, dated August 25, 1997.  
 (Added New York City Approval for 3" & 6" Valve.)



down, sealing the water seat (16) from the intermediate chamber. When a sprinkler operates, the system air pressure is reduced. When system air pressure is reduced to the differential tripping point of the valve, water supply pressure in the inlet chamber lifts the member assembly off the water seat (16) and flows into the intermediate chamber. As the member assembly continues to rise, the latching hook (15) is forced against operating pin (23), which causes the hook (15) to pivot on hook rod (6b) and unlatch the clapper. The clapper is spring loaded and swings to a full-open locked position (See Figure 2A).

When equipped with the optional Accelerator and external Anti-flood Device, a drop in system air pressure causes the Accelerator to operate. Operation of the Accelerator causes the Anti-flood Device to open allowing system air pressure to enter the dry valve intermediate chamber. This immediately destroys the pressure differential, causing the member assembly to rise faster.

The intermediate chamber is normally at atmospheric pressure and is connected to the alarm line. When the valve trips, the intermediate chamber and alarm line are pressurized with system water pressure, activating alarms connected to the dry valve trim.

**9. INSTALLATION**

For proper operation and approval, the valve must be trimmed in accordance with Viking Model F-1 Dry Valve Trim Charts.

The Model F-1 Dry Valve must be installed in the vertical position as shown in Figure 2.

Air or nitrogen supply to the dry pipe system must be clean, dry, and oil free.

Automatic air supplies must be regulated, restricted, and from a continuous source. A Viking Air Maintenance Device should be installed on each system equipped with an automatic air supply. Never exceed 60 PSI (414 kPa) pressure in the system piping with the dry valve clapper closed.

The dry valve must be installed in an area not subject to freezing temperatures or physical damage. If required, provide a valve house (enclosure) with adequate heat around the dry valve and trim. Freezing temperatures and/or excessive pressure will damage the dry valve member assembly.

When corrosive atmospheres and/or contaminated water supplies are present, it is the owner's responsibility to ver

ify compatibility with the Model F-1 Dry Valve and associated equipment. Consider installation of the Viking Accelerator and Anti-flood Device. An accelerator (quick opening device) is recommended on all differential dry pipe

valves and is required on dry pipe systems of certain capacities. Refer to Installation Standards and Authorities Having Jurisdiction. If an accelerator to be installed, verify that the appropriate Trim Chart is used.

**Table 2**  
For use with Figure 2

Item No.	Part Number			Description	Material	No. Req'd		
	3" F-1	4" F-1	6" F-1			3"	4"	6"
1	-	-	-	Housing	Ductile Iron: 65-45-12	1	1	1
2	07641	07641	07641	Latch	Brass: UNS-C84400	1	1	1
3	08449	08449	08449	Latch Pin	Brass: UNS-C36000	1	1	1
4	-	-	-	1/2" NPT Pipe Plug	Steel	1	1	1
5	*	*	*	Clapper Assembly (includes bushings)	Ductile Iron: 65-45-12 Teflon <sup>®</sup> Coated Steel	1	1	1
6a	07654	07654	07654	Clapper Rod	Brass: UNS-C36000	1	1	1
6b	07654	07654	07654	Hook Rod	Brass: UNS-C36000	1	1	1
7	05369A	05369A	05369A	Retaining Ring	Stn. Stl.: UNS-S15700	6	6	6
8	07934	07934	08480	Clapper Arm Ass'y (includes bushings)	Ductile Iron: 65-45-12 Teflon <sup>®</sup> Coated Steel	1	1	1
9	07658	07658	07658	Spring	Type 302 Stn. Stl. Wire	1	1	1
10	07655	07655	07655	Clapper Arm Rod	Brass: UNS-C36000	1	1	1
11	*	*	*	Air Plate Ass'y (includes bushings)	Ductile Iron: 65-45-12 Teflon <sup>®</sup> Coated Steel	1	1	1
12	07650	07650	08477	Diaphragm	Nylon Reinforced Neoprene	1	1	1
13	07649	07649	08478	Diaphragm Retainer	Ductile Iron: 65-45-12	1	1	1
14	-	-	-	H.H.C. Screw 3/8" - 16 x 3/4" (19,0 mm) Lg.	Steel: Zinc Plated	10	10	12
15	07935	07935	07935	Hook Ass'y (includes bushings)	Ductile Iron: 65-45-12 Teflon <sup>®</sup> Coated Steel	1	1	1
16	-	-	-	Water Seat	Brass: UNS-C84400	1	1	1
17	-	-	-	H.H.C. Screw 3/8" - 16 x 1/2" (12,7 mm) Lg.	Stn. Stl.: UNS-S30400	1	1	1
18	07659	07659	07659	Rubber Retainer	Stn. Stl.: UNS-S30400	1	1	1
19	07651	07651	08487	Clapper Rubber	Ethylene Propylene	1	1	1
20	*	*	*	Air Seat	Brass: UNS-C84400	1	1	1
21	02079A	02079A	02079A	5/8" - 11 x 2" (50,8 mm) Lg. H.H.C. Screw	Steel	14	14	16
22	-	-	-	Base	Ductile Iron: 65-45-12	1	1	1
23	08056	08056	08056	Soc. Set Screw Ass'y 1/2" - 13 x 1" (25,4 mm) Lg.	Brass: UNS-C36000	1	1	1
24	05436C	05436C	05436C	Cover	Ductile Iron: 65-45-12	1	1	1
25	04187B	04187B	04187B	Cover Gasket	SBR Garlok 181	1	1	1

--Indicates part is not available from Viking.  
\*Indicates part is available in a Sub-Assembly. See Sub-Assembly List.

**SUB-ASSEMBLIES**

Item Nos. Included	Part Number			Sub-Assembly Description	No. Req'd		
	3"	4"	6"		3"	4"	6"
5-15, 17-20	08230	08230	08473	Replacement Member Sub-Assembly	1	1	1
11-14, 20	08323	08323	08489	Replacement Air Plate Sub-Assembly	1	1	1
5, 17, 18, 19	08324	08324	08490	Replacement Clapper Sub-Assembly	1	1	1



TECHNICAL DATA

MODEL F-1  
DRY VALVE

Prior to installing the valve, thoroughly flush the water supply piping to verify that no foreign matter is present.

**9-A. General Installation Instructions**

1. Verify that necessary Trim Charts and Technical Data for the dry valve and associated equipment are available.
2. Remove all plastic thread protectors from the openings of the dry valve.
3. Apply a small amount of pipe-joint compound or tape to the external threads of all pipe connections required. Take care not to allow any compound, tape, or other foreign matter inside any of the nipples or

openings of the dry valve or trim components.

4. Install the Model F-1 Dry Valve and trim piping according to the current Model F-1 Dry Valve Trim Chart provided with the Trim Package and the *Viking Engineering and Design Data* book. The Model F-1 Dry Valve must be installed in the vertical position.
5. When installing a Viking Accelerator and Anti-flood Device in conjunction with the Model F-1 Dry Valve, refer to the appropriate Viking E-1 Accelerator Trim Chart provided with the Accelerator Trim Package and the *Viking Engineering and Design Data*

*book.*

- a. When a Viking Accelerator is installed on the Model F-1 Dry Valve, the dry system air supply must be connected as shown on the Model E-1 Accelerator Trim Chart.
- b. The Viking external Anti-flood Device is required when a Viking Accelerator is installed on a Dry Valve according to the Model E-1 Accelerator Trim Chart.

**Hydrostatic Test:**

**Caution:** The dry valve clapper must be latched open during performance of the hydrostatic test.

**Do not perform a 200 PSI (1 379 kPa) hydrostatic system test with the dry valve clapper in the closed (set) position.**

**Never exceed 60 PSI (414 kPa) air pressure in the system piping with the dry valve clapper closed.**

DO NOT expose the Viking Accelerator to the hydrostatic test. For warnings and considerations regarding hydrostatic testing of the Viking Accelerator and other system components, refer to Technical Data for the equipment used.

**10. PLACING DRY VALVE IN SERVICE** (Refer to Figure 2.)

When the dry pipe system is ready to be placed in service, verify that all equipment is adequately heated and pro-

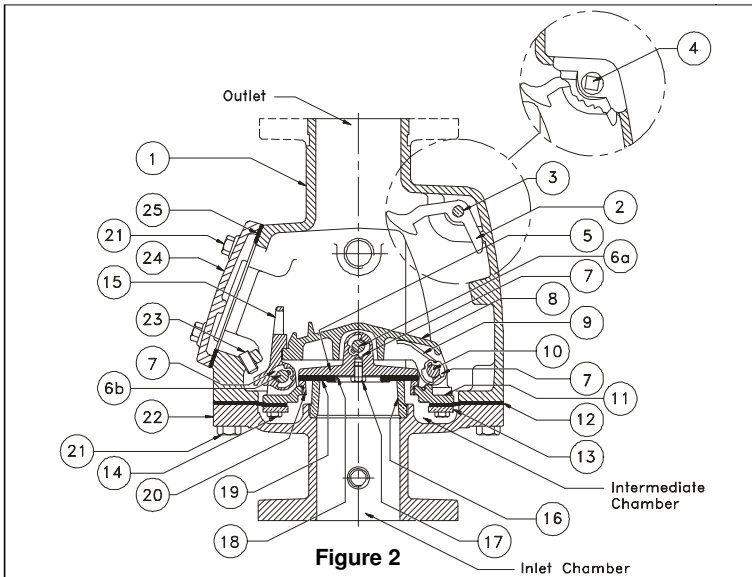


Figure 2

Size	Model	A	B	C	D	E	F	G
3" (80 mm)	F-1	18-1/4" (464 mm)	7" (178 mm)	12-1/2" (318 mm)	10" (254 mm)	-	23" (584 mm)	34-1/2" (876 mm)
3" (80 mm)	F-1	18-1/4" (464 mm)	7" (178 mm)	12-1/2" (318 mm)	10" (254 mm)	-	23" (584 mm)	34-1/2" (876 mm)
6" (150 mm)	F-1	20-1/16" (510 mm)	7-5/16" (186 mm)	14" (356 mm)	10" (254 mm)	14-3/4" (375 mm)	23" (584 mm)	36" (914 mm)

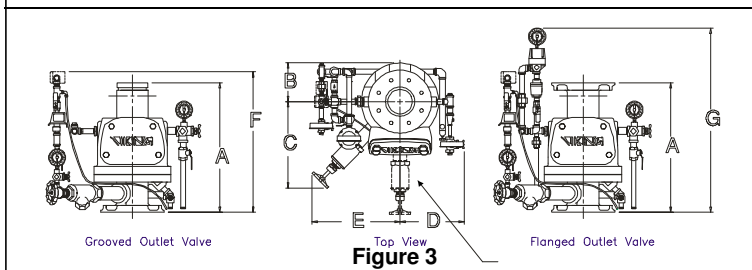
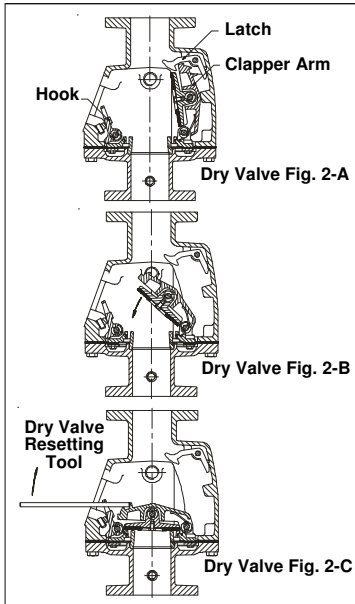


Figure 3





**TECHNICAL DATA**

**MODEL F-1  
DRY VALVE**

ected to prevent freezing and physical damage.

1. Verify that the water supply main control valve supplying the dry valve is closed.
2. Open the main drain valve (located on the inlet of the dry valve).
3. Drain all water from the dry pipe system. If the system has operated, or if water has entered the system, open all auxiliary drains and the system test valve. Allow enough time to completely drain the system.

**Perform steps 4 through 10 to set the dry valve and/or inspect the internal operating parts of the dry valve.**

4. Verify that the dry pipe system is not pressurized.
5. Use a 15/16" wrench to loosen and remove hand-hole cover bolts (21). Remove hand-hole cover (24).

**Caution:** Clapper arm assembly (8) and clapper assembly (5) are spring loaded to open. NEVER place hands inside the dry valve if the clapper assembly is latched closed.

**To release a latched clapper assembly for service:**

- a. Insert the re-setting tool through the hole in hook assembly (15), across the fulcrum cast on top of clapper arm assembly (8) until the re-setting tool contacts the stopping boss on top of clapper arm assembly (8) (see Figure 2C).
- b. Apply a downward force on the end (outside the valve) of the re-setting tool. Hook assembly (15) will slide toward the hand-hole and off clapper arm assembly (8). Clapper arm assembly (8) and clapper assembly (5) will forcefully open, impact against latch (2), and latch in the open position.

**Note:** Inspection and cleaning procedure step 6 below is considered part of the annual trip test.

6. Inspect and clean the internal parts of the valve. Give special consideration to the water seat (16), air seat (20) and clapper rubber (19). Wipe away all contaminants, dirt, and mineral deposits. Do not use solvents or abrasives.

Operate all parts to test freedom of movement. Renew or replace damaged or worn parts as required.

**Caution:** NEVER apply any lubricant to seats, gaskets, or any internal operating parts of the dry valve. Petroleum based grease or oil will damage rubber components and may prevent proper operation of the dry valve.

7. **To set the dry valve clapper.**  
Refer to figures 2, 2A, 2B, and 2C.

Table 1					
Maximum Water Pressure		Air Pressure Setting			
		Minimum		Maximum	
PSI	kPa	PSI	kPa	PSI	kPa
50	345	15	103	25	172
75	517	20	138	30	207
100	690	25	172	35	241
125	862	30	207	45	310
150	1034	35	241	50	345
175	1207	45	310	60	414

- a. Raise the latch (2) to release spring loaded clapper arm assembly (8) from the latched open position.
  - b. Move the clapper arm assembly (8) down toward the horizontal position (see Figure 2B).
  - c. While holding spring loaded clapper arm assembly (8) down, insert the re-setting tool through the hole in hook assembly (15), across the fulcrum cast on top of clapper arm assembly (8) until the re-setting tool contacts the stopping boss as shown in Figure 2-C.
  - d. Apply a sharp upward force at the end of the re-setting tool. Hook (15) will slide forward on the re-setting bar and latch the clapper closed with a positive setting action (see Figure 2C).
8. Priming water is not required and may not be desirable where clean, good quality fresh water is not available. If priming water is desired, fill the dry valve with water to the bottom of the hand-hole.
    - a. Verify that the intermediate chamber of the dry valve is free of water. No water should flow from the drip check when the plunger is pushed.
  9. Visually inspect hand-hole cover gasket (25). Verify that it is in good condition.
  10. Re-install hand-hole cover (24), gasket (25), and hand-hole cover bolts (21).
  11. Close all auxiliary drains, the system test valve, and the priming water level test valve on the dry valve trim. The main drain (located on the inlet of the dry valve) should remain open.
  12. If equipped with a Viking Accelerator and external Anti-flood Device:
    - a. Close the 1/2" (15 mm) anti-flood isolation valve.
    - b. Observe the air pressure gauge on top of the accelerator. The gauge must read zero before the accel-

erator will automatically reset. It may be necessary to loosen, remove, and re-install (use the appropriate wrench) the air gauge to vent trapped air pressure from the upper chamber.

13. Open the dry system air supply and establish desired system pressure. See TABLE 1 for suggested air pressure to water pressure settings. NEVER EXCEED 60 PSI (414 kPa) AIR PRESSURE.
14. Verify that the intermediate chamber of the dry valve is free of water. No water should flow from the drip check when the plunger is pushed.
15. If equipped with a Viking Accelerator and external Anti-flood Device: When pressure on the accelerator air pressure gauge equals the system set pressure, OPEN and secure the 1/2" (15 mm) anti-flood isolation valve.
16. Slowly open the water supply main control valve.
17. When flow is developed from the main drain, CLOSE the main drain valve.
18. Fully open the water supply main control valve.
19. Secure all valves in their normal operating position.
20. Notify Authorities Having Jurisdiction and those in the affected area that the system is in service.

**11. INSPECTIONS and TESTS**

**NOTICE:** The owner is responsible for maintaining the fire protection system and devices in proper operating condition.

The Viking Model F-1 Dry Valve and trim must be kept free of foreign matter, freezing conditions, corrosive atmospheres, contaminated water supplies, and any condition that could impair its operation or damage the device.

It is imperative that the system be inspected and tested on a regular basis.

The frequency of the inspections may vary due to contaminated water supplies, corrosive water supplies, corrosive atmospheres, as well as the condition of the air supply to the system. For minimum maintenance and inspection requirements, refer to the National Fire Protection Association's pamphlet that describes care and maintenance of sprinkler systems. In addition, the Authority Having Jurisdiction may have additional maintenance, testing, and inspection requirements that must be followed.

**WARNING:** Any system maintenance which involves placing a control valve or detection system out of service may eliminate the fire protection capabilities of that system. Prior to proceeding, no-



## TECHNICAL DATA

## MODEL F-1 DRY VALVE

tify all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected areas.

### 11-A. INSPECTION

Weekly inspection is recommended. If the system is equipped with a low air (or nitrogen) alarm, monthly inspections may be adequate.

1. Check pressure gauges located on the supply side and system side of the dry valve. Verify that the proper ratio of air (or nitrogen) pressure to water supply pressure is being maintained. Refer to TABLE 1.
2. Verify that the intermediate chamber of the dry valve is free of water. No water should flow from the drip check when the plunger is pushed.
3. If equipped with a Viking Accelerator:
  - a. Check the air pressure gauge located on the top of the Accelerator. Air pressure in the upper chamber of the accelerator should equal the pneumatic pressure maintained in the system.

Note: Standard tolerance allowance in pressure gauge calibration may result in a slight variation when pressure readings from any two gauges are compared. A difference in pressures other than slight variation due to gauge calibration tolerance may indicate maintenance is required. Refer to Technical Data for the accelerator used.

  - b. For dry systems with Viking Accelerators installed according to the Viking Model E-1 Accelerator Trim Chart, verify that the ½" (15 mm) anti-flood isolation valve is OPEN and secured.
4. Verify that the water supply main control valve is open and all trim valves are in their normal operating position.
5. Check for signs of mechanical damage and/or corrosive activity. If detected, perform maintenance as required or, if necessary, replace the device.
6. Verify that dry valve and trim are adequately heated and protected from freezing and physical damage.

### 11-B. QUARTERLY TESTS

#### 11-B.1 Water Flow Alarm Test

Quarterly testing of water flow alarms is recommended and may be required by the Authority Having Jurisdiction.

1. Notify the Authority Having Jurisdiction and those in the area affected by the test.
 

Note: Viking Conventional Trim provides a connection for installation of a non-interruptible pressure switch. Alarms and/or electric panels con-

trolled by an alarm pressure switch installed in that connection cannot be interrupted.

(See Dry Valve Trim Cart.)

2. Fully open the main drain (located on the base of the dry valve) to flush away any accumulation of foreign material.
3. Close the main drain.
4. To test the local electric alarm (if provided) and/or mechanical water motor gong (if provided), OPEN the alarm test valve in the dry valve trim.
  - a. Electric alarm pressure switches (if provided) should activate.
  - b. Electric local alarms should be audible.
  - c. The local water motor gong should be audible.
  - d. Verify that (if provided) remote station alarm signals were received.
5. When testing is complete, close the alarm test valve.
 

Verify:

  - a. All local alarms stop sounding and alarm panels (if provided) reset.
  - b. All remote station alarms reset.
  - c. All supply piping to water motor properly drains.
6. Verify that the alarm shut-off valve in the dry valve trim is OPEN, and the alarm test valve is CLOSED.
7. Verify that the intermediate chamber of the dry valve is free of water. No water should flow from the drip check when the plunger is pushed.
8. Notify the Authority Having Jurisdiction and those in the affected area that testing is complete.

#### 11-B.2: Main Drain Test

Quarterly performance of the Main Drain Test is recommended and may be required by Authorities Having Jurisdiction to verify integrity of the water supply.

1. Notify the Authority Having Jurisdiction and those in the area affected by the test.
2. Record pressure reading from the water supply pressure gauge.
3. Verify that the intermediate chamber of the dry valve is free of water. No water should flow from the drip check when the plunger is pushed.
4. Verify that the dry pipe system is pressurized at or above the minimum pressure recommended in TABLE 1 for the water supply pressure available.
5. Fully OPEN the main drain located on the base of the dry valve.
6. When a full flow is developed from the main drain, record the residual pressure from the water supply pressure gauge.
7. When the test is complete, SLOWLY CLOSE the main drain.

8. Compare test results with previous flow information. If deterioration of the water supply is detected, take appropriate steps to restore adequate water supply.

9. Verify that normal water supply pressure and system pneumatic pressure have been restored, and that all alarm devices and valves are secured in normal operating position.
10. Notify the Authority Having Jurisdiction that the test is complete. Record and/or provide notification of test results as required by the Authority Having Jurisdiction.

#### 11-B.3: Priming Water Level, and Low Air Alarm Test

Quarterly testing is recommended to verify that water is not present above the Priming Level Test Valve in the dry valve trim.

Quarterly testing of low air alarms is recommended.

1. Notify the Authority Having Jurisdiction and those in the area affected by the test.
2. Fully open the main drain (located on the base of the dry valve) to flush away any accumulation of foreign material.
3. Close the main drain.
4. Close the water supply Main Control Valve supplying the dry valve.
5. Open the Main Drain Valve (located on the inlet of the dry valve).

If the dry valve being tested is equipped with a Viking Accelerator and external Anti-flood Device installed according to Viking Model E-1 Accelerator Trim Charts, performing steps 6 or 7 of this test will cause the accelerator to operate. A burst of air from the vent in the bottom of the accelerator will indicate operation of the accelerator. However, with the water supply Main Control Valve CLOSED and the Main Drain Valve OPEN, operation of the accelerator should not trip the dry valve.

#### 6. Dry Valve Priming Water Level Test:

- a. Verify that the water supply main control valve is closed and the main drain valve is open.
- b. Fully open the Priming Level Test Valve in the dry valve trim to check for the presence of water. If the presence of water is detected, the system may not have been properly drained. Perform steps 1 through 3, and 11 through 15 of paragraph 10, PLACING DRY VALVE IN SERVICE, and repeat this Dry Valve Priming Water Level Test.
- c. If/when no water is detected and the test is complete, continue to step 8.

Note: Units of measure in parentheses may be approximations.





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## MODEL F-1 DRY VALVE

### 7. Low Air Alarm Test:

- a. Verify that the water supply main control valve is closed and the main drain valve is open.
- b. Gradually open the Priming Level Test Valve in the trim of the dry valve to simulate operation of the Dry System. Observe and record the pressure at which the low air alarm operates.
8. Close the Priming Level Test Valve.
9. If the dry valve being tested is equipped with a Viking Accelerator and external Anti-flood Device:
  - a. Close the ½" (15 mm) NPT Anti-flood Isolation Valve.  
Note: Air will continue to flow from the accelerator after it has operated until step "b" below is performed.
  - b. Loosen (use the appropriate wrench), and remove the Accelerator Air Gauge to release pressure from the upper chamber of the accelerator. When the accelerator re-sets, re-install the accelerator air gauge.
10. Perform steps 13 through 20 of paragraph 10, PLACING DRY VALVE IN SERVICE.

### 11-C. TRIP TESTS

Partial Flow Trip Tests are conducted with the water supply main control valve partially closed to minimize the amount of water entering the system during the test. Performance of a Partial Flow Trip Test is recommended during warm weather at least annually except when a Full Flow Trip Test is conducted. Partial Flow Trip Tests may verify operation of equipment and devices but do not simulate operation of the system in fire conditions.

Full Flow Trip Tests are conducted with the water supply main control valve fully open. The dry valve is operated by opening the system test valve to simulate the opening of a sprinkler in fire conditions. When the dry valve operates, the sprinkler piping will be flooded with water.

Performance of a Full Flow Trip Test is recommended during warm weather at least once every three years. More frequent testing may be required by the Authority Having Jurisdiction.

#### 11-C.1: Full Flow Trip Test

1. Notify the Authority Having Jurisdiction and those in the area affected by the test.  
Note: Alarms and electric panels controlled by an alarm pressure switch installed in the "electric alarm panel connection", cannot be interrupted (see Dry Valve Trim Cart).

2. Fully open the main drain (located on the base of the dry valve) to flush away any accumulation of foreign material.
3. Close the main drain.
4. Record water supply pressure and system pneumatic pressure.
5. Open the remote system test valve to simulate operation of the dry system.  
Record:
  - a. Elapsed time from opening of the test valve to operation of the dry valve.
  - b. System pressure when the dry valve operated.
  - c. Elapsed time from opening of the test valve to development of full flow of water from the system test connection.
  - d. Any other information required by the Authority Having Jurisdiction.
6. Verify that alarms operate properly.
7. Allow water to flow from the system test connection until it appears clear and clean.
8. When test is complete, close the water supply main control valve.
9. Perform steps 1 through 20 of paragraph 10: PLACING DRY VALVE IN SERVICE.
10. Verify that the water supply main control valve is open, and all other valves are in their normal operating position. If equipped with an external Anti-flood Device, the ½" Anti-flood Isolation Valve must be OPEN and secured.

#### 11-C.2: Partial Flow Trip Test

1. Notify the Authority Having Jurisdiction and those in the area affected by the test.  
Note: Viking Conventional Trim provides a connection for installation of a non-interruptible pressure switch. Alarms and electric panels controlled by an alarm pressure switch installed in the "electric alarm panel connection", cannot be interrupted (see Dry Valve Trim Cart).
2. Record water supply pressure and system pneumatic pressure.
3. Fully open the main drain (located on the base of the dry valve) to flush away any accumulation of foreign material.
4. CLOSE the water supply main control valve as far as possible while maintaining full flow from the main drain. CLOSE the main drain.
5. Open the priming level test valve to simulate operation of the system.
6. Note (for records) water supply pressure and system pneumatic pressure when the dry valve operates.

7. CLOSE the water supply main control valve and OPEN the main drain IMMEDIATELY, when test is complete.
8. Perform steps 1 through 20 of paragraph 10: PLACING DRY VALVE IN SERVICE.
9. Verify that the water supply main control valve is open, all other valves are in their normal operating position. If equipped with an external Anti-flood Device, the ½" anti-flood isolation valve must be OPEN and secured.

### 12. DRY VALVE MAINTENANCE

(See Figure 2.)

**WARNING:** Prior to servicing internal operating parts of the dry valve, take the following precautions.

1. Close the water supply main control valve, placing the system out of service.
2. Open the main drain located in the base of the dry valve.
3. Close the air (or nitrogen) supply to the dry system piping.
4. Relieve all pressure from the dry system piping. If the system has operated, open all auxiliary drains and the system Test Valve to allow the system to drain completely.
5. Use a 15/16 wrench to loosen and remove hand-hole cover bolts (21) and remove hand-hole cover (24).

**Caution:** Clapper arm assembly (8) and clapper assembly (5) is spring loaded to open. NEVER place hands inside the dry valve if the clapper assembly is latched closed.

#### 6. Release latched (set) clapper assembly for service:

- a. Insert the re-setting tool through the hole in hook assembly (15), across the cast fulcrum on top of clapper arm assembly (8) until the re-setting tool contacts the stopping boss on top of clapper arm assembly (8).
- b. Apply a downward force on the end (outside the valve) of the re-setting tool. Hook assembly (15) will slide toward the hand-hole and off clapper arm assembly (8). The clapper arm assembly (8) and clapper assembly (5) will forcefully open, impact against latch (2), and be trapped in the open position.

**Caution:** NEVER apply any lubricant to seats, gaskets, or any internal operating parts of the Dry Valve. Petroleum-based grease or oil will damage rubber components and may prevent proper operation of the dry valve.

**Recommended practice:** When performing maintenance inside the dry valve with the clapper in the open position, cover the opening to prevent tools



## TECHNICAL DATA

## MODEL F-1 DRY VALVE

or parts from dropping onto the seat or into the waterway.

### 7. To Remove Clapper Rubber (19):

- Use a 9/16" wrench to remove hex-head screw (17) and rubber retainer (18).
- Remove clapper rubber (19) for inspection. If the clapper rubber shows signs of wear, such as cracking, cuts, or excessively deep grooves where the rubber contacts the air or water seat, replace the rubber.

### 8. To Re-install Clapper Rubber (19):

- Place a new clapper rubber (19), over the center hub of rubber retainer (18).
- Position retainer (18) (with rubber in place) against clapper assembly (5) as shown in figure 2.
- Replace and tighten hex-head screw (17). Do not over-tighten.

### 9. To Remove Clapper Assembly (5):

- While holding spring loaded clapper arm assembly (8) down, remove a retaining ring (7) from one end of clapper rod (6a).
- Release spring loaded clapper arm assembly (8) and allow it to latch in the open position.
- Slide rod (6a) out of clapper arm assembly (8) to free clapper assembly (5).
- Remove clapper assembly (5) for inspection or replacement.

### 10. To Re-install Clapper Assembly (5):

- Reverse disassembly procedures a through d in step 9 above.

### 11. To Remove Latch (2):

- Remove 1/2" NPT pipe plug (4) (outside of valve) to expose latch pin (3).
- While holding latch (2) with one hand, remove latch pin (3).
- Remove latch (2).

### 12. To Re-install Latch (2) and Latch Pin (3), reverse disassembly procedures a through c in step 11 above.

#### Disassembly and Re-assembly:

The internal member assembly of the dry valve consists of several sub-assemblies. To service these sub-assemblies, it is necessary to disassemble the dry valve.

### 13. To Disassemble The Dry Valve:

- Disconnect the trim and remove the valve from the system piping.
- Use a 15/16" wrench to remove hex-head screws (21) from base (22).
- Remove housing (1) from base (22). Member assembly components (5-15), and (17-20) are accessible for replacement.

- When inspection and/or replacement of Member assembly components is complete Re-assemble the dry valve.

### 14. To Re-assemble the dry valve:

- Reverse disassembly procedures a through c in step 13 above.
- Socket-set screw (23) will need adjustment. After the valve has been completely reassembled, latch the clapper in place. With a 1/4" (6,35 mm) Allen wrench, turn the screw clockwise until it contacts the hook (24). Then, turn the screw one complete turn counter-clockwise. Set the system and trip test the valve to verify proper operation of the valve.

### 15. To Remove Hook Assembly (15):

- Remove a retaining ring (7) from one end of hook rod (6b).
- Slide rod (6b) out of the bushings in air plate assembly (11) to free hook assembly (15).
- Remove hook assembly (15).

### 16. To Re-install Hook Assembly (15):

- Reverse disassembly procedures a through c in step 15 above.

### 17. To Remove Clapper Arm Assembly (8) and Spring (9):

- Remove a retaining ring (7) from one end of clapper arm rod (10).
- Slide clapper arm rod (10) out of the bushings in air plate assembly (11) to free clapper arm assembly (8) taking care to retrieve spring (9).
- Remove clapper arm assembly (8), and spring (9).

### 18. To Re-install Clapper Arm Assembly (8):

- Reverse disassembly procedures a through c in step 17 above.

### 19. To remove Diaphragm (12) and Diaphragm Retainer (13):

- Use a 9/16" wrench to remove hex-head screws (14).
- Remove diaphragm retainer (13) and diaphragm (12) for replacement. If the diaphragm rubber shows signs of wear, such as cracking or cuts, replace the rubber diaphragm.

### 20. To Re-install Diaphragm (12) and Diaphragm Retainer (13):

- Reverse disassembly procedures a and b in step 19 above.
- When re-installing diaphragm retainer (13), cross tighten hex-head screws (14) to 20 ft. lbs. of torque for even compression of diaphragm (12).
- When assembling base (22) to housing (1):
  - Invert housing (1) on work bench so holes for

hex-head screws (21) are facing up.

- Position complete member sub-assembly (5-15 & 17-20) with screw holes in diaphragm (12), aligned with screw holes in inverted housing (1). Use care to align screw holes so hook assembly (15) properly aligns with set screw (23).
- Position base (22) over inverted housing (1) with member assembly (5-15 & 17-20). Align screw holes so 1/2" (15 mm) NPT trim connection in base (22) aligns with 1/2" (15 mm) NPT trim connection in housing (1).
- Install hex-head screws (21) finger tight only.
- Cross-tighten all hex-head screws (21), to 90 ft. lbs. of torque to evenly compress diaphragm (12) and maintain proper alignment of member sub-assembly (5-15 & 17-20).

## 13. ABNORMAL CONDITIONS

- The valve trips when no sprinkler has fused.

#### Possible causes:

- Loss of air pressure in the system.  
Suggested action: Check the system for leaks and check for proper air supply. A Viking Air Maintenance Device should be installed on each system equipped with an automatic air supply. Consider adding a maintenance air compressor.

- An extreme pressure surge in the water supply.

Suggested action: Increase the air pressure on the system. The maximum limit is 60 PSI (414 kPa).

Note: Increasing system pressure may increase trip time of the dry valve.

- Water constantly passing through the drip check when the valve is in the SET position.

#### Possible causes:

- water leaking over the water seat into the intermediate chamber.

Suggested action: Inspect and clean the water seat and clapper rubber (see step 5 of paragraph 10 PLACING DRY VALVE IN SERVICE). Consider replacing the clapper rubber. If the water seat has been pitted or damaged



- by debris, it may be necessary to replace the base assembly.
- b. Alarm test valve in the bypass connection of the dry valve trim not tightly closed .  
Suggested action: Verify that water is not getting past alarm test valve.
3. Air constantly passing through the drip check when the valve is in the SET position.  
Possible causes:
- Air leaking over the air seat into the intermediate chamber.  
Suggested action: Inspect and clean the air seat and clapper rubber (see step 5 of paragraph 10 PLACING DRY VALVE IN SERVICE). Consider replacing the clapper rubber. If the air seat has been pitted or damaged by debris, it may be necessary to replace the air plate assembly.
  - Air leaking past the rubber diaphragm.  
Suggested action: Inspect the rubber diaphragm for deterioration. If necessary, replace the diaphragm.
4. Clapper will not latch.  
Possible causes:
- Incorrect resetting tool.  
Suggested action: Verify that the re-setting tool used is smooth and of the proper strength and diameter\* to provide the required force at the appropriate angle to cause the latching hook to slide over the clapper arm when setting the dry valve.
- \* The Viking Re-setting tool is a 3/4" (19mm) diameter cold rolled steel bar 15" (381 mm) long, chamfered at both ends.
- The hook not sliding on the re-setting tool.  
Suggested action: File or grind the re-setting tool. Remove any rough spots to provide a smooth sliding surface and proper clearance.
- Clapper rubber worn.  
Suggested action: Replace the clapper rubber.
  - Internal parts damaged by accidental application of high pressure.  
Suggested action: Replace the valve member assembly.
5. The valve latches but will not remain set.  
Possible causes:
- Improper resetting procedure.  
Suggested action: See paragraph 10, PLACING DRY VALVE IN SERVICE.
  - Inadequate air supply.  
Suggested action: See Paragraph 10, PLACING DRY VALVE IN SERVICE and TABLE 1.
  - Air pressure and priming water passing through the intermediate chamber and out of the drip check.  
Suggested action: Clean the air seat and the clapper rubber. Replace the clapper rubber, if worn.

EB-1

**DESCRIPTION:** ELECTRIC BELL, 10" GONG SIZE, MINIMUM UL SPHERICAL dB MEASUREMENT OF 81, 120 VOLT AC, STEEL GONG, DIECAST ALUMINUM BASE, W/RED FINISH.

**MANUFACTURER & CATALOG NO.:** POTTER PBA12, JOHNSON FIRE & SPECIALTIES, FARR-LARM SERIES 3300.



**BELLS  
PBA-AC & PBD-DC**

Potter Electric Signal Company  
2081 Craig Road • P.O. Box 28480  
St. Louis, MO 63146-4161  
(314) 878-4321 • (800) 325-3936

Potter Electric Signal & Mfg., LTD.  
55 Glen Cameron Road  
Thornhill, Ontario, Canada L3T 1P2  
(905) 882-1833



**6" BELL SHOWN**

**UL LISTED, FM APPROVED**

**Sizes Available:** 6" (150mm), 8" (200mm) and 10" (250mm)

**Voltages Available:** 24VAC  
120VAC  
12VDC (10.2 to 15.6) Polarized  
24VDC (20.4 to 31.2) Polarized

**Service Use:** Fire Alarm  
General Signaling  
Burglar Alarm

**Environment:** Indoor or outdoor use (See Note 1)  
-40° to 150°F (-40° to 66°C)  
(Outdoor use requires weatherproof backbox.)

**Termination:** 4 No. 18 AWG stranded wires

**Finish:** Red powder coating

**Optional:** Model BBK-1 weatherproof backbox

These vibrating type bells are designed for use as fire, burglar or general signaling devices. They have low power consumption and high decibel ratings. The unit mounts on a standard 4" (101mm) square electrical box for indoor use or on a model BBK-1 weatherproof backbox for outdoor applications. Weatherproof backbox model BBK-1, Stock No. 1500001.

ALL DC BELLS ARE POLARIZED AND HAVE BUILT-IN TRANSIENT PROTECTION:

SIZE INCHES (mm)	VOLTAGE	MODEL NO.	STOCK NO.	CURRENT (MAX.)	TYPICAL dB AT 10 FT. (3m) (2)	MINIMUM dB AT 10 FT. (3m) (1)
6 (150)	12VDC	PBD126	1706012	.12A	85	76
8 (200)	12VDC	PBD128	1708012	.12A	90	76
10 (250)	12VDC	PBD1210	1710012	.12A	92	76
6 (150)	24VDC	PBD246	1706024	.06A	87	76
8 (200)	24VDC	PBD248	1708024	.06A	91	79
10 (250)	24VDC	PBD2410	1710024	.06A	94	79
6 (150)	24VAC	PBA246	1806024	.17A	91	76
8 (200)	24VAC	PBA248	1808024	.17A	94	76
10 (250)	24VAC	PBA2410	1810024	.17A	94	76
6 (150)	120VAC	PBA1206	1806120	.05A	92	82
8 (200)	120VAC	PBA1208	1808120	.05A	99	82
10 (250)	120VAC	PBA12010	1810120	.05A	99	85

**Notes:**

- Minimum dB ratings are calculated from integrated sound pressure measurements made at Underwriters Laboratories as specified in UL Standard 464. UL temperature range is -30° to 150°F (-34° to 66°C).
- Typical dB ratings are calculated from measurements made with a conventional sound level meter and are indicative of output levels in an actual installation.

### DIMENSIONS INCHES (mm)

FIG. 1

BELLS

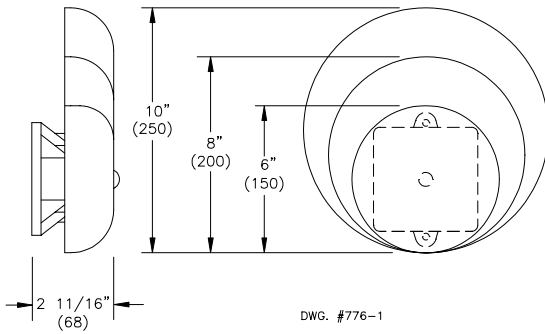


FIG. 2 WEATHERPROOF BACKBOX

BOX HAS ONE THREADED 1/2" CONDUIT ENTRANCE

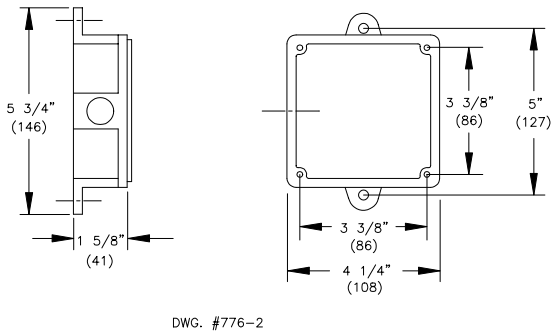
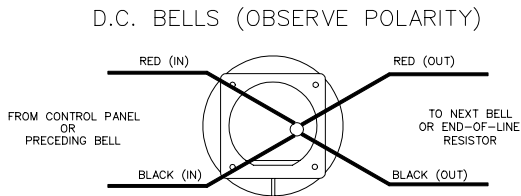


FIG. 3

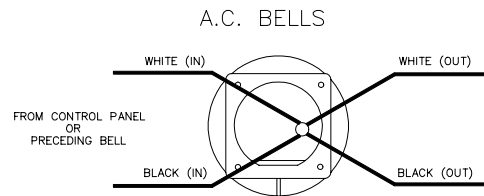
WIRING (REAR VIEW)



**CAUTION:**  
WHEN ELECTRICAL SUPERVISION IS REQUIRED USE IN AND OUT LEADS AS SHOWN.

NOTES:

1. OBSERVE POLARITY TO RING D.C. BELLS.
2. RED WIRES POSITIVE (+)
3. BLACK WIRES NEGATIVE (-)



**CAUTION:**  
WHEN ELECTRICAL SUPERVISION IS REQUIRED USE IN AND OUT LEADS AS SHOWN.

NOTES:

1. WHEN USING A.C. BELLS, TERMINATE EACH EXTRA WIRE SEPARATELY AFTER LAST BELL.
2. END-OF-LINE RESISTOR IS NOT REQUIRED ON A.C. BELLS.

DWG. #776-3

### INSTALLATION

1. The bell should be mounted a minimum of 8 ft. (2.4m) from the floor or as close to the ceiling as possible.
2. Remove the gong.
3. Connect wiring (see Fig. 3).
4. Mount bell mechanism to backbox (bell mechanism must be mounted with the striker pointing down).
5. Reinstall the gong (be sure that the gong positioning pin, in the mechanism housing, is in the hole in the gong).
6. Test all bells for proper operation and observe that they can be heard where required (bells must be heard in all areas as designated by the authority having jurisdiction).

FDC-1

**DESCRIPTION:** EXPOSED FIRE DEPT. INLET CONNECTION, POLISHED CHROME PLATED TWO-WAY INLET BODY WITH DROP CLAPPERS, PIN LUG SWIVELS, [PLUGS, CHAINS] [KNOX STAINLESS STEEL LOCKING FDC CAPS WITH MATCHING THREADS AND CHROME FINISH], POLISHED CHROME PLATED WALL PLATE LABELED "AUTO. SPR." 4" X 2-1/2" X 2-1/2". UL. THREADS TO MATCH LOCAL FIRE DEPARTMENT.


[CONTRACTOR TO COORDINATE PURCHASE OF KNOX LOCKING CAP WITH LOCAL FIRE DEPARTMENT.]

**MANUFACTURER & CATALOG NO.:** POTTER-ROEMER 5750 SERIES, CROKER 6430 SERIES, GUARDIAN 6124, ELKHART 156.

Notes to Specifier:

1. Not all models listed are FM approved. If required, refer to catalog.
2. Other lettering for wall plate is available. Refer to catalog.
3. The International Fire Code allows the AHJ to require locking FDC caps. Consult the AHJ.

**EXPOSED FIRE DEPT INLET CONNECTIONS – CLAPPER TYPE**



---

**TWO-WAY WITH DOUBLE CLAPPERS WITH PLATE AND PLUGS**

**FUNCTION:** Used as an auxiliary inlet connection, providing 500 GPM/1892 lpm minimum (Ref. NFPA 14) to supplement the fire protection water supply. Drop clappers provide unobstructed waterway. Plate identifies and enhances appearance of inlet connection.

**REGULARLY FURNISHED:** Cast brass two-way inlet body with drop clappers, pin lug swivels and plugs and chains. Cast brass round wall plate with lettering as selected. Outlet and inlet size as selected by model number.

**OPTIONAL FINISHES:**

- B Polished Brass
- C Rough Chrome Plated
- D Polished Chrome Plated

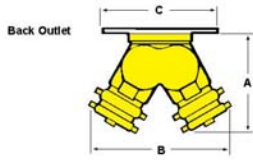
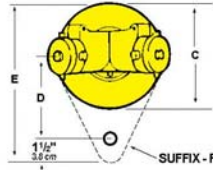
**SPECIFY:** Thread and lettering

**VARIATION:**


- F Silcock Flange Plate with Silcock

**LETTERING AVAILABLE:**

- AUTO SPKR
- STANDPIPE
- DRY STANDPIPE
- AUTO SPKR STANDPIPE

Model No.	Size	UL Listed	FM Approval	A in. cm	B in. cm	C in. cm	D in. cm	E in. cm
5751	4 x 2 1/2 x 2 1/2 10.2 x 6.4 x 6.4	YES	YES	8 1/2 21.5	12 1/2 31.7	9 1/4 24.7	8 20.3	14 35.5
5752	6 x 2 1/2 x 2 1/2 15.2 x 6.4 x 6.4	NO	NO	10 1/2 26.6	11 1/4 29.8	12 30.4	9 22.9	16 1/2 41.9
5753	4 x 3 x 3 10.2 x 7.6 x 7.6	NO	YES	10 1/2 26.6	12 1/2 31.7	9 1/4 24.7	8 20.3	14 35.5
5754	6 x 3 x 3 15.2 x 7.6 x 7.6	YES	NO	11 27.9	12 1/2 31.7	12 30.4	9 22.9	16 1/2 41.9



**5751-5754**

NOTE: ALWAYS INDICATE HOSE THREAD REQUIREMENTS All dimensions in English and Metric.

**DESCRIPTION:** FLUSH FIRE DEPT. INLET CONNECTION, POLISHED CHROME PLATED TWO-WAY INLET BODY WITH DROP CLAPPERS, DOUBLE FEMALE CONNECTIONS WITH RIGID END N.P.T. X PIN LUG HOSE THREAD SWIVELS, [PLUGS, CHAINS] [KNOX STAINLESS STEEL LOCKING FDC CAPS WITH MATCHING THREADS AND CHROME FINISH], POLISHED CHROME PLATED WALL PLATE LABELED "AUTO. SPR." 4" X 2-1/2" X 2-1/2". UL. THREADS TO MATCH LOCAL FIRE DEPARTMENT.

[CONTRACTOR TO COORDINATE PURCHASE OF KNOX LOCKING CAP WITH LOCAL FIRE DEPARTMENT.]

**MANUFACTURER & CATALOG NO.:** POTTER-ROEMER 5020 SERIES, CROKER 6010 SERIES, GUARDIAN 6024, ELKHART 166.

Notes to Specifier:

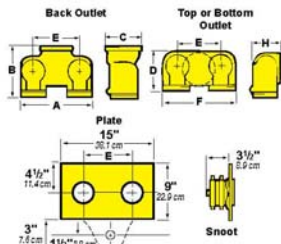
1. Not all models listed are FM approved. If required, refer to catalog.
2. Other lettering for wall plate is available. Refer to catalog.
3. The International Fire Code allows the AHJ to require locking FDC caps. Consult the AHJ.



**FUNCTION:** Used as an auxiliary inlet connection to supplement the fire protection water supply. Drop clappers provide unobstructed waterway. Flush design desirable when appearance is a factor.

**REGULARLY FURNISHED:** Cast brass body with drop clappers. Size, outlet location and number of inlets as selected by model number. Polished brass plate with lettering as selected. Polished brass 2 1/2" x 6.4 cm double female snoots with rigid end NPT x pin lug hose thread swivels, pin lug plugs and chains.

**TWO-WAY INLET**



-G 3" / 7.6 cm Female Hose Thread Inlet

Model No.	Outlet Location	Size in. / mm	UL Listed	FM Approval	A in. / mm	B in. / mm	C in. / mm	D in. / mm	E in. / mm	F in. / mm	G in. / mm	H in. / mm	No. Inlets
5021	Back	4 x 2 1/2 x 2 1/2 / 10.2 x 6.4 x 6.4	YES	NO	11 / 27.9	6 / 15.2	5 1/2 / 14	6 / 15.2	7 / 17.8	11 / 27.9	—	5 1/4 / 14.6	2
5025	Back	6 x 2 1/2 x 2 1/2 / 15.2 x 6.4 x 6.4	NO	NO	12 1/4 / 32.3	8 1/4 / 22.2	7 1/4 / 19.6	9 1/2 / 24.7	7 1/2 / 19	12 / 30.4	—	5 1/4 / 13.3	2
5031	Back	6 x 2 1/2 x 2 1/2 x 2 1/2 / 15.2 x 6.4 x 6.4 x 6.4	NO	NO	16 / 40.6	11 / 27.9	7 1/4 / 19.6	12 1/2 / 31.7	6 / 15.2	10 / 25.4	6 / 15.2	5 1/2 / 14	3
5022	Bottom	4 x 2 1/2 x 2 1/2 / 10.2 x 6.4 x 6.4	YES	NO	11 / 27.9	6 / 15.2	5 1/2 / 14	6 / 15.2	7 / 17.8	11 / 27.9	—	5 1/4 / 14.6	2
5026	Bottom	6 x 2 1/2 x 2 1/2 / 15.2 x 6.4 x 6.4	NO	NO	12 1/4 / 32.3	8 1/4 / 22.2	7 1/4 / 19.6	9 1/2 / 24.7	7 1/2 / 19	12 / 30.4	—	5 1/4 / 13.3	2
5032	Bottom	6 x 2 1/2 x 2 1/2 x 2 1/2 / 15.2 x 6.4 x 6.4 x 6.4	NO	NO	16 / 40.6	11 / 27.9	7 1/4 / 19.6	12 1/2 / 31.7	6 / 15.2	10 / 25.4	6 / 15.2	5 1/2 / 14	3
5023	Top	4 x 2 1/2 x 2 1/2 / 10.2 x 6.4 x 6.4	YES	NO	11 / 27.9	6 / 15.2	5 1/2 / 14	6 / 15.2	7 / 17.8	11 / 27.9	—	5 1/4 / 14.6	2
5027	Top	6 x 2 1/2 x 2 1/2 / 15.2 x 6.4 x 6.4	NO	NO	12 1/4 / 32.3	8 1/4 / 22.2	7 1/4 / 19.6	9 1/2 / 24.7	7 1/2 / 19	12 / 30.4	—	5 1/4 / 13.3	2
5033	Top	6 x 2 1/2 x 2 1/2 x 2 1/2 / 15.2 x 6.4 x 6.4 x 6.4	NO	NO	16 / 40.6	11 / 27.9	7 1/4 / 19.6	12 1/2 / 31.7	6 / 15.2	10 / 25.4	6 / 15.2	5 1/2 / 14	3

**OPTIONAL FINISHES:**  
 -D Polished Chrome Plated  
 -SS Polished Stainless Steel Plate  
 (Refer to page 6 for special finishes)

**LETTERING AVAILABLE:**  
 AUTO SPKR STANDPIPE  
 DRY STANDPIPE  
 AUTO SPKR STANDPIPE  
 (Refer to page 5-8 for special lettering)

**VARIATION:**  
 -F Silcock Flange Plate with Silcock  
**SPECIFY:** Thread and lettering



5021-5027

**FDC-3**

**DESCRIPTION:** EXPOSED FREE STANDING FIRE DEPT. INLET CONNECTION, POLISHED CHROME PLATED TWO-WAY INLET BODY WITH DROP CLAPPERS, PIN LUG SWIVELS, [PLUGS, CHAINS] [KNOX STAINLESS STEEL LOCKING FDC CAPS WITH MATCHING THREADS AND CHROME FINISH], POLISHED CHROME PLATED WALL PLATE LABELED "AUTO. SPR." 4" X 2-1/2" X 2-1/2". UL. THREADS TO MATCH LOCAL FIRE DEPARTMENT.

[CONTRACTOR TO COORDINATE PURCHASE OF KNOX LOCKING CAP WITH LOCAL FIRE DEPARTMENT.]

**MANUFACTURER & CATALOG NO.:** POTTER-ROEMER 5760 SERIES, CROKER 6510 SERIES, GUARDIAN 6224, ELKHART 15.

Notes to Specifier:

1. Not all models listed are FM approved. If required, refer to catalog.
2. Other lettering for wall plate is available. Refer to catalog.
3. The International Fire Code allows the AHJ to require locking FDC caps. Consult the AHJ.



**FREE-STANDING FIRE DEPT INLET CONNECTIONS**

**SELECTION INFORMATION**

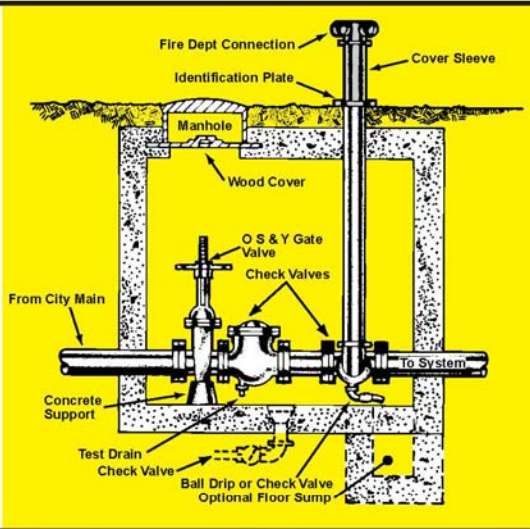
**FUNCTION:** Used as an auxiliary inlet connection to supplement the fire protection water supply. Free-standing design is used on exterior fire lines piped vertically through grade.

**REGULARLY FURNISHED:** Cast brass angle body or red glossy polyester coated ductile iron angle body, size of outlet and number and type of inlets as selected by model number. 18"/45.7 cm long polished brass cover sleeve; cast brass identification base plate, cast brass pin lug plugs and chains on each pin lug swivel.

**LETTERING AVAILABLE:**  
 AUTO SPKR  
 STANDPIPE  
 DRY STANDPIPE  
 AUTO SPKR STANDPIPE  
 (Refer to page 5-8 for special lettering)

**VARIATION:**  
 Additional heights available. Specify height.

**SPECIFY:** Thread and lettering



**TWO-WAY BRASS BODY WITH CLAPPERS**

Model No.	Size	UL Listed
5761	4 x 2 1/2 10.2 x 6.4	YES
5762	4 x 3 10.2 x 7.6	NO
5763	6 x 2 1/2 15.2 x 6.4	NO
5764	6 x 3 15.2 x 7.6	NO

**OPTIONAL FINISHES:**  
 -B Polished Brass  
 -C Rough Chrome Plated  
 Polished Chrome Plated Trim  
 -D Polished Chrome Plated

Overall Height: 24"/61 cm  
 Radius of Body Swing: 7 1/2"/18.4 cm

**SPECIFY:** Thread and lettering

NOTE: ALWAYS INDICATE HOSE THREAD REQUIREMENTS All dimensions in English and Metric.




FPTC-1

**DESCRIPTION:** FIRE PUMP TEST CONNECTION, CAST BRASS [HORIZONTAL] [SQUARE] BODY WITH [END INLET] [BACK INLET] [ANGLE INLET], MALE CONNECTIONS WITH RIGID END N.P.T. X PIN LUG HOSE THREAD SWIVELS, REMOVABLE BRASS HOSE GATE VALVES, CAPS, CHAINS, FLUSH POLISHED CHROME PLATED WALL PLATE LABELED "PUMP TEST CONNECTION". [4" INLET X TWO (2) 2-1/2" OUTLETS] [6" INLET X THREE (3) 2-1/2" OUTLETS] [6" INLET X FOUR (4) 2-1/2" OUTLETS] [8" INLET X SIX (6) 2-1/2" OUTLETS]. UL. THREADS TO MATCH LOCAL FIRE DEPARTMENT.

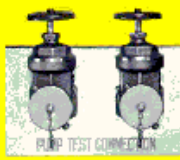
**MANUFACTURER & CATALOG NO.:** POTTER-ROEMER 5860 SERIES, CROKER, GUARDIAN, ELKHART.

Notes to Specifier:

1. Each outlet can deliver 250 gpm. Select number of outlets required.
2. Not all models listed are FM approved. If required, refer to catalog.
3. Other finishes are available. Refer to catalog.



## FLUSH FIRE PUMP TEST CONNECTIONS



5862

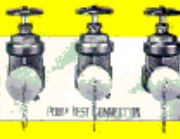
**FUNCTION:** Used to test flow capacity of fire pumps. Each outlet capable of a minimum flow of 250 GPM, 946 lpm. Gate valves provide unrestricted waterway and control of individual outlets (Ref. NFPA 20).

**REGULARLY FURNISHED:** Cast brass body with end inlet, size and number of outlets as selected by model number. Brass plate lettered "PUMP TEST CONNECTION". Brass NRS hose gate valves are supplied, with every other valve having a loose bonnet, as required for installation. 3"/7.6 cm female NPT inlet x 2 1/2"/6.4 cm male hose thread outlet, with caps and chains.

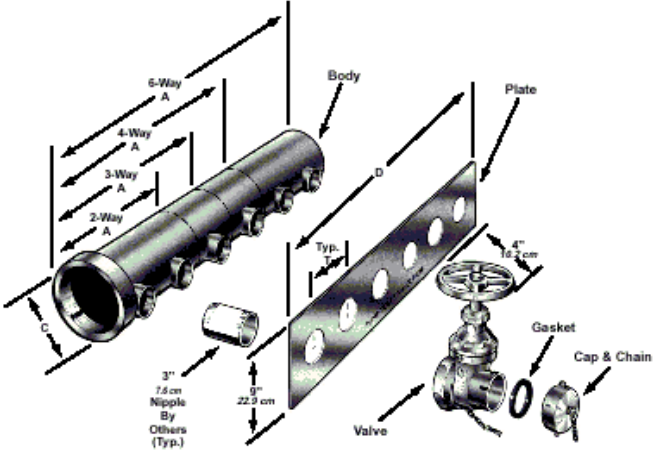
**OPTIONAL FINISHES:**


- B Polished Brass on Exposed Parts
- C Rough Chrome Plated on Exposed Parts
- D Polished Chrome Plated on Exposed Parts
- SS Polished Stainless Steel (plate only)

**SPECIFY:** Thread and lettering



5863





5864

Model No.	Pump Size GPM lpm	Inlet Size	Number Outlets	A in. cm	B in. cm	C in. cm	D in. cm
5862	500	4	2	15.9	5V	6	16
	1000	10.2		38.7	13.3	15.2	40.8
5863	750	6	3	22.9	6V	6V	20
	2500	15.2		58.5	15.8	17.1	50.8
5864	1000	6	4	28.9	7V	7V	30
	3785	15.2		73	19.8	19.8	76.2
5865	2000	8	6	43	7V	9V	44
	7570	20.3		109.2	19.8	24.7	111.7

**VARIATIONS:** To select add suffix

**BODY MATERIAL:**

- 1 Ductile Iron Body, Thermally-fused Red Polyester Coated
- 1.5 Steel Body, Thermally-fused Red Polyester Coated


**BODY INLET LOCATION:**

- 2 With Back Inlet
- 3 With Angle Inlet
- 4 With Square Body, Back Inlet
- 5 With Square Body, Angle Inlet

**OUTLETS:**

- 6 With Male Snoots, Caps and Chains
- 7 With Male Snoots, Caps and Chains, and Removable Swivel Hose Gate Valves

**See Variation Selection Chart**



5865

Page 5-15
NOTE: ALWAYS INDICATE HOSE THREAD REQUIREMENTS
All dimensions in English and Metric.

# FLUSH FIRE PUMP TEST CONNECTION VARIATIONS



## BODY MATERIAL

**REGULARLY FURNISHED:** Powder-coated with an electrostatically-applied, thermally-fused red polyester finish. Inlet size, location and number of outlets as selected by model number and as indicated on Variation Selection Chart below.

- 1 Ductile Iron Body
- 1.5 Steel Body

## BODY INLET LOCATIONS

**REGULARLY FURNISHED:** Brass or ductile iron body. Inlet size, location and number of outlets as selected by model number and as indicated on Variation Selection Chart below.

-2 With Back Inlet

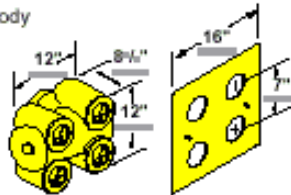


-3 With Angle Inlet

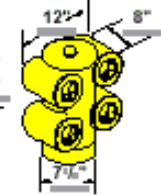


**REGULARLY FURNISHED:** Square four-way brass or ductile iron body. Back or angle inlet as selected by suffix number as indicated on Variation Selection Chart below.

-4 With Square Body Back Inlet



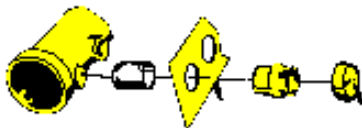
-5 With Square Body Angle Inlet



## OUTLETS

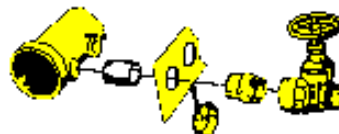
**REGULARLY FURNISHED:** Male 2 1/2" x 6.4 cm hose thread snoots with cap and chain instead of affixed valves. Number of outlets as selected by model number and as indicated on Variation Selection Chart below.

-6 With Male Snoots, Caps and Chains

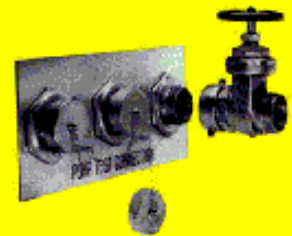


**REGULARLY FURNISHED:** Male 2 1/2" x 6.4 cm hose thread snoots with cap and chain, swivel inlet hose gate valve with male hose thread outlet. Number of outlets as selected by model number and as indicated on Variation Selection Chart below.

-7 With Male Snoots, Caps and Chains, and Removable Swivel Hose Gate Valves



5862-6



5863-7



5864-4

## VARIATION SELECTION CHART

Suffix No.	Model No.			
	5862	5863	5864	5865
<b>Body Material</b>				
-1 Ductile Iron	✓		✓	
-1.5 Steel	✓	✓	✓	✓
<b>Body Inlet</b>				
-2 Back	✓		✓	✓
-3 Angle	✓		✓	✓
-4 Square Back, Brass or Ductile			✓	
-5 Square Angle, Brass or Ductile			✓	
<b>Outlets</b>				
-6 Male Snoots, Caps and Chains	✓	✓	✓	✓
-7 Male Snoots, Caps and Chains, and Removable Swivel Hose Gate Valves	✓	✓	✓	✓

NOTE: ALWAYS INDICATE HOSE THREAD REQUIREMENTS

All dimensions in English and Metric.

Page 5-16

**FREE STANDING FIRE PUMP TEST CONNECTIONS**



**5866**



**5867**



**5868**



**5868-5**



**5869**

**FUNCTION:** Used to test flow capacity of fire pumps. Each outlet capable of a minimum flow of 250 GPM,  $946 \text{ lpm}$ . Gate valves provide unrestricted waterway and control of individual outlets. (Ref. NFPA 20)

**REGULARLY FURNISHED:** Cast brass angle inlet body. Size of inlet and number of outlets as selected by Model Number. Brass NRS hose gate valves are supplied with every other valve having a loose bonnet as required for installation, female NPT inlet x  $2\frac{1}{2}"/63.4 \text{ mm}$  male hose thread outlet,  $2\frac{1}{2}"/63.4 \text{ mm}$  caps and chains.  $18"/45.7 \text{ cm}$  long polished brass cover sleeve and brass identification plate lettered "PUMP TEST CONNECTION."

Model	Size	Overall Height	Radius of Body Swing
5866	4" x $2\frac{1}{2}"/10.2 \times 6.4 \text{ cm}$ 2-way	28"/71.1 cm	6"/15.5 cm
5867	6" x $2\frac{1}{2}"/15.2 \times 6.4 \text{ cm}$ 3-way	28"/71.1 cm	9"/24.7 cm
5868	6" x $2\frac{1}{2}"/15.2 \times 6.4 \text{ cm}$ 4-way	29"/73.6 cm	14"/36.8 cm
5869	8" x $2\frac{1}{2}"/20.3 \times 6.4 \text{ cm}$ 6-way	29"/73.6 cm	21"/54.6 cm

**OPTIONAL FINISHES:** SPECIFY: Thread and lettering

- BRASS BODY:** -B Rough Brass body with polished brass trim  
 -C Rough Chrome body, polished chrome plated trim
- DUCTILE BODY:** -B Red glossy polyester coated body, polished brass trim  
 -C Red glossy polyester coated body, polished chrome plated trim
- VARIATIONS:** To select add suffixes as indicated on variation selection chart
- 1 Ductile Iron Body
  - 1.5 Steel Body
  - 5 Square Four-way Body, Brass or Ductile Iron
  - 6 Male Snoots, Caps and Chains
  - 7 Male Snoots, Caps and Chains, and Removable Swivel Hose Gate Valves

**SUFFIX-1** Ductile Iron Body with red glossy polyester coating. Inlet size, location and number of outlets as selected by model number and as indicated on Variation Selection Chart below.

**SUFFIX-1.5** Steel Body with red glossy polyester coating. Inlet size, location and number of outlets as selected by model number and as indicated on Variation Selection Chart below. For use where visual presentation is not critical.

**SUFFIX-5** Square Four-way Body, Brass, Ductile Iron. Inlet size, location and number of outlets as selected by model number and as indicated on Variation Selection Chart below.

**SUFFIX-6** Male  $2\frac{1}{2}"/63.4 \text{ mm}$  Hose thread snoots with cap and chain instead of affixed valves. Number of outlets as selected by model number and as indicated on Variation Selection Chart below.

**SUFFIX-7** Male  $2\frac{1}{2}"/63.4 \text{ mm}$  hose thread snoots with cap and chain, swivel inlet hose gate valve with male hose thread outlet. Number of outlets as selected by model number and as indicated on Variation Selection Chart below.

**VARIATION SELECTION CHART**

Suffix No.	Model No.			
	5866	5867	5868	5869
-1 Ductile Iron Body			✓	
-1.5 Steel Body	✓	✓	✓	✓
-5 Square Four-way Body, Brass or Ductile Iron			✓	
-6 Male Snoots, Caps and Chains	✓	✓	✓	✓
-7 Male Snoots, Caps and Chains, and Removable Swivel Hose Gate Valves	✓	✓	✓	✓

**FS-1**

**DESCRIPTION:** FLOW SWITCH - VANE TYPE FOR USE ON WET PIPE SPRINKLER SYSTEM TO DETECT A MINIMUM FLOW OF 10 GPM. TWO SINGLE POLE DOUBLE THROW SWITCHES WITH PNEUMATIC RETARD-ADJUSTABLE FROM 0-90 SECONDS WITH AUTOMATIC RESET, TAMPER RESISTANT METAL HOUSING. UL/FM.

**MANUFACTURER & CATALOG NO.:** SYSTEM SENSOR WFD SERIES, POTTER ELECTRIC VSR-F.

[FS-1 CAN BE PROVIDED AS A PART OF A MANIFOLD ASSEMBLY WITH BF-1 AND IT-1. EACH COMPONENT OF THE ASSEMBLY MUST MEET THE REQUIREMENTS OF ITS RESPECTIVE MATERIAL LIST DESCRIPTION. PROVIDE A PRESSURE GAUGE FOR EACH MANIFOLD AS INDICATED ON THE DRAWINGS. PROVIDE A CHECK VALVE FOR EACH MANIFOLD AS INDICATED ON THE DRAWINGS WHERE SPRINKLER PIPING IS CONNECTED TO A STANDPIPE.]



**VSR-F**  
**VANE TYPE WATERFLOW**  
**ALARM SWITCH WITH RETARD**



U.S. Pat. No. 3921989  
Canadian Pat. No. 1009680  
Other Patents Pending  
Potter Electric, Rd., 1990

**UL, ULC and CSFM Listed, FM and LPC Approved, NYMEA Accepted**

**Service Pressure:** Up to 450 PSI

**Minimum Flow Rate for Alarm:** 10 GPM

**Maximum Surge:** 18 FPS

**Contact Ratings:** Two sets of SPDT (Form C)  
15.0 Amps at 125/250VAC  
2.0 Amps at 30VDC Resistive

**Conduit Entrances:** Two knockouts provided for 1/2" conduit

**Environmental Specifications:**

- Suitable for indoor or outdoor use with factory installed gasket and die-cast housing.
- NEMA 4/IP54 Rated Enclosure - use with appropriate conduit fitting
- Temperature Range: 40°F/120°F, 4.5°C/49°C
- Non-corrosive sleeve factory installed in saddle

**Caution:** This device is not intended for applications in explosive environments

**Sizes Available:** Steel Pipe schedules 10 thru 40, sizes 2" thru 8"  
BS 1387 pipe 50mm thru 200mm  
Note: For copper or plastic pipe use Model VSR-CF

**Service Use:**

- |  |          |
|--|----------|
| Automatic Sprinkler                      | NFPA-13  |
| One or two family dwelling               | NFPA-13D |
| Residential occupancy up to four stories | NFPA-13R |
| National Fire Alarm Code                 | NFPA-72  |

**Optional:** Cover Tamper Switch Kit, Stock No. 0090018

**GENERAL INFORMATION**

The Model VSR-F is a vane type waterflow switch for use on wet sprinkler systems. It is UL Listed and FM Approved for use on steel pipe; schedules 10 through 40, sizes 2" thru 8".

LPC approved sizes are 2" thru 8" (50mm thru 200mm).

The unit may also be used as a sectional waterflow detector on large systems.

The unit contains two single pole, double throw, snap action switches and an adjustable, instantly recycling pneumatic retard. The switches are actuated when a flow of 10 gallons per minute or more occurs downstream of the device. The flow condition must exist for a period of time necessary to overcome the selected retard period.

**ENCLOSURE:** The unit is enclosed in a general purpose, die-cast housing. The cover is held in place with two tamper resistant screws which require a special key for removal. A field installable cover tamper switch is available as an option which may be used to indicate unauthorized removal of the cover. See bulletin no. 5400775 for installation instructions of this switch.

**INSTALLATION:** See Fig. 2

These devices may be mounted on horizontal or vertical pipe. On horizontal pipe they should be installed on the top side of the pipe where they will be accessible. The units should not be installed within 6" of a fitting which changes the direction of the waterflow or within 24" of a valve or drain.

Drain the system and drill a hole in the pipe using a circular saw in a slow speed drill. The 2" (50mm) and 2 1/2" (65mm) devices require a hole with a diameter of 1 1/4" + 1/8" - 1/16" (33mm ±2mm). All other sizes require a hole with a diameter of 2" ±1/8" (50mm ±2mm).

Clean the inside pipe of all growth or other material for a distance equal to the pipe diameter on either side of the hole.

Roll the vane so that it may be inserted into the hole; do not bend or crease it. Insert the vane so that the arrow on the saddle points in the direction of the waterflow. Install the saddle strap and tighten nuts alternately to an eventual 50 ft-lbs. of torque (see Fig. 2). The vane must not rub the inside of the pipe or bind in any way.

Specifications subject to change without notice.

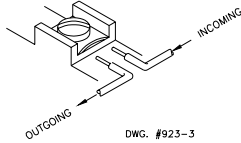
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MKT. #8800001 - REV P  
MFG. #5400761 - 3/99

PAGE 1 OF 2

**FIG. 1**  
**SWITCH TERMINAL CONNECTIONS**  
**CLAMPING PLATE**  
**TERMINAL**



DWG. #923-3

**CAUTION:**  
An uninsulated section of a single conductor should not be looped around the terminal and serve as two separate connections. The wire must be severed, thereby providing supervision of the connection in the event that the wire becomes dislodged from under the terminal.

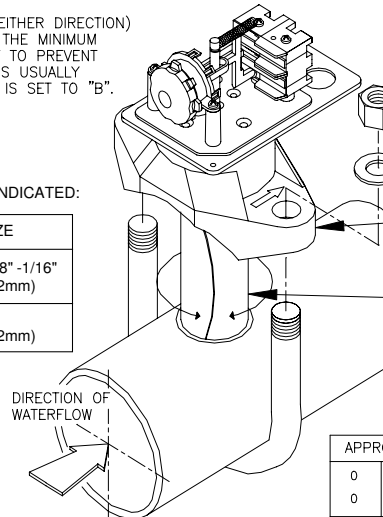
**FIG. 2**

DO NOT LEAVE COVER OFF FOR EXTENDED PERIOD OF TIME

RETARD ADJUSTMENT:  
TO CHANGE TIME TURN KNOB (EITHER DIRECTION) FOR DESIRED TIME DELAY. USE THE MINIMUM AMOUNT OF RETARD NECESSARY TO PREVENT FALSE ALARMS, A "B" SETTING IS USUALLY ADEQUATE FOR THIS. FACTORY IS SET TO "B".

TO INSTALL, DRILL A HOLE AS INDICATED:

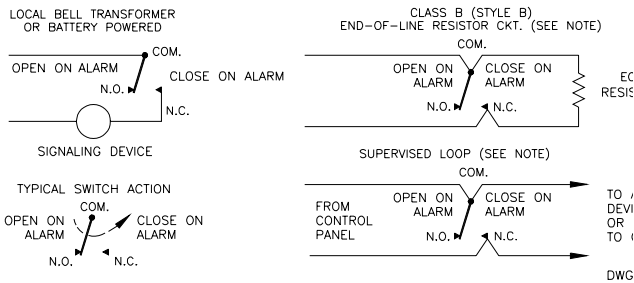
PIPE SIZE	HOLE SIZE
2" to 2 1/2" (50mm to 65mm)	1 1/4" +1/8" -1/16" (33mm ±2mm)
3" to 8" (80mm to 200mm)	2" ±1/8" (50mm ±2mm)



DWG. #761-30

APPRO	
0	
0	1

**FIG. 3** **TYPICAL ELECTRICAL CONNECTIONS**

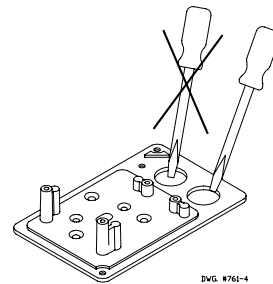


**NOTES:**

1. The Model VSR-F has two switches, one can be used to operate a central station, proprietary or remote signaling unit, while the other contact is used to operate a local audible or visual annunciator.
2. A condition of LPC Approval of this product is that the electrical entry must be sealed to exclude moisture.
3. For supervised circuits see "Switch Terminal Connections" drawing and caution note (Fig. 1).

**FIG. 4**

To remove knockouts: Place screwdriver at edge of knockouts, not in the center.



DWG. #761-4

**TESTING**

The frequency of inspection and testing for the model VSR-F and its associated protective monitoring system should be in accordance with applicable NFPA Codes and Standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).

If provided, the inspector's test valve, that is usually located at the end of the most remote branch line, should always be used for test purposes. If there are no provisions for testing the operation of the flow detection device on the system, application of the VSR-F is not recommended or advisable.

A minimum flow of 10 gpm is required to activate this device.

**IMPORTANT NOTICE:** Please advise the person responsible for testing of the fire protection system that this system must be tested in accordance with the testing instructions.

**DESCRIPTION:** 2" TO 12" GATE VALVE, 175 PSI WP, FLANGED, IRON BODY, RESILIENT WEDGE, TRIPLE-O-RING SEALS, STAINLESS STEEL BONNET BOLTS, NON-RISING STEM WITH MOUNTING BONNET FLANGE FOR INDICATOR POST, VALVE STEM OPERATING NUT TO BE NATIONAL STANDARD MEASURING 1 1/2" FROM POINT TO OPPOSITE FLAT, MATCHING INDICATOR POST, TURN COUNTER-CLOCKWISE TO OPEN, UL/FM.

**MANUFACTURER & CATALOG NO.:** MUELLER P-2360, STOCKHAM G-601, CLOW F6102, KENNEDY 8701A.

Note to Specifier: For use with Indicator Post.

**SECTION  
B-1**

**N.R.S. RESILIENT WEDGE  
GATE VALVES**

Rev. 2-03



**UL / FM**

**FIRE PROTECTION PRODUCTS**

**P-2360-6** FLANGED ENDS  
Indicator Post Style Stuffing box  
2" Square Operating Nut

- 4", 6", 8", 10" AND 12" SIZES
- MEETS OR EXCEEDS ALL APPLICABLE REQUIREMENTS OF UL 262 AND FM 1120/1130 SPECIFICATIONS AND COMPLIES WITH NSF-61
- IRON BODY WITH MUELLER® PRO-GARD™ FUSION EPOXY COATED INTERIOR & EXTERIOR SURFACES
- NON-RISING BRONZE STEM
- RUBBER ENCAPSULATED IRON WEDGE
- 200 PSIG (1379 KPA) MAXIMUM WORKING PRESSURE, 400 PSIG (2758 KPA) STATIC TEST
- TRIPLE O-RING SEAL STUFFING BOX (2 UPPER & 1 LOWER O-RINGS)
- EPOXY COATING MEETS OR EXCEEDS ANSI/AWWA C550 AND COMPLIES WITH NSF-61

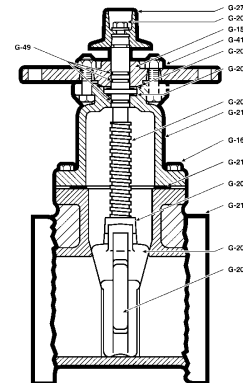


**Options**

- STAINLESS STEEL FASTENERS: TYPE 304, TYPE 316
- ASTM B98-C66100/H04 STEM

**PARTS LIST**

Catalog Part No.	Description	Material	Material Standard
G-16	Bonnet Bolts & Nuts	Carbon Steel	ASTM A307 Grade B, Zinc Plated
G-27	Wrench Nut	Cast Iron	ASTM A126 CL.B
G-41	Stuffing Box Bolts & Nuts	Carbon Steel	ASTM A307 Grade B, Zinc Plated
G-49	Stem O-rings (3)	Rubber	ASTM D2000
G-152	Stuffing Box	Cast Iron	ASTM A126 CL.B
G-200	Wrench Nut Cap Screw	Carbon Steel	ASTM A307 Grade B, Zinc Plated
G-201	Stuffing Box Seal	Rubber	ASTM D2000
G-203	Stem	Bronze	ASTM B138
G-205	Stem Nut	Bronze	ASTM B62
G-206	Guide Cap Bearings	Thermal Plastic	
G-208	Anti-friction Washers (2)	Thermal Plastic	
G-209	Wedge, Rubber Encapsulated	Cast Iron*	ASTM A126 CL.B
G-210	Bonnet	Cast Iron	ASTM A126 CL.B
G-211	Bonnet Gasket	Rubber	ASTM D2000
G-212	Body	Cast Iron	ASTM A126 CL.B



**DIMENSIONS**

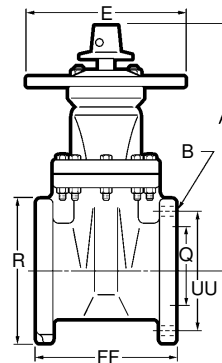
Dimension	Size				
	4"	6"	8"	10"	12"
A	14.19"	18.00"	21.50"	25.50"	28.62"
R	9.00"	11.00"	13.50"	16.00"	19.00"
FF	9.00"	10.50"	11.50"	13.00"	14.00"
E	12.00"	12.00"	12.00"	12.00"	12.00"
Q (Bore)	4.30"	6.30"	8.30"	10.30"	12.30"
UU	7.50"	9.50"	11.75"	14.25"	17.00"
B (number and size of holes)	8---3/4"	8---7/8"	8---7/8"	12---1"	12---1"
Turns to open	14	20.5	26.5	33	38.5
Weight (lbs.)**	113	172	263	398	520

NOTE: Flanged ends have 125 lb. American Standard End Flange Drilling, ANSI B16.1.

See page B-1-21 for ordering instructions.

\* Fully encapsulated in molded rubber with no iron exposed.

\*\* All weights are in pounds and are approximate.



**DESCRIPTION:** 2" THRU 12", 175# WP, OS&Y, FLANGED OR GROOVED, IRON BODY, BRONZE MOUNTED, RESILIENT WEDGE, RISING STEM, COUNTER CLOCKWISE TO OPEN, UL/FM.

**MANUFACTURER & CATALOG NO.:** MUELLER #R-2360-6, CLOW #F-6136, STOCKHAM #G-610, CRANE #467, KENNEDY 8068A.

Note to Specifier: For use with Fire Pump.

SECTION  
**B-1**  
Rev. 2-03

**O.S.&Y. RESILIENT WEDGE GATE VALVES**



**UL / FM**

**FIRE PROTECTION PRODUCTS**

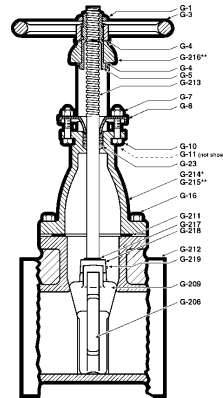
**R-2360-6: O.S.&Y. RESILIENT WEDGE GATE VALVE WITH FLANGE ENDS**

- 2-1/2", 3, 4", 6", 8", 10" AND 12" SIZES
- MEETS OR EXCEEDS ALL APPLICABLE REQUIREMENTS OF UL 262 AND FM 120/1130 SPECIFICATIONS AND COMPLIES WITH NSF-61
- IRON BODY WITH MUELLER® PRO-GARD™ FUSION EPOXY COATED INTERIOR & EXTERIOR SURFACES
- OUTSIDE SCREW AND YOKE (O.S.&Y)\* \*\*
- FLANGED END DIMENSIONS AND DRILLING
- IRON WEDGE, SYMMETRICAL & FULLY ENCAPSULATED WITH MOLDED RUBBER; NO EXPOSED IRON
- ADJUSTABLE PACKING
- HANDWHEEL – OPEN LEFT OR OPEN RIGHT
- 200 PSIG (1379KPA) WORKING PRESSURE - 400 PSIG (2758 KPA) TEST PRESSURE
- EPOXY COATING MEETS OR EXCEEDS ANSI/AWWA C550 AND COMPLIES WITH NSF-61



**PARTS LIST**

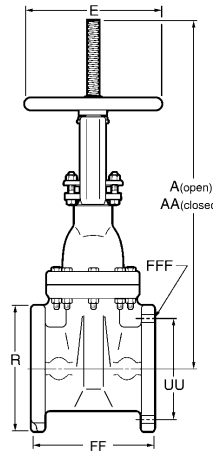
Catalog Part No.	Description	Material	Material Standard
G-1	Cap Nut	Bronze	ASTM B62
G-3	Hand Wheel	Cast Iron	ASTM A126 CL.B
G-4	Washer	Brass	
G-5	Bush Nut	Bronze	ASTM B584
G-7	Gland Nut	Bronze	ASTM B21 Alloy 464
G-8	Packing Gland	Ductile Iron	ASTM A536 Grade 65-45-12
G-10	Gland Bolt	Steel	ASTM A 307 Grand B, Zinc Plated
G-11**	Yoke Bolt & Nut	Steel	ASTM A 307 Grand B, Zinc Plated
G-16	Bonnet Bolts & Nuts	Carbon Steel	ASTM A 307 Grand B, Zinc Plated
G-23	Stem Packing	Lubricated Flax	
G-206	Guide Cap Bearings	Celcon	
G-209	Wedge, Rubber Encapsulated	Cast Iron***	ASTM A126 CL.B
G-211	Bonnet Gasket	Rubber	ASTM D2000
G-212	Body	Cast Iron	ASTM A126 CL.B
G-213	Stem	Bronze	ASTM B138
G-214*	Bonnet & Yoke w/Bushing	Cast Iron	ASTM A126 CL.B
G-215**	Bonnet	Cast Iron	ASTM A126 CL.B
G-216**	Yoke	Cast Iron	ASTM A126 CL.B
G-217	O-ring	Nitrile	ASTM D2000
G-218	Disc Nut	Bronze	ASTM B62
G-219	Stem Nut Pin	Stainless Steel	Type 304



**DIMENSIONS**

Dimension	Size						
	2-1/2"	3"	4"	6"	8"	10"	12"
A	19.50"	19.25"	23.68"	31.38"	38.50"	47.00"	53.50"
AA	15.75"	15.50"	19.00"	24.50"	29.50"	35.75"	40.50"
E	7.00"	7.00"	10.00"	12.00"	14.00"	16.00"	16.00"
R	7.00"	7.50"	9.00"	11.00"	13.50"	16.00"	19.00"
FF	7.50"	8.00"	9.00"	10.50"	11.50"	13.00"	14.00"
UU	5.50"	6.00"	7.50"	9.50"	11.75"	14.25"	17.00"
FFF (number and size of bolts)	4---3/4"	4---3/4"	8---3/4"	8---7/8"	8---7/8"	12---1"	12---1"
Turns to open	11	11	14	20.5	27	33.5	39
Weight (lbs.)†	68	72	130	194	289	448	596

+All dimensions are in inches. All weights are in pounds and are approximate.  
 \* 2-1/2" - 6" sizes have one-piece bonnet & yoke.  
 \*\* 8" - 12" sizes have separate bonnet & yoke.  
 \*\*\* Fully encapsulated in molded rubber with no iron exposed.



**DESCRIPTION:** 3/4" TO 2" GATE VALVE, 175 PSI WP, SCREWED, BRONZE, RISING STEM, OS&Y SOLID WEDGE DISC, UL/FM.

**MANUFACTURER & CATALOG NO.:** CRANE 459, STOCKHAM B-133, KENNEDY 66.

**Figure 459**

**Bronze Gate Valve**



**175 CWP • Rising Stem • Threaded Ends**

Figure 459

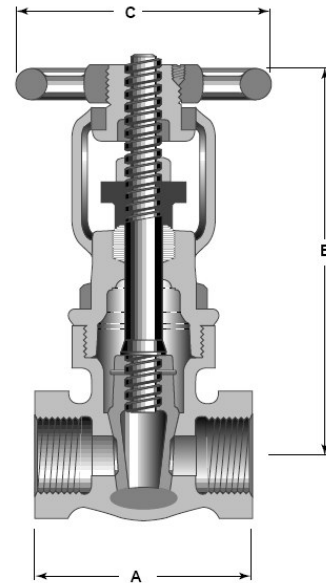
**Size Range:**  
1/2" through 2"  
**UL/FM Listed**

**Working Pressures Non-Shock:**  
175 psi Cold Working Pressure

**Features**

- All sizes are listed by Underwriters' Laboratories, Factory Mutual and Underwriters' Laboratories of Canada.
- Ideally designed for services where line fluids might affect inside stem threads. Exposed stem threads are easy to lubricate to ease operation and prevent wear.
- Outside Screw and Yoke
- Threaded Ends
- Solid Wedge Disc
- Full Ports
- Back Seat
- Integral Bronze Seat
- UL 262 Standard

For more detailed features, refer to page 18.



**Principal Parts & Materials**

Part	Material	ASTM
Body & bonnet	Bronze	B62 alloy 83600
Disc	Bronze	B584 alloy 87600
Yoke sleeve	Copper alloy	B16 alloy 36000
Stem	Copper alloy	B16 alloy 36000

**Dimensions and Weights**

Inches (millimeters) - pounds (kilograms)

	1/2 (13)	3/4 (20)	1 (25)	1 1/4 (32)	1 1/2 (40)	2 (50)
A	2.63 (67)	2.63 (67)	3.00 (25)	3.50 (89)	4.00 (101)	4.75 (121)
B	6.31 (160)	6.31 (146)	7.27 (171)	8.32 (192)	9.48 (227)	11.32 (275)
C	3.31 (84)	3.31 (84)	3.63 (92)	3.63 (92)	4.38 (111)	4.81 (125)
WTS.	3.50 (1.58)	3.30 (1.58)	4.40 (1.99)	6.80 (3.07)	9.80 (4.43)	15.50 (7.00)



**HV-1**

**DESCRIPTION:** 2-1/2" [1-1/2"] HOSE VALVE, ANGLE TYPE, CAST BRASS BODY AND TRIM, RISING STEM, CAP AND CHAIN, RED HAND WHEEL. HOSE THREADS TO MATCH LOCAL FIRE DEPARTMENT.

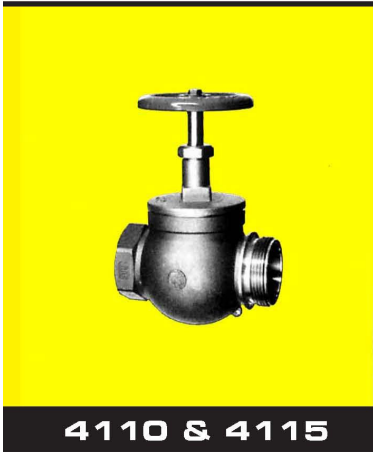
**MANUFACTURER & CATALOG NO.:** POTTER-ROEMER 4060 [4065], CROKER 5035 [5030], ELKHART U-25, KENNEDY 936.

Note to Specifier:

1. 2-1/2" - class I standpipe
  - 1-1/2" - class II standpipe
  - 1-1/2" & 2-1/2" - class III standpipe
2. 1-1/2" valves require reduced pressure. Verify with code.
3. Kennedy does not manufacture a 1-1/2" hose valve.



## HOSE VALVES



### STRAIGHT GLOBE

#### FEMALE x MALE

**FUNCTION:** Used with a fire hose assembly or as a fire dept outlet connection.

**REGULARLY FURNISHED:** Cast brass valve with red handwheel. Female NPT inlet x male hose thread outlet.

**Model**  
 4110 ..... 1½"/3.8 cm Size  
 4115 ..... 2½"/6.4 cm Size

**SPECIFY:** Thread

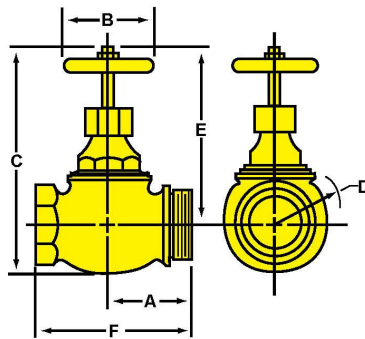
#### DOUBLE FEMALE

**FUNCTION:** Used with a fire hose rack assembly or as a drain valve.

**REGULARLY FURNISHED:** Cast brass valve with red handwheel. Female NPT inlet and outlet.

**Model**  
 4119 ..... ½"/1.3 cm Size  
 4120 ..... 1½"/3.8 cm Size  
 4125 ..... 2½"/6.4 cm Size

**SPECIFY:** Thread



Size in. cm	A in. cm	B in. cm	Closed C in. cm	Open C in. cm	D in. cm	E in. cm	F in. cm
½ 1.2	½ 0.3	2 5	4 10.2	4 ¼ 10.7	1 2.5	3 ½ 8.5	2 ¼ 5.7
1 ½ 3.8	2 ½ 6.4	3 ½ 8.9	7 ¼ 18.4	8 ¼ 20.9	3 7.6	5 ½ 14.6	5 ½ 14
2 ½ 6.4	3 ½ 8.9	5 12.7	10 ¼ 26	11 ¼ 28.5	3 ½ 8.9	8 ¼ 20.9	7 17.8

**HV-2**

**DESCRIPTION:** 2-1/2" [1-1/2"] HOSE GATE VALVE, STRAIGHT TYPE, CAST BRASS BODY AND TRIM, NON-RISING STEM, CAP AND CHAIN, RED HAND WHEEL. HOSE THREADS TO MATCH LOCAL FIRE DEPARTMENT.

**MANUFACTURER & CATALOG NO.:** POTTER-ROEMER 4315 [4305]. CROKER 5130 [5110], ELKHART 88, KENNEDY 39.

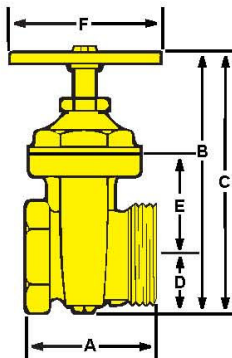
**Note to Specifier:**

1. Not suitable for use on wet systems, except on fire pump test header. Suitable as fire dept. outlet connection on dry systems only.
2. 2-1/2" - class I standpipe  
 1-1/2" - class II standpipe  
 1-1/2" & 2-1/2" - class III standpipe
3. 1-1/2" valves require reduced pressure. Verify with code.
4. Kennedy does not manufacture a 1-1/2" hose valve.

**HOSE GATE VALVES**



**WITH NON-RISING STEM**



**FUNCTION:** Used as a fire dept outlet connection, designed for dry systems only. Unrestricted waterway allows full flow. Suitable for use as a pump test valve. Non-rising stem feature requires less installation space.

**REGULARLY FURNISHED:** Cast brass valve with non-rising stem, red handwheel. Female NPT inlet x male hose thread outlet. Brass solid wedge disc and tapered seat.

**OPTIONAL FINISHES:**                      **SPECIFY:** Thread  
 -B Polished Brass  
 -C Rough Chrome Plated  
 -D Polished Chrome Plated

Model No.	UL Listed	FM Approval	Size in. cm	Pressure PSI bars	A in. cm	B in. cm	C in. cm	D in. cm	E in. cm	F in. cm
4305	YES	YES	1 1/2* 3.8	200 13.7	5 12.7	6 15.2	7 1/2 19	1 1/2 3.8	2 1/2 6.4	3 1/4 8.2
4315	YES	YES	2 1/2 6.4	300 20.6	5 1/4 13.3	7 3/4 19.6	9 1/4 24.7	2 5	3 1/2 8.9	5 1/4 13.3
4335	YES	YES	3x2 1/2 7.6x6.4	300 20.6	5 1/4 13.3	7 3/4 19.6	9 1/4 24.7	2 5	3 1/2 8.9	5 1/4 13.3




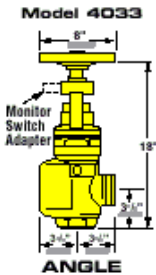
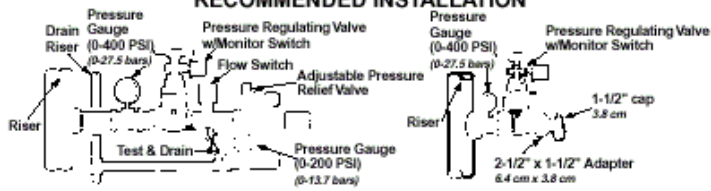
**4300 SERIES**

**DESCRIPTION:** 2-1/2" PRESSURE REGULATING HOSE VALVE, ANGLE TYPE, CAST BRASS BODY AND TRIM, CAP AND CHAIN, RED HAND WHEEL. 2-1/2" X 1-1/2" REDUCER. ADJUSTABLE UP TO 400 PSI INLET PRESSURE. HOSE THREADS TO MATCH LOCAL FIRE DEPARTMENT.

**MANUFACTURER & CATALOG NO.:** POTTER-ROEMER 4033, CROKER 5610, ELKHART UR-25-2.5.

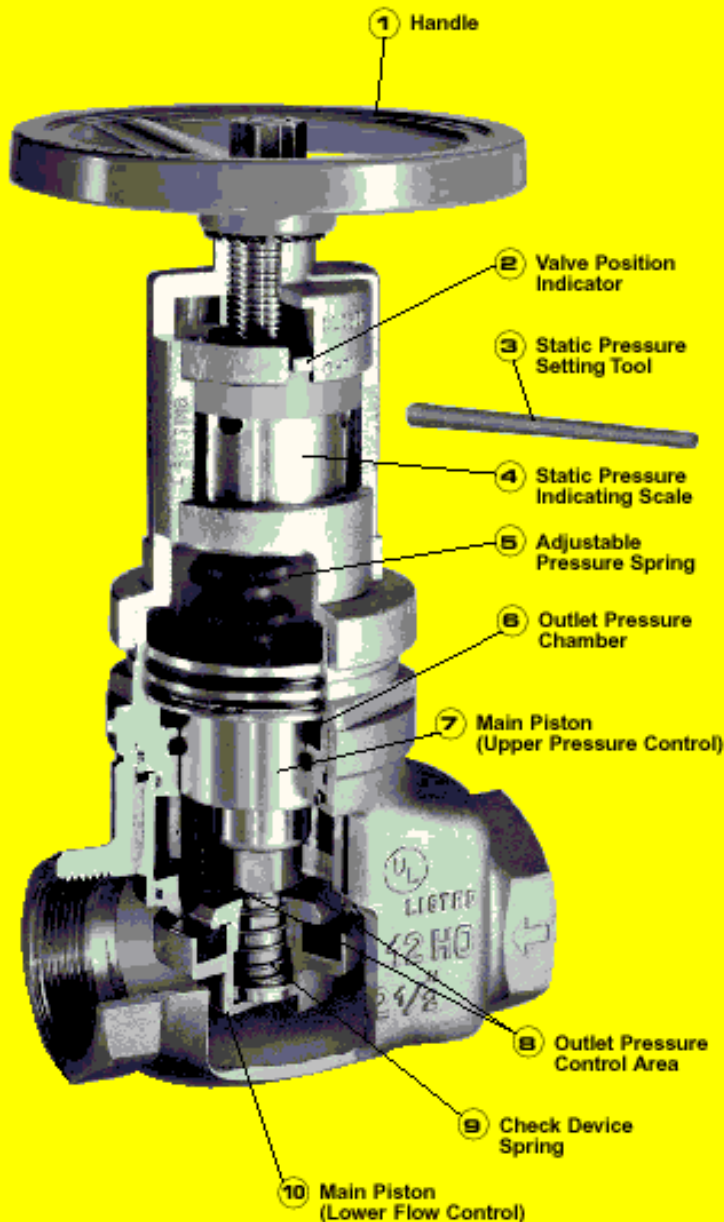
Note to Specifier:

1. 2-1/2" - class I standpipe  
1-1/2" - class II standpipe  
1-1/2" & 2-1/2" - class III standpipe
2. 1-1/2" valves require reduced pressure. Verify with code.
3. Use only if accepted by authorities having jurisdiction.

	<h2 style="margin: 0;">FIELD ADJUSTABLE REG-U-MATIC™ PRESSURE REGULATING VALVES</h2>
<h3 style="margin: 0;">FEATURES AND DATA</h3>	
<ul style="list-style-type: none"> <li>Positive pressure control under residual and static condition.</li> <li>Positive pressure control up to 400 PSI(27.5 bars).</li> <li>Outlet pressure is set by the adjustable indicating scale.</li> <li>Providing inlet pressure is higher, valve will maintain selected outlet pressure regardless of inlet pressure changes.</li> <li>Automatic balanced piston, adjustable spring-loaded design.</li> <li>Under low residual supply pressure condition, valve will fully open.</li> </ul> <ul style="list-style-type: none"> <li>Complete piping system can be hydrostatically tested to 400 PSI(27.5 bars) without damage to valve.</li> <li>Maximum back pressure does not damage valve components.</li> <li>Tamper-proof valve pressure adjustment.</li> <li>Designed for high-pressure sprinkler, standpipe and combined fire protection systems.</li> <li>Listed by Underwriters Laboratories up to 400 PSI(27.5 bars) pressure.</li> <li>Listed by Underwriters Laboratories as a checking device.</li> </ul>	
 <p style="text-align: center;"><b>Model 4033</b></p>	<h3 style="margin: 0;">2 1/2" / 6.4 cm VALVE</h3> <p><b>FUNCTION:</b> Used as a control and regulating valve for fire service end-of-line application on high-pressure sprinkler, standpipe and combined system. Indicator bonnet shows whether valve is open or closed. Adjustable indicating scale permits easy field setting. The valve is used to regulate inlet pressure to 400 PSI(27.5 bars).</p> <p><b>REGULARLY FURNISHED:</b> Brass valve with non-rising stem, internal parts of brass and stainless steel, red alloy handwheel, female NPT inlet and male NST outlet.</p> <p><b>OPTION:</b> -MSA1 Monitor Switch Adapter, Tamper-Proof -MSA2 Fork Type</p>
<h2 style="margin: 0;">4033</h2>	
<h3 style="margin: 0;">RECOMMENDED INSTALLATION</h3>	
	
<p>NOTE: ALWAYS INDICATE HOSE THREAD REQUIREMENTS      All dimensions in English and Metric.</p>	

## FIELD ADJUSTABLE REG-U-MATIC™ PRESSURE REGULATING VALVES

### TYPICAL 4033-4038 SERIES PRESSURE REGULATING VALVE (4036 SHOWN)



### GENERAL INFORMATION

- A "Reg-U-Matic" pressure regulating valve is used when supply pressure is excessive.
- "Static Pressure" means non-flowing pressure.
- "Residual Pressure" means flowing pressure.
- "Reg-U-Matic" pressure regulating valves can be installed horizontally or vertically.
- Static pressure at valve inlet must be a minimum of 30 PSI/2 bars above static pressure required at valve outlet.
- Pressure at valve outlet will decrease when flow occurs. The amount of decrease is determined by the volume of flow.
- "In-Line" installation is a system arrangement in which a valve is normally open (F x F valve).
- In an "In-Line" installation, when outlet static pressure reaches the regulated pressure, the valve seat will close and will remain closed until flow occurs. The volume of flow determines the degree of seat opening.
- "In-Line" installation of a "Reg-U-Matic" valve creates a closed system. A pressure relief valve must be installed downstream of valve discharge to eliminate excessive pressure build-up. Pressure relief valve should be set 10-15 PSI/0.6-1 bar above valve outlet static pressure.
- "End-of-Line" installation is a system arrangement in which the valve is normally closed and has a male hose thread outlet. (F x M valve).
- The performance of "Reg-U-Matic" pressure regulating valves may be evaluated by using charts provided; however, a gauge should be installed downstream of the valve to ensure accuracy.
- When inlet pressure falls below preselected outlet static pressure, the valve seat closes, acting as a "Checking Device".
- After completion of installation, the system should be slowly filled with water, with the highest point open until all air has been forced out of the system.
- "Reg-U-Matic" pressure regulating valves are automatic valves; debris is the largest single cause of valve malfunction. Therefore it is imperative all debris be flushed from the system before it is placed in service.
- Periodic flow tests are recommended to allow "Reg-U-Matic" valves to open and reset themselves.

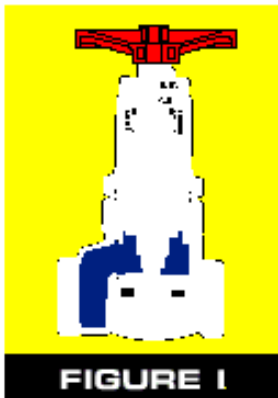
Call Potter-Roemer for current listings and approvals. Dimensions are subject to manufacturer's tolerance and change without notice. We assume no responsibility for use of superseded or void data.

# GENERAL INFORMATION AND OPERATING CONDITIONS



## GENERAL INFORMATION for 4033-4038

- A. Set desired static outlet pressure (60-175 PSI/4.1-12 bars) on pressure indicating scale using special setting tool.
- B. The outlet pressure is controlled by the adjustable pressure spring. When outlet pressure reaches the setting, upward force in outlet pressure chamber closes the main piston.
- C. The static outlet pressure is not affected by changes in the inlet pressure. Inlet pressure exerts force on both upper and lower portion of main piston; since the two surfaces are equal, no changes result.
- D. When outlet flow occurs, the pressure lessens in the outlet pressure chamber allowing the main piston to open, permitting flow from inlet side.
- E. The amount of flow determines the degree of opening. The increase of flow, or demand, decreases outlet pressure causing the main piston to open further. Under full-flow condition, the main piston is fully open.
- F. The decrease of flow, or demand, increases the outlet pressure, causing the main piston to close. Under no-flow condition, the main piston is fully closed when outlet pressure reaches static outlet setting.
- G. Loss of inlet pressure will activate the check device preventing back flow.



**FIGURE I**

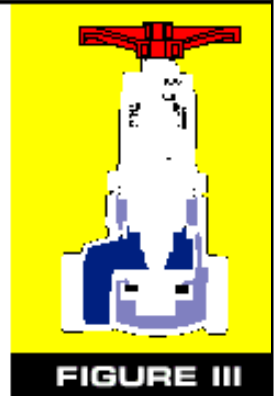
## OPERATING CONDITIONS

**FIGURE I VALVE HANDWHEEL IN CLOSED POSITION.**  
No water on outlet side of valve or in outlet pressure chamber.



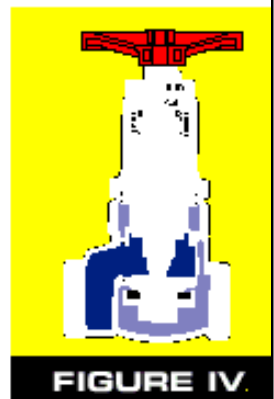
**FIGURE II**

**FIGURE II VALVE IN FULL-DEMAND CONDITION. HANDWHEEL IN OPEN POSITION.**  
Lower flow control fully open. Water pressure in outlet pressure chamber less than pressure exerted by adjustable spring. In this position the only loss of pressure through the valve is that of a straight pattern globe valve.



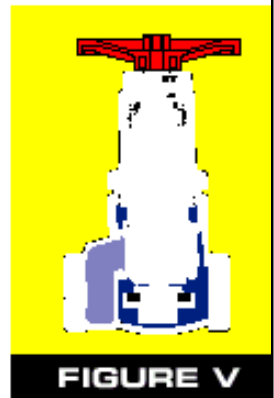
**FIGURE III**

**FIGURE III VALVE IN LESSER-DEMAND CONDITION.**  
Water pressure in outlet pressure chamber exerting upward force on main piston counteracting pressure from adjustable spring causing partial closure of lower flow control. The degree of closure is dependent on the flow.



**FIGURE IV**

**FIGURE IV VALVE IN NO-DEMAND CONDITION.**  
Water pressure in outlet pressure chamber has counteracted pressure from adjustable spring causing closure of lower flow control. Static pressure outlet has reached static pressure setting. Valve will remain in this position until flow occurs causing seat to open.



**FIGURE V**

**FIGURE V VALVE IN NO-DEMAND CONDITION.**  
Loss of inlet pressure caused checking device to close. Valve will remain in this position until inlet pressure surpasses outlet pressure or demand occurs.

All dimensions in English and Metric.

Page 4-2

**DESCRIPTION:** ROOF HOSE VALVE CONNECTION, CAST BRASS TWO-WAY OUTLET BODY, 4" x 2-1/2" x 2-1/2", NON-RISING STEM GATE VALVES WITH CAPS AND CHAINS AT EACH OUTLET CONNECTION, THREADS TO MATCH LOCAL FIRE DEPARTMENT.

**MANUFACTURER & CATALOG NO.:** POTTER-ROEMER 5876 WITH 4315 VALVE.

## ROOF FIRE DEPARTMENT OUTLET CONNECTIONS



**FUNCTION:** Used as a standpipe roof outlet connection by the fire service. Provides 250 GPM/946 lpm minimum per outlet (Ref. NFPA 14). Used with straight or angle hose valves to provide water control. Refer to Section 4000 for valve selection.

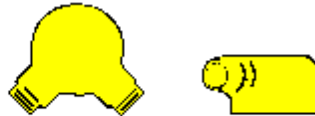
**REGULARLY FURNISHED:** Cast brass body with female NPT inlet and male NPT outlets. Type and size of inlet and number of outlets as selected by Model Number.

**VARIATION:**

-M With male hose thread

**SPECIFY:** Thread

### TWO-WAY MALE OUTLETS



Model 5876-5879 ..... Angle Inlet

Inlet Location		Inlet Size in. cm	Outlet Size in. cm
Back Model No.	Angle Model No.		
5871	5876	4 10.2	2 1/2 6.4
5872	5877	6 15.2	2 1/2 6.4
5873	5878	4 10.2	3 7.6
5874	5879	6 15.2	3 7.6



**5876-5879**

### HOSE GATE VALVES

#### WITH NON-RISING STEM

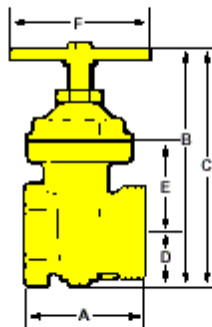
**FUNCTION:** Used as a fire dept outlet connection, designed for dry systems only. Unrestricted waterway allows full flow. Suitable for use as a pump test valve. Non-rising stem feature requires less installation space.

**REGULARLY FURNISHED:** Cast brass valve with non-rising stem, red handwheel. Female NPT inlet x male hose thread outlet. Brass solid wedge disc and tapered seat.

**OPTIONAL FINISHES:**

**SPECIFY:** Thread

- B Polished Brass
- C Rough Chrome Plated
- D Polished Chrome Plated



Model No.	UL Listed	FM Approval	Size in. cm	Pressure PSI Bars	A in. cm	B in. cm	C in. cm	D in. cm	E in. cm	F in. cm
430s	YES	YES	1 1/2-3.8	200 13.7	5 12.7	5 12.7	7 1/2-19	1 1/2-3.8	2 1/2-6.4	2 1/2-6.4
431s	YES	YES	2 1/2-6.4	300 20.6	5 1/2-13.9	7 1/2-19.6	9 1/2-24.7	2 1/2-6.4	3 1/2-8.9	3 1/2-8.9
433s	YES	YES	3x2 1/2-7.6/6.4	300 20.6	5 1/2-13.9	7 1/2-19.6	9 1/2-24.7	2 1/2-6.4	3 1/2-8.9	3 1/2-8.9



(4315 SHOWN)

**4300 SERIES**

NOTE: ALWAYS INDICATE HOSE THREAD REQUIREMENTS

All dimensions in English and Metric.

**HV-5**

**DESCRIPTION:** 1-1/2" HOSE VALVE WITH HOSE RACK ASSEMBLY AND HOSE. RED POLYESTER COATED STEEL PIN-TYPE HOSE RACK, WELDED ALL-STEEL COVER WITH WATER RETENTION DEVICE AND COMBINATION NOZZLE CLIP. 1-1/2" HOSE VALVE, ANGLE TYPE, CAST BRASS BODY AND TRIM, RISING STEM, RED HAND WHEEL, WITH STAMPED STEEL, POLISHED CHROME PLATED ESCUTCHEON TO CONCEAL PIPE ENTRY INTO CABINET. CAST BRASS HOSE RACK NIPPLE ABLE TO SUPPORT HOSE RACK AND ALLOW DIRECTIONAL DEPLOYMENT OF HOSE. HOSE THREADS TO MATCH LOCAL FIRE DEPARTMENT. COLLAPSIBLE [50'] [75'] [100'] LINED 500 PSI ACCEPTABLE PRESSURE TEST HOSE, 100% SYNTHETIC JACKET AND SYNTHETIC RUBBER LINING, WITH COUPLING. CAST BRASS FOG NOZZLE [WITH RUBBER BUMPER], ADJUSTABLE FROM FOG TO STRAIGHT STREAM TO SHUTOFF. UL[FM].

**MANUFACTURER & CATALOG NO.:** POTTER-ROEMER 2500 SERIES, CROKER [3000] [3100] SERIES, LARSENS 1.5 SERIES.

**Notes to Specifier:**

- For 1-1/2" hose valves, confirm hose requirement with AHJ.

**1 1/2" / 3.8 cm HOSE RACK ASSEMBLIES**



**FUNCTION:** For Class II Service. Used to provide an immediate and more efficient means of fire control. The assembly is capable of one-person operation and accepting the nationally recognized standard of 100 GPM/378.5 lpm at 65 PSI/4.5 bars at the outlet of the valve.

**REGULARLY FURNISHED:**

- Model 4070 U/L-◀ FM ▶ Angle Valve Rough Brass 300 PSI/20.7 bars
- Model 2750 Escutcheon
- Model 2755 Satin Brass Hose Rack Nipple
- Model 2930 Satin Brass Pin Lug Coupling
- Model 2915 ◀ FM ▶ Lined 500 PSI/34.5 bars Acceptance Pressure Test Polyflex Hose
- Model 2962 U/L - ◀ FM ▶ Satin Brass Fog Nozzle
- Model 2792 U/L - ◀ FM ▶ Red Glossy Polyester Coated Steel Hose Rack
- Model 1985 Instructional Label

Model No.	Hose Length ft. m	Valve Size in. cm	Hose Dia. in. cm	Dimensions			
				A in. cm	B in. cm	C in. cm	D in. cm
2505	50 15.2	1 1/2 3.8	1 1/2 3.8	23 1/2 59.7	22 55.8	18 45.7	4 10.2
2507	75 22.8	1 1/2 3.8	1 1/2 3.8	26 66	24 1/2 62.2	18 45.7	4 10.2
2510	100 30.4	1 1/2 3.8	1 1/2 3.8	31 78.7	29 1/2 74.9	18 45.7	4 10.2

Add 4" / 10.2 cm to hose rack assembly dimension "C" for Model 2926 PR-Superflex Hose.

**OPTIONAL FINISHES**

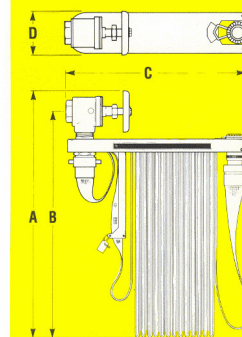
	Rack	Valve	Trim
- A	Red Finish	Rough Brass	Polished Brass
- B	Red Finish	Polished Brass	Polished Brass
- C	Polished Chrome Plated	Rough Chrome Plated	Rough Chrome Plated
- D	Polished Chrome Plated	Polished Chrome Plated	Polished Chrome Plated

**OPTIONAL EQUIPMENT: TO SELECT ADD SUFFIX**

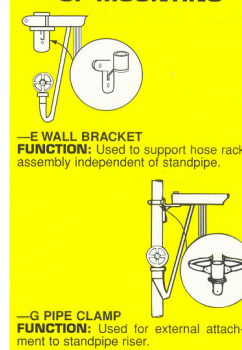
- 1 1/2" / 3.8 cm VALVES**
- 10 With Model 2760 Brass Automatic Drain Valve
- 11 With Model 2765 Brass Adjustable Pressure Restricting Device
- 12 With Model 2770 Brass Restricting Disc.
- 14 With Model 4090 Double Female Adjustable Pressure Restricting Angle Valve
- 16 With Model 4010 Double Female Adjustable Pressure Regulating Angle Valve
- 18 With Model 4042 Double Female Pressure Regulating Angle Valve
- 1 1/2" / 3.8 cm HOSE**
- 21 With Model 2915 Single Jacket Lined 300 PSI/20.7 bars Acceptance Pressure Test Polyflex Hose ◀ FM ▶ and U/L
- 23 With Model 2926 Single Jacket Lined 500 PSI/34.5 bars Acceptance Pressure Test PR-Superflex Hose ◀ FM ▶
- 24 With Model 2926 Single Jacket Lined 500 PSI/34.5 bars Acceptance Pressure Test PR-Superflex Hose ◀ FM ▶ and U/L
- 1 1/2" / 3.8 cm COUPLING**
- 31 With Model 2930 -RL Rocker Lug Coupling
- 32 With Model 2941 Extruded Aluminum Coupling
- 1 1/2" / 3.8 cm NOZZLE**
- 42 With Model 2960 Red Nylon Fog Nozzle
- 43 With Model 2972 Brass Fog Nozzle
- 44 With Model 2980 Red Nylon All-Fog Nozzle
- 45 With Model 2985 Brass All-Fog Nozzle
- 46 With Model 2993 Brass Fixed-Flow Nozzle



**2500 SERIES**



**OPTIONAL TYPES OF MOUNTING**

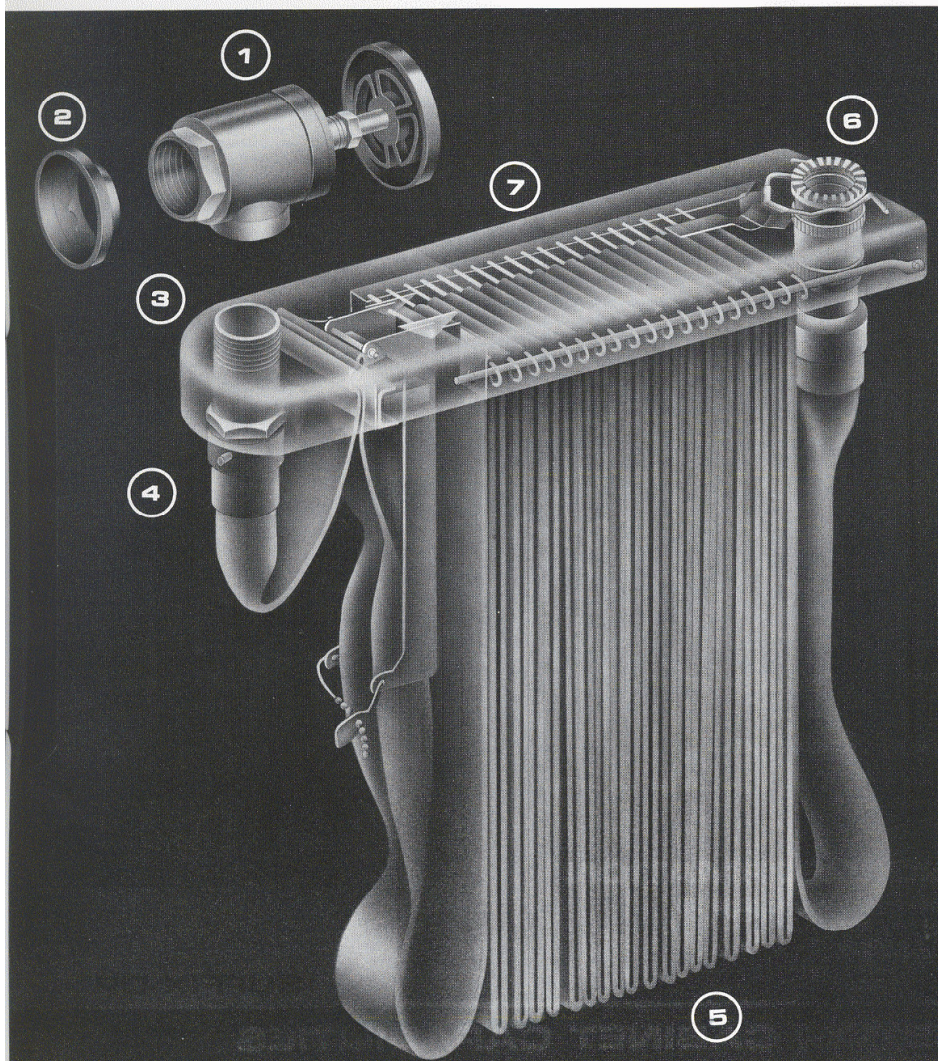


NOTE: ALWAYS INDICATE HOSE THREAD REQUIREMENTS. All dimensions in English and Metric.

## SEMI-AUTOMATIC HOSE RACK ASSEMBLY

An immediate and readily available means of controlling and suppressing fire by one person. The assemblies are capable of accepting the nationally recognized standard for Class II or Class III Service at the outlet of the valve.

**NFPA/FEMA CLASS OF SERVICE**  
CLASS I FIRE SERVICE ONLY  
CLASS II OCCUPANT USE  
CLASS III FIRE SERVICE OR OCCUPANT USE

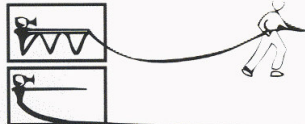


- 1 VALVE**  
Connection to standpipe. Controls water flow and pressure. Refer to Section 4000.
- 2 ESCUTCHEON**  
To conceal pipe entry into cabinet.
- 3 RACK NIPPLE**  
Supports the hose rack and allows directional deployment of hose. Provide local fire department thread.
- 4 COUPLING**  
Allows watertight attachment of hose to nipple. Refer to page 2-11.
- 5 HOSE**  
A lightweight, durable, compact, and readily deployed hose that is testable and easily folded for rack storage. Refer to pages 2-9 and 10.
- 6 FOG NOZZLE**  
Directs water flow to extinguish fire. The nozzle pattern control permits fog, straight stream or shut off positions. Refer to pages 2-13 and 14.
- 7 SEMI-AUTOMATIC HOSE RACK**  
Provides storage for folded hose and nozzle. The water retention device provides one-person operation. Inspection seal indicates readiness of the assembly. Refer to page 2-4.

**1.** Open valve wide.



**2.** Pull hose completely off rack.



**3.** Water will come on when hose is free.




Call Potter Roemer for current listings and approvals. Dimensions are subject to manufacturer's tolerance and change without notice. We assume no responsibility for use of superseded or void data.



HYD-1

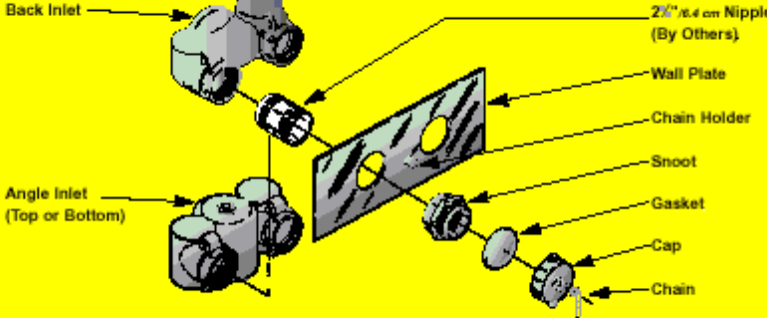
**DESCRIPTION:** FLUSH FIRE DEPT. OUTLET CONNECTION, CHROME PLATED BRASS ONE-WAY OUTLET, SINGLE 2-1/2" MALE HOSE THREADS, SNOOT WITH CAP AND CHAIN, CHROME PLATED ROUND ESCUTCHEON LABELED "HYDRANT". UL. THREADS TO MATCH LOCAL FIRE DEPARTMENT.



**MANUFACTURER & CATALOG NO.:** POTTER-ROEMER 5801, ELKHART 152, CROKER, GUARDIAN.



## FLUSH FIRE DEPT OUTLET CONNECTIONS

**EXPLODED VIEW OF TYPICAL FLUSH OUTLET CONNECTION**



**SINGLE HYDRANT**

**FUNCTION:** Used as an auxiliary water supply by the fire service. Single outlet suitable when water demand is under 500 GPM/1892 lpm (Ref. NFPA 20). Flush design desirable, when appearance is a factor.

**REGULARLY FURNISHED:** Polished brass plate lettered HYDRANT. Female NPT x male hose thread snoot with cap and chain. Round or square plate and size as selected by Model Number.

WITH 8" / 20.3 cm ROUND PLATE		WITH 8" / 20.3 cm SQUARE PLATE	
Model	Size	Model	Size
5801	2 1/2" / 6.4 cm	5811	2 1/2" / 6.4 cm
5802	2 1/2" x 3" / 6.4 x 7.6 cm	5812	2 1/2" x 3" / 6.4 x 7.6 cm
5803	3" / 7.6 cm	5813	3" / 7.6 cm

**OPTIONAL FINISH:** -D Polished Chrome Plated (Refer to page 6 for special finishes)  
**SPECIFY:** Thread and lettering

5801-5813

NOTE: ALWAYS INDICATE HOSE THREAD REQUIREMENTS All dimensions in English and Metric.

**DESCRIPTION:** CAST IRON ADJUSTABLE TYPE INDICATOR POST, ACCOMMODATE 3" THRU 14", NON-RISING STEM, INSIDE SCREW GATE VALVES, LOCKING TYPE OPERATING BRANCH TURN COUNTER-CLOCKWISE TO OPEN, ADJUSTABLE, NON-BREAKABLE PLASTIC WINDOW, (READS "OPEN" OR "SHUT"), UL/FM.

**MANUFACTURER & CATALOG NO.:** MUELLER A-20806, STOCKHAM G-951A, KENNEDY 2945A.

Note to Specifier:

1. Need to include MS-2 supervisory switch.
2. For use with GA-9.

**E-1**  
Rev. 2-03  
**ADJUSTABLE INDICATOR POST**



**UL / FM**

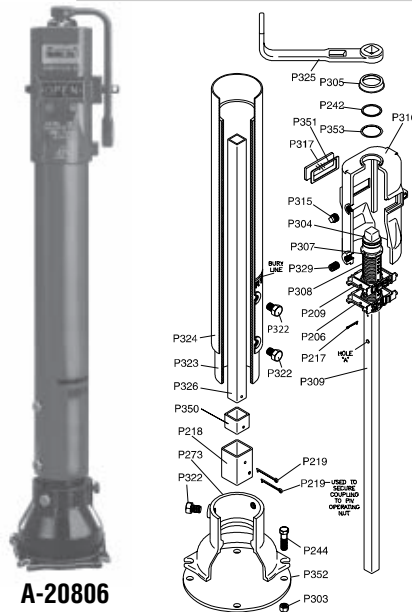
**FIRE PROTECTION PRODUCTS**

A-20806: Adjustable Type Indicator Post

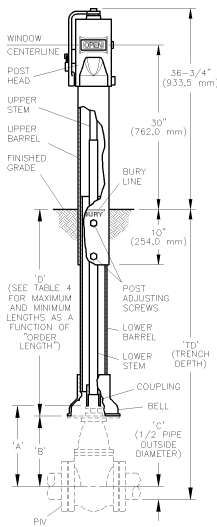
UL Listed    ULC Listed    FM Approved

**PARTS LIST**

Catalog Parts No.	Description	Material	Material Standard
P206	SHUT target	Plastic	Zytel
P209	OPEN target	Plastic	Zytel
P217	Cotter Pin (short)	Brass	ASTM B21
P218	Coupling	Steel	ASTM A500 GR.B
P219	Cotter Pin (long)	Brass	ASTM B21
P242	Retaining ring	Stainless Steel	AISI 302
P244	Hex bolt (not shown)	Steel/zinc plated	ASTM A307 GR.A
P273	Bell	Cast iron	ASTM A126 CL.B
P303	Hex nut (not shown)	Steel/zinc plated	ASTM A563 GR.A
P304	Operating nut	Ductile iron	ASTM A536 GR.65-45-12
P305	Cap	Polypropylene	
P307	Spring pin	Stainless steel	AISI 420
P308	Threaded sleeve	Plastic	Zytel
P309	Upper stem	Steel	ASTM A513
P315	Pipe plug - hex socket	Steel	
P316	Post head	Cast iron	ASTM A126 CL.B
P317	Window	Plexiglass	
P322	Hex head screw	Steel/zinc plated	ASTM A307 GR.A
P323	Lower barrel	PVC	DR14 UL Listed
P324	Upper barrel	Steel	ASTM A53 GR.B
P325	Wrench	Ductile iron	ASTM A536 GR. 5-45-12
P326	Lower stem	Steel	ASTM A500 GR.B
P329	Socket head set screw	Steel	ANSI B18.3
P350	Coupling insert	Steel	ASTM A500 GR.B
P351	Window gasket	Synthetic rubber	
P352	Shipping disc	Pressboard	
P353	Washer	Stainless steel	AISI 304



**A-20806**



**Determining Order Length**

For Mueller valves and a given Trench Depth (TD), see Table 3. For all others: calculate dimension D as follows, then use it to select the "Order Length" from Table 2 that best accommodates the minimum D length.

$D (req'd) = TD - B - C$

Table 1 Valve Size	A & B DIMENSIONS FOR MUELLER METAL SEAT POST INDICATOR VALVES			A & B DIMENSIONS FOR MUELLER RESILIENT WEDGE POST INDICATOR VALVES			C DIMENSIONS FOR ALL VALVES -1/2 OF PIPE O.D. (Typical for underground pipe)
	A	B	Turns to Open	A	B	Turns to Open	
4"	-	-	-	14.31"	12.72"	14-1/2	2.40"
6"	-	-	-	18.12"	16.53"	20-1/2	3.45"
8"	-	-	-	21.25"	19.66"	27	4.53"
10"	-	-	-	26.38"	24.79"	33-1/2	5.55"
12"	-	-	-	29.50"	27.91"	39-1/2	6.60"
14"	32.12"	29.62"	46	30.75"	29.15"	43-1/2	7.65"
16"	37.00"	34.50"	53	35.88"	34.28"	49	8.70"

Table 2	ORDER LENGTH AS A FUNCTION OF D DIMENSION					
	A	B	C	D	E	F
Min.	17.25"	36.00"	57.00"	78.00"	99.00"	120.00"
Max.	39.25"	60.25"	81.25"	102.25"	123.25"	144.25"

Table 3 Valve Size	NOMINAL TRENCH DEPTHS* FOR MUELLER IBBM DOUBLE DISC & RESILIENT WEDGE POST INDICATOR VALVES*											
	Order Length A		Order Length B		Order Length C		Order Length D		Order Length E		Order Length F	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
4"	2' 7"	4' 5"	4' 3"	6' 3"	6' 0"	8' 0"	7' 8"	9' 8"	9' 5"	11' 5"	11' 3"	13' 3"
6"	3' 1"	4' 9"	4' 7"	6' 7"	6' 4"	8' 4"	8' 2"	10' 2"	9' 9"	11' 9"	11' 7"	13' 7"
8"	3' 6"	5' 3"	5' 0"	7' 0"	6' 8"	8' 8"	8' 5"	10' 5"	10' 3"	12' 3"	12' 0"	14' 0"
10"	3' 11"	5' 8"	5' 5"	7' 5"	7' 3"	9' 3"	9' 0"	11' 0"	10' 8"	12' 8"	12' 5"	14' 5"
12"	4' 4"	6' 1"	5' 9"	7' 9"	7' 6"	9' 6"	9' 4"	11' 4"	11' 1"	13' 1"	12' 9"	14' 9"
14"	4' 6"	6' 3"	6' 1"	8' 1"	7' 8"	9' 8"	9' 6"	11' 6"	11' 3"	13' 3"	13' 1"	15' 1"
16"	5' 0"	6' 9"	6' 6"	8' 6"	8' 3"	10' 4"	10' 1"	12' 1"	11' 8"	13' 9"	13' 6"	15' 6"

\* The minimum and maximum trench depths which will be accommodated by specific "Order Length" can be calculated as follows by using the minimum and maximum D dimensions given in Table 2. TD (min.) = D (min.) + B + C. TD (max.) = D (max.) + B + C.

**DESCRIPTION:** CAST IRON WALL TYPE INDICATOR POST, ACCOMMODATE 2" THRU 14", NON-RISING STEM, INSIDE SCREW GATE VALVES, LOCKING TYPE, TURN COUNTER-CLOCKWISE TO OPEN, NON-BREAKABLE PLASTIC WINDOW, (READS "OPEN" OR "SHUT"), UL/FM.

**MANUFACTURER & CATALOG NO.:** MUELLER A-20813, CLOW F5765, STOCKHAM G-950, KENNEDY 641.

Note to Specifier:

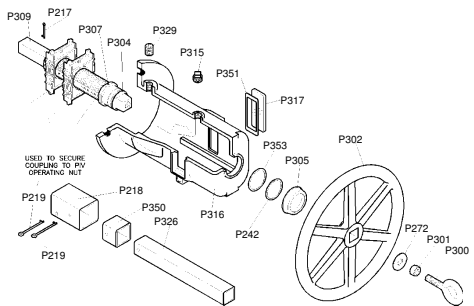
1. Need to include MS-2 supervisory switch.
2. For use with GA-9.
3. Angle wall post kit available from Kennedy.

**E-1**  
Rev. 2-03  
**WALL TYPE INDICATOR POST**

**Mueller Co.**  
**UL / FM**  
**FIRE PROTECTION PRODUCTS**



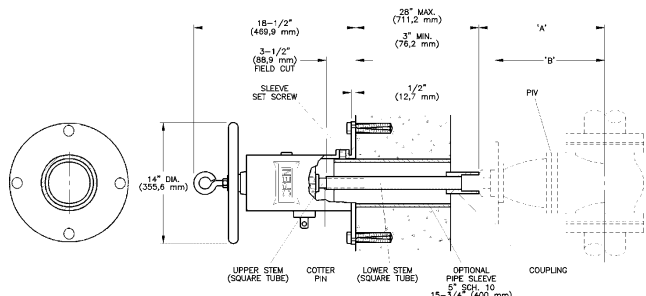
**A-20813**



**A-20813: Wall Type Indicator Post**  
 UL Listed     ULC Listed     FM Approved

**PARTS LIST**

Catalog Parts No.	Description	Material	Material Standard
P206	SHUT target	Plastic	Zytel
P209	OPEN target	Plastic	Zytel
P217	Cotter Pin (short)	Brass	ASTM B21
P218	Coupling	Steel	ASTM A500 GR.B
P219	Cotter Pin (long)	Brass	ASTM B21
P242	Retaining ring	Stainless Steel	AISI 302
P244	Hex bolt (not shown)	Steel/zinc plated	ASTM A307 GR.A
P272	Washer	Steel/zinc plated	
P273	Bell	Cast iron	ASTM A126 CL.B
P300	Eyebolt	Steel/zinc plated	
P301	Hex nut	Steel/zinc plated	ASTM A563 GR.A
P302	Handwheel	Ductile iron	ASTM A536 GR.65-45-12
P303	Hex nut (not shown)	Steel/zinc plated	ASTM A563 GR.A
P304	Operating nut	Ductile iron	ASTM A536 GR.65-45-12
P305	Cap	Polypropylene	
P307	Spring pin	Stainless steel	AISI 420
P308	Threaded sleeve	Plastic	Zytel
P309	Upper stem	Steel	ASTM A513
P315	Pipe plug - hex socket	Steel	
P316	Post head	Cast iron	ASTM A126 CL.B
P317	Window	Plexiglass	
P322	Hex head screw (not shown)	Steel/zinc plated	ASTM A307 GR.A
P326	Lower stem	Steel	ASTM A500 GR.B
P329	Socket head set screw	Steel	ANSI B18.3
P350	Coupling insert	Steel	ASTM A500 GR.B
P351	Window gasket	Synthetic rubber	
P352	Shipping disc	Pressboard	
P353	Washer	Stainless steel	AISI 304



**DIMENSIONS**

Table 1	A & B DIMENSIONS FOR MUELLER METAL SEAT POST INDICATOR VALVES			A & B DIMENSIONS FOR MUELLER RESILIENT WEDGE POST INDICATOR VALVES		
	Valve Size	A	B	Turns to Open	A	B
4"	13.00"	11.44"	14-1/2	14.31"	12.72"	14-1/2
6"	16.21"	14.38"	20-1/2	18.12"	16.53"	20-1/2
8"	20.12"	18.38"	27	21.25"	19.66"	27
10"	24.50"	22.38"	33-1/2"	26.38"	24.79"	33-1/2
12"	27.88"	25.38"	39-1/2	29.50"	27.91"	39-1/2
14"	32.12"	29.62"	46	-	-	-

IT-1

DESCRIPTION: 1" INSPECTOR'S TEST AND DRAIN VALVE WITH INTEGRAL SIGHT GLASS, BALL VALVE WITH INTEGRAL LABELED PLATE SHOWING OFF-TEST-DRAIN POSITIONS. FURNISHED WITH TEST ORIFICE GIVING FLOW EQUIVALENT TO ONE SPRINKLER OF A TYPE HAVING THE SMALLEST ORIFICE INSTALLED ON THE SYSTEM, UL.

MANUFACTURER & CATALOG NO.: RELIABLE B W/1" BALL VALVE, TYCO F350, AGF MODEL 1000.

[IT-1 CAN BE PROVIDED AS A PART OF A MANIFOLD ASSEMBLY WITH FS-1 AND BF-1. EACH COMPONENT OF THE ASSEMBLY MUST MEET THE REQUIREMENTS OF ITS RESPECTIVE MATERIAL LIST DESCRIPTION. PROVIDE A PRESSURE GAUGE FOR EACH MANIFOLD AS INDICATED ON THE DRAWINGS. PROVIDE A CHECK VALVE FOR EACH MANIFOLD AS INDICATED ON THE DRAWINGS WHERE SPRINKLER PIPING IS CONNECTED TO A STANDPIPE.]

Note to Specifier:

Not all models listed are FM approved. If required, refer to catalog.



- The AGF Manufacturing Co., Inc. Model 1000 has been designed to provide both the Test Function and the Express Drain Function in a multistory installation.
- Complies with all requirements of NFPA-13, NFPA-13R, and NFPA-13D
- Positive shut off
- Single Handle
- Tapped for Pressure Gauge
- Tamper Resistant Orifice permanently installed
- Available with all required Orifices
- Orifice size noted on Indicator plate
- Lightweight and compact
- 300 PSI Rating
- Integral tamper resistant sight glasses
- Full range of sizes from 3/4" to 2"



Visit us  
on the Internet  
at  
[www.testandrain.com](http://www.testandrain.com)



MODEL 1000

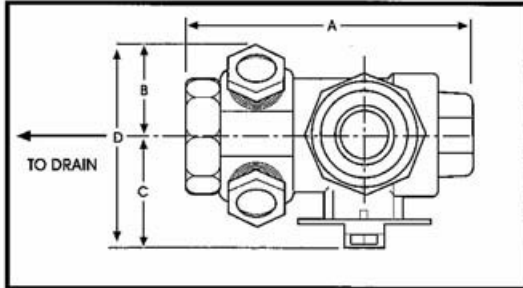
300 PSI



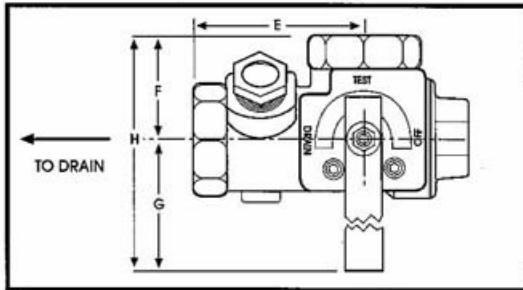
# TEST AND DRAIN®

3/4" 1" 1 1/4" 1 1/2" 2"

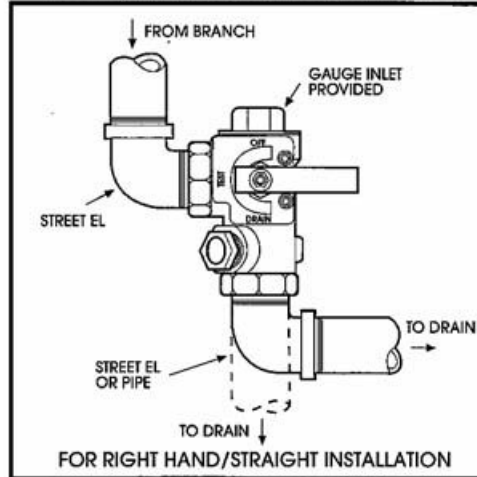
PLAN VIEW



FRONT VIEW/HORIZONTAL INSTALLATION



FRONT VIEW/VERTICAL INSTALLATION



**ORIFICE SIZE AVAILABLE** - 3/8, 7/16, 1/2, 17/32, ELO(5/8)\*, ESFR(3/4)\*  
**DIMENSIONS - INCHES**

**APPROVALS:**

- UL and ULC Listed
- FM Approved except 3/4"
- NYC BD. of S&A CAL. NO. 720-87-SM
- CA. State Fire Marshall

SIZE	A	B	C	D	E	F	G	H
3/4"	5 1/16" 128mm	1 1/2" 37.58mm	2 3/16" 55.65mm	3 5/8" 93.23mm	3 3/8" 85.88mm	1 13/16" 45.30mm	4 9/16" 117.12mm	6 3/8" 162.42mm
1"	5 1/16" 128mm	1 1/2" 37.58mm	2 3/16" 55.65mm	3 5/8" 93.23mm	3 3/8" 85.88mm	1 13/16" 45.30mm	4 9/16" 117.12mm	6 3/8" 162.42mm
1 1/4"	5 7/16" 137.70mm	1 11/16" 42.70mm	2 9/16" 65.36mm	4 1/4" 108.36mm	3 5/16" 82.84mm	1 15/16" 50.89mm	5 9/16" 141.39mm	5 1/2" 192.28mm
1 1/2"	6 7/16" 163.38mm	1 13/16" 45.50mm	3 1/4" 81.50mm	5 1/16" 127mm	3 7/8" 99.18mm	2 5/8" 66.97mm	8 1/4" 206.63mm	10 7/8" 273.60mm
2"	6 7/16" 163.38mm	1 13/16" 45.50mm	3 1/4" 81.50mm	5 1/16" 127mm	3 7/8" 99.18mm	2 5/8" 66.97mm	8 1/4" 206.63mm	10 7/8" 273.60mm

**MATERIAL LIST**

PART:	MATERIAL:
HANDLE	STEEL
STEM	ROD BRASS
BALL	C.P. BRONZE
BODY	BRONZE
VALVE SEAT	IMPREGNATED TEFLON
INDICATOR PLATE	STEEL
HANDLE LOCK	SPRING STEEL

\*Available on 1 1/4" to 2" size units only.

**USA Patent #4741361 and other patents pending**

2" ELO/ESFR is UL Listed & FM Approved  
 1 1/4" ELO/ESFR is UL Listed

The Reliable Automatic Sprinkler Co., Inc  
 525 N. MacQuesten Parkway  
 Mount Vernon, NY 10552  
 Phone 800.431.1588  
 www.reliablesprinkler.com



JOB NAME: \_\_\_\_\_  
 ARCHITECT: \_\_\_\_\_  
 ENGINEER: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

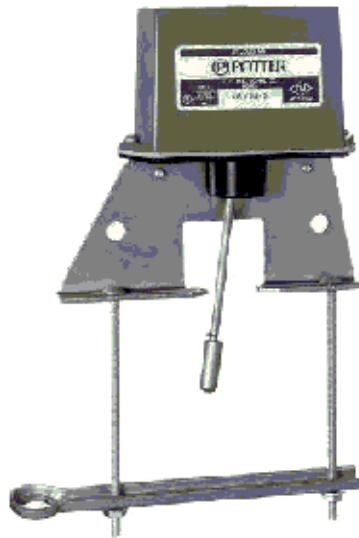
**DESCRIPTION:** MONITOR SWITCH - ELECTRIC, ONE SINGLE POLE, DOUBLE THROW CONTACT, CAST ALUMINUM HOUSING WITH CORROSION RESISTANT PARTS, WITH J-BOLTS FOR MOUNTING. UL/FM. VERIFY ELECTRICAL CHARACTERISTICS WITH ELECTRICAL CONTRACTOR PRIOR TO PURCHASE.

**MANUFACTURER & CATALOG NO.:** POTTER ELECTRIC OSYSU-1, SYSTEM SENSOR OSY2.

Note to Specifier:  
For use with OS&y gate valves.



**OSYSU-1, -2**  
**OUTSIDE SCREW AND YOKE VALVE**  
**SUPERVISORY SWITCH**



**OSYSU-1 Stock No. 1010106**  
**OSYSU-2 Stock No. 1010206**

**UL and CSFM Listed, FM Approved, NYMEA Accepted**

**Dimensions:** 6.19"L X 2.25"W X 5.88"H  
15.7cm L X 5.7cm W X 14.6cm H

**Weight:** 2 lbs. (.9 kg.)

**Enclosure:** Cover - Die-Cast  
Finish - Red Spatter Enamel  
Base - Die Cast Zinc  
All parts have corrosion resistant finishes

**Cover Tamper:** Tamper resistant screws,  
Optional cover tamper kit available.

**Contact Ratings:**  
OSYSU-1: One set of SPDT (Form C)  
OSYSU-2: Two sets of SPDT (Form C)  
15.00 Amps at 125/250VAC  
2.50 Amps at 30VDC resistive

**Environmental Limitations:**  
-40°F to 140°F (-40°C to 60°C)  
NEMA 4 and NEMA 6P Enclosure (IP67)  
Indoor or outdoor use (Not for use in hazardous locations. See Bulletin No. 5400705 OSYS-U-EX for hazardous locations).

**Conduit Entrances:**  
2 knockouts for 1/2" conduit provided

**Service Use:**  
Automatic Sprinkler NFFA-13  
One or two family dwelling NFFA-13D  
Residential occupancy up to four stories NFFA-13R  
National Fire Alarm Code NFFA-72

**GENERAL INFORMATION**

The OSYSU is used to monitor the open position of an OS & Y (outside screw and yoke) type gate valve. This device is available in two models; the OSYSU-1, containing one set of SPDT (Form C) contacts and the OSYSU-2, containing two sets of SPDT (Form C) contacts. These switches mount conveniently to most OS & Y valves ranging in size from 2" to 12". They will mount on some valves as small as 1/2".

The cover is held in place by two tamper resistant screws that require a special tool to remove. The tool is furnished with each device and should be left with the building owner or responsible party. Replacement or

additional cover screws and hex keys are available. See ordering information on page 4.

**OPTIONAL COVER TAMPER SWITCH**

A field installable cover tamper switch is available as an option which may be used to indicate removal of the cover. See ordering information on page 4.

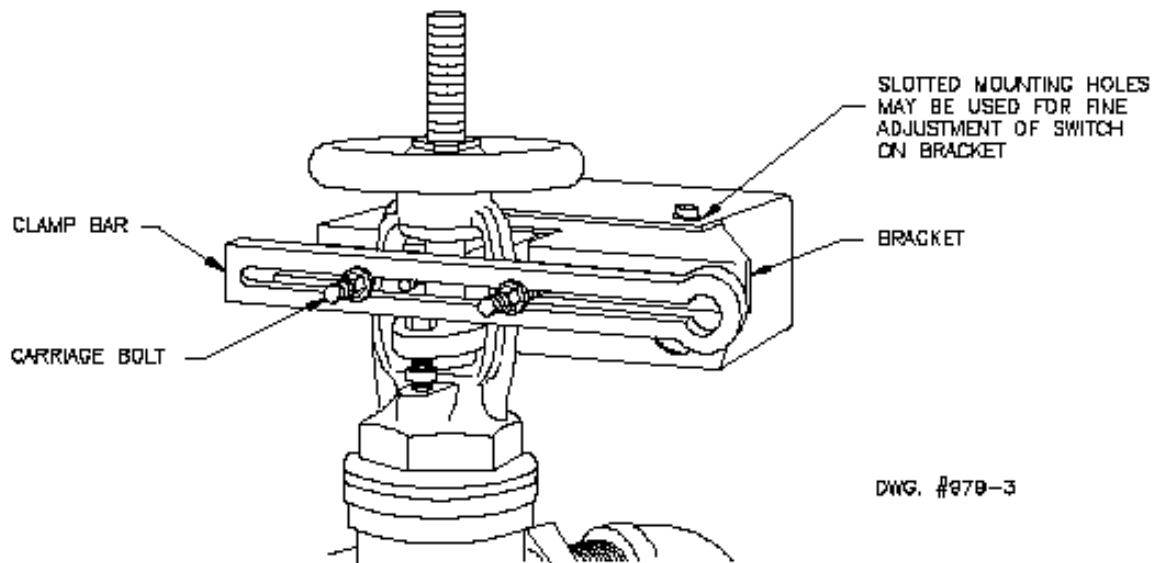
**TESTING**

The OSYSU and its associated protective monitoring system should be inspected and tested in accordance with applicable NFFA codes and standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).

Potter Electric Signal Company • 2081 Craig Road, St. Louis, MO, 63146-4161 • Phone: 800-325-3936/Canada 905-882-1833 • www.pottersignal.com

FIG. 1 SMALL VALVE INSTALLATION - 1/2" THRU 2 1/2" SIZES

THESE SWITCHES MOUNT CONVENIENTLY TO MOST 2" TO 12" OS & Y VALVES. THEY WILL MOUNT ON SOME VALVES AS SMALL AS 1/2". J-HOOKS MAY BE REQUIRED ON VALVES WITH LIMITED CLEARANCE.



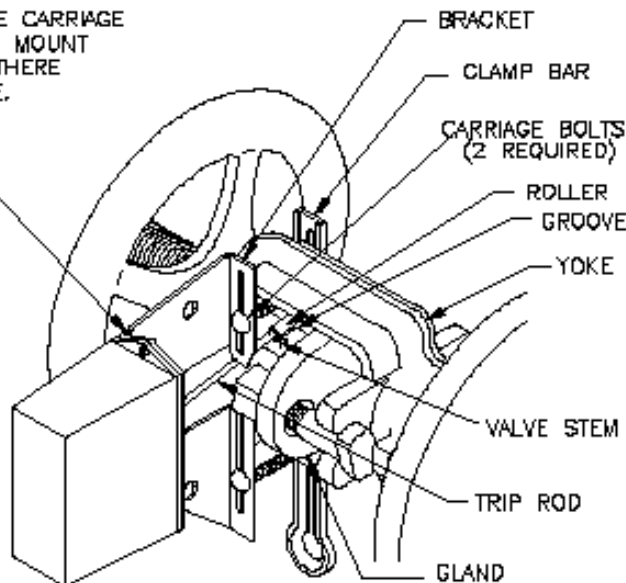
### SMALL VALVE INSTALLATION

1. Remove and discard "C" washer and roller from the trip rod.
2. With the valve in the FULL OPEN position, locate the OSYSU across the valve yoke as far as possible from the valve gland, so that the trip rod lays against the non-threaded portion of the valve stem.
3. Loosen the locking screw that holds the trip rod in place and adjust the rod length (see Fig. 4). When adjusted properly, the rod should extend past the valve screw, but not so far that it contacts the clamp bar. Tighten the locking screw to hold the trip rod in place.  
**NOTE:** If trip rod length is excessive, loosen the locking screw and remove the trip rod from the trip lever. Using pliers, break off the one (1) inch long notched section (see Fig. 5). Reinstall trip rod and repeat Step 3 procedure.
4. Mount the OSYSU loosely with the carriage bolts and clamp bar supplied. On valves with limited clearance use J-hooks supplied instead of the carriage bolts and clamp bar to mount the OSYSU.
5. Mark the valve stem at the center of the trip rod.
6. Remove the OSYSU. File a 1/8" deep groove centered on the mark on the valve stem utilizing a 3/16" round, non-tapered file. Round and smooth the edges of the groove to prevent damage to the valve packing and to allow the trip rod to move easily in and out of the groove as the valve is operated.
7. Mount the OSYSU with the trip rod centered in groove.
8. Final adjustment is made by loosening 2 screws (see Fig. 1) and sliding the OSYSU on the bracket. Adjustment is correct when switches are not activated with the trip rod seated in the valve stem groove and that the switches activate when the trip rod moves out of the groove.
9. Tighten the adjustment screws and all mounting hardware. Check to insure that the rod moves out of the groove easily and that the switches activate within one turn when the valve is operated from the FULL OPEN towards the CLOSED position.  
**NOTE:** CLOSE THE VALVE FULLY TO DETERMINE THAT THE STEM THREADS DO NOT ACTIVATE THE SWITCH. THE SWITCH BEING ACTIVATED BY THE STEM THREADS COULD RESULT IN A FALSE VALVE OPEN INDICATION.

FIG. 2 LARGE VALVE INSTALLATION - 3" THRU 12" SIZES

3" THRU 12" VALVES USE CARRIAGE BOLTS. CARRIAGE BOLTS MOUNT ON INSIDE OF YOKE, IF THERE IS SUFFICIENT CLEARANCE.

SLOTTED MOUNTING HOLES. MAY BE USED FOR FINE ADJUSTMENT OF SWITCH ON BRACKET.



DWG. #979-4

### LARGE VALVE INSTALLATION

1. With the valve in the FULL OPEN position, locate the OSYSU across the valve yoke as far as possible from the valve gland, so that the trip rod lays against the non-threaded portion of the valve stem.
2. Mount the OSYSU loosely with the carriage bolts and clamp bar supplied.
3. Loosen the locking screw that holds the trip rod in place and adjust the rod length (see Fig. 4). When adjusted properly, the rod should extend past the valve screw, but not so far that it contacts the clamp bar. Tighten the locking screw to hold the trip rod in place.  
**NOTE:** If trip rod length is excessive, loosen the locking screw and remove the trip rod from the trip lever. Using pliers, break off the one (1) inch long notched section (see Fig. 5). Reinstall trip rod and repeat Step 3 procedure.
4. Mark the valve stem at the center of the trip rod.
5. Remove the OSYSU. File a 1/8" deep groove centered on the mark of the valve stem utilizing a 3/8" round, non-

tapered file. Round and smooth the edges of the groove to prevent damage to the valve packing and to allow the trip rod to move easily in and out of the groove as the valve is operated.

6. Mount the OSYSU loosely with the trip rod centered in groove.
7. Final adjustment is made by loosening 2 screws (see Fig. 2) and sliding the OSYSU on the bracket. Adjustment is correct when switches are not activated with the trip rod seated in the valve stem groove and that the switches activate within one turn when the valve is operated from the FULL OPEN towards the CLOSED position.
8. Tighten the adjustment screws and mounting hardware. Check to insure that the rod moves out of the groove easily and that the switches activate within one turn when the valve is operated from the FULL OPEN towards the CLOSED position.

**NOTE:** CLOSE THE VALVE FULLY TO DETERMINE THAT THE STEM THREADS DO NOT ACTIVATE THE SWITCH. THE SWITCH BEING ACTIVATED BY THE STEM THREADS COULD RESULT IN A **FALSE VALVE OPEN** INDICATION.





# OSYSU-1, -2 OUTSIDE SCREW AND YOKE VALVE SUPERVISORY SWITCH

FIG. 3 DIMENSIONS

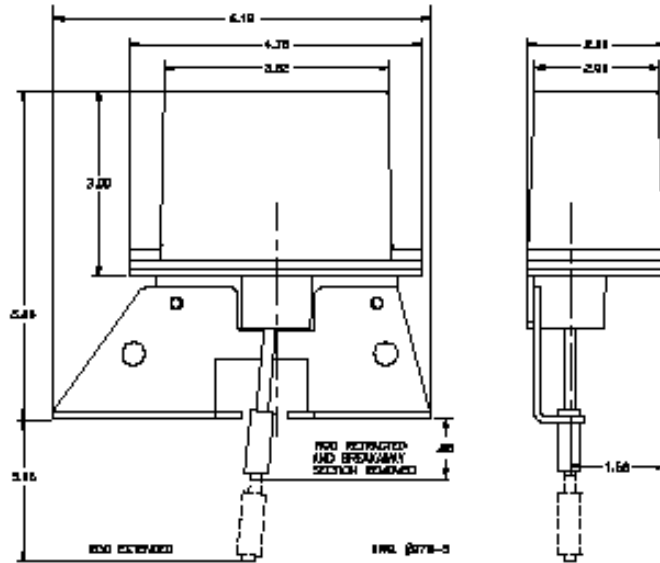
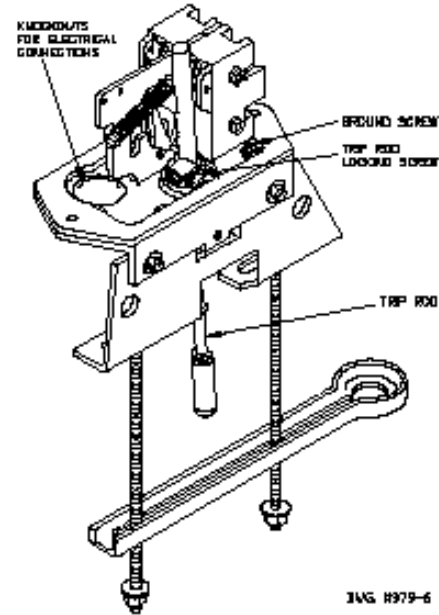


FIG. 4 PARTS

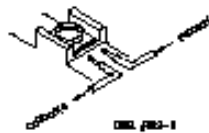


### BREAKING EXCESSIVE ROD LENGTH

FIG. 5

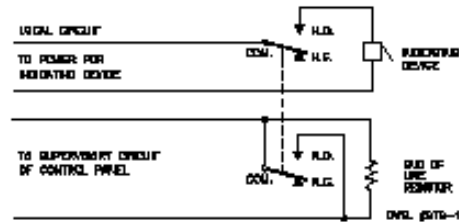


### SWITCH TERMINAL CONNECTIONS CLAMPING PLATE TERMINAL



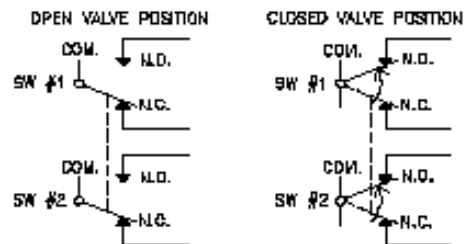
**CAUTION:**  
An uninsulated section of a single conductor should not be looped around the terminal and serve as two separate connections. The wire must be severed, thereby providing supervision of the connection in the event that the wire becomes dislodged from under the terminal.

### TYPICAL ELECTRICAL CONNECTIONS



Contacts shown in normal (valve open) condition.

### TYPICAL SWITCH ACTION



DWC. #978-2

### ORDERING INFORMATION


MODEL	DESCRIPTION	STOCK NO.
OSYSU-1	Outside Screw & Yoke-Supervisory Switch (Single switch)	1010106
OSYSU-2	Outside Screw & Yoke-Supervisory Switch (Double switch)	1010206
--	Cover Screw	5490344
--	Hex Key for Cover Screws and Installation Adjustments	5250062
--	Optional Cover Tamper Switch Kit	0090131

For pressure reducer type valve installation kits (if required) contact valve manufacturer.

**DESCRIPTION:** MONITOR SWITCH - ELECTRIC, TWO SINGLE POLE, DOUBLE THROW CONTACTS, CAST ALUMINUM HOUSING WITH CORROSION RESISTANT PARTS, UL/FM. VERIFY ELECTRICAL CHARACTERISTICS WITH ELECTRICAL CONTRACTOR PRIOR TO PURCHASE.

**MANUFACTURER & CATALOG NO.:** POTTER ELECTRIC PCVS-2, SYSTEM SENSOR P1BV2.

Note to Specifier:  
For use with Indicator Posts and Butterfly valves.



**PCVS-1, -2**  
**CONTROL VALVE**  
**SUPERVISORY SWITCH**

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UL and CSFM Listed, FM Approved, NYMEA Accepted  
 Dimensions: 4.75"L x 2.25"W x 7.2"H (stem extended)  
 12.1cm L x 5.7cm W x 18.3cm H  
 Weight: 1.35 lb. (.61 kg.)  
 Enclosure: Cover - Die-cast  
 Finish - Red Spatter Enamel  
 Base - Die Cast Zinc  
 All parts have corrosion resistant finishes  
 Cover Tamper: Tamper Resistant Screws,  
 Optional cover tamper kit available  
 Mounting: 1/2" NPT  
 Contact Rating: PCVS-1: One set of SPDT (Form C)  
 PCVS-2: Two sets of SPDT (Form C)  
 15.00 Amps at 125/250VAC  
 2.50 Amps at 30VDC resistive  
 Environmental Limitations:  
 -40°F to +140°F (-40°C to 60°C)  
 NEMA 4 and NEMA 6P Enclosure (IP67)  
 Indoor or Outdoor Use (Not for use in hazardous locations. See  
 bulletin no. 5400694 PIVS-U-EX for hazardous locations.)  
 Conduit Entrances: Two knockouts for 1/2" conduit provided.  
 Service Use:  
 Automatic Sprinkler NFPA-13  
 One or two family dwelling NFPA-13D  
 Residential occupancy up to four stories NFPA-13R  
 National Fire Alarm Code NFPA-72

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PCVS-1 Stock No. 1010107  
 PCVS-2 Stock No. 1010207

The Model PCVS is a weather proof and tamper resistant switch for monitoring the open position of fire sprinkler control valves of the post indicator, butterfly and other types. Depending on the model, one or two SPDT (Form C) contacts are provided which will operate when the valve position is altered from an open state.

The unit mounts in a 1/2" NPT tapped hole in the post indicator or butterfly valve housing. The device is engaged by the indicating assembly of the post indicator or the operating mechanism of the butterfly valve, actuating switch(es) when the valve is fully open. The unit should be installed where it is accessible for service.

The cover is held in place by two tamper resistant screws that

require a special tool to remove. The tool is furnished with each device and should be left with the building owner or responsible party. Replacement or additional cover screws and hex keys are available. See ordering information on page below.

**OPTIONAL COVER TAMPER SWITCH:** A field installable cover tamper switch is available as an option which may be used to indicate removal of the cover. See ordering information on page 6.

**TESTING:** The PCVS and its associated protective monitoring system should be tested in accordance with applicable NFPA codes and standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).

ORDERING INFORMATION	DESCRIPTION	STOCK NO.
MODEL		
PCVS-1	Potter Control Valve Switch (single switch)	1010107
PCVS-2	Potter Control Valve Switch (double switch)	1010207
--	Cover Screw	5490344
--	Hex Key for Cover Screws and Installation Adjustments	5250062
PBK-S	Pratt Butterfly Valve Kit (Up to 12")	0090133
PBK-L	Pratt Butterfly Valve Kit (14" and Up)	0090132
PVK	Pratt Valve Kit	1000060
--	Optional Cover Tamper Switch Kit	0090131

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For pressure reducer type valve installation kits (if required) contact valve manufacturer.

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Potter Electric Signal Company 2081 Craig Road, St. Louis, MO, 63146-4161 Phone: 800-325-3936/Canada 905-882-1833 [www.pottersignal.com](http://www.pottersignal.com)

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FIG. 1 DIMENSIONS

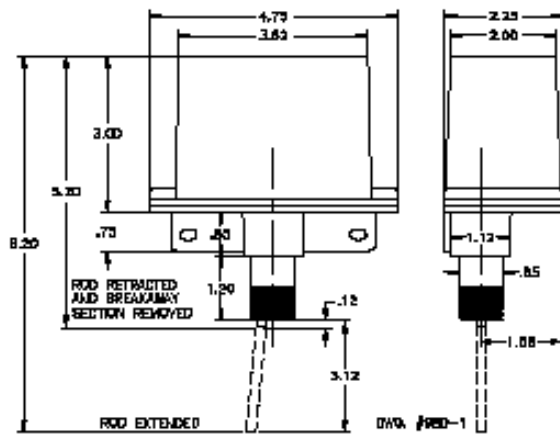
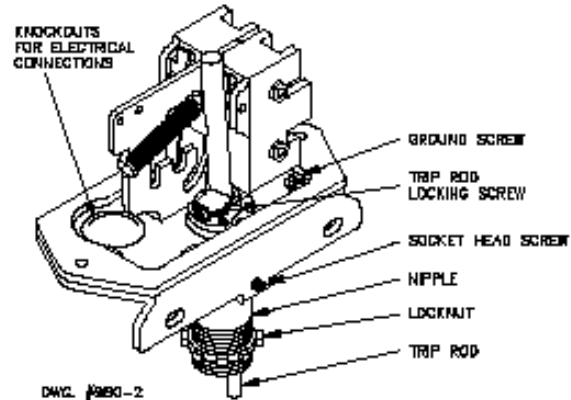


FIG. 2 PARTS



### TYPICAL INSTALLATIONS ON POST INDICATOR VALVE HOUSINGS (SEE FIGS. 3 THRU 6)

Refer to Fig. 2 for the location of parts described in the following instructions.

**NOTE:** If the sprinkler system is in service the owner or authorized representative should be notified, before any work is done on the system, that the valve controlling the water supply to the system may be closed for periods of time during the installation and testing of this device, resulting in all or portions of the system being inoperative during these periods.

If the system is not in service and valve is closed, be sure that opening the valve will not allow any unwanted water flow due to openings in the system, such as heads off, broken or incomplete piping, etc.

1. Position the valve to fully open ("OPEN" should appear in the window of the housing). Partially close the valve while observing the direction that the target assembly moves. Reopen the valve.

If the valve housing is predrilled with a 1/2" NPT for installation of a monitoring switch, remove the 1/2" plug and fully open the valve. Make sure that "OPEN" appears in the window of the housing. GO TO STEP NO. 6.

2. Remove the head and target assembly (consultation with valve manufacturer is recommended).

3. If the target assembly moved up as the valve was closed, measure the distance from the bottom of the head to the lower part of the target assembly that will contact the trip rod of the PCVS (see Fig. 3). This is usually a plate or bar on the target assembly, on a side adjacent to the "OPEN/SHUT" plates. Subtract 1/8" from the measurement.

If the target moved down as the valve was closed, measure the distance from the bottom of the head to the upper portion of the target assembly that will contact the trip rod of the PCVS (see Fig. 4). Add 1/8" to this measurement.

4. Mark the housing at the proper location. Using a 23/32" drill bit, drill and then tap a 1/2" NPT in the housing on the side that coincides with the portion of the target assembly that will engage the trip rod of the PCVS.

5. Replace the head and target assembly.

6. Loosen the socket head screw that holds the nipple in the PCVS and remove the nipple.

7. Screw the locknut that is provided onto the nipple.

8. Screw the nipple into the 1/2" NPT hole in the valve housing - hand tighten. Tighten the locknut against the valve housing to secure the nipple firmly in place.

9. Insert a scale or probe thru the nipple to measure the distance from the

open end of the nipple to the target assembly. Subtract 1/2" from this measurement.

**NOTE:** In some cases, it may be necessary to attach an angle bracket to the target assembly to engage the PCVS trip rod.

10. Using the special tool provided, loosen the two cover screws and remove the cover from the PCVS.

11. Loosen the locking screw that holds the trip rod in place and adjust the rod length, from the end of the collar to the end of the rod, using the dimension determined in Step 9. Tighten the locking screw to hold the rod in place.

**NOTE:** If trip rod length is excessive, loosen the locking screw and remove the trip rod from the trip lever. Using pliers, break off the one (1) inch long notched section (see Fig. 7). Reinstall trip rod and repeat Step 11 procedure.

12. Partially close the valve (3 to 4 revolutions of the handle/hand wheel).

13. Slide the PCVS unit as far as possible onto the nipple, observing which direction the rod will move when the valve is closed. Orient the device to actuate the switches when the valve is open. Tighten the socket head screw in the collar.

14. Carefully open the valve to the fully open position. As the target moves to the open position it should engage the trip rod and actuate the switch(es). There should be a minimum overtravel of 1/2 revolution of the handle/hand wheel after the switch(es) actuate (a continuity meter connected to each set of contacts is one method that could be used to determine this).

15. Slowly close the valve. The switch must operate during the first two revolutions of the handle/hand wheel or during 1/5 of the travel distance of the valve control apparatus from its normal condition.

**NOTE:** Small adjustments of the target position may be necessary (consultation with valve manufacturer is recommended).

16. Complete the required electrical wiring, connections and tests. The valve should be operated through the entire cycle of fully closed and fully open to determine the integrity of the PCVS installation and the signaling system. Check that all electrical and mechanical connections are secure.

17. When the installation and testing are complete, return valve to its proper position.

18. Alternative installation for other post indicator valve housing shown in Fig. 5 and 6.

FIG. 3

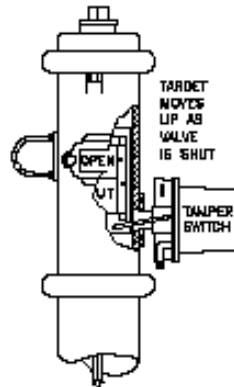


FIG. 4

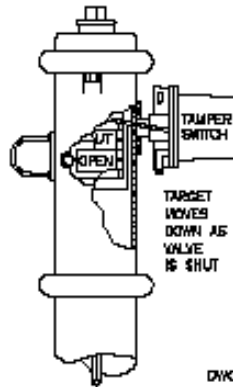


FIG. 5

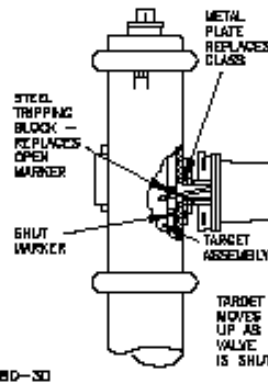
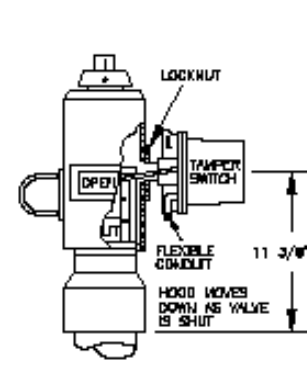


FIG. 6



DWG. #98D-30

**Notes:**

1. Subject to the approval of the "authority having jurisdiction" the alternate method of installation shown in Fig. 5 may be used. In this method, one of the glass windows of the housing is replaced with a 1/4" thick metal plate that is cut to fit in place of the glass and drilled and tapped to receive the 1/2" NPT pipe nipple. In some cases it may be necessary to attach an angle bracket to the target assembly to engage the PCVS trip rod.
2. If the target is stationary and a hood arrangement is used, such as is shown in Fig. 6, the hood must be drilled with a 23/32" drill and tapped with a 1/2" NPT. The center line of this hole should be 1/8" below the portion of target assembly that strikes the PCVS trip rod. The 1 1/8" dimension shown is for a Clow Valve. Flexible conduit must be used for this type of installation.

**TYPICAL INSTALLATION ON A BUTTERFLY VALVE (SEE FIGS. 9 AND 10)**

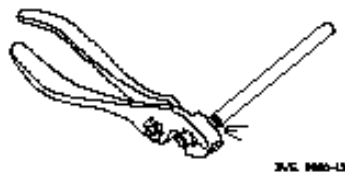
Refer to Fig. 2 for location of parts described in the following instructions:

- B1. Remove the 1/2" NPT plug from the gear operator case.
- B2. Loosen the set screw that holds the nipple in the PCVS and remove the nipple.
- B3. Screw the locknut that is provided onto the nipple.
- B4. Screw the nipple into the 1/2" NPT hole in the gear operator - hand tighten. Tighten the locknut against the case, to secure the nipple firmly in place.
- B5. Partially close the valve (3 or 4 revolutions of the hand wheel or crank).
- B6. Using the special tool provided, loosen the two cover screws and remove the cover from the PCVS.
- B7. Loosen the locking screw that holds the trip rod in place. Estimate trip rod length required and extend slightly past that point. Slide the PCVS unit as far as possible onto the nipple, observing which direction the rod will move when the valve is closed. Orient the device to actuate switches when valve is open.  
NOTE: If trip rod length is excessive, loosen the locking screw and remove the trip rod from the trip lever. Using pliers, break off the one (1) inch long notched section (see Fig. 7). Reinstall trip rod and repeat Step B7 procedure.
- B8. Remove device from nipple and withdraw trip rod 1/32" (this dimension is important). Tighten the locking screw to hold the rod in place. Re-install the device on the nipple. Tighten the screw in the collar against the nipple.

NOTE: In some cases it may be necessary to remove the gear box cover to ensure correct operation (consultation with the valve manufacturer is recommended).

- B9. Carefully open the valve to its full open position, as the boss on the gear hub moves to the open position it must engage the PCVS trip rod and actuate the switch(es). There should be a minimum overtravel or revolution of the crank or hand wheel after the switch(es) actuate (a continuity meter connected to each set of contacts is one method that could be used to determine this).  
NOTE: Slight adjustment of gear stops may be necessary to prevent overtravel of the trip rod (consultation with valve manufacture is recommended).
- B10. Carefully close the valve. The switch(es) must operate during the first two revolutions of the crank or hand wheel or during 1/5 of the travel distance of the valve control apparatus from its normal condition.
- B11. Complete the required electrical wiring, connections and tests. The valve should be operated through the entire cycle of fully closed and fully open to determine the integrity of the PCVS installation and signaling system. Check that all electrical and mechanical connections are secure.
- B12. When the installation and testing are complete, return valve to its proper position.

FIG. 7 BREAKING EXCESSIVE ROD LENGTH



SWITCH TERMINAL CONNECTIONS CLAMPING PLATE TERMINAL FIG. 8

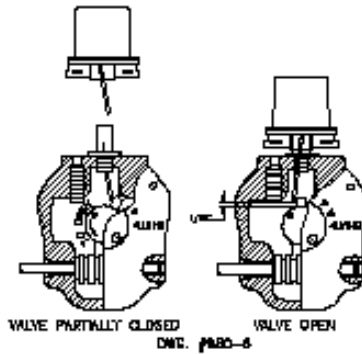


**CAUTION:**

An uninsulated section of a single conductor should not be looped around the terminal and serve as two separate connections. The wire must be severed, thereby providing supervision of the connection in the event that the wire becomes dislodged from under the terminal.

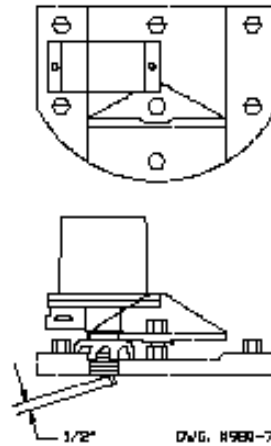
ITT GRINNELL/KENNEDY INDICATING BUTTERFLY VALVE

FIG. 8



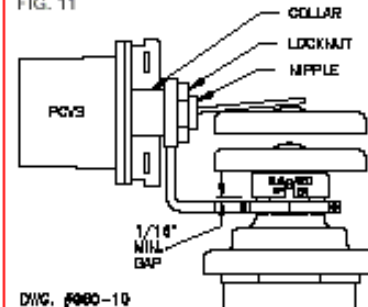
DRESSER INDICATING BUTTERFLY VALVE

FIG. 10



TYPICAL PRESSURE REDUCER TYPE VALVE INSTALLATION

FIG. 11



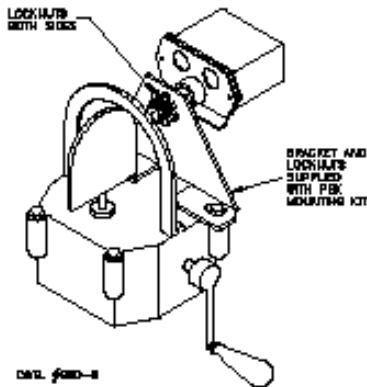
DWG. #880-10

This figure shows the Model PCVS mounted on the valve yoke, with a bracket supplied by the valve manufacturer, to supervise a pressure reducer type valve.

Note: This application is subject to the approval of the authority having jurisdiction.

PBK - PRATT IBV BUTTERFLY VALVE KIT

FIG. 12



MODEL PBK-L  
Stock No. 0090132  
(MDT-4S Actuator)

MODEL PBK-M  
Stock No. 0090146  
(MDT-3S Actuator)

MODEL PBK-S  
Stock No. 0090133  
(MDT-2S Actuator)

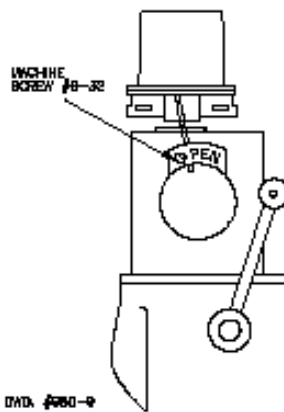
Pratt Butterfly Valve Kit as used to mount a PCVS on a Pratt Model IBV Valve.

Kits contain: Bracket, nuts and instructions

Note: This application is subject to the approval of the authority having jurisdiction.

PVK - PRATT PIVA POST INDICATOR VALVE KIT (STOCK NO. 1000060)

FIG. 13



DWG. #880-9

Pratt Valve Kit as used to mount a PCVS on a Pratt Model PIVA Valve.

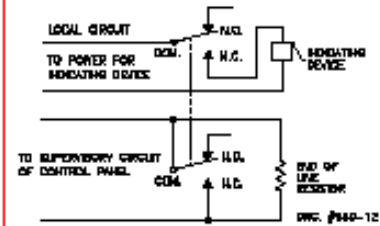
Kit contains: Instructions, template, screw and nut.

Note: This application is subject to the approval of the authority having jurisdiction.

TYPICAL ELECTRICAL CONNECTIONS

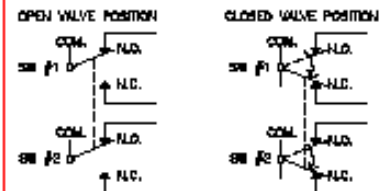
Please Note: This device should be wired in accordance with the applicable parts of the National Electrical Code, all state and local codes, applicable NFPA Standards and the requirements of the authority having jurisdiction.

FIG. 14



Contacts shown in normal (valve open) condition.

TYPICAL SWITCH ACTION



Switches Shown in Valve Open Position

**DESCRIPTION:** PRESSURE SWITCH, 4 - 20 PSI RANGE, NPT CONNECTION, 1.0 PSI DIFFERENTIAL, DUAL SINGLE POLE DOUBLE THROW SNAP-ACTION SWITCHES, METAL WATER TIGHT NEMA 4 HOUSING, EXPLOSION PROOF, WIRED FOR NORMALLY OPEN CIRCUIT, UL/FM.

**MANUFACTURER & CATALOG NO.:** POTTER PS10-EX.



PS10-EX Stock No. 1350102

**MODEL PS10-EX  
EXPLOSION PROOF PRESSURE SWITCH**

UL and CSFM Listed, FM Approved and  
NEMEA Accepted

Dimensions: 6" Dia. x 7"H

Enclosure: Cast aluminum

Pressure Connection: 1/2" NPT Male Brass Fitting

**Factory Adjustment:**

Both switches operate on Pressure Increase at  $\pm 1$  PSI  
Both switches operate on Pressure Decrease at  $\pm 1$  PSI

**Maximum Differential:** 1 PSI

**Maximum System Pressure:** 250 PSI

**Switch Contacts:** Two Sets of SPDT (Form C)  
15.0 Amps at 125/250 VAC  
2.0 Amps at 30 VDC

**Environmental Specifications:**

For use in hazardous locations classified as:

Class I: Groups B, C, D, Div. 1

Class II: Groups E, F, G, Div. 1

Class III: Div. 1

NEMA 4 and 9 Rated Enclosure

Temperature range: -40°F to 140°F (-40°C to 60°C)

**Service Use:**

Automatic Sprinkler                      NFPA-13  
National Fire Alarm Code                NFPA-72

**INSTALLATION AND TEST PROCEDURE:** The Potter PS10-EX Pressure Actuated Switch is designed for the detection of a waterflow condition in automatic fire sprinkler systems located in hazardous locations classified as shown above, of particular designs such as wet systems with alarm check valves or dry pipe systems. It may also be used to provide a low pressure supervisory signal. It can be adjusted to operate on pressure between 4 and 20 PSI.

**MOUNTING:** Device should be mounted in upright position (threaded connection down). Requires NEMA Type 4 conduit hub for outdoor installations.

**TESTING:** The operation of the pressure alarm switch should be tested upon completion of installation and periodically thereafter in accordance with the applicable NFPA codes and standards and/or the authority having jurisdiction (manufacturer recommends quarterly or more frequently).

**WET SYSTEM:**

**METHOD 1:** When using PS10-EX and control unit with retard, connect the PS10-EX into alarm port piping on the input side of retard chamber and electrically connect PS10-EX to control unit that provides a retard to compensate for surges. Insure that no shut off valves are present between the alarm check valve and the PS10-EX.

**METHOD 2:** When using the PS10-EX for local bell application or with a control that does not provide a

retard feature, the PS10-EX must be installed on the alarm outlet side of the retard chamber of the sprinkler system.

**TESTING:** Accomplished by opening the inspector's end-of-line test valve. Allow time to compensate for system or control retard.

**CAUTION:** Method 2 is not applicable for remote station service use.

**WET SYSTEM WITH EXCESS PRESSURE:** Connect the PS10-EX into alarm port piping extending from alarm check valve. Retard provisions are not required. Insure that no shut off valves are present between the alarm check valve and the PS10-EX.

**TESTING:** Accomplished by opening the water bypass test valve or the inspector's end-of-line test valve. When using end-of-line test, allow time for excess pressure to bleed off.

**DRY SYSTEM:** Connect the PS10-EX into the piping that extends from the intermediate chamber of the dry sprinkler valve. Install on the outlet side of the in-line check valve of the piping. Insure that no shut off valves are present between the dry sprinkler valve and the PS10-EX.

**TESTING:** Accomplished by opening the water bypass test valve.

**CAUTION:** The above tests may also activate any other circuit closer or water motor gongs that are present on the system.

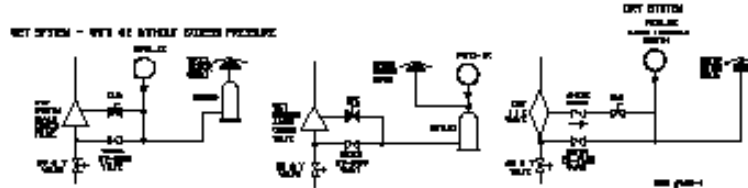


**MODEL PS10-EX**  
EXPLOSION PROOF PRESSURE SWITCH

**ORDERING INFORMATION**

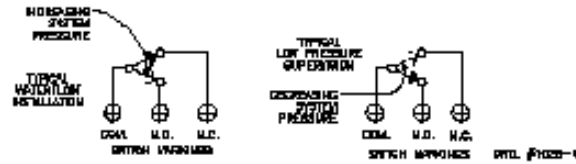
Model	Description	Stock No.
PS10-EX	Pressure switch with two sets SPDT contacts Hex Key	1350102 5250073

**TYPICAL SPRINKLER APPLICATIONS**



**CAUTION:** Closing of any shutoff valves between the alarm check valves and the PS10-EX will render the PS10-EX inoperative. To comply with NFPA-72 any such valve shall be electrically supervised with a supervisory switch such as Potter Model BVS.

**TYPICAL ELECTRICAL CONNECTIONS**



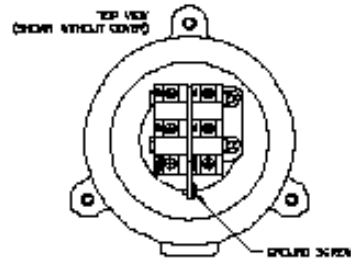
**SWITCH TERMINAL CONNECTIONS**  
CLAMPING PLATE TERMINAL



**CAUTION:**  
An uninsulated section of a single conductor should not be looped around the terminal and serve as two separate connections. The wire must be severed, thereby providing supervision of the connection in the event that the wire becomes dislodged from under the terminal.

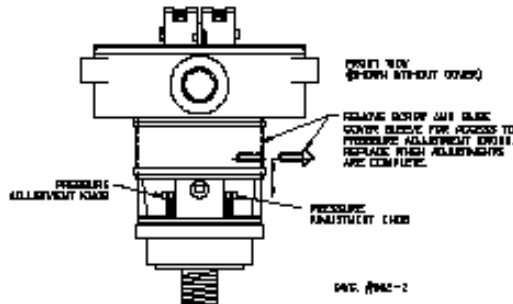


**MODEL PS10-EX**  
**EXPLOSION PROOF PRESSURE SWITCH**



**NOTE:** To prevent leakage, apply teflon tape sealant to make threads only.

**Warning:** Use of pipe joint cement may result in obstruction of aperture and loss of signal.



**CAUTION:** When this device is to be installed in an area that is classified as "HAZARDOUS", the person responsible for safety in the area should be contacted to determine if the tools and operations required for the installation of the device and associated components are permitted in the area. To reduce the risk of ignition of hazardous atmospheres, disconnect supply circuits before opening cover. Keep cover tight while circuits are live. Cover screws must be torqued to 45-50 in. lbs.

**ENGINEER/ARCHITECT SPECIFICATIONS**

Pressure type waterflow switches shall be a Model PS10-EX as manufactured by Potter Electric Signal Co. of St. Louis, Mo. and shall be installed on the sprinkler systems as shown on the drawings and/or specified herein.

Switches shall be provided with a 1/2" NPT male pressure connection to be connected into the alarm check valve of a "wet" sprinkler system or into the intermediate chamber of a "dry" pipe system and shall be actuated by any flow of water to or in excess of the discharge from one sprinkler head.

Switches shall have a maximum service pressure rating of 250 PSI and shall be factory adjusted to operate on pressure increase at  $6 \pm 1$  PSI. There shall be two (2) SPDT contacts rated at 15.0 Amps at 125/250VAC and 2.0 Amps at 30VDC.

The switch housing shall be weather proof and oil resistant with a NEMA 4 rating. The cover shall incorporate tamper resistant screws.

The unit shall be listed by Underwriters Laboratories, Inc. and CSFM and approved by Factory Mutual. It shall be rated for use in hazardous locations classified as Class I, Groups B, C, D, Div. 1; Class II, Groups E, F, G, Div. 1; Class III, Div. 1.



**DESCRIPTION:** PRESSURE SWITCH, 4 - 8 PSI RANGE, 0.7 TO 1.7 PSI DIFFERENTIAL, SINGLE POLE DOUBLE THROW SNAP-ACTION SWITCH, 1/2" NPT CONNECTION, RED LEXAN COVER, DIE CAST ALUMINUM BASE. FOR INDOOR USE, UL/FM.

**MANUFACTURER & CATALOG NO.:** VIKING 09470, RELIABLE J54-8295, GEM J33AX-5835.

August 18, 1999

Alarm Devices 705 a



### 1. PRODUCT NAME

ALARM PRESSURE SWITCHES

- Single SPDT: Part No. 09470
- Dual SPDT: Part No. 09471

### 2. MANUFACTURED FOR:

THE VIKING CORPORATION  
210 N. Industrial Park Road  
Hastings, Michigan 49058, U.S.A.  
Telephone: (616) 945-9501  
(877) 384-5464  
Fax: (616) 945-9599  
e-mail: techsvcs@vikingcorp.com

### 3. PRODUCT DESCRIPTION

Viking Alarm Pressure Switches are electric alarm initiating devices for use on Wet, Dry, Preaction, Deluge or Foam-Water Sprinkler Systems. Two models are available. The first is equipped with one single-pole double-throw (SPDT) snap action switch; the other with dual SPDT snap action switches. Both models are equipped with 1/2" (15 mm) NPT pressure connections manufactured from brass to ensure mechanical strength and endurance. The switch can be wired for normally open and/or normally closed operation, and is designed to activate alarms when the sprinkler system operates. The switch may also initiate signals to annunciator panels, trip municipal fire alarm boxes, signal fire pump start-up, or any other function that can be initiated or controlled by the opening or closing of an electrical switch.

### 4. TECHNICAL DATA

**LISTINGS AND APPROVALS**   
UL and ULC Listed, FM Approved

Dimensions:

4-3/4" (120,7 mm) W x 2-1/4" (57,2 mm) D x 4-3/8" (111,1 mm) H  
See Figure A

Pressure Connection:

1/2" Brass NPT Male

Cover:

Die-cast with textured red powdercoat finish

Base:

Plated Steel

Electrical Connection:

7/8" (22 mm) diameter hole through base

Wrench Flats:

1-5/8" (41,3 mm) across flats.

Factory Adjustment:

Switch operates on pressure increase at 6 +/- 1 PSI (41 +/- 6,9 kPa)

Switch operates on pressure decrease at 5 +/- 1 PSI (34 +/- 6,9 kPa)

Available Adjustment:

Can be adjusted to operate on pressure between 4 and 20 PSI (27 and 138 kPa).



**Caution: Do not modify factory setting when switch is used as Alarm Pressure Switch.**

Maximum Differential:

1 PSI (6,9 kPa)

Maximum System Pressure:

250 PSI (1 723 kPa)

Switch Contacts:

SPDT (Form C)

15.0 Amps at 125/250VAC

2.5 AMPS at 30 VDC

Environmental Specifications:

Indoor or outdoor use NEMA 4 Rated

Enclosure/IP55

Temp.: -40 °F (-40 °C) to 140 °F (60 °C)

(Not for use in hazardous locations.)

NEMA 4 conduit hub required for outdoor installations.

Tamper Resistance:

Cover incorporates tamper-resistant fasteners that require a special key for removal. One key is supplied with each device.

**Accessories:**

- Optional cover tamper switch kit, Viking Part Number 09601
- Cover access key, Viking Part Number 09600

### 5. AVAILABILITY & SERVICE

Viking Pressure Switches are available through a network of domestic and international distributors. See the Yellow Pages of the telephone directory under "Sprinklers-Automatic-Fire" or contact The Viking Corporation.

Viking Technical data may be found on The Viking Corporation's Web site at: <http://www.vikingcorp.com>  
The Web site may include a more recent edition of this Technical Data page.

### 6. GUARANTEES

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

### 7. INSTALLATION

**WARNING:** The Alarm Pressure Switches described on this data page are general service switches, not designed for use in explosive atmospheres. Refer to the technical data page for the Explosion-Proof/Water-tight Alarm Pressure Switch intended for use in those environments.

1. Refer to the current Viking Trim Chart for the valve used to determine the appropriate location for installing the Viking Alarm Pressure Switch on Viking Trim. Viking Trim sets provide:

- a. An alarm connection, equipped with an alarm test valve, and an alarm shut-off valve for switches used for local alarms and,
- b. A non-interruptible alarm connection, equipped with an alarm test valve, for switches used to signal electric alarm panels and remote alarms.

**CAUTION: Closing any shut-off valve in the alarm piping leading to the Alarm Pressure Switch will render the switch inoperative.**

2. When installing the general service Alarm Pressure Switch, apply Teflon® tape sealant to the male threads only. Install the Pressure Switch in a 1/2" (15 mm) pipe fitting. Use a wrench applied to the wrench flats to tighten the unit. Do not over-tighten.

- a. Mount the Alarm Pressure Switch in the upright position (threaded connection down).

3. To wire the unit proceed as follows:

- a. De-energize electrical circuits involved.
- b. Use the special wrench, supplied with the switch, to loosen and remove the tamper-resistant screws. Remove cover. Use care not to lose the rubber O-ring screw retainers.
- c. Connect conduit to the conduit opening provided. See "Technical Data" for size of opening.
- d. Connect electrical circuitry for the alarm and any auxiliary equipment being controlled by the switch (Refer to Figures B, C, and D).

**Note:** Wire all devices to national and local codes and requirements of the Authority Having Jurisdiction.

4. Replace cover and tighten the tamper-resistant screws.
5. Energize the circuits.
6. Test for proper operation of the device. See MAINTENANCE.

### 8. MAINTENANCE

Operate and test the alarm circuit after installation, prior to start-up, and periodically.

Note: Units of measure in parentheses may be approximations.

Form No. F\_101095

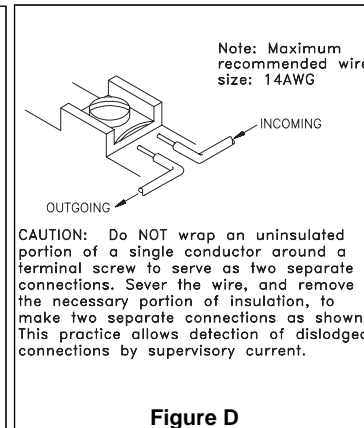
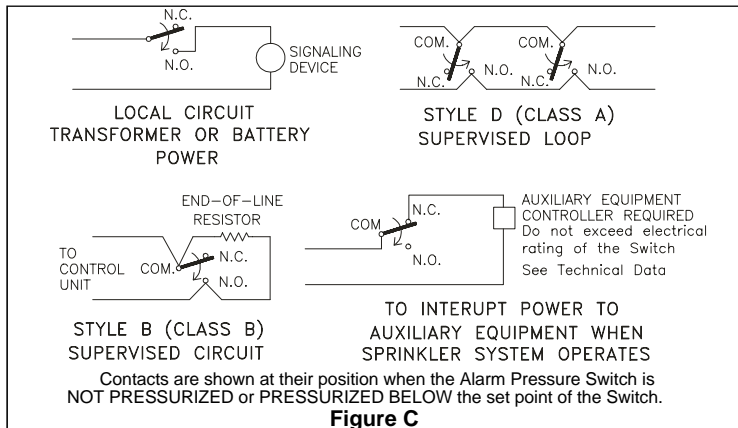
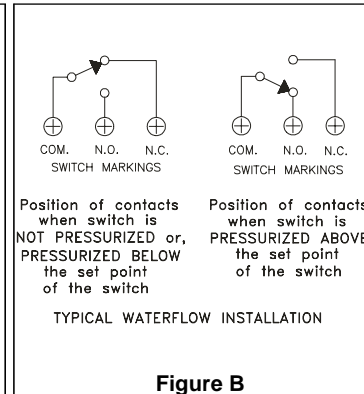
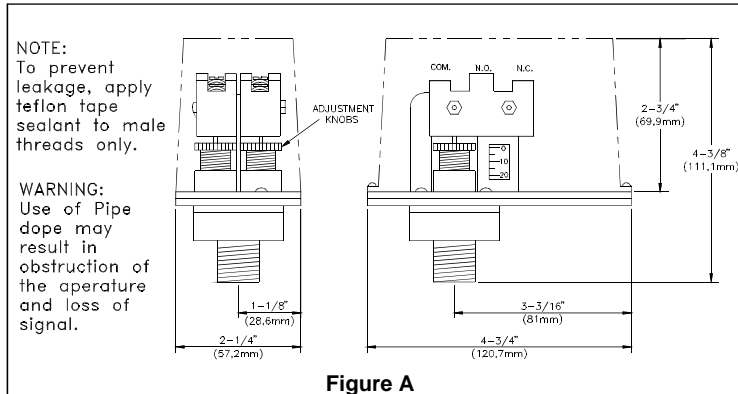
Replaces page 705 a-b, dated February 5, 1998 (Added ULC Listing).

	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<h2 style="margin: 0;">ALARM PRESSURE SWITCHES</h2>
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cally as required by the Authority Having Jurisdiction. Quarterly testing of alarms is recommended.  
**Caution:** If auxiliary equipment is controlled by operation of the switch, take the steps necessary to prevent unwanted operation or shutdown of those devices when testing. Refer to applicable standards.

1. Notify the Authority Having Jurisdiction, and those in the area affected by the alarm test.
2. Test operation of the switch by pressurizing the piping in which it is installed. When the switch is pressurized above the set point of the switch, the alarm should activate. If the switch is properly installed in the trim of a Viking valve, testing may be accomplished by operating the proper

- test valve or by tripping the system. Refer to the appropriate technical data for the system used.
3. When testing is complete, de-pressurize the piping in which the switch is installed. Alarms should end.
  4. Reset all necessary equipment, and place the system in service. Refer to the appropriate technical data for the system used.



**Engineer/Architect Specifications**

Pressure-type waterflow switches shall be Viking labeled Alarm Pressure Switches as manufactured for The Viking Corporation and shall be installed on the sprinkler system as shown on current Viking Trim Charts for the valve and/or system specified.

Switches shall be provided with a brass 1/2" NPT male pressure connection and shall be actuated by any flow of water equal to or in excess of the discharge from one sprinkler head.

Switches shall have a maximum service pressure rating of 250 PSI and shall be factory adjusted to operate on pressure increase at 6 +/- 1 PSI (41 +/- 6.9 kPa) and on pressure decrease at 5 +/- 1 PSI (34 +/- 6.9 kPa). There shall be one (1) or two (2) SPDT contacts rated at 15.0 Amp at 125/250VAC and 2.5 AMP @ 30VDC.

The switch housing shall be metallic, NEMA 4 rated, and oil resistant. The cover shall incorporate tamper-resistant screws.

The unit shall be listed by Underwriters Laboratories, Inc. and approved by Factory Mutual for use on the Viking valve and/or system specified.

**DESCRIPTION:** RETARDING CHAMBER, 1 GALLON CAPACITY, 3/4" NPT OUTLET, 1/2" NPT INLET, 175 PSI WP, DUCTILE IRON BODY, UL/FM.

**MANUFACTURER & CATALOG NO.:** VIKING C-1, TYCO RC-1, RELIABLE E-1.

October 10, 1996

38 a

	<b>TECHNICAL DATA</b>	RETARD CHAMBER MODEL C-1
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**1. PRODUCT NAME**

VIKING RETARD CHAMBER  
Model C-1 Part Number: 05904B  
Manufactured 1986 -

**2. MANUFACTURER**

THE VIKING CORPORATION  
210 N. Industrial Park Road  
Hastings, Michigan 49058 U.S.A.  
Telephone: (616) 945-9501  
(800) 968-9501  
Fax Number: (616) 945-9599  
From outside U.S.A.  
Telephone: +1(616) 945-9501  
Fax Number: +1(616) 945-9599

**3. PRODUCT DESCRIPTION**

The Viking Model C-1 Retard Chamber is a surge tank used with Viking Alarm Check Valves to reduce the possibility of false alarms due to changes in the water supply pressure.

**4. TECHNICAL DATA**

UL Listed Guide VPLX  
C-UL (Listed by Underwriters Laboratories Inc. for use in Canada)  
F.M. Approved  
Approved by LPC  
Approved by  
Verband der Sachversicherer  
Approved by the New York City Board of Standards and Appeals under Calendar Number 219-76-SA  
Water Working Pressure:  
UL: Rated to 250 PSI (1 724 kPa)  
CUL: Rated to 250 PSI (1 724 kPa)  
LPC: Rated to 175 PSI (1 207 kPa)  
FM: Rated to 175 PSI (1 207 kPa)  
Factory tested hydrostatically to 500 PSI (3 447 kPa).  
1/2" (15mm) NPT inlet and 3/4" (20mm) NPT outlet.

Capacity Approximate:  
1 Gallon (4 Liters).  
Shipping Weight 22 Lbs. (10 kg.)  
**Materials:**  
Body: Ductile Iron 65-45-12.  
Bushings: Cast Iron UNS-F12102  
Finish: Painted red for identification

**5. FEATURES AND ACCESSORIES**

- a. Ductile iron body
- b. Self draining

**Required Accessories:**

1. 1/8 inch (3,2mm) Drain Restriction Part Number 01611A (included in Viking Alarm Check Valve Trim Sets designed for use with "variable pressure" water supplies).

**Optional Accessories:**

1. Circuit closer vent assembly (Required when an electric Alarm Pressure Switch is installed without a Water Motor Alarm.) P/N 01973A is for use with standard\* water based systems P/N 08220 for use on pre-mixed Foam Systems\*\*

\* Standard Trim sets consist of galvanized nipples and fittings.  
\*\* Trim sets for use on pre-mixed Foam Systems consist of black steel nipples and cast iron or ductile iron fittings.

2. Alarm Devices - A Water Motor Alarm and/or electric Alarm Pressure Switch, with approved connected alarms, are required for a complete system.

**6. OPERATION**

When the clapper of the Alarm Check Valve opens, water flows through the restricted alarm supply piping into the inlet of the Retard Chamber. The Retard Chamber begins to fill while simultaneously draining through the 1/8 inch (3,2mm) Drain Restriction. During a sustained flow of water, the Retard Chamber fills faster than water can drain through the Drain Restriction. Pressurized water fills the Retard Chamber and pressurizes the Water Motor Alarm and/or Alarm Pressure Switch. Pressure surges insufficient to overcome the volume and drain capacity of the Retard Chamber will not activate an alarm. Two Retard Chambers may be installed in series to combat false alarms from systems subject to excessive pressure surges.

Note: Units of measure in parentheses may be approximations.

**7. AVAILABILITY AND SERVICE**

The Viking Retard Chamber is available through a network of Domestic, Canadian, and International Distributors. See the Yellow Pages of the telephone directory for your closest distributor (listed under "Sprinklers Automatic Fire") or contact The Viking Corporation.

**8. GUARANTEES**

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

**9. INSTALLATION**

1. The Retard Chamber and associated trim must be installed as shown on the Viking Alarm Check Valve Trim Sheets. The trim size and arrangement shown on Viking Trim Charts is required for proper operation.
2. When used on pre-mixed Foam Systems, trim piping must be of black steel pipe with cast iron or ductile iron fittings only.
3. The 1/8 inch Drain Restriction must be installed in the Retard Chamber drain piping. The alarm supply trim piping must be restricted as shown on Viking Alarm Check Valve Trim Charts. Model J-1 Alarm Check Valve trim requires a 7/32" Restricted Orifice (Part No. 06980A). The restriction for previous H-2 Alarm Check Valve Trim is included in the Three Way Alarm Test Shut-off Valve.
4. The Retard Chamber must drain automatically to a non-pressurized drain.
5. Verify that all system components are rated for the water working pressure of the system.

**10. INSPECTION and MAINTENANCE**

NOTICE: The owner is responsible for maintaining the fire protection system and devices in proper operating condition. The Viking Model C-1 Retard Chamber and associated piping must be kept free of foreign matter, freezing conditions, and physical damage that could impair its operation. The frequency of inspections may vary due to contaminated or corrosive water supplies, corrosive atmospheres, or activity around the device. Alarm devices and other connected equipment may require more frequent inspections. Refer to applicable codes, system description, and Technical Data for the equipment used. For minimum maintenance and inspection

Form No. 092188

Printed from an electronic edition of the Viking Engineering Design Data book. Technical data pages are dated and subject to change without notice. Contact manufacturer to verify date of current issue.

Replaces page 38a & b dated February 14, 1994 (added C-UL & water working pressures)



**TECHNICAL DATA**

**RETARD CHAMBER  
MODEL C-1**

requirements, refer to the National Fire Protection Association Pamphlet that describes care and maintenance of sprinkler systems. In addition, the Authority Having Jurisdiction may have additional maintenance, testing, and inspection requirements which must be followed.

**WARNING:** Any System maintenance which involves placing a control valve or alarm system out of service may eliminate the Fire Protection capabilities of that system. Prior to proceeding, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a Fire Patrol in the affected areas.

**PERIODIC INSPECTION:**

**After installation and prior to each Waterflow Alarm Test:**

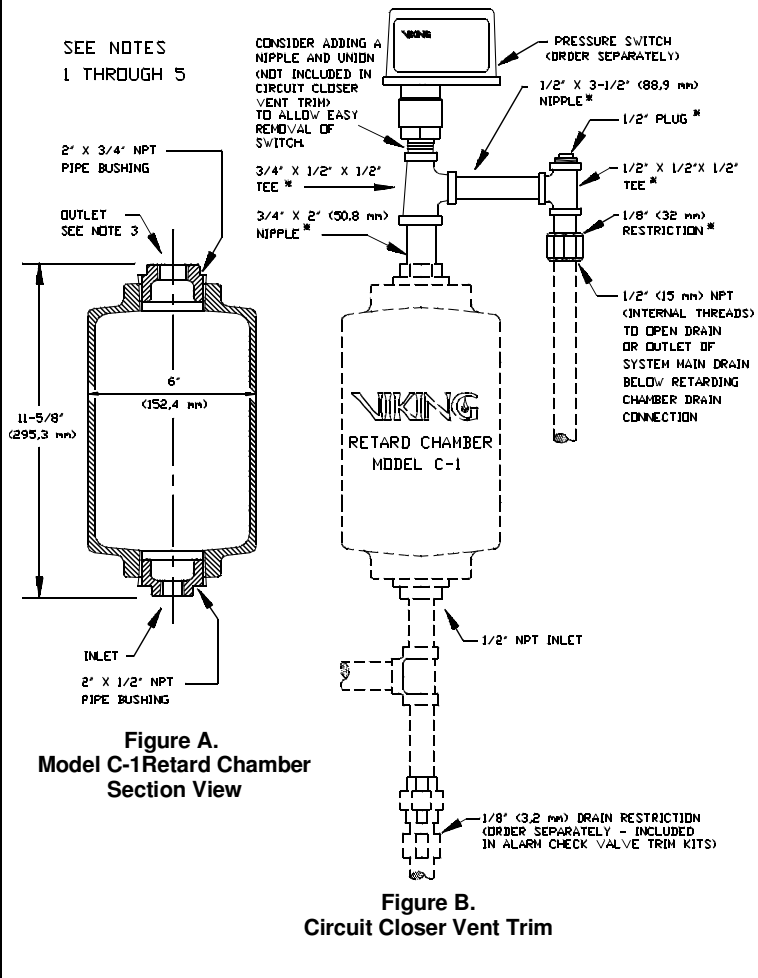
1. Verify that the Alarm Check Valve and Retard Chamber are trimmed exactly as shown on Viking Trim Sheets with no deviations. The trim size and arrangement is required for proper operation. When used on pre-mixed Foam Systems, trim piping must be of black steel pipe with cast iron or ductile iron fittings.
2. The Retard Chamber must drain automatically to a non-pressurized drain. Inspect and clean the 1/8 inch (3,2mm) Drain Restriction at least annually.
3. For the Retard Chamber to properly drain, it must be vented. This is normally accomplished through the Water Motor Alarm connection. However, when the line to the Water Motor is trapped or an electric Alarm Pressure Switch is used without the Water Motor Alarm, Circuit Closer Vent Trim must be installed and kept clean to allow the Retard Chamber to drain.

**After each operation and Waterflow Alarm Test:**

1. Verify that the Retard Chamber and alarm line piping has drained completely and associated alarm equipment has properly reset.
2. Refer to Technical Data for the Water Motor Alarm, Alarm Pressure Switch, and other associated equipment for additional testing and maintenance requirements.

**NOTES**

- 1: The Viking Model C-1 Retard Chamber is required for Variable Pressure trim. Install the Retard Chamber as shown on appropriate Viking Trim Charts for the system used.
- 2: Circuit Closer Vent Trim must be galvanized steel unless other materials are specified in the Technical Data for the system used. When used on Foam Systems, trim piping must be of black steel pipe with cast iron or ductile iron fittings unless other materials are specified in the Technical Data for the system used.
- 3: Connect alarm line piping to the 3/4" (20mm) outlet of the Retard Chamber. When using a Water Motor Alarm, a strainer is required. When using an electric Alarm Pressure Switch only, or when the alarm line piping is trapped, Circuit Closer Vent Trim is required. See Figure B.
- 4: Items marked with \* are included in the Viking Circuit Closer Vent Trim sets.
- 5: Dimensions in parentheses are millimeter.



**Figure A.  
Model C-1 Retard Chamber  
Section View**

**Figure B.  
Circuit Closer Vent Trim**

Replaces page 38a & b dated February 14, 1994 Printed from an electronic edition of the Viking Engineering Design Data book. Form No. 092188  
(added C-UL and water working pressures) Technical data pages are dated and subject to change without notice. Contact manufacturer to verify date of current issue.

SPR-1

DESCRIPTION: SPRINKLER, QUICK-RESPONSE PENDENT, BULB TYPE, BRIGHT CHROME PLATED FINISH, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL/FM.

MANUFACTURER & CATALOG NO.: VIKING M, RELIABLE F1FR, TYCO TY-FRB, VICTAULIC V2708.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

2. COLORS: Brass, Decorative white or black (Not all manufacturers apply, check literature.)

3. For corrosion resistance information, consult manufacturer.

4. For extended coverage information, consult manufacturer.

5. Quick response can not be used for extra hazard occupancies.



	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<p>MICROFAST<sup>®</sup> AND Microfast<sup>®</sup>HP QUICK RESPONSE PENDENT SPRINKLER</p>
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**1. PRODUCT NAME**

Viking Microfast and Microfast<sup>®</sup>HP Model M QR Pendent Sprinklers

**2. MANUFACTURER**

The Viking Corporation  
210 N. Industrial Park Road  
Hastings, Michigan 49058 U.S.A.  
Telephone: (616) 945-9501  
(877) 384-5464  
Fax: (616) 945-9599  
e-mail: techsvcs@vikingcorp.com



**3. PRODUCT DESCRIPTION**

Viking Microfast and Microfast<sup>®</sup>HP Quick Response Pendent Sprinklers are small, thermosensitive spray sprinklers available with several glass bulb temperature ratings, and orifice sizes to meet design requirements. The sprinkler can be used in decorative applications where colors are desired. In addition, these two finishes are corrosion resistant and provide protection against many corrosive environments. The pip-cap and sealing assembly of the sprinkler is held in place by a 3 mm glass bulb. During fire conditions when the temperature around the sprinkler reaches its operating temperature, the heat-sensitive liquid in the bulb expands, causing the bulb to rupture, releasing the pip-cap and sealing spring assembly. Water flowing through the sprinkler orifice strikes the deflector, forming a uniform spray pattern to extinguish or control the fire.

U.S.A. Patent No. 4,167,974  
U.S.A. Patent No. 4,796,710  
Testing: U.S.A. Patent No. 4,831,870

**4. TECHNICAL DATA**

**LISTINGS AND APPROVALS**

Refer to Table 2 on page 41 b. Glass bulb fluid temperature ratings (135 °C). Minimum operating pressure: (48,3 kPa).  
**Rated Water Working Pressure: Sprinkler Base Part Nos. 06662B, 06718B, and 06932B are rated for use with water working pressures ranging from the minimum 7 psi (48,3 kPa) up to 250 psi (1724 kPa) for high-pressure systems. High-pressure (HP) sprinklers can be identified by locating the number "250" on the deflector.**  
**All Other Part Nos: Maximum 175 psi (1207 kPa) wwp.**  
The sprinkler is tested hydrostatically to 500 psi.

Min. operating pressure: 7 psi (48,3 kPa)  
**SPRINKLER MATERIALS**

Frame: Brass Castings UNS-C84400 or UNS-C87400  
Deflector: Copper UNS0C1950  
Sprinkler Base Part Nos. 06662B, 06666B, and 06765B. Brass UNS-C26000 for all other Part Nos.  
Bushing (for Sprinkler Base Part Nos. 06718B and 06720B): Brass UNS-C36000  
Bulb: Glass, nominal 3 mm diameter  
Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape  
Screw: Brass UNS-C36000  
Pip Cap and Inset Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400  
Pip Cap Attachment: Brass UNS-C6000  
**Sprinklers with Polyester Coating or Poly Finish**  
Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape, exposed  
Pip Cap and Inset Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400  
**Sprinklers with Teflon Coating**  
Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape, exposed  
Screw: Brass UNS-C36000  
Nickel plated  
Pip Cap and Inset Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400, Teflon Coated

**AVAILABLE FINISHES**

Brass, Bright Brass, Chrome-Enloy (patents pending), White Polyester (White Poly finish for Sprinkler Base Part No. 06662B only), Navajo White Polyester, Black Polyester, and Black Teflon

**ACCESSORIES**

Sprinkler Cabinets (Available since 1971)  
Six-head capacity: Part No. 01724  
Twelve-head capacity: Part No. 01725A  
Sprinkler Wrenches:  
A. Standard Wrench: Part No. 0126W/B (available since 2000) or 0500CW/B (no longer available)  
B. Wrench for coated and recessed Viking Microfast<sup>®</sup>HP Sprinklers: Part No. 0138W\*  
Installation of these sprinklers requires the use of the "SPRINKLER ACCESSORIES" section of Viking Engineering and Design Data book.

Sprinkler Temperature Classification	Nominal Sprinkler Temp. Rating (Fusing Point)	Maximum Ambient Ceiling Temperature	Bulb Color <sup>2</sup>
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue

**Sprinkler Finishes:** Brass, Bright Brass, Chrome-Enloy (patents pending), White Polyester (White Poly finish for P/N 06662B only), Navajo White Polyester, Black Polyester, and Black Teflon  
**Corrosion-Resistant Coatings:** White Polyester (White Poly finish for P/N 06662B only), Navajo White Polyester, Black Polyester, and Black Teflon

**Footnotes**

<sup>1</sup> Based on NFPA-13. Other limits may apply, depending on fire loading and other requirements of the Authority Having Jurisdiction.  
<sup>2</sup> The temperature rating is stamped on the deflector.  
<sup>3</sup> The corrosion-resistant coatings have passed standard corrosion tests required by local, state, and federal approving agencies. Refer to the approval chart on page 41 b. These tests do not represent all possible corrosive environments. Prior to the end-user that the coatings are compatible with or suitable for the environment. The coatings indicated are applied to the exposed exterior surfaces of each part.  
**NOTE:** The spring is exposed on sprinklers with Poly finishes.

**Table 1**

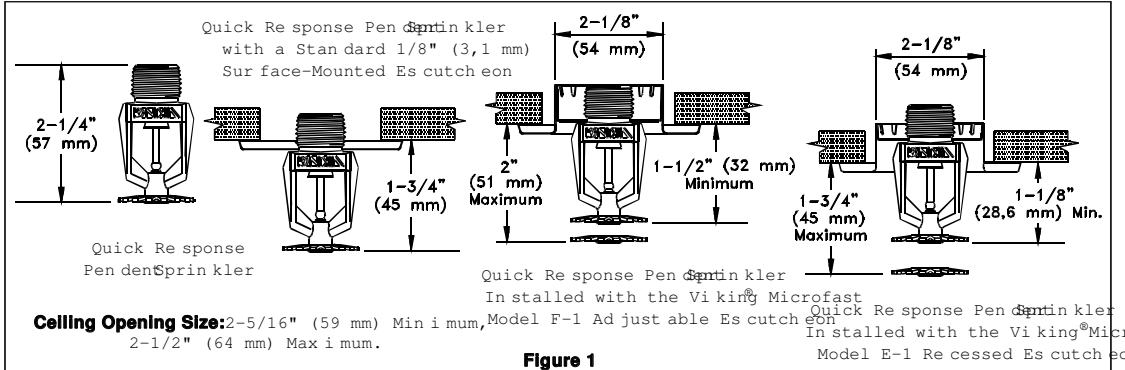
Note: Units of measure in parentheses may be applied as appropriate. Refer to technical data page QR1-2 for care, installation, and maintenance information.

VIKING®

TECHNICAL DATA

MICROFAST® AND Microfast®  
 QUICK RESPONSE  
 PENDENT SPRINKLES

Approval Chart Microfast® and Microfast® Quick Response Pendent Sprinklers										KEY		
										Temperature		
										Finish		
										Escutcheon (if applicable)		
<b>Maximum 175 PSI WWP Standard Orifice</b>												
Thread Size	Sprinkler Description		Nominal K-Factor		Overall Length			Listings and Approvals				
NPT	BSP	Base Part No.	Identification No. <sup>12</sup>	U.S. <sup>12</sup>	metric <sup>8</sup>	Inches	mm	UL	C-UL <sup>13</sup>	FM <sup>9</sup>	NYC <sup>3</sup>	VdS LPCB
1/2"	15 mm	06662B	VK302	5.6	8,1	2.3	58	A4X, B4Y	A4X, B4Y	A3X, B3Y	A4X, B4Y	C1 A1X
<b>Large Orifice</b>												
3/4"	20 mm	06666B	VK352	8.0	11,5	2.4	61	A2X, B2Y	A2X, B2Y	A1X, B1Y	A2X, B2Y	C1 -
1/2"	-	06765B	VK352	8.0	-	2.9	74	A2X, B2Y	A2X, B2Y	-	A2X, B2Y	-
<b>Small Orifice</b>												
1/2"	15 mm	06718B <sup>4</sup>	VK329	2.8	4,0	2.7	69	A2X, B2Y	A2X, B2Y	-	A2X, B2Y	-
1/2"	-	06720B <sup>4</sup>	VK331	4.2	-	2.7	69	A2X, B2Y	A2X, B2Y	-	A2X, B2Y	-
-	10 mm	06932B	VK329	-	6,0	2.3	58	-	-	-	-	C1 -
<b>Maximum 250 PSI WWP Standard Orifice</b>												
Thread Size	Description		Nominal K-Factor		Overall Length			Listings <sup>2</sup>				
NPT	BSP	Base Part No.	Identification No. <sup>12</sup>	U.S. <sup>12</sup>	metric <sup>8</sup>	Inches	mm	UL	C-UL <sup>13</sup>	FM	NYC <sup>11</sup>	VdS LPCB
1/2"	15 mm	06662B	VK302	5.6	8,1	2.3	58	A4X, B4Y	A4X, B4Y	-	A4X	-
<b>Small Orifice</b>												
1/2"	15 mm	06718B <sup>4</sup>	VK329	2.8	4,0	2.7	69	A2X, B2Y	A2X, B2Y	-	A2X	-
-	10 mm	06932B	VK329	-	6,0	2.3	58	-	-	-	-	-
<b>Approved Escutcheons</b>												
<b>Approved Temp. Ratings</b>			<b>Approved Finishes</b>					<b>Approved Escutcheons</b>				
A - 35 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 284 °F (140 °C) B - 35 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C) C - 155 °F (68 °C)			1 - Brass and Chrome-Enamel 2 - Brass, Bright Brass, Chrome-Enamel, White Poly Finish, and Black Poly Finish 3 - Brass, Chrome-Enamel, and White Poly Finish 4 - Brass, Bright Brass, Chrome-Enamel, White Poly Finish, and Black Poly Finish					X - Standard surface-mounted escutcheon or the Viking Microfast Model F-1 Adjustable Escutcheon Y - Standard surface-mounted escutcheon or the Viking Microfast Model F-1 Adjustable Escutcheon or recessed with the Viking Micromatic Model E-1 or E-2 Recessed Escutcheon				
<b>Footnotes</b>												
<sup>1</sup> Base part number is shown. For complete part number, refer to Viking's current price schedule. <sup>2</sup> This table shows the listings and approvals available at the time of printing. Other approvals with the manufacturer for any additional approvals. <sup>3</sup> Accepted for use, City of New York Board of Standards and Appeals, Calendar Number 219-76-SA <sup>4</sup> The sprinkler orifice is bushed. <sup>5</sup> Refer to the "Sprinkler Accessories" Viking Engineering and Design Data book for technical data on approved escutcheons at other accessories. <sup>6</sup> UL/C-UL Listings and NYC Approvals limited to Light-Hazard Occupancies with a wet pipe system. <sup>7</sup> UL/C-UL Listed as corrosion resistant. <sup>8</sup> Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in psi, the K-Factor shown by 10.0. <sup>9</sup> FM Approved for use in wet-pipe sprinkler systems (or preaction systems) for installation in occupancies described in the Factory Mutual Engineering and Research Loss Prevention Data Sheets and Technical A. <sup>10</sup> The Viking Microfast Model F-1 Adjustable Escutcheon is considered a surface-mounted escutcheon and not a recessed element of the sprinkler to be recessed behind the face of the wall or ceiling. <sup>11</sup> Accepted for use, City of New York Department of Buildings, MEA 89-92-E, Vol XVI. <sup>12</sup> Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with the Standard Code and Section 3-2.3. <sup>13</sup> Listed by Underwriters Laboratories Inc. for use in Canada.												



Replaces page 41 a-b, dated November 14, 2001 (updated sprinkler materials list). Refer to technical data page QR1-2 for care, installation, and maintenance information. Form No. F\_081296

SPR-2

DESCRIPTION: SPRINKLER, QUICK-RESPONSE UPRIGHT, BULB TYPE, BRIGHT CHROME PLATED FINISH, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL/FM.

MANUFACTURER & CATALOG NO.: VIKING M, RELIABLE F1FR, TYCO TY-FRB, VICTAULIC V2704.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

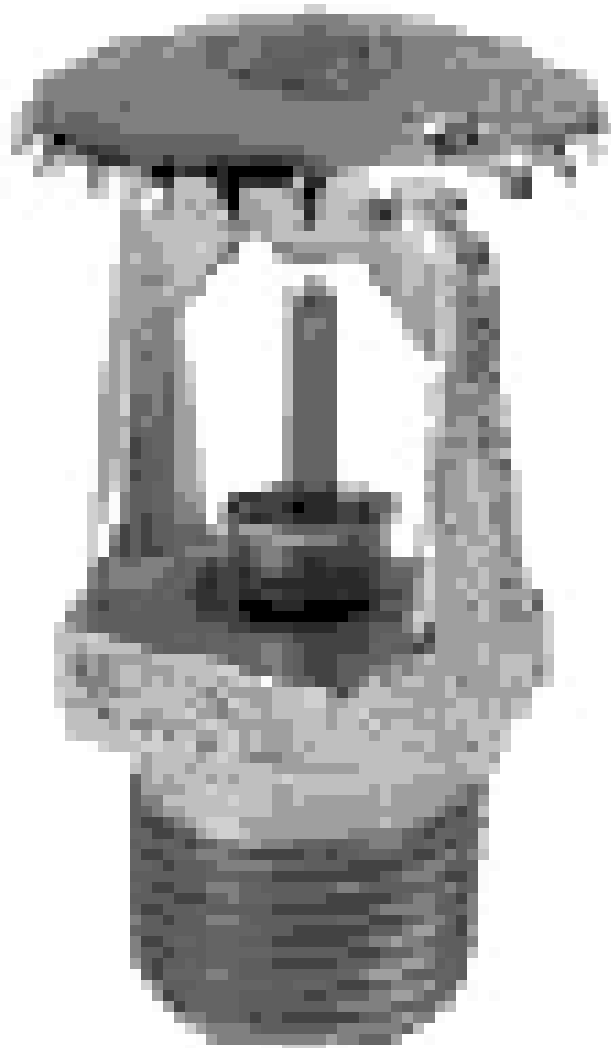
See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

2. COLORS: Brass, Decorative white or black (Not all manufacturers apply, check literature.)

3. For corrosion resistance information, consult manufacturer.

4. For extended coverage information, consult manufacturer.

5. Quick response can not be used for extra hazard occupancies.







# TECHNICAL DATA

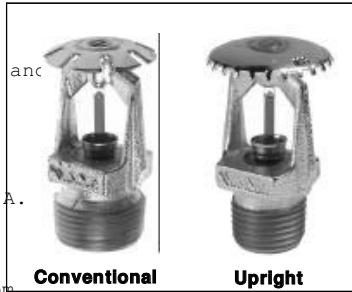
MICROFAST® AND  
Microfast<sup>HP</sup> QUICK  
RESPONSE UPRIGHT AND  
CONVENTIONAL SPRINKLERS

**1. PRODUCT NAME**

Viking Microfast and Microfast<sup>HP</sup> Model M Quick Response Upright and Conventional Sprinklers

**2. MANUFACTURER**

The Viking Corporation  
210 N. Industrial Park Road  
Hastings, Michigan 49058 U.S.A.  
Telephone: (616) 945-9501  
(877) 384-5464  
Fax: (616) 945-9599  
e-mail: techsvcs@vikingcorp.com



**SPRINKLER MATERIALS**

Frame: Brass Castings UNS-C84400  
Deflector: Copper UNS-C19500 for Sprinkler Base Part Nos. 06661B, 06665B, 06764B, and 07060. Brass UNS-C26000 for all other Part Nos.  
Bushing (for Sprinkler Base Part Nos. 06719B and 06717B): Brass UNS-C36000  
Bulb: Glass, nominal 3 mm diameter  
Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape

**3. PRODUCT DESCRIPTION**

Viking Microfast and Microfast<sup>HP</sup> Quick Response Upright and Conventional (Old Style) Sprinklers are thermosensitive spray sprinklers equipped with a rugged 3 mm glass-bulb fluid temperature bulb.

Viking Microfast and Microfast<sup>HP</sup> Quick Response Upright and Conventional Sprinklers are available with several finishes, temperature rating orifice sizes to meet design requirements. The special Polyester and Teflon coating can be used in decorative applications where colors are desired. In addition, the Polyester and Teflon coatings are corrosion resistant providing protection against many corrosive environments.

During fire conditions, when temperature around the sprinkler reaches its operating temperature, the heat-sensitive liquid in the glass bulb expands, causing the bulb to shatter, releasing the pip-cap and spring assembly. Water flowing through the sprinkler orifice strikes the

deflector, forming a uniform pattern to extinguish or control the fire.

**4. TECHNICAL DATA**

**LISTINGS AND APPROVALS**

Refer to Table 2 on page 51 b for listing information.

**Rated Water Working Pressure:**  
**Sprinkler Base Part Nos. 06661B, 06717B, and 06931B are rated for use with water working pressures ranging from the minimum 7 psi (48.3 kPa) up to 250 psi (1 724 kPa) for high-pressure systems. High-pressure (HP) sprinklers can be identified by locating the number "250" on the deflector. All Other Part Nos: Maximum 175 psi (1 207 kPa) wwp.**

Factory tested hydrostatically to 500 psi (3448 kPa).

Patents: U.S.A. Patent No. 4,167,872 (White Poly finish for Part Nos. 06661B, 06665B, 06764B, and 07060 only), Navajo White Polyester, Black Polyester and Black Teflon

Patents: U.S.A. Patent No. 4,831,870 (White Polyester, Black Polyester and Black Teflon)

Minimum operating pressure: 7 psi (48.3 kPa)

Sprinkler Temperature Classification	Nominal Sprinkler Temperature Rating (Fusing Point)	Max. Ambient Ceiling Temp!	Bulb Color <sup>2</sup>
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue

**Sprinkler Finishes:** Brass, Bright Brass, Chrome-Enamel (patents pending), White Polyester (White Poly finish for Part Nos. 06661B, 06665B, 06764B, and 07060 only), Navajo White Polyester, and Black Teflon

**Corrosion-Resistant Coatings:** White Polyester (White Poly finish for Part Nos. 06661B, 06665B, 06764B, and 07060 only), Navajo White Polyester, and Black Teflon

**Footnotes**

<sup>1</sup> Based on NFPA-13. Other limits may apply, depending on fire loading and other requirements of the Authority Having Jurisdiction.

<sup>2</sup> The temperature rating is stamped on the deflector.

<sup>3</sup> The corrosion-resistant coatings have passed standard corrosion tests required by particular approving agencies. Refer to the approval chart on page 51 b. These tests cannot and do not represent all possible corrosive environments. Prior to installation, verify that the end-user that the coatings are compatible with or suitable for the proposed environment. The coatings indicated are applied to the exposed exterior surfaces only.

**NOTE:** The spring is exposed on sprinklers with Polyester Finishes and Teflon

**Table 1**

Note: Units of measure in parentheses replace page 51 a-b, dated September 1999. Refer to technical data page QR1-2 for general care, installation, and maintenance information.

Form No. F\_080488

Spray: Brass UNS-C36000  
The Cap and Inset Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400

**Sprinklers with Polyester Coating**  
Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape, exposed

Pip Cap and Inset Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400

**Sprinklers with Teflon Coating**  
Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape, exposed

Screw: Brass UNS-C36000, Nickel plate  
Pip Cap and Inset Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400, Teflon coated

**AVAILABLE FINISHES**

Brass, Bright Brass, Chrome-Enamel (patents pending), White Polyester (White Poly finish for Part Nos. 06661B, 06665B, 06764B, and 07060 only), Navajo White Polyester, Black Polyester and Black Teflon

**ACCESSORIES**

Sprinkler Cabinets:  
A. Six-head capacity: Part No. 01724  
B. Twelve-head capacity: Part No. 01725A  
Available since 1971.

Sprinkler Wrenches:  
A. Standard Sprinkler Wrench Part No. 10896W/B (available since 2000) or 05000CW/B (no longer available).  
B. Wrench for coated and recessed sprinklers: Part No. 7128W\*

\* A 1/2" ratchet is required (not available from Viking).

SPRINKLER ACCESSORIES section of the Viking Engineering and Design Data book.

	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<p><b>MICROFAST® AND MicrofastHPQUICK RESPONSE UPRIGHT AND CONVENTIONAL SPRINKLERS</b></p>
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Approval Chart														
Microfast® and MicrofastHPQUICK Response Upright and Conventional Glass-Bulb Style Sprinklers														
											<b>KEY</b> Temperature Finish Escutcheon (if applicable)			
<b>Maximum 175 PSI WWP Standard Orifice</b>														
Thread Size		Description			Nominal K-factor		Overall Length		Listings and Approvals					
NPT	BSP	Sprinkler Style	Sprinkler Base Part No. <sup>1</sup>	Sprinkler I.D. No. <sup>10</sup>	U.S. <sup>10</sup>	metric <sup>9</sup>	Inches	mm	UL	C-UL <sup>6</sup>	FM <sup>8</sup>	NYC <sup>3</sup>	VdS	LPCB
½"	15 mm	Upright	06661B	VK300	5.6	8,1	2.3	58	A4	A4	A3	A4	-	-
-	15 mm	Upright	07060	VK300	5.6	8,1	-	58	-	-	A3	-	C1	A1
½"	15 mm	Conventional	06766B	VK310	5.6	8,1	2.4	61	A5	A5	-	A5	-	A1
<b>Large Orifice</b>														
¾"	20 mm	Upright	06665B	VK350	8.0	11,5	2.4	61	A4	A4	A3	A4	-	-
½"	-	Upright	06764B	VK350	8.0	-	2.9	74	A4	A4	-	A4	-	-
¾"	20 mm	Conventional	06768B	VK354	8.0	11,5	2.4	61	A5	A5	-	A5	-	-
<b>Small Orifice</b>														
½"	-	Upright	06717B	VK325	2.8	4,0	2.7	69	A2	A2	-	A2	-	-
½"	-	Upright	06719B	VK327	4.2	-	2.7	69	A2	A2	-	A2	-	-
-	10 mm	Upright	06931B	VK325	-	6,0	2.3	58	-	-	-	-	C1	-
<b>Maximum 250 PSI WWP Standard Orifice</b>														
Thread Size		Description			Nominal K-factor		Overall Length		Listings and Approvals					
NPT	BSP	Sprinkler Style	Sprinkler Base Part No. <sup>1</sup>	Sprinkler I.D. No. <sup>10</sup>	U.S. <sup>10</sup>	metric <sup>9</sup>	Inches	mm	UL	C-UL <sup>6</sup>	FM	NYC <sup>11</sup>	VdS	LPCB
½"	15 mm	Upright	06661B	VK300	5.6	8,1	2.3	58	A4	A4	-	A4	-	-
<b>Small Orifice</b>														
½"	15 mm	Upright	06717B	VK325	2.8	4,0	2.7	69	A2	A2	-	A2	-	-
-	10 mm	Upright	06931B	VK325	-	6,0	2.3	58	-	-	-	-	-	-
<b>Approved Temperature Ratings</b>									<b>Approved Finishes</b>					
A - 135 °F (57 °C), 155 °F (68 °C) and 200 °F (93 °C) B - 135 °F (57 °C) and 155 °F (68 °C) C - 155 °F (68 °C)									1 - Brass and Chrome-Enamel 2 - Brass, Bright Brass, Chrome-White Polyester 3 - Brass, Chrome-Enamel and White Poly Finish 4 - Brass, Bright Brass, Chrome-White Poly Finish 5 - Brass, Bright Brass, Chrome-White Polyester					
<b>Footnotes</b>														
<sup>1</sup> Base part number is shown. For complete part number, refer to Viking's current price schedule. <sup>2</sup> This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals. <sup>3</sup> Accepted for use, City of New York Board of Standards and Appeals, Calendar Number 219-76-SA. <sup>4</sup> The sprinkler orifice is bushed. <sup>5</sup> Listings and Approvals are limited to Light-Hazard occupancies with wet/dry/rain/combination/late. <sup>6</sup> Listed by Underwriters Laboratories Inc. for use in Canada. <sup>7</sup> UL and C-UL Listed and NYC Approved as corrosion-resistant. <sup>8</sup> FM Approved for protection of occupancies described in the Factory Mutual Research Corporation Data Sheets and Technical Advisory Bulletins. <sup>9</sup> Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in psi, the K-Factor shown by 10.0. <sup>10</sup> Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with Section 3-2.3. <sup>11</sup> Accepted for use, City of New York Department of Buildings, MEA 89-92-E, Vol XVI.														
<b>Table 2</b>														

Replaces page 51 a-b, dated September 2001. Refer to technical data page QR1-2 for general care, installation, and maintenance information.

Form No. F\_080488

SPR-3

DESCRIPTION: SPRINKLER, QUICK-RESPONSE RECESSED PENDENT, BULB TYPE, BRIGHT CHROME PLATED SPRINKLER & ESCUTCHEON PLATE, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL/FM.

MANUFACTURER & CATALOG NO.: VIKING M, RELIABLE F1FR, TYCO TY-FRB, VICTAULIC V2708.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

2. COLORS: Brass, Decorative white or black (Not all manufacturers apply, check literature: i.e. Central white is not F.M. approved)

3. For corrosion resistance information, consult manufacturer.

4. For extended coverage information, consult manufacturer.

5. Quick response can not be used for extra hazard occupancies.

6. Victaulic sprinklers are not UL/FM listed for high temperature class.



	<h1 style="margin: 0;">TECHNICAL DATA</h1>	<b>MICROFAST® AND Microfast™HP</b> <b>QUICK RESPONSE</b> <b>PENDENT SPRINKLER</b>
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**1. PRODUCT NAME**

Viking Microfast and Microfast HP Model M QR Pendent Sprinklers

**2. MANUFACTURER**

The Viking Corporation  
 210 N. Industrial Park Road  
 Hastings, Michigan 49058 U.S.A.  
 Telephone: (616) 945-9501  
 (877) 384-5464  
 Fax: (616) 945-9599  
 e-mail: techsvcs@vikingcorp.com



**3. PRODUCT DESCRIPTION**

Viking Microfast and Microfast HP Quick Response Pendent Sprinklers are small, thermosensitive spray sprinklers available with several finishes and temperature ratings, and orifice sizes to meet design requirements. The sprinklers can be used in decorative applications where colors are desired. In addition, these two finishes are corrosion resistant and provide protection against many corrosive environments. The pip-cap and sealing assembly of the sprinkler is held in place by a 3 mm glass bulb. During fire conditions when the temperature around the sprinkler reaches its operating temperature, the heat-sensitive liquid in the bulb expands, causing the bulb to rupture, releasing the pip-cap and sealing spring assembly. Water flowing through the deflector, forming a uniform pattern to extinguish or control the fire.

**4. TECHNICAL DATA LISTINGS AND APPROVALS**

Refer to Table 2 on page 41 b for fluid temperature ratings (55 °C).  
 Minimum operating pressure: 7 psi (48,3 kPa).  
**Rated Water Working Pressure: Sprinkler Base Part Nos. 06662B, 06718B, and 06932B are rated for use with water working pressures ranging from the minimum 7 psi (48,3 kPa) up to 250 psi (1 724 kPa) for high-pressure systems. High-pressure (HP) sprinklers can be identified by locating the number "250" on the deflector.**  
**All Other Part Nos: Maximum 175 psi (1 207 kPa) wwp.**  
 Tested hydrostatically to 250 psi (1 724 kPa).  
 U.S.A. Patent No. 4,167,974  
 U.S.A. Patent No. 4,796,710  
 Testing: U.S.A. Patent No. 4,831,870

Min. operating pressure: 7 psi (48,3 kPa)  
**SPRINKLER MATERIALS**

Frame: Brass Castings UNS-C84400 or UNS-C87400  
 Deflector: Copper UNS-C1950  
 Sprinkler Base Part Nos. 06662B, 06666B, and 06765B: Brass UNS-C26000 for all other Part Nos.  
 Bushing (for Sprinkler Base Part Nos. 06718B and 06720B): Brass UNS-C36000  
 Bulb: Glass, nominal 3 mm diameter  
 Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon tape  
 Screw: Brass UNS-C36000  
 Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400  
 Pip Cap Attachment: Brass UNS-C6000

**Sprinklers with Polyester Coating or Poly Finish**

Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon tape, exposed  
 Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400

**Sprinklers with Teflon Coating**

Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon tape, exposed  
 Screw: Brass UNS-C36000  
 Nickel plated  
 Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400, Teflon Coated

**AVAILABLE FINISHES**

Brass, Bright Brass, Chrome-Enloy (patents pending), White Polyester (White Poly finish for Sprinkler Base Part No. 06662B only), Navajo White Polyester, Black Polyester, and Black Teflon

**ACCESSORIES**

Sprinkler Cabinets (Available since 1971)  
 Six-head capacity: Part No. 01724  
 Twelve-head capacity: Part No. 01725A  
 Sprinkler Wrenches:

- A. Standard Wrench: Part No. 0196W (available since 2000) refer to specification table (not longer available)
- B. Wrench for coated and recessed Viking Microfast HP sprinklers: Part No. 0738W\*

Sprinkler Temperature Classification	Nominal Sprinkler Temp. Rating (Fusing Point)	Maximum Ambient Ceiling Temperature	Bulb Color <sup>2</sup>
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue

**Sprinkler Finishes:** Brass, Bright Brass, Chrome-Enloy (patents pending), White Polyester (White Poly finish for P/N 06662B only), Navajo White Polyester, Black Polyester, and Black Teflon

**Corrosion-Resistant Coatings:** White Polyester (White Poly finish for P/N 06662B only), Navajo White Polyester, Black Polyester, and Black Teflon

**Footnotes**

<sup>1</sup> Based on NFPA-13. Other limits may apply, depending on fire loading and other requirements of the Authority Having Jurisdiction.

<sup>2</sup> The temperature rating is stamped on the deflector.

<sup>3</sup> The corrosion-resistant coatings have passed standard corrosion tests required by various approving agencies. Refer to the approval chart on page 41 b. These tests do not represent all possible corrosive environments. Prior to installation, inform the end-user that the coatings are compatible with or suitable for the proposed environment. The coatings indicated are applied to the exposed exterior surfaces only.

**NOTE:** The spring is exposed on sprinklers with Teflon Poly finishes.

**Table 1**

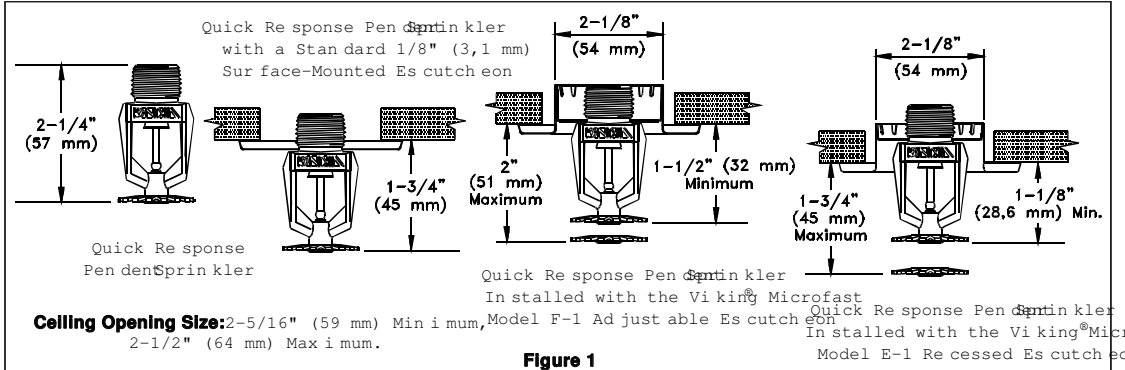
Note: Units of measure in parentheses may be appropriate. Refer to technical data page QR1-2 for care, installation, and maintenance information.

VIKING®

TECHNICAL DATA

MICROFAST® AND MicrofastHP  
 QUICK RESPONSE  
 PENDENT SPRINKLES

Approval Chart Microfast® and MicrofastHP® Quick Response Pendent Sprinklers										KEY			
										Temperature	Finish		
										A1X	Escutcheon (if applicable)		
Maximum 175 PSI WWP Standard Orifice													
Thread Size	Sprinkler Description		Nominal K-Factor		Overall Length			Listings and Approvals					
NPT	BSP	Base Part No.	Identification No. <sup>12</sup>	U.S. <sup>12</sup>	metric <sup>8</sup>	Inches	mm	UL	C-UL <sup>13</sup>	FM <sup>9</sup>	NYC <sup>3</sup>	VdS	LPCB
1/2"	15 mm	06662B	VK302	5.6	8,1	2.3	58	A4X, B4Y	A4X, B4Y	A3X, B3Y	A4X, B4Y	C1	A1X
Large Orifice													
3/4"	20 mm	06666B	VK352	8.0	11,5	2.4	61	A2X, B2Y	A2X, B2Y	A1X, B1Y	A2X, B2Y	C1	-
1/2"	-	06765B	VK352	8.0	-	2.9	74	A2X, B2Y	A2X, B2Y	-	A2X, B2Y	-	-
Small Orifice													
1/2"	15 mm	06718B <sup>4</sup>	VK329	2.8	4,0	2.7	69	A2X, B2Y	A2X, B2Y	-	A2X, B2Y	-	-
1/2"	-	06720B <sup>4</sup>	VK331	4.2	-	2.7	69	A2X, B2Y	A2X, B2Y	-	A2X, B2Y	-	-
-	10 mm	06932B	VK329	-	6,0	2.3	58	-	-	-	-	C1	-
Maximum 250 PSI WWP Standard Orifice													
Thread Size	Description		Nominal K-Factor		Overall Length			Listings <sup>2</sup>					
NPT	BSP	Base Part No.	Identification No. <sup>12</sup>	U.S. <sup>12</sup>	metric <sup>8</sup>	Inches	mm	UL	C-UL <sup>13</sup>	FM	NYC <sup>11</sup>	VdS	LPCB
1/2"	15 mm	06662B	VK302	5.6	8,1	2.3	58	A4X, B4Y	A4X, B4Y	-	A4X	-	-
Small Orifice													
1/2"	15 mm	06718B <sup>4</sup>	VK329	2.8	4,0	2.7	69	A2X, B2Y	A2X, B2Y	-	A2X	-	-
-	10 mm	06932B	VK329	-	6,0	2.3	58	-	-	-	-	-	-
Approved Escutcheons													
<b>Approved Temp. Ratings</b> A - 35 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 284 °F (140 °C) B - 35 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C) C - 155 °F (68 °C)			<b>Approved Finishes</b> 1 - Brass and Chrome-Enamel 2 - Brass, Bright Brass, Chrome-Enamel, White Poly-Enamel, White Poly-Enamel, and Black Poly-Enamel 3 - Brass, Chrome-Enamel, and White Poly-Enamel 4 - Brass, Bright Brass, Chrome-Enamel, White Poly-Enamel, and Black Poly-Enamel					<b>Approved Escutcheons</b> X - Standard surface-mounted escutcheon or the Viking Microfast Model F-1 Adjustable Escutcheon Y - Standard surface-mounted escutcheon or the Viking Microfast Model F-1 Adjustable Escutcheon or recessed with the Viking Micromatic Model E-1 or E-2 Recessed Escutcheon					
Footnotes													
<sup>1</sup> Base part number is shown. For complete part number, refer to Viking's current price schedule. <sup>2</sup> This table shows the listings and approvals available at the time of printing. Other approvals with the manufacturer for any additional approvals. <sup>3</sup> Accepted for use, City of New York Board of Standards and Appeals, Calendar Number 219-76-SA <sup>4</sup> The sprinkler orifice is bushed. <sup>5</sup> Refer to the "Sprinkler Accessories" Viking Engineering and Design Data book for technical data on approved escutcheons at other accessories. <sup>6</sup> UL/C-UL Listings and NYC Approvals limited to Light-Hazard Occupancies with a wet pipe system. <sup>7</sup> UL/C-UL Listed as corrosion resistant. <sup>8</sup> Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in psi, the K-Factor shown by 10.0. <sup>9</sup> FM Approved for use in wet-pipe sprinkler systems (or preaction systems) for installation in occupancies described in the Factory Mutual Engineering and Research Loss Prevention Data Sheets and Technical A. <sup>10</sup> The Viking Microfast Model F-1 Adjustable Escutcheon is considered a surface-mounted escutcheon and not a recessed element of the sprinkler to be recessed behind the face of the wall or ceiling. <sup>11</sup> Accepted for use, City of New York Department of Buildings, MEA 89-92-E, Vol XVI. <sup>12</sup> Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with the Standard Code and Section 3-2.3. <sup>13</sup> Listed by Underwriters Laboratories Inc. for use in Canada.													



Replaces page 41 a-b, dated November 14, 2001 (updated sprinkler materials list). Refer to technical data page QR1-2 for care, installation, and maintenance information. Form No. F\_081296

SPR-4

DESCRIPTION: SPRINKLER, QUICK-RESPONSE CONCEALED, BULB/FUSIBLE LINK TYPE, SMOOTH PROFILE WITH CEILING, WHITE COVER PLATE, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL.

MANUFACTURER & CATALOG NO.: VIKING B-2, RELIABLE G4A, TYCO RFII, VICTAULIC V3802.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

2. COLORS: Brass, Decorative white or black, Chrome Many Manufacturers can produce custom colors. Refer to Manufacturers literature for more information.

3. For corrosion resistance information, consult manufacturer.

4. For extended coverage information, consult manufacturer.

5. Quick response can not be used for extra hazard occupancies.

6. FM does not approve quick-response concealed sprinklers. Consult the FM authority for acceptable concealed sprinklers.

7. Victaulic sprinklers are not UL/FM listed for high temperature class.





# TECHNICAL DATA

**HORIZON® MIRAGE™  
STANDARD AND QUICK  
RESPONSE CONCEALED  
PENDENT SPRINKLERS**

**1. PRODUCT NAME**

Viking Horizon® Mirage™ Model B-2 Standard and Quick Response Concealed Pendent Sprinklers

A. Sprinkler Base Part No. 09782A with Cover Plate Assembly Part No. 09804 or 11225: UL/C-UL Listed as Standard Response

B. Sprinkler Base Part No. 09783A with Cover Plate Assembly Part No. 09804 or 11225: UL/C-UL Listed as Quick Response or

C. Sprinkler Base Part No. 09783A with Cover Plate Assembly Part No. 09804: Factory Mutual Approved as Standard Response

Available since 1996.

**2. MANUFACTURER**

The Viking Corporation  
210 N. Industrial Park Road  
Hastings, Michigan 49058 U.S.A.  
Telephone: (616) 945-9501  
(877) 384-5464  
Fax: (616) 945-9599  
e-mail: techsvcs@vikingcorp.com

**3. PRODUCT DESCRIPTION**

Viking Horizon® Mirage™ Standard and Quick Response Concealed Pendent Sprinklers are small solder link and lever spray sprinklers designed for installation on concealed pipe systems where the appearance of a smooth ceiling is desired.

**The sprinklers are UL/C-UL Listed for water working pressures up to 250 psi (1 724 kPa).**

**The sprinklers are Factory Mutual Approved for water working pressures up to 175 psi (1 207 kPa).**

**The sprinklers are Accepted for use by the City of New York Department of Buildings for water working pressures up to 175 psi (1 207 kPa).**

Horizon® Mirage™ Standard and Quick Response Concealed Sprinklers are hidden from view by low-profile, small-diameter cover plates installed flush to the ceiling. The cover plates are available in several decorative finishes to meet design requirements.

The two-piece design allows installation and testing of the sprinklers prior to installation of the cover plates. After the system has been tested and the ceiling finish applied, the push-on, thread-off design of the cover plate assemblies allows easy installation of the cover plates with up to 1/2" (12,7 mm) adjustment available. The thread-off feature is designed to prevent unwanted disengagement of the cover assemblies. This feature also permits temporary removal of ceiling panels without taking the sprinkler system out of service or removing the sprinkler.

Inside the body of the Horizon® Mirage™ Standard and Quick Response Concealed Sprinkler, the deflector and sealing

Note: Units of measure in parentheses may be approximations.

Form No. F\_012993



**Viking Horizon® Mirage™ Concealed Sprinkler Installed in Acoustical Ceiling**

**NOTE: Quick response concealed sprinklers must be installed in neutral or negative pressure plenums only.**

assembly are held in position by the heat-sensitive fusible link. During fire conditions, when the temperature around the sprinkler approaches its operating temperature, the cover plate detaches. Continued heating of the sprinkler causes the heat-sensitive fusible link to disengage, releasing the deflector and sealing assembly. Water flowing through the sprinkler orifice strikes the deflector, forming a uniform spray pattern to extinguish or control the fire.

**4. TECHNICAL DATA LISTINGS AND APPROVALS**

See the approval chart on page 57 b.  
**UL/C-UL Listed for 250 psi (1 724 kPa) water working pressure.**

**Factory Mutual Approved for 175 psi (1 207 kPa) water working pressure.**

**Accepted for use by the City of New York Department of Buildings for 175 psi (1 207 kPa) water working pressure.**

Spring: U.S.A. Patent No. 4,570,720  
Thread Size: 1/2" (15 mm) NPT

Orifice Size: Standard Orifice  
K-Factor: 5.6 U.S. (8,1 metric\*, for use when pressure is measured in kPa).

Nominal U.S. K-factor provided in accordance with the 1999 edition of NFPA 13, Section 3-2.3.

\*Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor shown by 10.0.

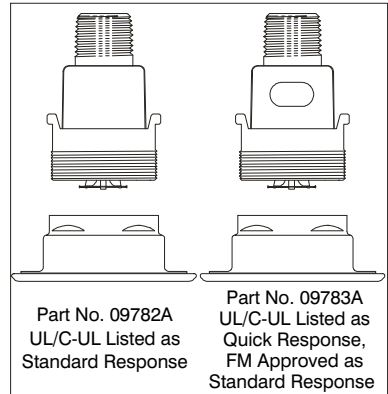
Min. Operating Pressure: 7 psi (48,3 kPa)  
Available Cover Plate Adjustment: 1/2" (12,7 mm) +/- 1/4" (6,4 mm)

Cover Plate Assembly Temperature Ratings:  
Part No. 11225: 135 °F (57 °C) for use with 165 °F temperature rated sprinkler only.

Part No. 09804: 165 °F (74 °C) for use with 165 °F or 220 °F temperature rated sprinklers.

**SPRINKLER MATERIALS**

Body: Brass Casting UNS-C84400  
Body Cap: Brass UNS-C26000



Deflector: Copper UNS-C19500  
Deflector Pins: Stainless Steel UNS-30300  
Lever Bar: Copper Alloy UNS-C72500  
Compression Screw: Brass UNS-C36000  
Fusible Link Assembly\*\*: Nickel Alloy and Eutectic Solder

\*\*The fusible link of the Quick Response Concealed Sprinkler is marked with a purple stripe or dot for identification purposes only.

Fusible Link Levers: Stainless Steel UNS-S31600

Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon® Tape

**COVER PLATE ASSEMBLY MATERIALS**

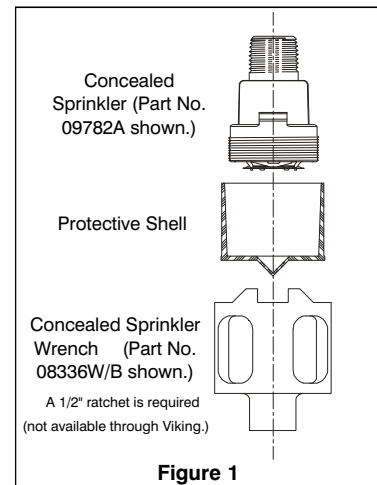
Cover Plate Assembly: Brass UNS-C26000  
Spring: Nickel Alloy

Solder: Eutectic

**AVAILABLE COVER FINISHES**

Part No. 11225: Bright Brass, Brushed Brass, Antique Brass, Polished Chrome, Brushed Chrome, and Brushed Copper

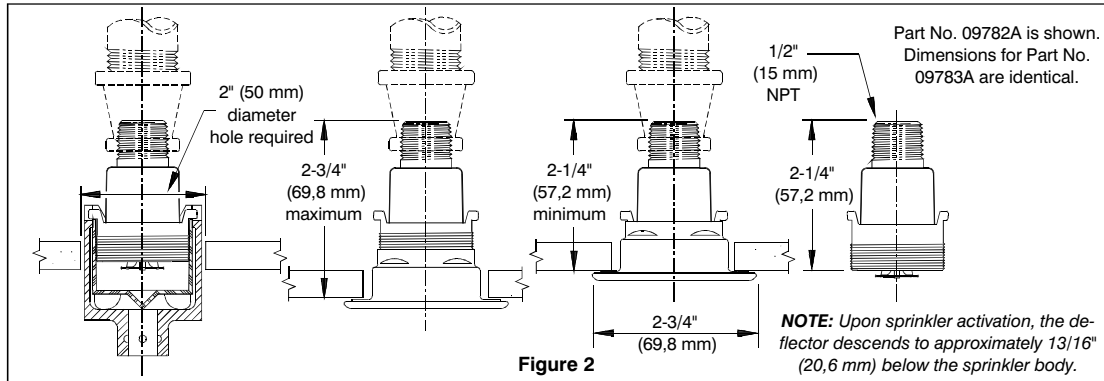
Part No. 09804: Bright Brass, Brushed Brass, Antique Brass, Polished Chrome, Brushed Chrome, Brushed Copper, Painted<sup>1</sup> White (No. 1004)<sup>2</sup>, Painted<sup>1</sup>



Replaces page 57 a-b, dated November 1, 2000 (added note regarding use of QR concealed sprinklers in neutral or negative pressure plenums). **Refer to technical data page SR1-2 or QR1-2 for general care, installation, and maintenance information.**

	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<p><b>HORIZON<sup>®</sup> MIRAGE<sup>™</sup></b>  <b>STANDARD AND QUICK</b>  <b>RESPONSE CONCEALED</b>  <b>PENDENT SPRINKLERS</b></p>
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Approval Chart					KEY	
Horizon <sup>®</sup> Mirage <sup>™</sup> Standard and Quick Response Concealed Pendent Sprinklers					Temperature	Finish
Sprinkler Temperature Classification	Sprinkler Nominal Temp. Rating <sup>1</sup>	Maximum Ambient Ceiling Temperature <sup>2</sup>	Temp. Rating of the Required Cover Assembly		Cover Plate Assembly Base Part No. <sup>5</sup>	
Ordinary	165 °F (74 °C)	100 °F (38 °C)	135 °F (57 °C)		11225	
Intermediate	220 °F (104 °C)	150 °F (65 °C)	165 °F (74 °C)		09804	
<b>Standard Response Applications</b>						
Sprinkler Base Part No. <sup>5</sup>	Sprinkler I.D. No. <sup>9</sup>	NPT Thread Size Inches	mm	K-Factor U.S. <sup>9</sup>	metric	Max Rated Water Working Pressure <sup>3</sup>
09782A	VK405	1/2	15	5.6	8.1	250 psi
09783A	VK404	1/2	15	5.6	8.1	175 psi
<b>Quick Response Applications</b>						
09783A	VK404	1/2	15	5.6	8.1	250 psi
Listings and Approvals <sup>4</sup>						
		UL	C-UL <sup>6</sup>		FM	NYC <sup>7</sup>
		AX2, AY1, BY1	AX2, AY1, BY1		AY1	AY1, BY1
Finishes of the Cover Plate Assembly						
Sprinkler Temp. Ratings		Cover Plate Assembly Temp. Ratings				
A - 165 °F (74 °C) B - 220 °F (104 °C)		X - 135 °F (57 °C) Cover Base Part No. 11225 Y - 165 °F (74 °C) Cover Base Part No. 09804				
<sup>1</sup> The temperature rating of Viking Horizon <sup>®</sup> Mirage <sup>™</sup> Standard and Quick Response Concealed Sprinklers is stamped on the sprinkler body. <sup>2</sup> Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards. <sup>3</sup> Water Working Pressure rating of the Viking Horizon <sup>®</sup> Mirage <sup>™</sup> Standard and Quick Response Concealed Sprinkler is stamped on the sprinkler body. <sup>4</sup> This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. <sup>5</sup> Base part number is shown. For complete part number, refer to Viking's current price list schedule. <sup>6</sup> Listed by Underwriters Laboratories, Inc. for use in Canada. <sup>7</sup> Accepted for use, City of New York Department of Buildings, MEA No. 89-92-E, Vol. XVI. <sup>8</sup> Other paint colors are available on request with the same Listings and Approvals as the standard paint finishes. <sup>9</sup> Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with the 1999 edition of NFPA 13, Section 3-2.2 and Section 3-2.3.						



Ivory (No. 1634)<sup>2</sup>, and Painted<sup>1</sup> Black (No. 1007)<sup>2</sup>

<sup>1</sup> Painted finish consists of Polyester Baked Enamel.

<sup>2</sup> Sherwin-Williams<sup>®</sup> Color Answers Interior Color Number. Other colors are available on request. See Sherwin-Williams<sup>®</sup> Color Answers Interior Color Selection color numbers.

**ORDERING INSTRUCTIONS**

- To order Viking Horizon<sup>®</sup> Mirage<sup>™</sup> Standard and Quick Response Concealed Pendent Sprinklers, refer to the following:
  - Base Part No. 09782A or
  - Base Part No. 09783A.
- To order Cover Plate Assemblies, refer to:
  - Base Part No. 11225, rated 135 °F or
  - Base Part No. 09804, rated 165 °F

Specify sprinkler temperature rating and temperature rating and finish of cover plate assembly.

**ACCESSORIES**

Sprinkler Cabinet: Part No. 01731A  
Capacity: six (6) sprinklers  
Available since 1971.

Flush/Concealed Sprinkler Wrenches

- Heavy Duty Part No. 08336W/B Available since 1983, or
- Light Duty Part No. 10366W/B\*\*\* Available since 1998.  
Requires a 1/2" ratchet (not available from Viking).

\*\*\*Ideal for sprinkler cabinets.

**NOTE:** Cover Plate Assembly Part Number 09804 **must** be used for all Factory

Mutual Approved installations. Previous Model B-1 Cover Plate Assembly Part Number 08310 may still be used for UL/C-UL installations.

The correct Horizon<sup>®</sup> Mirage<sup>™</sup> Concealed Sprinkler can be verified by checking the fusible link for the following identification scheme:

UL/C-UL Standard Response: No stripe or dot.

UL/C-UL Quick Response **and** FM Standard Response: Purple stripe or dot.

UL/C-UL QREC: Yellow stripe or dot (refer to technical data page 87 a-c for additional information).

Replaces page 57 a-b, dated November 1, 2000 (added note regarding use of QR concealed sprinklers in neutral or negative pressure plenums). **Refer to technical data page SR1-2 or QR1-2 for general care, installation, and maintenance information.**

Form No. F\_012993



SPR-5

DESCRIPTION: SPRINKLER, QUICK-RESPONSE HORIZONTAL SIDE WALL, BULB TYPE, BRIGHT CHROME PLATED, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL/FM.

MANUFACTURER & CATALOG NO.: VIKING M, RELIABLE F1FR, TYCO TY-FRB, VICTAULIC V2710.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

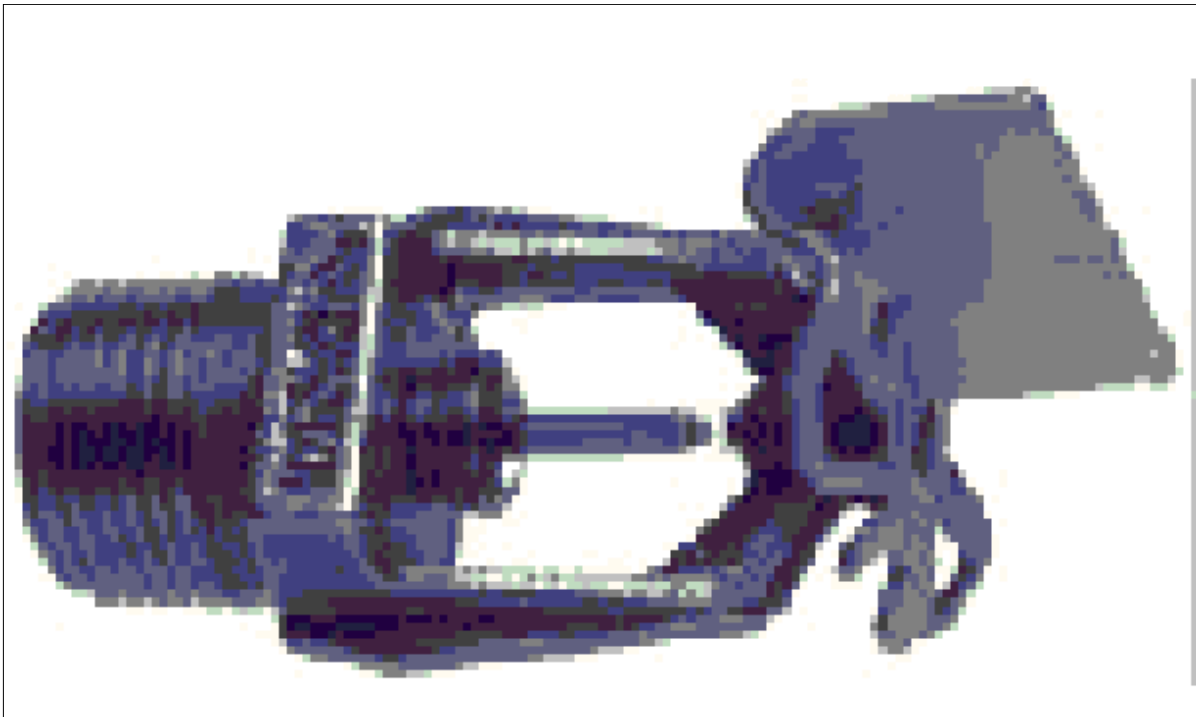
See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

2. COLORS: Brass, Decorative white or black (Not all manufacturers apply, check literature: i.e. Central white is not F.M. approved)

3. For corrosion resistance information, consult manufacturer.

4. For extended coverage information, consult manufacturer.

5. Quick response can not be used for extra hazard occupancies.





# TECHNICAL DATA

MICROFAST®/Microfast®HPSW  
 SPRINKLER SIN VK442  
 (WITH QR, EC, QREC, RESISTENTIAL,  
 AND SPECIFIC APPLICATION LISTINGS.)



**1. PRODUCT NAME**

Viking Microfast Model M-5 Horizontal Side wall Sprinkler SIN VK442†  
 † Sprinkler identification number provided in accordance with the 1999 edition of NFPA 13, 3-2.2.

**2. MANUFACTURER**

The Viking Corporation  
 210 N. Industrial Park Road  
 Hastings, Michigan 49058, U.S.A.  
 Telephone: (616) 945-9501  
 (877) 384-5464  
 Fax: (616) 945-9599  
 e-mail: techsvcs@vikingcorp.com

**3. PRODUCT DESCRIPTION**

Viking Microfast Horizontal Side wall Sprinkler SIN VK442 is a small, high-sensitivity glass-bulb sprinkler listed for many different applications:

- UL/C-UL Listed as a standard The sprinkler is available with several different finishes and temperature occupancies with extended areas to meet varying design requirements. The orifice design allows for coverage below smooth flat, horizontal ceilings. Listings up to a maximum of 250 psi wwp.
- UL/C-UL Listed as a quick response systems. The small, rugged 3 mm glass bulb and special deflector combine hazard occupancies with standard area of coverage below smooth, flat, horizontal ceilings. Listings up to a maximum of 250 psi wwp.
- UL/C-UL Listed as a quick response sprinkler for use in Light Hazard occupancies with extended areas of coverage below smooth flat, horizontal ceilings. Listings up to a maximum of 175 psi wwp.
- UL/C-UL Listed as a quick response specific application sprinkler for use in Light Hazard occupancies with extended areas of coverage below smooth flat, horizontal ceilings. Listings up to a maximum of 175 psi wwp.
- UL/C-UL Listed for residential applications, below smooth, flat, horizontal ceilings and sloped ceilings at a pitch of 18.4° by the listings. Maximum 175 psi wwp.

**4. TECHNICAL DATA**

Minimum Operating Pressure:  
 Flow Quick Response Applications  
 with Standard Areas of Coverage: 7 psi (48,3 kPa).  
 For Extended Coverage and QREC Applications: Refer to Approval Chart 1 for minimum water-supply requirements and maximum area of coverage.  
 For Light Hazard Applications: Refer to Approval Charts 2 and 3 for minimum water-supply requirements and maximum area of coverage.  
 Glass-bulb fluid temperature rated to -65 °F (-55 °C).  
 Refer to the approval charts for maximum rated water working pressure. The high pressure (HP) sprinkler can be identified by locating the number "250" on the deflector.  
 Factory tested hydrostatically to 5 psi (3 448 kPa).  
 Patents: U.S.A. Patent No. 4,167,974  
 Deflector: U.S.A. Patent No. 4,296,816  
 Testing: U.S.A. Patent No. 4,831,870  
 Bulb: U.S.A. Patent No. 4,796,710  
 Thread Size: 1/2" NPT (15 mm)  
 Nominal K Factor: 5.5 U.S. or 5.6 U.S.† (7,9 or 8,1 metric\*)

<b>Specific Application Listing Note</b>			
When Viking Microfast Quick Response Horizontal Side wall Sprinkler SIN VK442 is used on low ceilings with slopes ranging from 2/12 to 4/12 (9.5° to 18.4°), it is listed as a "Specific Application Sprinkler" for extended areas of coverage only. Maximum 175 psi wwp.			
In these applications, Sections 7-2.3.2.4 and 7-2.3.2.5 of the 1999 Edition of NFPA 13, 3-2.2.5 of the 1999 Edition of NFPA 13, and Section 7-2.3.2.5 of the 1999 Edition of NFPA 13, 3-2.2.5 of the 1999 Edition of NFPA 13, apply regarding System Area of Operation. Viking Microfast Horizontal Side wall Sprinkler SIN VK442 should be installed according to the flows and pressures listed in Approval Chart 1 on page 42 c. Refer to the listings, and Section 7-2.3.2.5 of the 1999 Edition of NFPA 13, 3-2.2.5 of the 1999 Edition of NFPA 13, for additional information.			
Sprinkler Temperature Classification	Nominal Sprinkler Temperature Rating (Fusing Point)	Maximum Ambient Ceiling Temperature	Bulb Color
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue
<b>Sprinkler Finishes:</b> Brass, Bright Brass, Chrome-plated (contents pending), White, Navy White, Black, and Black Peflon			
<b>Corrosion-Resistant Coatings:</b> White, Navy White, Black, and Teflon			
<b>Footnotes</b>			
1 Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler, and other requirements of the Authority Having Jurisdiction. Refer to the listings for details.			
2 Temperature rating is stamped on the deflector.			
3 The corrosion-resistant coatings have passed standard corrosion tests required by particular approving agencies. Refer to the approval charts. These tests represent all possible corrosive environments. Prior to installation, verify that the coatings are compatible with or suitable for the proposed environment. The coating indicated are applied to the exposed exterior surfaces only.			
<b>NOTE:</b> The spring is exposed on the deflector of brass and Polyester coated sprinklers.			

Note: Units of measure in parentheses may be appropriate. Also refer to the appropriate Viking general care, installation, and maintenance guide for the particular application type.

	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<p style="margin: 0;">MICROFAST®/Microfast®HPSW                  SPRINKLER SIN VK442                  (WITH QR, EC, QREC, RESIDENTIAL,                  AND SPECIFIC APPLICATION LISTINGS.)</p>
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††Nominal U.S. K-Factor provided in accordance with the 1999 edition of NFPA 13 Section 3-2.3. \* Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor shown by 1.01325.

**BEVELLED SPRING SEALING ASSEMBLY**  
 Bevelled Spring: Nickel Alloy, coated with Teflon  
 Screw: Brass UNS-C36000  
 Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400

**TEFLON COATED SPRINKLERS**  
 Bevelled Spring: Nickel Alloy, exposed  
 Screw: Brass UNS-C36000, Nickel plated  
 Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400, Teflon coated

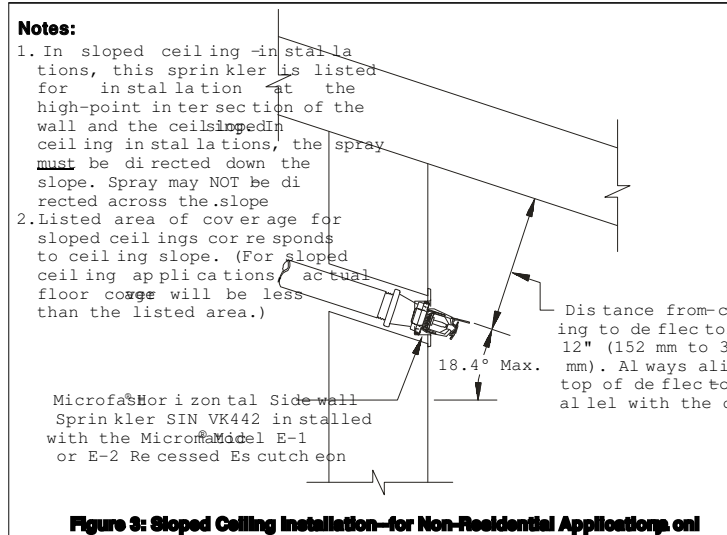
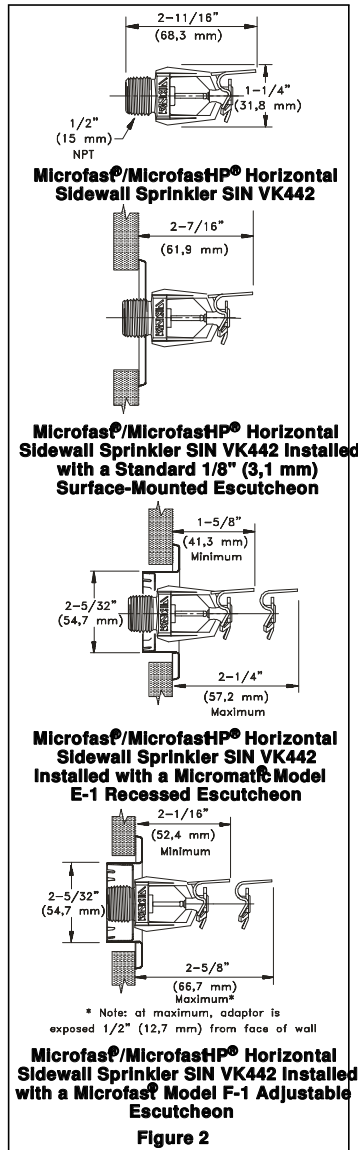
**POLYESTER COATED SPRINKLERS**  
 Bevelled Spring: Nickel Alloy, exposed  
 Screw: Brass UNS-C36000, Nickel plated  
 Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400

**SPRINKLER MATERIALS**

Frame: Brass Castings UNS-C84400  
 Deflector: Copper UNS-C19500  
 Bulb: Glass, nominal 3 mm diameter

**ACCESSORIES**

Refer to the "SPRINKLER ACCESSORIES" section of *Viking Engineering and Design Data* book.



	<h2 style="margin: 0;">TECHNICAL DATA</h2>	MICROFAST®/Microfast®HPSW SPRINKLER SIN VK442 (WITH QR, EC, QREC, RESIDENTIAL, AND SPECIFIC APPLICATION LISTINGS.)
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Deflector Style	Thread Size		Nominal K-Factor		Overall Length		Sprinkler Base Part Number <sup>2</sup>	Sprinkler Identification Number (SIN)
	Inch	mm	U.S. <sup>1</sup>	metric <sup>2</sup>	Inch	mm		
Horizontal Sidewalk		15	5.6	8,1	2-11/16	68,3	09533	VK442

### Approval Chart 1

For Non-Residential Applications Only

Microfast®/Microfast®HPSW Horizontal Sidewalk Sprinkler

Temperature KEY

Finish

Escutcheon (if applicable)

**Quick Response Standard Coverage Applications for Light or Ordinary Hazard Occupancies.**  
 Deflectors must be located 4" to 12" (102 mm to 305 mm) below smooth, flat, horizontal ceilings only.  
**Maximum 250 PSI WWP.**

**Standard Response Extended Coverage Applications for Light Hazard Occupancies Only.**  
 Installed with the deflectors located 6" to 12" (152 mm to 305 mm) below smooth, flat, horizontal ceilings only.  
**Maximum 175 PSI WWP.**

Maximum Areas of Coverage Width x Throw	Minimum Water Supply Requirements	F1W	F1W	--
16' x 20' (4,9 m x 6,2 m)	32 gpm @ 32.7 psi (121,1 L/min @ 225,1 kPa)			

**Standard Response Extended Coverage Applications for Light Hazard Occupancies Only.**  
 Installed with the deflectors located 6" to 12" (152 mm to 305 mm) below smooth, flat, horizontal ceilings only.  
**Maximum 250 PSI WWP.**

16' x 16' (4,9 m x 4,9 m)	26 gpm @ 21.6 psi (98,4 L/min @ 148,6 kPa)	F1W	F1W	--
16' x 18' (4,9 m x 5,5 m)	29 gpm @ 26.8 psi (109,8 L/min @ 184,9 kPa)	F1W	F1W	--
16' x 20' (4,9 m x 6,2 m)	32 gpm @ 32.7 psi (121,1 L/min @ 225,1 kPa)	F1W	F1W	--

**Quick Response Extended Coverage Applications for Light Hazard Occupancies Only.**  
 Installed with the deflectors located 6" to 12" (152 mm to 305 mm) below smooth, flat, horizontal ceilings only.  
**Maximum 175 PSI WWP.**

16' x 16' (4,9 m x 4,9 m)	26 gpm @ 21.6 psi (98,4 L/min @ 148,6 kPa)	F1W	E1W	C2W
16' x 18' (4,9 m x 5,5 m)	29 gpm @ 26.8 psi (109,8 L/min @ 184,9 kPa)	E1W	E1W	C2W
16' x 20' (4,9 m x 6,2 m)	32 gpm @ 32.7 psi (121,1 L/min @ 225,1 kPa)	D1W	D1W	D2W

**Quick Response Extended Coverage for Light Hazard Occupancies Only.**  
 Installed with the deflectors located 6" to 12" (152 mm to 305 mm) below smooth, flat, horizontal ceilings only.  
**Maximum 250 PSI WWP.**

16' x 16' (4,9 m x 4,9 m)	26 gpm @ 21.6 psi (98,4 L/min @ 148,6 kPa)	F1W	E1W	C2W
16' x 18' (4,9 m x 5,5 m)	29 gpm @ 26.8 psi (109,8 L/min @ 184,9 kPa)	E1W	E1W	C2W
16' x 20' (4,9 m x 6,2 m)	32 gpm @ 32.7 psi (121,1 L/min @ 225,1 kPa)	D1W	D1W	D2W

**Specific Application, Quick Response Extended Coverage Light Hazard Occupancies Only.**  
 Installed with the deflector located 6" to 12" (152 mm to 305 mm) below sloped ceilings with slopes from 2/12 through 4/12 (9.5° to 18.4°) pitch. Sprinkler must be located at the high-point intersection of the wall and ceiling with spray directed down the slope.  
**Refer to Figure 3 on page 42 b. Maximum 175 PSI WWP.**

16' x 16' (4,9 m x 4,9 m)	26 gpm @ 21.6 psi (98,4 L/min @ 148,6 kPa)	F1W	E1W	--
16' x 18' (4,9 m x 5,5 m)	29 gpm @ 26.8 psi (109,8 L/min @ 184,9 kPa)	E1W	E1W	--
16' x 20' (4,9 m x 6,2 m)	32 gpm @ 32.7 psi (121,1 L/min @ 225,1 kPa)	D1W	D1W	--

Approved Temperature Ratings		Approved Finishes		Approved Escutcheons	
A - 135 °F (57 °C), 155 °F (68 °C) 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)	1 - Brass, Bright Brass, Chrome-White Polyester (68 °C), Navajo White Polyester (93 °C), and Black Teal (68 °C) and	1 - Brass, Bright Brass, Chrome-White Polyester (68 °C), Navajo White Polyester (93 °C), and Black Teal (68 °C) and	1 - Brass, Bright Brass, Chrome-White Polyester (68 °C), Navajo White Polyester (93 °C), and Black Teal (68 °C) and	W - Standard surface-mounted escutcheons or the Microfast Model F-1 Adjustable Escutcheon, or recessed with the Microfast Model E-1 or E-2 Recessed Escutcheon	W - Standard surface escutcheons or the Microfast Model F-1 Adjustable Escutcheon
B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)	2 - Brass, Bright Brass, Chrome-White Polyester (79 °C) and Navajo White Polyester (79 °C)	2 - Brass, Bright Brass, Chrome-White Polyester (79 °C) and Navajo White Polyester (79 °C)	2 - Brass, Bright Brass, Chrome-White Polyester (79 °C) and Navajo White Polyester (79 °C)		
C - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C)					
D - 135 °F (57 °C) and 175 °F (79 °C)					
E - 135 °F (57 °C) and 155 °F (68 °C)					
F - 155 °F (68 °C)					

**Footnote**

<sup>1</sup> Nominal U.S. K-Factor provided in accordance with the 1999 edition of NFPA 13, Section 3-2.3

<sup>2</sup> Metric K-Factor shown is for use when measured in kPa. When pressure is measured in BAR, multiply by the metric K-Factor

<sup>3</sup> Base part number is shown. For complete part number, refer to Viking's current price schedule

<sup>4</sup> Sprinkler identification number provided in accordance with the 1999 edition of NFPA 13

<sup>5</sup> This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals.

<sup>6</sup> For areas of coverage smaller than shown, use the "Minimum Water Supply Requirement" listed for area of coverage with sprinklers of similar K-Factor. Flow and pressures listed are per sprinkler.

<sup>7</sup> Listed by Underwriter's Laboratories, Inc. for use in Canada.

<sup>8</sup> Listed area of coverage measured along ceiling slope. Consult Figure 3 on page 42 b for in-s

<sup>9</sup> Accepted for use, City of New York Department of Buildings, MEA 89-92-E, Volume XVI.

<sup>10</sup> UL/C-UL Listed as corrosion resistant.

<sup>11</sup> The Microfast Model F-1 Adjustable Escutcheon is considered a surface-mounted escutcheon and the ceiling element of the sprinkler to be recessed behind the face of the wall or ceiling.

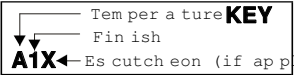
**NOTE:** Must be installed with deflector located between 4" and 6" (102 mm to 152 mm) from the wall. Exception: In walls with a depth of less than 4" (102 mm) from the wall in which the sprinkler is installed. Always install with the deflector with the ceiling

	<h2 style="margin: 0;">TECHNICAL DATA</h2>	MICROFAST®/Microfast®HSW SPRINKLER SIN VK442 (WITH QR, EC, QREC, RESIDENTIAL, AND SPECIFIC APPLICATION LISTINGS.)
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Deflector Style	Thread Size		Nominal K-Factor		Overall Length		Sprinkler Base Part Number	Sprinkler Identification Number (SIN) <sup>2</sup>
	Inch	mm	U.S.	metric <sup>1</sup>	Inches	mm		
Horizontal Sidewall	1/2	15	5.5	7,9	2-11/16	68,3	09533	VK442

### Approval Chart 2

For Residential Applications Only  
 Microfast® Horizontal Sidewall Sprinkler  
 Maximum 175 PSI WWP



This page applies to system designs using SIN VK442 Sprinklers manufactured July 12, 2002.

Installed below smooth, flat, horizontal ceilings with the deflectors located 4" to 6" (102 mm to 152 mm) below the ceiling.

Maximum Area of Coverage Width x Length	Minimum Water Supply Requirements	Listings <sup>5</sup>		
		UL	C-UL <sup>7</sup>	NYC
12' x 12' (3,7 m x 3,7 m)	21 gpm @ 14.6 psi (79,5 L/min @ 100,5 kPa)	A1X	A1X	-
14' x 14' (4,3 m x 4,3 m)	22 gpm @ 16 psi (83,3 L/min @ 110,3 kPa)	A1X	A1X	-
16' x 16' (4,9 m x 4,9 m)	24 gpm @ 19 psi (90,8 L/min @ 131,3 kPa)	A1X	A1X	-
16' x 18' (4,9 m x 5,5 m)	27 gpm @ 24.1 psi (102,2 L/min @ 166,2 kPa)	A1X	A1X	-

Installed below sloped ceilings up to and including 33.7° (33.7° pitch). Sprinklers must be installed at the peak with spray directed down the slope with deflectors located 4" to 6" (102 mm to 152 mm) below the ceiling. Refer to Figure 4.

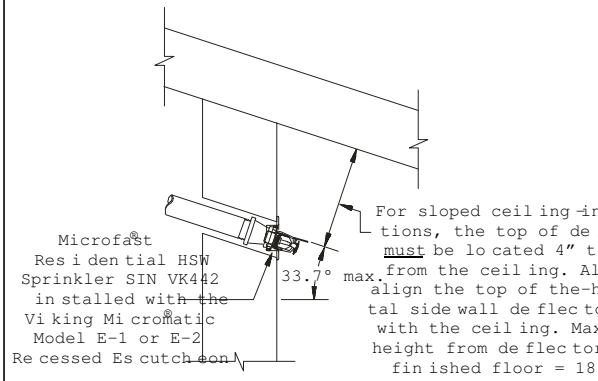
Maximum Area of Coverage Width x Length	Minimum Water Supply Requirements	Listings <sup>5</sup>		
		UL	C-UL <sup>7</sup>	NYC
12' x 12' (3,7 m x 3,7 m)	21 gpm @ 14.6 psi (79,5 L/min @ 100,5 kPa)	A1X	A1X	-
14' x 14' (4,3 m x 4,3 m)	22 gpm @ 16 psi (83,3 L/min @ 110,3 kPa)	A1X	A1X	-
16' x 16' (4,9 m x 4,9 m)	24 gpm @ 19 psi (90,8 L/min @ 131,3 kPa)	A1X	A1X	-
16' x 18' (4,9 m x 5,5 m)	28 gpm @ 25.9 psi (106 L/min @ 178,7 kPa)	A1X	A1X	-

Approved Temperature Ratings	Approved Finishes	Approved Escutcheons
A -155 °F (68 °C) and 175 °F (79 °C)	Brass, Bright Brass, Chrome-Plated Brass, and Navajo White	Standard surface-mounted escutcheons or the Microfast Model F-1 Adjustable Escutcheon recessed with the Micromatic Model E-1 or E-2 Recessed Escutcheon

#### Footnotes

- <sup>1</sup> Metric K-Factor shown is for use when measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor by 1.0197.
- <sup>2</sup> Base part number shown. For complete part number, refer to Viking's current price list.
- <sup>3</sup> Sprinkler identification number provided in accordance with the edition of NFPA 13, listed in the manufacturer's literature.
- <sup>4</sup> This table shows the listings and approvals available at the time of printing. Other approvals with the manufacturer any additional approvals.
- <sup>5</sup> Listed area of coverage measured along ceiling. Consult Figure 4 for details. Residential graphs that pertain to sprinklers with listings for both smooth, flat, horizontal ceilings and sloped ceilings for installation.
- <sup>6</sup> For areas of coverage smaller than shown, use the "Minimum Water Supply Requirements" for area of coverage with sprinklers of similar K-Factor. Flow and pressures listed are per sprinkler.
- <sup>7</sup> Listed by Underwriter's Laboratories, Inc. for use in Canada.
- <sup>8</sup> The Microfast Model F-1 Adjustable Escutcheon is considered a surface-mounted escutcheon where feasible element of the sprinkler to be recessed behind the face of the wall or ceiling.

**NOTE:** Horizontal sidewall sprinklers must be installed with deflectors 4" to 6" (102 mm to 152 mm) below the ceiling or roof. Horizontal sidewall sprinklers may be located less than 4" (102 mm) from the ceiling or roof. Always install horizontal sprinklers with the top of the deflectors aligned parallel with the ceiling or roof.



- NOTES:**
1. A single sprinkler installation has been shown for clarity. Multiple installations may require multiple sprinklers.
  2. This figure shows an installation of a sprinkler at the sloped ceiling, with slopes up to and including 33.7° pitch. Spray may NOT be directed across the slope.
  3. When installing Sprinkler SIN VK442 below a sloped ceiling, the sprinkler deflector must be located 4" to 6" (102 mm to 152 mm) below the ceiling.
  4. Maximum height from finished floor to sprinkler deflector must be 18'-0".
- For sloped ceiling installations, the top of deflector must be located 4" to 6" from the ceiling. Always align the top of the horizontal sidewall deflector with the ceiling. Maximum height from deflector to finished floor = 18'-0".

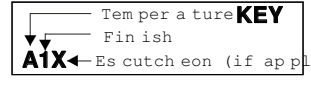
**Figure 4: Installation Guidelines for sprinklers installed below a sloped ceiling. Sprinklers must be installed at the peak with spray directed down the slope.**

	<h2 style="margin: 0;">TECHNICAL DATA</h2>	MICROFAST <sup>®</sup> /Microfast <sup>®</sup> HPSW SPRINKLER SIN VK442 (WITH QR, EC, QREC, RESIDENTIAL, AND SPECIFIC APPLICATION LISTINGS.)
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Deflector Style	Thread Size		Nominal K-Factor		Overall Length		Sprinkler Base Part Number <sup>2</sup>	Sprinkler Identification Number (SIN) <sup>3</sup>
	Inch	mm	U.S.	metric <sup>1</sup>	Inches	mm		
Horizontal Side wall	1/2	15	5.5	7.9	2-11/16	68.3	09533	VK442

### Approval Chart 3

For Residential Applications Only  
Microfast<sup>®</sup> Horizontal Sidewall Sprinkler



**This page applies to system designs using SIN VK442 Sprinklers manufactured July 12, 2002.**

Max. Area of Coverage <sup>5</sup> Width x Length	Minimum Water Supply Requirements		Listings <sup>6</sup> UL C-UL <sup>7</sup> NYC <sup>8</sup>
	Single Sprinkler	Two or More Sprinklers	
<b>Installed with deflectors located 6" to 10" (152 mm to 254 mm) below smooth, flat, horizontal ceilings. Or, installed 4" to 6" (102 mm to 152 mm) below sloped ceilings up to and including 26.6° pitch with sprinklers at peak spraying across the slope. Refer to Figure 6 on page 42 f.</b>			
12' x 12' (3,7 m x 3,7 m)	3,21 m <sup>3</sup> /min @ 14.6 psi (79,5 L/min @ 100 kPa)	15 kPa @ 7.4 psi (56,8 L/min @ 51 kPa)	UL KRA1X A1X
14' x 14' (4,3 m x 4,3 m)	4,32 m <sup>3</sup> /min @ 16 psi (83,3 L/min @ 110 kPa)	31 kPa @ 9.6 psi (64,4 L/min @ 65 kPa)	UL KRA1X A1X
16' x 16' (4,9 m x 4,9 m)	4,92 m <sup>3</sup> /min @ 19 psi (90,8 L/min @ 131 kPa)	21 kPa @ 14.6 psi (79,5 L/min @ 100 kPa)	UL KRA1X A1X
16' x 18' (4,9 m x 5,2 m)	5,27 m <sup>3</sup> /min @ 24.1 psi (102,2 L/min @ 166,2 kPa)	22 kPa @ 16 psi (83,3 L/min @ 110 kPa)	UL KRA1X A1X
16' x 20' (4,9 m x 6,1 m)	6,12 m <sup>3</sup> /min @ 33.9 psi (121,1 L/min @ 233,2 kPa)	20 kPa @ 29.8 psi (113,6 L/min @ 205 kPa)	UL KRA1X A1X

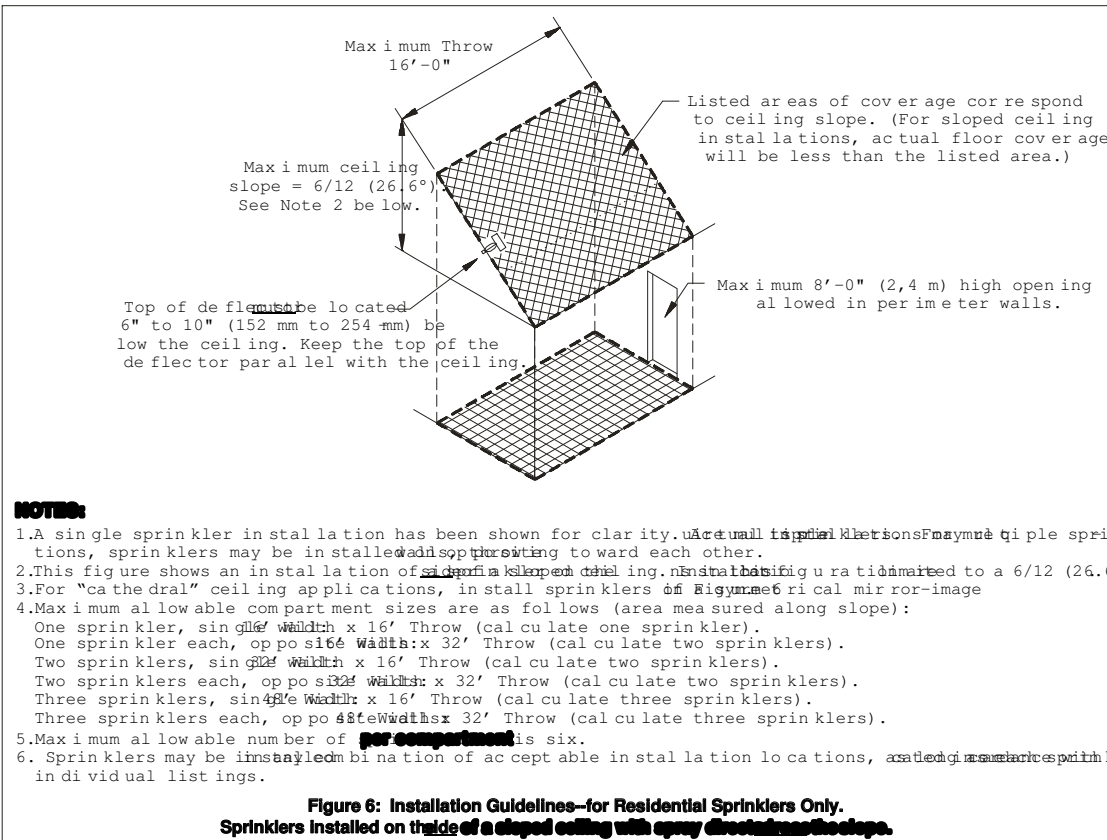
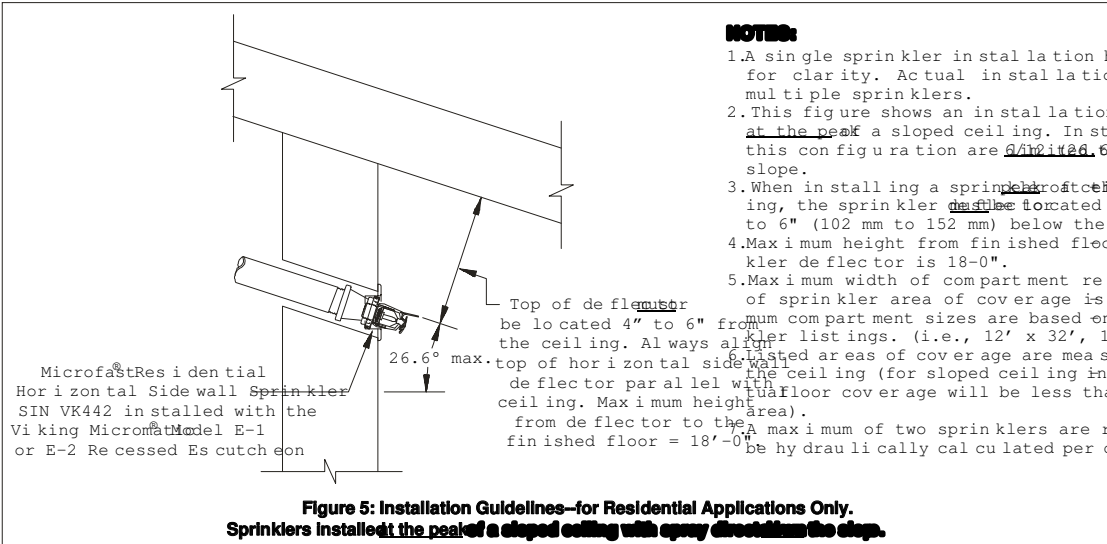
Max. Area of Coverage <sup>5</sup> Width x Length	Minimum Water Supply Requirements		Listings <sup>6</sup> UL C-UL <sup>7</sup> NYC <sup>8</sup>
	Single Sprinkler	Two or More Sprinklers	
<b>Installed with deflectors located 6" to 10" (152 mm to 254 mm) below sloped ceilings up to and including 26.6° pitch with sprinklers at side spraying across the slope. Refer to Figure 6 on Page 42 f.</b>			
12' x 12' (3,7 m x 3,7 m)	3,21 m <sup>3</sup> /min @ 14.6 psi (79,5 L/min @ 100 kPa)	15 kPa @ 7.4 psi (56,8 L/min @ 51 kPa)	UL KRA1X A1X
16' x 16' (4,9 m x 4,9 m)	4,92 m <sup>3</sup> /min @ 19 psi (90,8 L/min @ 131 kPa)	21 kPa @ 14.6 psi (79,5 L/min @ 100 kPa)	UL KRA1X A1X

Approved Temperature Ratings	Approved Finishes	Approved Escutcheons
A -155 °F (68 °C) and 175 °F (79 °C)	Brass, Bright Brass, Chrome-Plated Brass, and Navajo White	Standard surface-mounted escutcheons or recessed escutcheons with the Microfast Model F-1 Adjustable Escutcheon or the Micromatic Model E-1 or E-2 Recessed Escutcheon

**Footnotes**

- <sup>1</sup> Metric K-Factor shown is for use when measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor by 1.0197.
  - <sup>2</sup> Base part number shown. For complete part number, refer to Viking's current price list.
  - <sup>3</sup> Sprinkler identification number provided in accordance with the edition of NFPA 13, referenced in the listing.
  - <sup>4</sup> This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals.
  - <sup>5</sup> Listed area of coverage measured along ceiling. Consult Figures 5 and 6 in the "Installation Guide" paragraphs that pertain to sprinklers with listings for both smooth, flat, horizontal ceilings and sloped ceilings.
  - <sup>6</sup> For areas of coverage smaller than shown, use the "Minimum Water Supply Requirements" table for area of coverage with sprinklers of similar K-Factor. Flow and pressures listed are per sprinkler.
  - <sup>7</sup> Listed by Underwriter's Laboratories, Inc. for use in Canada.
  - <sup>8</sup> Accepted for use, City of New York Department of Buildings, MEA 89-92-E, Volume XV.
  - <sup>9</sup> The Microfast Model F-1 Adjustable Escutcheon is considered a surface-mounted escutcheon and the escutcheon element of the sprinkler to be recessed behind the face of the wall or ceiling.
- NOTE:** Horizontal side wall sprinklers must be installed with deflectors mounted to walls. Exception: Horizontal side wall sprinklers may be located less than 4" (102 mm) from the wall in wall-mounted stalls. Horizontal side wall sprinklers with the top of the deflectors aligned parallel with the ceiling or roof.

**VIKING<sup>®</sup>** **TECHNICAL DATA** MICROFAST<sup>®</sup>/Microfast<sup>®</sup>HPSW  
 SPRINKLER SIN VK442  
 (WITH QR, EC, QREC, RESIDENTIAL,  
 AND SPECIFIC APPLICATION LISTINGS.)



Replaces page 42 a-g, dated March 2001. Also refer to the appropriate Viking general care, installation, and maintenance guide for the particular application type.

Form No. F\_022697

SPR-6

DESCRIPTION: SPRINKLER, QUICK-RESPONSE RECESSED HORIZONTAL SIDE WALL, BULB TYPE, BRIGHT CHROME PLATED, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL/FM.

MANUFACTURER & CATALOG NO.: VIKING M, RELIABLE F1FR, TYCO TY-FRB, VICTAULIC V2710.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

2. COLORS: Brass, Decorative white or black (Not all manufacturers apply, check literature: i.e. Central white is not F.M. approved)

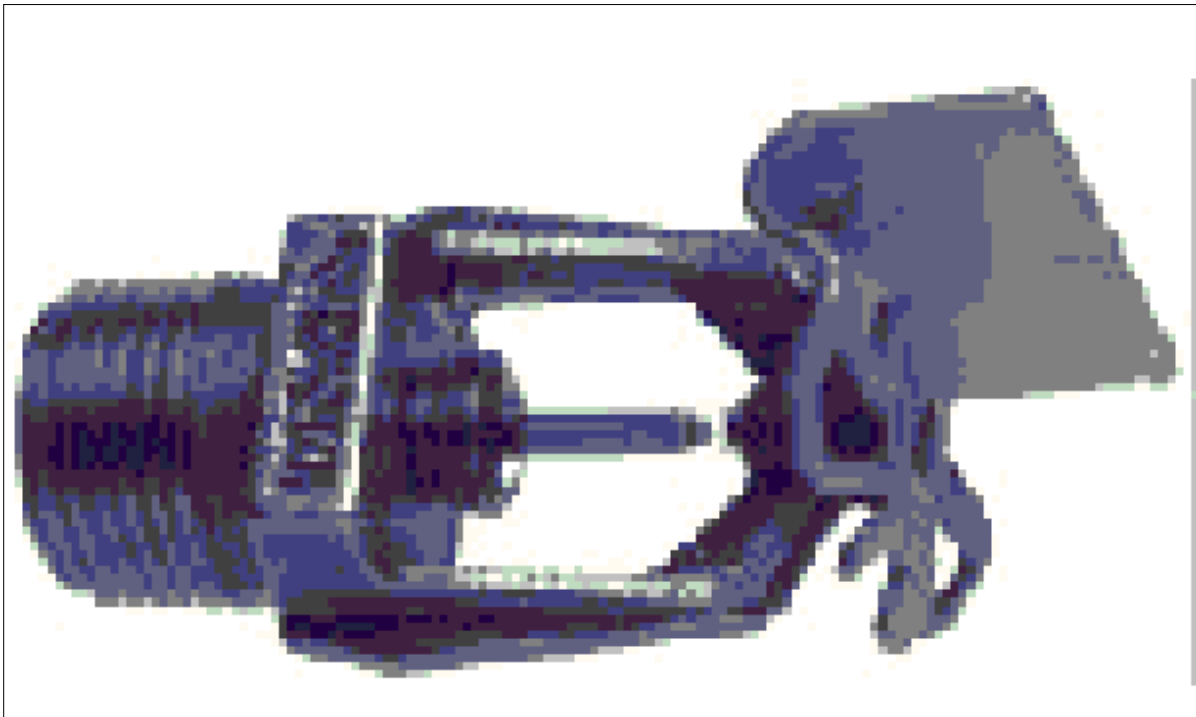
3. Central BV-QR is not F.M. approved for recessed applications.

4. For corrosion resistance information, consult manufacturer.

5. For extended coverage information, consult manufacturer.

6. Quick response can not be used for extra hazard occupancies.

7. Victaulic does not have a high temperature class sprinkler, and is F.M. approved for light hazard only.





**VIKING** **TECHNICAL DATA** MICROFAST / Microfast HHSW  
 SPRINKLER SIN VK442  
 (WITH QR, EC, QREC, RESIDENTIAL,  
 AND SPECIFIC APPLICATION LISTINGS.)



- UL/C-UL Listed as a standard quick response sprinkler for use in Light Hazard occupancies with extended areas of coverage below smooth flat, horizontal ceilings. Listings up to a maximum of 250 psi wwp.
- UL/C-UL Listed as a quick response sprinkler for use in Light Hazard occupancies with extended areas of coverage below smooth flat, horizontal ceilings. Listings up to a maximum of 250 psi wwp.
- UL/C-UL Listed as a quick response specific application sprinkler for use in Light Hazard occupancies with extended areas of coverage below smooth flat, horizontal ceilings. Listings up to a maximum of 250 psi wwp.
- UL/C-UL Listed as a quick response sprinkler for use in Light Hazard occupancies with extended areas of coverage below smooth flat, horizontal ceilings. Listings up to a maximum of 250 psi wwp.

**1. PRO DUCT NAME**

Viking Microfast Model M-5 Horizontal Side Wall Sprinkler SIN VK442  
 Sprinkler identification number provided in accordance with the 1999 edition of NFPA 13, 7-2.2.2.

**2. MANUFACTURER**

The Viking Corporation  
 210 N. Industrial Park Road  
 Hastings, Michigan 49058, U.S.A.  
 Telephone: (616) 945-9501  
 (877) 384-5464  
 (616) 945-9599  
 Fax:  
 e-mail: techsvcs@vikingcorp.com

**3. PRO DUCT DESCRIPTION**

Viking Microfast Horizontal Side Wall Sprinkler SIN VK442 is a small, high-sensitivity glass-bulb sprinkler listed for many different applications:

- UL/C-UL Listed for residential applications below smooth, flat, horizontal and sloped ceilings with standard areas of coverage. Maximum 175 psi wwp.
- UL/C-UL Listed for residential applications below smooth, flat, horizontal and sloped ceilings with extended areas of coverage. Maximum 175 psi wwp.

**TECHNICAL DATA**

Operating Pressure:  
 Quick Response Applications with Standard Areas of Coverage: 7 psi (48,3 kPa).  
 For Extended Coverage and QREC Applications: Refer to Approval Chart 1 for minimum water-supply requirements and maximum area of coverage.  
 For Residential Applications: Refer to Approval Charts 2 and 3 for minimum and maximum area of coverage.  
 Refer to Figures 4 through 6 for flow and pressure data.  
 Glass-bulb fluid temperature rated to -65 °F (-55 °C).  
 Refer to the approval charts for maximum rated water working pressure. The high pressure (HP) sprinkler can be identified by locating the number "250" on the deflector.  
 Factory tested hydrostatically to 5 psi (3 448 kPa).  
 U.S.A. Patent No. 4,167,974  
 Deflector: U.S.A. Patent No. 4,296,816  
 Testing: U.S.A. Patent No. 4,831,870  
 Bulb: U.S.A. Patent No. 4,796,710  
 U.S.A. Patent No. 4,796,710  
 (7,9 or 8,1 metric\*)

**Specific Application Listing Note**

When Viking Microfast Quick Response Horizontal Side Wall Sprinkler SIN VK442 is used on low ceilings with slopes ranging from 2/12 to 4/12 (9.5° to 18.4°), it is listed as a "Specific Application Sprinkler" for extended areas of coverage in Light Hazard occupancies. Maximum 175 psi wwp.

In these applications, Sections 7-2.3.2.4 and 7-2.3.2.5 of the 1999 Edition of NFPA 13 apply regarding System Area of Operation. Viking Microfast Horizontal Side Wall Sprinkler SIN VK442 should be installed according to the flows and pressures listed in Approval Chart 1 on page 42 c. Refer to the Notes, on page 42 b.

Sprinkler Temperature Classification	Standard Sprinkler Rating (Fusing Point)	Maximum Ambient Bulb Ceiling Temperature	Color
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue

**Sprinkler Finishes:** Bright Brass, Chrome Plating, White, Black, and Black Teflon.  
**Corrosion-Resistant Coatings:** Navajo White, Black and Teflon.

- Foot notes**
- Based on NFPA-13. Other limits may apply, depending on fire loading and other requirements of the Authority Having Jurisdiction. Refer to NFPA 13, 7-2.2.2.
  - Temperature rating is stamped on the deflector.
  - The corrosion-resistant coatings have passed standard corrosion tests required by particular approving agencies. Refer to the approval charts. These tests cannot and do not represent all possible corrosive environments. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. The coatings indicated are applied to the exposed exterior surfaces only.
- NOTE:** The spring is exposed on the standard Polyester coated sprinklers.

Note: Units of measure in parentheses may be appropriate. Also refer to the appropriate Viking general care, installation, and guide for the particular application type.



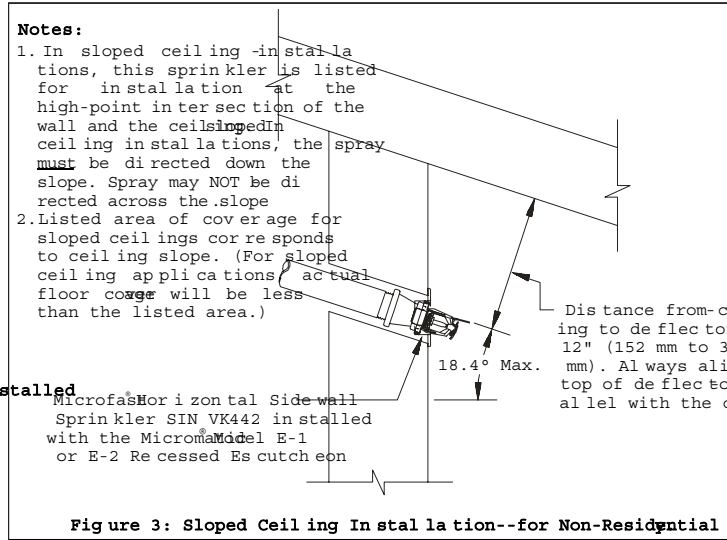
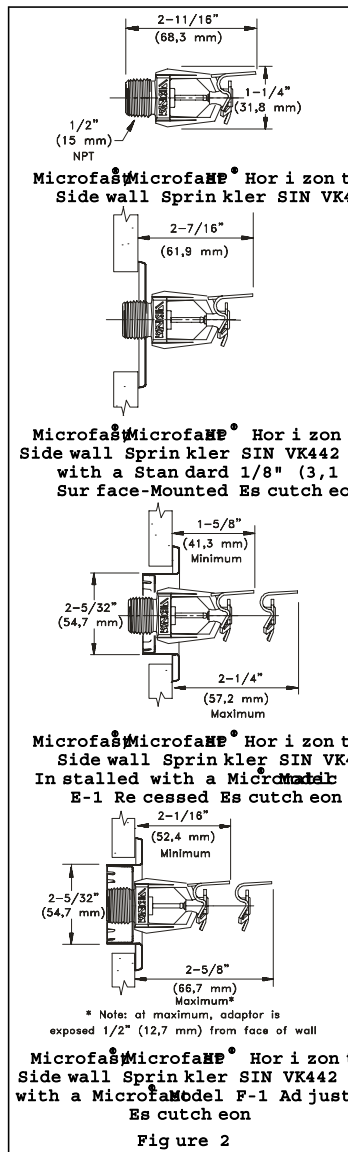
## TECHNICAL DATA

MICROFAST®/Microfast®MSW  
 SPRINKLER SIN VK442  
 (WITH QR, EC, QREC, RESIDENTIAL,  
 AND SPECIFIC APPLICATION LISTINGS.)

††Nominal U.S. K-Factor provided in accordance with the 1999 edition of NFPA 13 Section 1-2.3. \* Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor shown by 1.01325.

**TEFLON COATED SPRINKLERS**  
 Bevel Spring Sealing Assembly: Nickel Alloy, coated with Teflon  
 Bevel Spring: Nickel Alloy, exposed  
 Screw: Brass UNS-C36000, Nickel plated  
 Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400, Teflon coated

**POLYESTER COATED SPRINKLERS**  
 Bevel Spring Sealing Assembly: Nickel Alloy, coated with Polyester  
 Bevel Spring: Nickel Alloy, exposed  
 Screw: Brass UNS-C36000, Nickel plated  
 Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400





Deflector Style	Thread Size	Nominal K-Factor	Cover all Length	Sprinkler Base	Sprinkler
Inch	mm	U.S. <sup>1</sup>	metric	Inch mm	Part Number Identification Number (SIN)
Horizontal Side wall	15	5.6	8,1	2-11/16	68,3 09533 VK442

**Approval Chart 1**

For Non-Residential Applications Only

Microfast/Microfast® Horizontal Side wall Sprinkler

Quick Response Standard Coverage Applications for Light or Ordinary Hazard Occupancies. Deflectors must be located 4" to 12" (102 mm to 305 mm) below smooth ceiling. Maximum 250 PSI WWP.

Standard Response Extended Coverage Applications for Light Hazard Occupancies Only. Installed with the deflectors located 6" to 12" (152 mm to 305 mm) below smooth ceiling. Maximum 175 PSI WWP.

Maximum Areas of Coverage Width x Throw	Minimum Water Supply Requirements	FLW	FLW	--
16' x 20' (4,9 m x 6,2 m)	32 gpm @ 32.7 psi (121,1 L/min @ 225,1 kPa)			

Standard Response Extended Coverage Applications for Light Hazard Occupancies Only. Installed with the deflectors located 6" to 12" (152 mm to 305 mm) below smooth ceiling, horizontal. Maximum 250 PSI WWP.

16' x 16' (4,9 m x 4,9 m)	26 gpm @ 21.6 psi (98,4 L/min @ 148,6 kPa)	FLW	FLW	-
16' x 18' (4,9 m x 5,5 m)	29 gpm @ 26.8 psi (109,8 L/min @ 184,9 kPa)	FLW	FLW	-
16' x 20' (4,9 m x 6,2 m)	32 gpm @ 32.7 psi (121,1 L/min @ 225,1 kPa)	FLW	FLW	-

Quick Response Extended Coverage Applications for Light Hazard Occupancies Only. Installed with the deflectors located 6" to 12" (152 mm to 305 mm) below smooth ceiling, horizontal. Maximum 175 PSI WWP.

16' x 16' (4,9 m x 4,9 m)	26 gpm @ 21.6 psi (98,4 L/min @ 148,6 kPa)	FLW	E1W	C2W
16' x 18' (4,9 m x 5,5 m)	29 gpm @ 26.8 psi (109,8 L/min @ 184,9 kPa)	E1W	E1W	C2W
16' x 20' (4,9 m x 6,2 m)	32 gpm @ 32.7 psi (121,1 L/min @ 225,1 kPa)	D1W	D1W	D2W

Quick Response Extended Coverage Applications for Light Hazard Occupancies Only. Installed with the deflectors located 6" to 12" (152 mm to 305 mm) below smooth ceiling, horizontal. Maximum 250 PSI WWP.

16' x 16' (4,9 m x 4,9 m)	26 gpm @ 21.6 psi (98,4 L/min @ 148,6 kPa)	FLW	E1W	C2W
16' x 18' (4,9 m x 5,5 m)	29 gpm @ 26.8 psi (109,8 L/min @ 184,9 kPa)	E1W	E1W	C2W
16' x 20' (4,9 m x 6,2 m)	32 gpm @ 32.7 psi (121,1 L/min @ 225,1 kPa)	D1W	D1W	D2W

Specific Application, Quick Response Extended Coverage Applications for Light Hazard Occupancies Only. Installed with the deflector located 6" to 12" (152 mm to 305 mm) below smooth ceiling, horizontal. Refer to Figure 3 on page 42 b. Maximum 175 PSI WWP.

16' x 16' (4,9 m x 4,9 m)	26 gpm @ 21.6 psi (98,4 L/min @ 148,6 kPa)	FLW	E1W	-
16' x 18' (4,9 m x 5,5 m)	29 gpm @ 26.8 psi (109,8 L/min @ 184,9 kPa)	E1W	E1W	-
16' x 20' (4,9 m x 6,2 m)	32 gpm @ 32.7 psi (121,1 L/min @ 225,1 kPa)	D1W	D1W	-

Approved Temperature Ratings		Approved Finishes		Approved Es cutch eons	
A - 135 °F (57 °C), 155 °F (68 °C)	1 - Brass, Bright Brass, Chrome, White Poly ester	Standard surface-mounted es cutch eons or the Microfast Model F-1 Adjustable Es cutch eon or recessed with the Microfast Model E-1 or E-2 Recessed Es cutch eon		Standard surface es cutch eons or the Microfast Model F-1 Adjustable Es cutch eon	
B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)	2 - Brass, Bright Brass, Chrome, White Poly ester and Navajo White Polyester				
C - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C)					
D - 135 °F (57 °C) and 175 °F (79 °C)					
E - 135 °F (57 °C) and 155 °F (68 °C)					
F - 155 °F (68 °C)					

**Foot notes**

- Nominal U.S. K-Factor provided in accordance with the 1999 edition of NFPA 13, Section 3-2.3
- Metric K-Factor shown is for use when measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor by 1.034.
- Base part number is shown. For complete part number, refer to Viking's current price schedule.
- Sprinkler identification number provided in accordance with the 1999 edition of NFPA 13.
- This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals.
- For areas of coverage smaller than shown, use the "Minimum Water Supply Requirement" table for areas of coverage with sprinklers of similar K-Factor. Flow and pressures listed are per sprinkler.
- Listed by Underwriter's Laboratories, Inc. for use in Canada.
- Listed area of coverage measured along ceiling slope. Consult Figure 3 on page 42 b for in-s.
- Accepted for use, City of New York Department of Buildings, MEA 89-92-E, Volume XVI.
- UL/C-UL Listed as corrosion resistant.
- The Microfast Model F-1 Adjustable Es cutch eon is considered a surface-mounted es cutch eon and is the es cutch eon element of the sprinkler to be recessed behind the face of the wall or ceiling.

**NOTE:** Must be installed with deflector located between 4" and 6" (102 mm to 152 mm) from the wall in which the sprinkler is installed. Always install with the deflector aligned parallel to the ceiling.

	<b>TECH N I C A L D A T A</b>	MICROFAST <sup>®</sup> / Microfast <sup>®</sup> HSW SPRINKLER SIN VK442 (WITH QR, EC, QREC, RES IDENTIAL, AND SPECIFIC APPLICATION LISTINGS.)
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Deflector Style	Thread Size		Nominal K-Factor		Overall Length		Sprinkler Base Part Number	Sprinkler Identification Number (SIN)
	Inch	mm	U.S.	metric	Inches	mm		
Horizontal Side wall	1/2"	15	5.5	7,9	2-11/16"	68,3	09533	VK442

### Approval Chart 2

For Residential Applications Only  
 Microfast Horizontal Side wall Sprinkler  
 Maximum 175 PSI WWP

	Temperature
	Finish
	Escutcheon (if applicable)

This page applies to system designs using SIN VK442 Sprinklers only.

Installed below smooth, flat, horizontal ceilings with the deflector 3D5 mounted below the ceiling.

Maximum Areas of Coverage Width x Length	Minimum Water Supply Requirements	Listings		
		UL	C-UL <sup>7</sup>	NYC
12' x 12' (3,7 m x 3,7 m)	21 gpm @ 14.6 psi (79,5 L/min @ 100,5 kPa)	A1X	A1X	-
14' x 14' (4,3 m x 4,3 m)	22 gpm @ 16 psi (83,3 L/min @ 110,3 kPa)	A1X	A1X	-
16' x 16' (4,9 m x 4,9 m)	24 gpm @ 19 psi (90,8 L/min @ 131,3 kPa)	A1X	A1X	-
16' x 18' (4,9 m x 5,5 m)	27 gpm @ 24.1 psi (102,2 L/min @ 166,2 kPa)	A1X	A1X	-

Installed below sloped ceilings up to and including 5 degrees. Sprinklers must be installed with spray directed down the slope. Deflectors located 4" to 6" (102 mm to 152 mm) below the ceiling. Refer to Fig 2.

Maximum Areas of Coverage Width x Length	Minimum Water Supply Requirements	Listings		
		UL	C-UL <sup>7</sup>	NYC
12' x 12' (3,7 m x 3,7 m)	21 gpm @ 14.6 psi (79,5 L/min @ 100,5 kPa)	A1X	A1X	-
14' x 14' (4,3 m x 4,3 m)	22 gpm @ 16 psi (83,3 L/min @ 110,3 kPa)	A1X	A1X	-
16' x 16' (4,9 m x 4,9 m)	24 gpm @ 19 psi (90,8 L/min @ 131,3 kPa)	A1X	A1X	-
16' x 18' (4,9 m x 5,5 m)	28 gpm @ 25.9 psi (106 L/min @ 178,7 kPa)	A1X	A1X	-

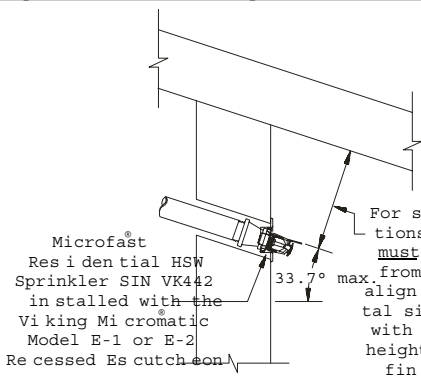
Approved Temperature Ratings	Approved Finishes	Approved Escutcheons
A -155 °F (68 °C) and 175 PSI (11.9 MPa)	Brass, Bright Brass, Chrome-Plated Brass, and Navajo White	Standard surface-mounted escutcheons or the Microfast Model F-1 Adjustable Escutcheon recessed with the Micromatic Model E-1 or E-2 Recessed Escutcheon

**Foot notes**

- <sup>1</sup> Metric K-Factor shown is for use when measured in kPa. When pressure is measured in BAR, multiply by the Metric K-Factor's current price list.
  - <sup>2</sup> Base part number shown. For complete part number, refer to Viking's current price list.
  - <sup>3</sup> Sprinkler identification number provided in accordance with the 1999 edition of NFPA 13.
  - <sup>4</sup> This table shows the listings and approvals available at the time of printing. Other approvals with the manufacturer any additional approvals.
  - <sup>5</sup> Listed area of coverage measured along ceiling. Consult Figure 1 for details. Refer to the graphs that pertain to sprinklers with listings for both smooth, flat, horizontal ceilings and sloped ceilings for in stall.
  - <sup>6</sup> For areas of coverage smaller than shown, use the "Minimum Water Supply Requirements" table for area of coverage with sprinklers of similar K-Factor. Flow and pressures listed are per sprinkler.
  - <sup>7</sup> Listed by Underwriter's Laboratories, Inc. for use in Canada
  - <sup>8</sup> The Microfast Model F-1 Adjustable Escutcheon is considered a surface-mounted escutcheon where feasible element of the sprinkler to be recessed behind the face of the wall or ceiling.
- NOTE:** Horizontal side wall sprinklers must be installed with deflector 4" to 6" (102 mm to 152 mm) below the ceiling. Horizontal side wall sprinklers may be located less than 4" (102 mm) from the ceiling in always in stall horizontal sprinklers with the top of the deflectors aligned parallel with the ceiling or roof.

**NOTES:**

1. A single sprinkler installation has been shown for sloped ceilings. Multiple installations may require multiple sprinklers.
  2. This figure shows an installation of a sprinkler at the sloped ceiling, with slopes up to and including 5 degrees. Spray may NOT be directed across the slope.
  3. When installing Sprinkler SIN VK442 below a sloped ceiling the sprinkler deflector must be located 4" to 6" (102 mm to 152 mm) below the ceiling.
  4. Maximum height from finished floor to sprinkler deflector must be 18'-0".
- For sloped ceiling installations, the top of deflector must be located 4" to 6" from the ceiling. Always align the top of the horizontal side wall deflector with the ceiling. Maximum height from deflector to finished floor = 18'-0".



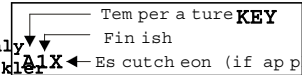
**Figure 2: Installation Guide lines for sprinklers installed below a sloped ceiling. Sprinklers must be installed with spray directed down the slope.**

	<b>TECH N I CAL DATA</b>	<b>MICROFAST® /Microfast®MSW</b> <b>SPRINKLER SIN VK442</b> (WITH QR, EC, QREC, RES IDENTIAL, AND SPECIFIC APPLICATION LISTINGS.)
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Deflector Style	Thread Size		Nominal K-Factor		Overall Length		Sprinkler Base Part Number	Sprinkler Identification Number (SIN)
	Inch	mm	U.S.	metric	Inches	mm		
Horizontal Side wall	1/2	15	5.5	7.9	2-11/16	68,3	09533	VK442

### Approval Chart 3

For Residential Applications Only  
 Microfast Horizontal Side wall Sprinkler



This page applies to system designs using SIN VK442 Sprinklers. Refer to page 42 e.

Max. Areas of Coverage Width x Length	Minimum Water Supply Requirements		Listings	
	Single Sprinkler	Two or More Sprinklers	UL	C-UL <sup>8</sup> NYC <sup>8</sup>

Installed with deflectors located 6" to 10" (152 mm to 254 mm) below ceiling on smooth, flat, horizontal surface. Or, installed 4" to 6" (102 mm to 152 mm) below sloped ceilings up to 60° including a 12" slope. Refer to Figure 5 on page 42 f.

12' x 12' (3,7 m x 3,7 m)	3,21 gpm @ 14.6 psi (79,5 L/min @ 100,15 kPa)	15 kPa @ 7.4 psi (56,8 L/min @ 50,15 kPa)	A1X	A1X
14' x 14' (4,3 m x 4,3 m)	4,32 gpm @ 16 psi (83,3 L/min @ 110,31 kPa)	17 kPa @ 9.6 psi (64,4 L/min @ 64,4 kPa)	A1X	A1X
16' x 16' (4,9 m x 4,9 m)	4,92 gpm @ 19 psi (90,8 L/min @ 131,21 kPa)	21 kPa @ 14.6 psi (79,5 L/min @ 100,15 kPa)	A1X	A1X
16' x 18' (4,9 m x 5,2 m)	5,27 gpm @ 24.1 psi (102,2 L/min @ 166,22 kPa)	22 kPa @ 16 psi (83,3 L/min @ 110,31 kPa)	A1X	A1X
16' x 20' (4,9 m x 6,1 m)	6,12 gpm @ 33.9 psi (121,1 L/min @ 233,24 kPa)	24 kPa @ 29.8 psi (113,6 L/min @ 205,1 kPa)	A1X	A1X

Installed with deflectors located 6" to 10" (152 mm to 254 mm) below sloped ceiling up to 60° including a 12" slope. Refer to Figure 6 on Page 42 f.

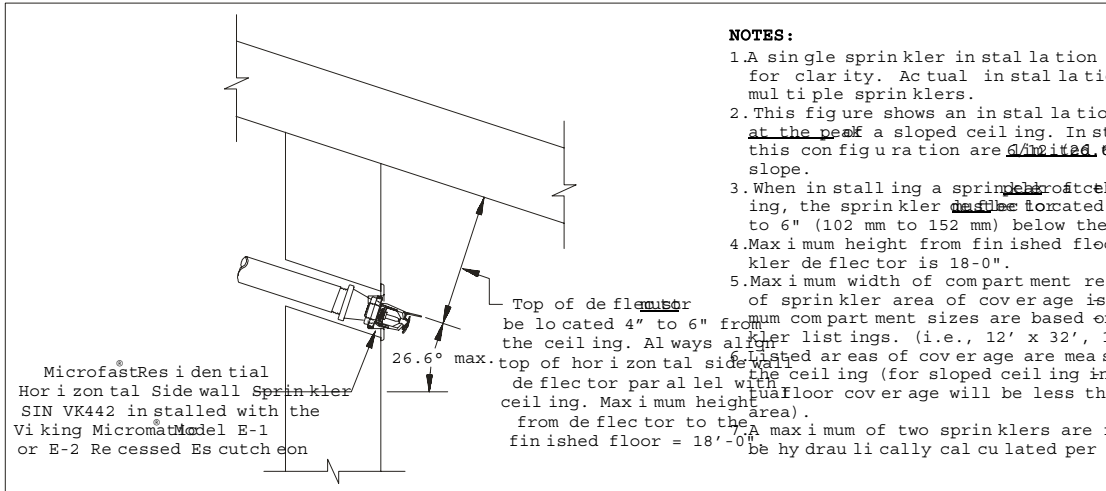
Max. Areas of Coverage Width x Length	Minimum Water Supply Requirements		Listings	
	Single Sprinkler	Two or More Sprinklers	UL	C-UL <sup>8</sup> NYC <sup>8</sup>
12' x 12' (3,7 m x 3,7 m)	3,21 gpm @ 14.6 psi (79,5 L/min @ 100,15 kPa)	15 kPa @ 7.4 psi (56,8 L/min @ 50,15 kPa)	A1X	A1X
16' x 16' (4,9 m x 4,9 m)	4,92 gpm @ 19 psi (90,8 L/min @ 131,21 kPa)	21 kPa @ 14.6 psi (79,5 L/min @ 100,15 kPa)	A1X	A1X

Approved Temperature Ratings	Approved Finishes	Approved Es cutcheons
A -155 °F (68 °C) and 175 °F (79 °C)	Brass, Bright Brass, Chrome-Plated, and Navajo White	Standard surface-mounted es cutcheons or recessed es cutcheons with the Micromatic Model E-1 or E-2

#### Foot notes

- <sup>1</sup> Metric K-Factor shown is for use when measured in kPa. When pressure is measured in BAR, multiply the Metric K-Factor by 10.
  - <sup>2</sup> Base part number shown. For complete part number, refer to Viking's current price list.
  - <sup>3</sup> Sprinkler identification number provided in accordance with the edition of NFPA 13.
  - <sup>4</sup> This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals.
  - <sup>5</sup> Listed area of coverage measured along ceiling. Consult Figures 5 and 6 in the "Installation Guide" paragraphs that pertain to sprinklers with listings for both smooth, flat, horizontal ceilings and sloped ceilings.
  - <sup>6</sup> For areas of coverage smaller than shown, use the "Minimum Water Supply Requirements" table for area of coverage with sprinklers of similar K-Factor. Flow and pressures listed are per sprinkler.
  - <sup>7</sup> Listed by Underwriter's Laboratories, Inc. for use in Canada.
  - <sup>8</sup> Accepted for use, City of New York Department of Buildings, MEA 89-92-E, Volume XV.
  - <sup>9</sup> The Microfast Model F-1 Adjustable Es cutcheon is considered a surface-mounted es cutcheon and the es cutcheon element of the sprinkler to be recessed behind the face of the wall or ceiling.
- NOTE:** Horizontal side wall sprinklers must be installed with deflectors located 4" to 6" below ceiling. Horizontal side wall sprinklers may be located less than 4" (102 mm) from the ceiling. Always install horizontal side wall sprinklers with the top of the deflectors aligned parallel with the ceiling or roof.

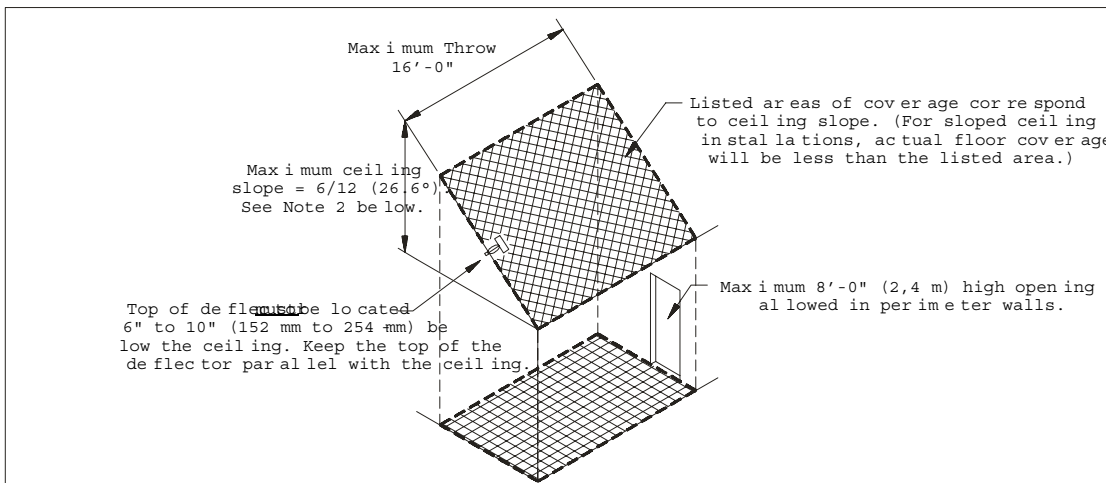
	<b>TECH NI CAL DATA</b>	MICROFAST® /Microfast®MSW SPRIN KLER SIN VK442 (WITH QR, EC, QREC, RES I DEN TIAL, AND SPE CIFIC AP PLI CA TION LIST INGS.)
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**NOTES:**

1. A single sprinkler in stallation has been shown for clarity. Actual installations may require multiple sprinklers.
2. This figure shows an installation of a sprinkler at the peak of a sloped ceiling. In stallations: this configuration are limited to a 6/12 (26.6°) slope.
3. When installing a sprinkler on a sloped ceiling, the sprinkler deflector is located 4" to 6" (102 mm to 152 mm) below the ceiling.
4. Maximum height from finished floor to sprinkler deflector is 18'-0".
5. Maximum width of compartment regardless of sprinkler area of coverage is 32'-0". Maximum compartment sizes are based on sprinkler listed areas of coverage (i.e., 12' x 32', 14' x 32', etc.). Listed areas of coverage are measured along the ceiling (for sloped ceiling installation floor coverage will be less than the listed area).
6. A maximum of two sprinklers are required to be hydraulically calculated per compartment.

**Figure 5: In stallation Guide lines--for Res i den tial Ap pli ca tions Only.  
Sprinklers in stalled on a sloped ceiling with spray deflector.**



**NOTES:**

1. A single sprinkler in stallation has been shown for clarity. Actual installations may require multiple sprinklers in stallations, sprinklers may be installed and spraying toward each other.
2. This figure shows an installation of a sprinkler on a sloped ceiling. In stallations: this configuration are limited to a 6/12 (26.6°) slope.
3. For "cathedral" ceiling applications, install sprinklers on a 6/12 (26.6°) slope.
4. Maximum allowable compartment sizes are as follows (area measured along slope):  
 One sprinkler, single width x 16' Throw (calculate one sprinkler).  
 One sprinkler each, opposite walls x 32' Throw (calculate two sprinklers).  
 Two sprinklers, single width x 16' Throw (calculate two sprinklers).  
 Two sprinklers each, opposite walls x 32' Throw (calculate two sprinklers).  
 Three sprinklers, single width x 16' Throw (calculate three sprinklers).  
 Three sprinklers each, opposite walls x 32' Throw (calculate three sprinklers).
5. Maximum allowable number of sprinklers per compartment six.
6. Sprinklers may be installed in combination of acceptable in stallation locations, as detailed in the individual listings.

**Figure 6: In stallation Guide lines--for Res i den tial Sprinklers Only.  
Sprinklers in stalled on a sloped ceiling with spray deflector.**

Replaces page 42 a-g, dated March 2001. Also refer to the appropriate Viking general Form No. F 022697  
 eral care, in stallation, and maintenance guide for the particular application type.

**SPR-7**

**DESCRIPTION:** SPRINKLER, DRY QUICK-RESPONSE PENDENT, BULB TYPE, BRIGHT CHROME PLATED FINISH, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL/FM.

**MANUFACTURER & CATALOG NO.:** VIKING M, RELIABLE F3QR, TYCO DS-1, VICTAULIC V3606.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

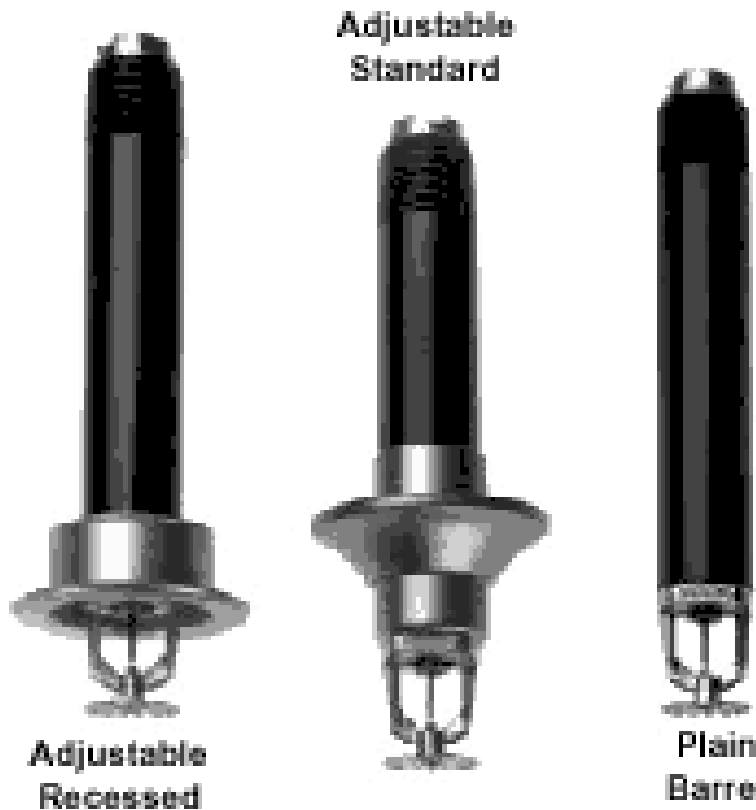
2. COLORS: Brass, Decorative white or black (Not all manufacturers apply, check literature: i.e. Central white is not F.M. approved)

3. For corrosion resistance information, consult manufacturer.

4. For extended coverage information, consult manufacturer.

5. Quick response can not be used for extra hazard occupancies.

6. Viking sprinklers are not F.M. approved. Victaulic sprinklers are not F.M. approved for intermediate temperature class.



VIKING<sup>®</sup>

TECHNICAL DATA

QUICK RESPONSE  
 DRY PENDENT  
 SPRINKLERS

**1. PRODUCT NAME**

Viking Model M Quick Response Dry Pendent Sprinklers  
 • Adjustable Recessed, Adjustable Standard, or Plain Barrel  
 Available since 1993.

**2. MANUFACTURER**

The Viking Corporation  
 210 N. Industrial Park Road  
 Hastings, Michigan 49058, USA  
 Telephone: (616) 945-9501  
 (877) 384-5464  
 Fax: (616) 945-9599  
 e-mail: techsvcs@vikingcorp.com

**3. TECHNICAL DATA LISTINGS AND APPROVALS**

Refer to Table 1 below.

Approved to a maximum length of 48" (1 219,2 mm)\*.

\* Lengths over 48" (1 219,2 mm) are available, with no approvals, on a "made-to-order" basis. Contact the manufacturer for more information.

Glass-bulb fluid temperature rated to -65 °F (-55 °C).

Rated to 175 psi (1 207 kPa) water working pressure.

Thread Size: 1" NPT

Orifice Size: Standard Orifice

K-Factor: 5.6 U.S.† (7,9 metric\*\*) for all listed and approved lengths.

†Nominal U.S. K-factor provided in accordance with the 1999 edition of NFPA 13, Section 3-2.3.

\*\*Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor shown by 10.0.

Min. Operating Pressure: 7 psi (48,3 kPa)  
 Factory tested pneumatically at 100 psi (685 kPa).

Spring: U.S.A. Patent No. 4,167,974

Bulb: U.S.A. Patent No. 4,796,710

**SPRINKLER MATERIALS**

Frame: Brass Castings UNS-C84400

Deflector: Brass UNS-C26000

Bulb: Glass, nominal 3 mm diameter



- Seal: Teflon<sup>®</sup> Tape
  - Spring: Nickel Alloy
  - Screw: Brass UNS-C36000
  - Pip Cap: Brass UNS-C31600
  - Seat: Copper UNS-C21000
  - Orifice: Copper UNS-C21000
  - Washer: Stainless Steel UNS-S30400
  - Spring Base: Brass UNS-C31400 or UNS-C31600
  - Gasket: Buna N
  - Pin: Stainless Steel UNS-S42000
  - Tube: JIC Hydraulic Steel Tube
  - Inlet: Brass UNS-C36000
  - Support (Internal): Steel UNS-G10080, Electrodeposited Epoxy Base finish
  - Barrel: Steel Pipe UNS-G10200, Electrodeposited Epoxy Base finish
- AVAILABLE FINISHES**
- Recessed: Chrome-Enloy<sup>®</sup> (patents pending) or White Polyester
  - Standard Adjustable: Chrome-Enloy<sup>®</sup>
  - Plain Barrel: (sprinkler only) Chrome-Enloy<sup>®</sup> or Brass

**SPRINKLER TEMP. RATINGS**

Refer to Table 1 on page 100 a for dry sprinkler temperature ratings and max. ambient ceiling temperatures allowed.

**ACCESSORIES**

Dry Sprinkler Wrenches:

A. Standard: Part No. 07297W/B

B. Recessed: Part No. 07565W/B††

††Requires a separate 1/2" ratchet (not available from Viking).

**ORDERING INFORMATION**

The dry pendent sprinkler must be ordered and manufactured specifically for one of three styles of installation: with the adjustable recessed escutcheon (see Figure 2 on page 105 b), with the adjustable standard escutcheon (see Figure 3), or with the plain barrel (see Figure 1).

For proper shipment, specify: model, orifice size, finish, temperature rating, escutcheon type, and length ("A" dimension). The "A" dimension is the distance from the face of the fitting (tee) to the desired fin-

Approval Chart Quick Response Dry Pendent Sprinklers									Temperature <b>KEY</b> Finish Escutcheon (if applicable)		
Thread Size		Sprinkler Description			Nominal K-Factor <sup>4</sup>		Overall Length <sup>3</sup> Increment		Listings <sup>2</sup>		
NPT	BSP	Sprinkler Style	Base Part No. <sup>1</sup>	Identification No. <sup>6</sup>	U.S. <sup>5</sup>	metric	Inches	mm	UL	ULC	NYC <sup>5</sup>
1"	-	Adjustable Standard	08383	VK176	5,6	7,9	1/2"	12,7	A1	A1	A1
1"	-	Adjustable Recessed	08385	VK180	5,6	7,9	1/4"	6,35	B2	B2	B2
1"	-	Plain Barrel	08387	VK172	5,6	7,9	1/2"	12,7	A3	A3	A3
<b>Approved Temperature Ratings</b>								<b>Available Approved Finishes</b>			
A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 (93 °C), and 286 °F (141 °C)								1 - Chrome-Enloy <sup>®</sup>			
B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 (93 °C)								2 - Chrome-Enloy <sup>®</sup> or White Polyester			
								3 - Chrome-Enloy <sup>®</sup> or Brass			
<b>Footnotes</b>											
1 Base part number is shown. For complete part number, refer to Viking's current price schedule.											
2 This table shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.											
3 <b>Minimum</b> length ("A" Dimension) = 1-1/2" (38,1 mm) for Sprinkler Base Part Number 08383 and 3" (76,2 mm) for Sprinkler Base Part Numbers 08385 and 08387. <b>Maximum</b> standard (listed) length for Quick Response Dry Pendent Sprinklers ("A" Dimension) = 48" (1 219,2 mm).											
4 K-factor applies for all lengths indicated in Footnote 3. Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor shown by 10.0.											
5 Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 15.											
6 Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with the 1999 edition of NFPA 13, Section 3-2.2 and Section 3-2.3.											
<b>Table 1</b>											

Note: Units of measure in parentheses may be approximations.

Form No. F\_031793

New format replaces page 105 a-d, dated April 9, 1998.  
**Refer to technical data page DRY1-2 for general care, installation, and maintenance information.**





## TECHNICAL DATA

### QUICK RESPONSE DRY PENDENT SPRINKLERS

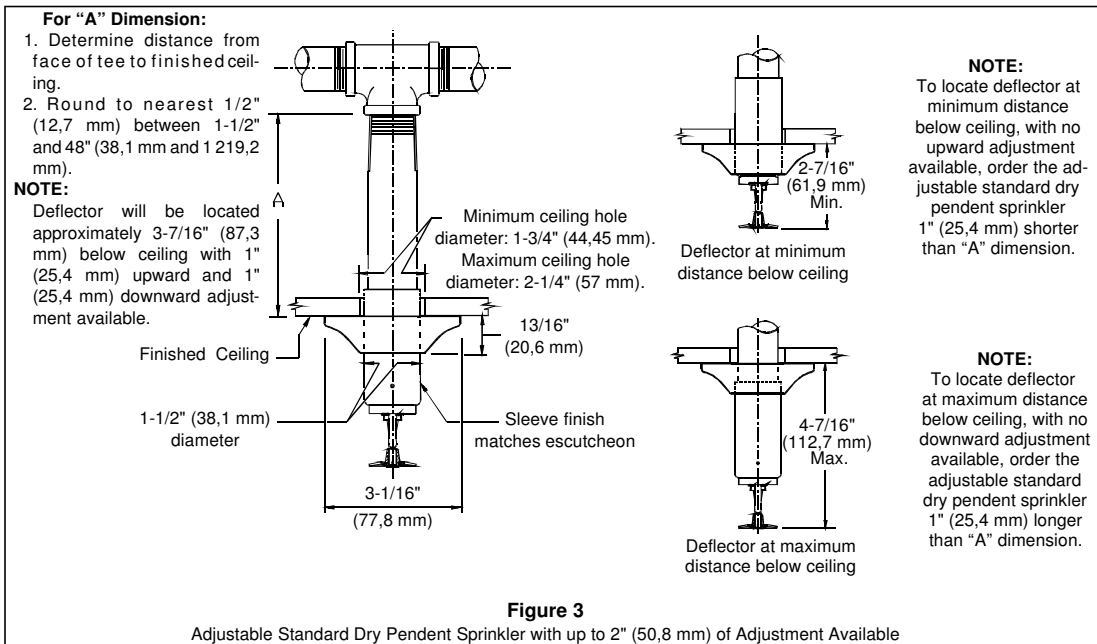
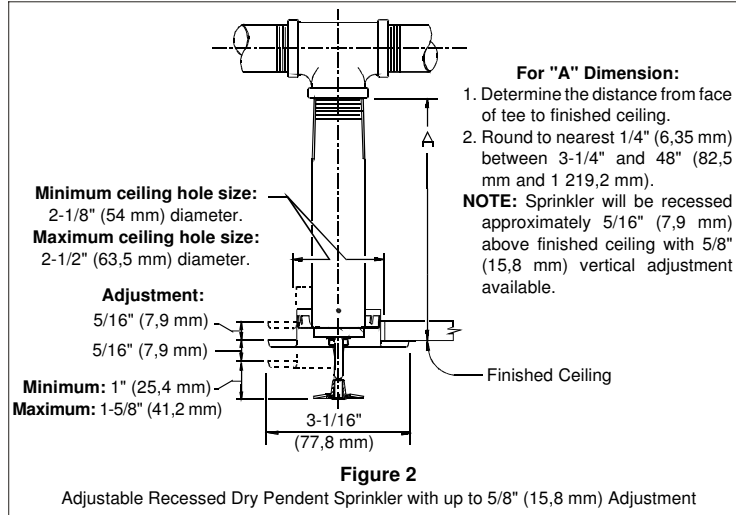
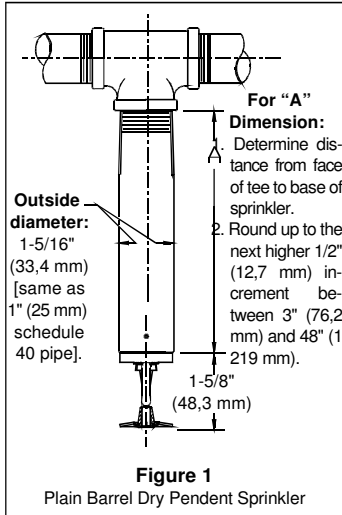
ished ceiling location (see Figures 1 through 3).  
 Sprinkler Base P/N 08383 may be ordered in lengths from 1-1/2" to 48" (38,1 mm to 1 219,2 mm)\*, while Sprinkler Base P/Ns 08385 and 08387 may be ordered in lengths from 3" to 48" (76,2 mm to 1 219,2 mm).  
 The sprinklers are available in 1/4" (6,35 mm) increments for the recessed style, and in 1/2" (12,7 mm) increments for the "adjustable ceiling

ing escutcheon" style, and the plain barrel style, installed with no escutcheon.

#### 4. ESCUTCHEON INSTALLATION

Viking Quick Response Dry Pendent Sprinklers may be installed with the barrel exposed (refer to Figure 1), or with one of two escutcheon styles. A recessed style escutcheon, with up to 5/8" (15,8 mm) adjustment (see Figure 2), provides an aestheti-

cally pleasing recessed appearance. For standard installations, the sprinkler is available with an adjustable, surface-mounted ceiling escutcheon, which allows up to 2" (50,8 mm) of adjustment (see Figure 3). **Install the sprinkler onto the piping prior to installing the escutcheon (refer to page DRY1-2 for instructions).**



New format replaces page 105 a-d, dated April 9, 1998.  
 Refer to technical data page DRY1-2 for general care, installation, and maintenance information.

Form No. F\_031793

SPR-8

DESCRIPTION: SPRINKLER, DRY QUICK-RESPONSE UPRIGHT, BULB TYPE, BRIGHT CHROME PLATED FINISH, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL/FM.

MANUFACTURER & CATALOG NO.: VIKING M, TYCO DS-1, VICTAULIC V3602.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

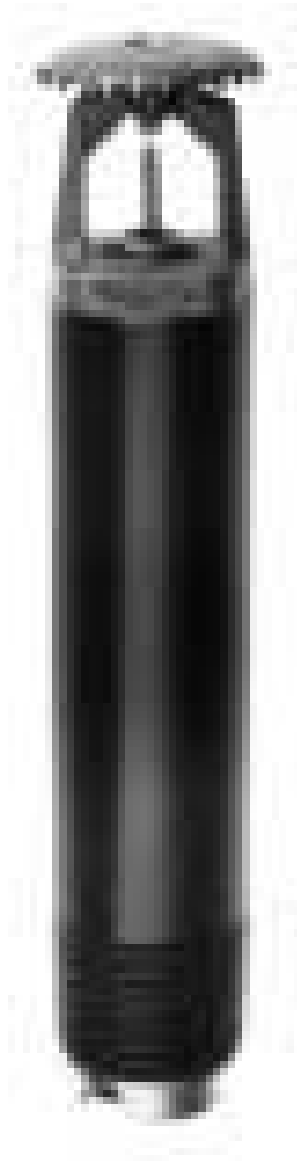
2. COLORS: Brass, Decorative white or black (Not all manufacturers apply, check literature: i.e. Central white is not F.M. approved)

3. For corrosion resistance information, consult manufacturer.

4. For extended coverage information, consult manufacturer.

5. Quick response can not be used for extra hazard occupancies.

6. Viking & Victaulic sprinklers are not F.M. approved.



	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<h3 style="margin: 0;">QUICK RESPONSE DRY UPRIGHT SPRINKLER</h3>
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**1. PRODUCT NAME**

Viking Model M Quick Response Dry Upright Sprinkler

- Plain Barrel Sprinkler Base Part No. 08417 (Sprinkler Identification No. VK184†)

Available since 1993.

† Sprinkler I.D. No. provided in accordance with the 1999 edition of NFPA 13, Section 3-2.2.

**2. MANUFACTURER**

The Viking Corporation  
 210 N. Industrial Park Road  
 Hastings, Michigan 49058, USA  
 Telephone: (616) 945-9501  
 (877) 384-5464  
 Fax: (616) 945-9599  
 e-mail: techsvcs@vikingcorp.com

**3. PRODUCT DESCRIPTION**

The Viking Quick Response Dry Upright Sprinkler is an assembly consisting of a thermosensitive glass-bulb spray sprinkler, permanently secured to a special supply nipple.

The upright sprinkler frame and deflector are of the familiar Model M design, equipped with a rugged 3 mm glass bulb that meets the response criteria for a quick response sprinkler. The sprinkler is available in several temperature ratings to meet design requirements.

The special supply nipple is designed to prevent water from entering the nipple before the sprinkler operates. This feature makes the dry upright sprinkler suitable for use in unheated spaces above ceilings of heated rooms equipped with wet sprinkler systems. Viking Quick Response Dry Upright Sprinklers may be installed on wet systems, dry systems, or preaction systems.

A chrome escutcheon is provided with each sprinkler to cover the ceiling penetration (see Figure 1). Viking Dry Upright Sprinklers feature a sealed brass inlet and a durable threaded steel barrel with an Electrodeposited Epoxy Base coating.

The seal at the threaded end of the assembly is held in place by force transmitted from the compression screw, through the glass bulb and internal parts, onto a special sealing spring. During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the internal parts to open the waterway. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire. Viking Dry Upright Sprinklers may be ordered in 1/2" (12,7 mm)

increments, in lengths ("B" dimension) from 4-1/2" to 49-1/2" (114,3 mm to 1 257,3 mm)\*. (See Ordering Information on page 107 b.)

**4. TECHNICAL DATA LISTINGS AND APPROVALS**

Refer to Table 2 on page 107 b.  
 Approved to maximum length of 49-1/2" (1 257,3 mm)\*.

\* Lengths over 49-1/2" (1 257,3 mm) are available, with no listings or approvals, on a "made-to-order" basis. Contact the manufacturer for more information.

Glass-bulb fluid temperature rated to -65 °F (-55 °C).

Rated to 175 psi (1 207 kPa) water working pressure.

Thread Size: 1" NPT

Orifice Size: Standard Orifice

K-factor: 5.6 U.S.† (7,9 metric\*\*) for all listed and approved lengths.

† Nominal U.S. K-factor provided in accordance with the 1999 edition of NFPA 13, Section 3-2.3.

\*\* Metric K-factor shown is for use when pressure is measured in kPa. When pressure in BAR, multiply K-factor shown by 10.0.

Minimum operating pressure: 7 psi (48,3 kPa)

Factory tested pneumatically at 100 psi (685 kPa).

Spring: U.S.A. Patent No. 4,167,974

Bulb: U.S.A. Patent No. 4,796,710

**SPRINKLER MATERIALS**

Frame: Brass Castings UNS-C84400

Deflector: Brass UNS-C26000

Bulb: Glass, nominal 3 mm diameter

Seal: Teflon® Tape

Spring: Nickel Alloy

Screw: Brass UNS-C36000

Pip Cap: Brass UNS-C31600

Seat: Copper UNS-C21000

Orifice: Copper UNS-C21000

Washer: Stainless Steel UNS-S30400

Base: Brass UNS-C31600

Gasket: Buna N

Tube: JIC Hydraulic Steel Tube

Inlet: Brass UNS-C36000

Support (Internal): Steel UNS-G10080, Electrodeposited Epoxy Base finish



ring (Internal when "B" Dimension exceeds 37" (940 mm): Stainless Steel UNS-S30200

Barrel: Steel Tube UNS-G10200 Electrodeposited Epoxy Base finish (Black)

**ESCUTCHEON MATERIAL**

Escutcheon: Brass UNS-C26000 (with decorative chrome finish)

NOTE: This escutcheon is provided with each sprinkler to cover the ceiling penetration (see Figure 1 on page 107 b).

**SPRINKLER FINISHES**

Plain Barrel with Brass Sprinkler

**SPRINKLER TEMPERATURE RATINGS**

Refer to Table 1 on page 107 a.

Sprinkler Temperature Classification	Nominal Sprinkler Temp. Rating (Fusing Point)	Ceiling Temperature at Sprinkler		Bulb Color <sup>3</sup>	Color Coding <sup>3</sup>
		Max. Ambient Temp. Allowed <sup>1</sup>	Max. Recommended Ambient Temp. <sup>2</sup>		
Ordinary	135 °F (57 °C)	115 °F (46 °C)	100 °F (38 °C)	Orange	None
Ordinary	155 °F (68 °C)	135 °F (57 °C)	100 °F (38 °C)	Red	None
Intermediate	175 °F (79 °C)	155 °F (68 °C)	150 °F (65 °C)	Yellow	White
Intermediate	200 °F (93 °C)	180 °F (82 °C)	150 °F (65 °C)	Green	White
High	286 °F (141 °C)	266 °F (130 °C)	225 °F (107 °C)	Blue	Blue

**Footnotes**

<sup>1</sup> Based on National Fire Prevention and Control Administration Contract No. 7-34860.

<sup>2</sup> Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.

<sup>3</sup> Frames of decorative sprinklers are not color coded. Temperature rating is stamped on the deflector.

**Table 1**

Note: Units of measure in parentheses may be approximations.  
 Form No. F\_031693

New format replaces page 107 a-c, dated March 21, 1996.  
**Refer to technical data page DRY1-2 for general care, installation, and maintenance information.**

	<b>TECHNICAL DATA</b>	<b>QUICK RESPONSE DRY UPRIGHT SPRINKLER</b>
---	-----------------------	---

Quick Response Dry Upright Sprinkler											
Thread Size	Sprinkler Style	Sprinkler Base Part No. <sup>3</sup>	Sprinkler Identification No. <sup>6</sup>	Nominal K-Factor		Order Length Increment <sup>1</sup>		Listings and Approvals <sup>2</sup>			
NPT				U.S. <sup>6</sup>	metric <sup>4</sup>	Inches	mm	UL	ULC	FM	NYC <sup>5</sup>
1"	Plain Barrel	08417	VK184	5.6	7.9	1/2	12.7	Yes	Yes	--	Yes

**Footnotes**

<sup>1</sup> Minimum length ("B" Dimension) = 4-1/2" (114,3 mm). **Maximum** standard (listed) length ("B" dimension) = 49-1/2" (1 257,3 mm).

<sup>2</sup> This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.

<sup>3</sup> Base part number shown. For complete part number, refer to Viking's current price list.

<sup>4</sup> Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor shown by 10.0.

<sup>5</sup> Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 15.

<sup>6</sup> Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with the 1999 edition of NFPA 13, Section 3-2.2 and Section 3-2.3.

**Table 2**

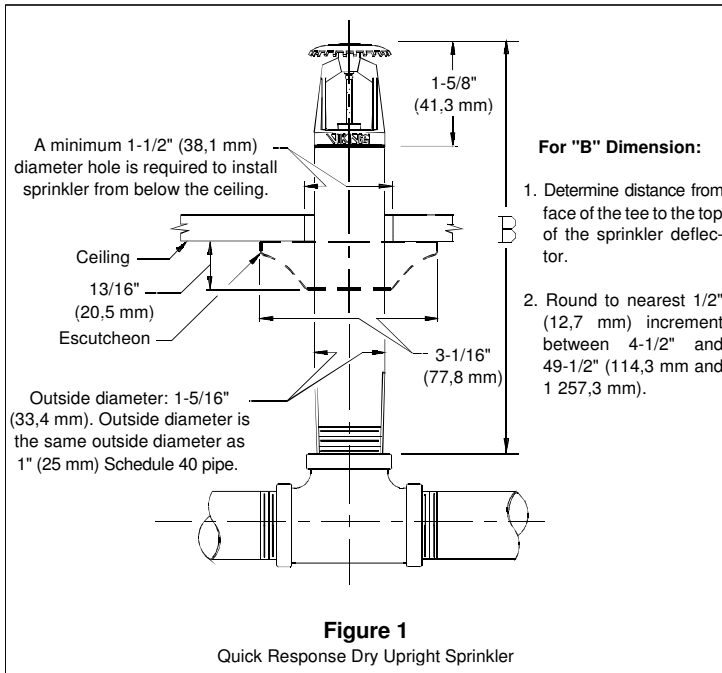
**ACCESSORIES**

Standard Dry Sprinkler Wrench: Part Number 07297W/B

Escutcheon with decorative brass finish: Part Number 01964B (an escutcheon with chrome finish is included with each Viking Dry Upright Sprinkler)

**ORDERING INFORMATION**

For proper shipment, specify model, finish, temperature rating, and length ("B" Dimension) desired. For Viking Dry Upright Sprinklers, the "B" Dimension is the distance from the face of the fitting (tee), into which the sprinkler is to be installed, to the top of the deflector (see Figure 1). Viking Dry Upright Sprinklers may be ordered in 1/2" (12,7 mm) increments, in lengths ("B" Dimension) from 4-1/2" to 49-1/2" (114,3 mm to 1 257,3 mm)\*. A chrome escutcheon is provided with each sprinkler to cover the ceiling penetration (see Figure 1).



New format replaces page 107 a-c, dated March 21, 1996. Refer to technical data page DRY1-2 for general care, installation, and maintenance information.

Form No. F\_031693

**SPR-9**

**DESCRIPTION:** SPRINKLER, DRY QUICK-RESPONSE RECESSED PENDENT, BULB TYPE, BRIGHT CHROME SPRINKLER & ESCUTCHEON PLATE, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL/FM.

**MANUFACTURER & CATALOG NO.:** VIKING M, RELIABLE F3QR, TYCO DS-1, VICTAULIC V3606.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

2. COLORS: Brass, Decorative white or black (Not all manufacturers apply, check literature: i.e. Central white is not F.M. approved)

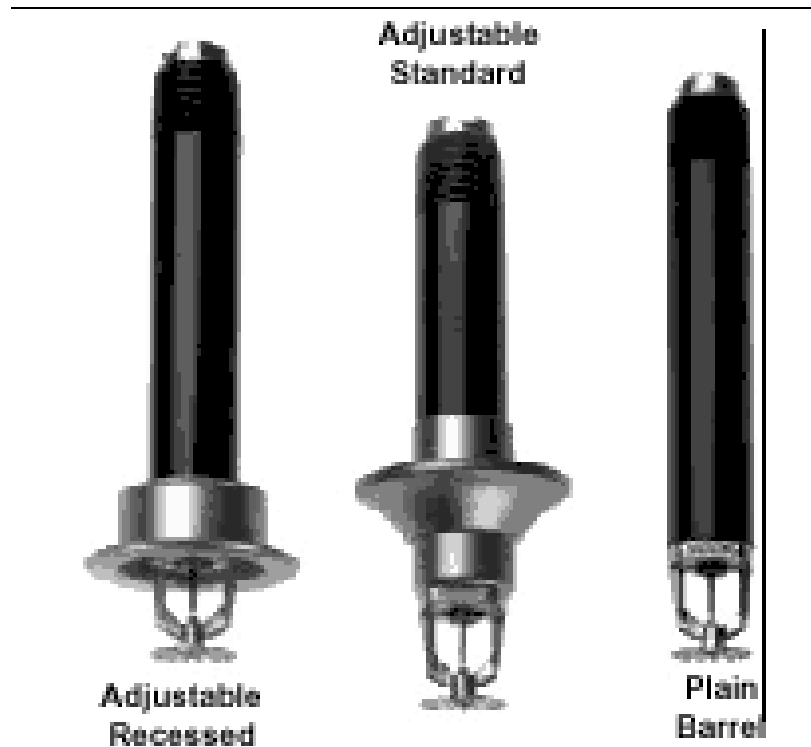
3. For corrosion resistance information, consult manufacturer.

4. For extended coverage information, consult manufacturer.

5. Quick response can not be used for extra hazard occupancies.

6. Viking & Reliable sprinklers are not F.M. approved. Central & Gem are not F.M. approved for high temperature class, and Victaulic is not F.M. approved for intermediate temperature class.

7. Viking sprinklers are not UL listed for high temperature class.





## TECHNICAL DATA

### QUICK RESPONSE DRY PENDENT SPRINKLERS

**1. PRODUCT NAME**

Viking Model M Quick Response Dry Pendent Sprinklers

- Adjustable Recessed, Adjustable Standard, or Plain Barrel

Available since 1993.

**2. MANUFACTURER**

The Viking Corporation  
 210 N. Industrial Park Road  
 Hastings, Michigan 49058, USA  
 Telephone: (616) 945-9501  
 (877) 384-5464  
 Fax: (616) 945-9599  
 e-mail: techsvcs@vikingcorp.com

**3. TECHNICAL DATA**

**LISTINGS AND APPROVALS**

Refer to Table 1 below.

Approved to a maximum length of 48" (1 219,2 mm)\*.

\* Lengths over 48" (1 219,2 mm) are available, with no approvals, on a "made-to-order" basis. Contact the manufacturer for more information.

Glass-bulb fluid temperature rated to -65 °F (-55 °C).

Rated to 175 psi (1 207 kPa) water working pressure.

Thread Size: 1" NPT

Orifice Size: Standard Orifice

K-Factor: 5.6 U.S.† (7,9 metric\*\*) for all listed and approved lengths.

†Nominal U.S. K-factor provided in accordance with the 1999 edition of NFPA 13, Section 3-2.3.

\*\*Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor shown by 10.0.

Min. Operating Pressure: 7 psi (48,3 kPa)  
 Factory tested pneumatically at 100 psi (685 kPa).

Spring: U.S.A. Patent No. 4,167,974

Bulb: U.S.A. Patent No. 4,796,710

**SPRINKLER MATERIALS**

Frame: Brass Castings UNS-C84400

Deflector: Brass UNS-C26000

Bulb: Glass, nominal 3 mm diameter



- Seal: Teflon® Tape
  - Spring: Nickel Alloy
  - Screw: Brass UNS-C36000
  - Pip Cap: Brass UNS-C31600
  - Seat: Copper UNS-C21000
  - Orifice: Copper UNS-C21000
  - Washer: Stainless Steel UNS-S30400
  - Spring Base: Brass UNS-C31400 or UNS-C31600
  - Gasket: Buna N
  - Pin: Stainless Steel UNS-S42000
  - Tube: JIC Hydraulic Steel Tube
  - Inlet: Brass UNS-C36000
  - Support (Internal): Steel UNS-G10080, Electrodeposited Epoxy Base finish
  - Barrel: Steel Pipe UNS-G10200, Electrodeposited Epoxy Base finish
- AVAILABLE FINISHES**
- Recessed: Chrome-Enloy® (patents pending) or White Polyester
  - Standard Adjustable: Chrome-Enloy®
  - Plain Barrel: (sprinkler only) Chrome-Enloy® or Brass

**SPRINKLER TEMP. RATINGS**

Refer to Table 1 on page 100 a for dry sprinkler temperature ratings and max. ambient ceiling temperatures allowed.

**ACCESSORIES**

Dry Sprinkler Wrenches:

A. Standard: Part No. 07297W/B

B. Recessed: Part No. 07565W/B††

††Requires a separate 1/2" ratchet (not available from Viking).

**ORDERING INFORMATION**

The dry pendent sprinkler must be ordered and manufactured specifically for one of three styles of installation: with the adjustable recessed escutcheon (see Figure 2 on page 105 b), with the adjustable standard escutcheon (see Figure 3), or with the plain barrel (see Figure 1).

For proper shipment, specify: model, orifice size, finish, temperature rating, escutcheon type, and length ("A" dimension). The "A" dimension is the distance from the face of the fitting (tee) to the desired fin-

Approval Chart Quick Response Dry Pendent Sprinklers										KEY		
Thread Size		Sprinkler Description				Nominal K-Factor <sup>4</sup>		Overall Length <sup>3</sup> Increment		Listings <sup>2</sup>		
NPT	BSP	Sprinkler Style	Base Part No. <sup>1</sup>	Identification No. <sup>6</sup>	U.S. <sup>5</sup>	metric	Inches	mm	UL	ULC	NYC <sup>5</sup>	
1"	—	Adjustable Standard	08383	VK176	5.6	7.9	1/2"	12.7	A1	A1	A1	
1"	—	Adjustable Recessed	08385	VK180	5.6	7.9	1/4"	6.35	B2	B2	B2	
1"	—	Plain Barrel	08387	VK172	5.6	7.9	1/2"	12.7	A3	A3	A3	
<b>Approved Temperature Ratings</b>							<b>Available Approved Finishes</b>					
A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 (93 °C), and 286 °F (141 °C)							1 - Chrome-Enloy®					
B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 (93 °C)							2 - Chrome-Enloy® or White Polyester					
							3 - Chrome-Enloy® or Brass					
<b>Footnotes</b>												
<sup>1</sup> Base part number is shown. For complete part number, refer to Viking's current price schedule. <sup>2</sup> This table shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals. <sup>3</sup> <b>Minimum</b> length ("A" Dimension) = 1-1/2" (38,1 mm) for Sprinkler Base Part Number 08383 and 3" (76,2 mm) for Sprinkler Base Part Numbers 08385 and 08387. <b>Maximum</b> standard (listed) length for Quick Response Dry Pendent Sprinklers ("A" Dimension) = 48" (1 219,2 mm). <sup>4</sup> K-factor applies for all lengths indicated in Footnote 3. Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor shown by 10.0. <sup>5</sup> Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 15. <sup>6</sup> Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with the 1999 edition of NFPA 13, Section 3-2.2 and Section 3-2.3.												
<b>Table 1</b>												

Note: Units of measure in parentheses may be approximations.

Form No. F\_031793

New format replaces page 105 a-d, dated April 9, 1998.  
**Refer to technical data page DRY1-2 for general care, installation, and maintenance information.**



## TECHNICAL DATA

### QUICK RESPONSE DRY PENDENT SPRINKLERS

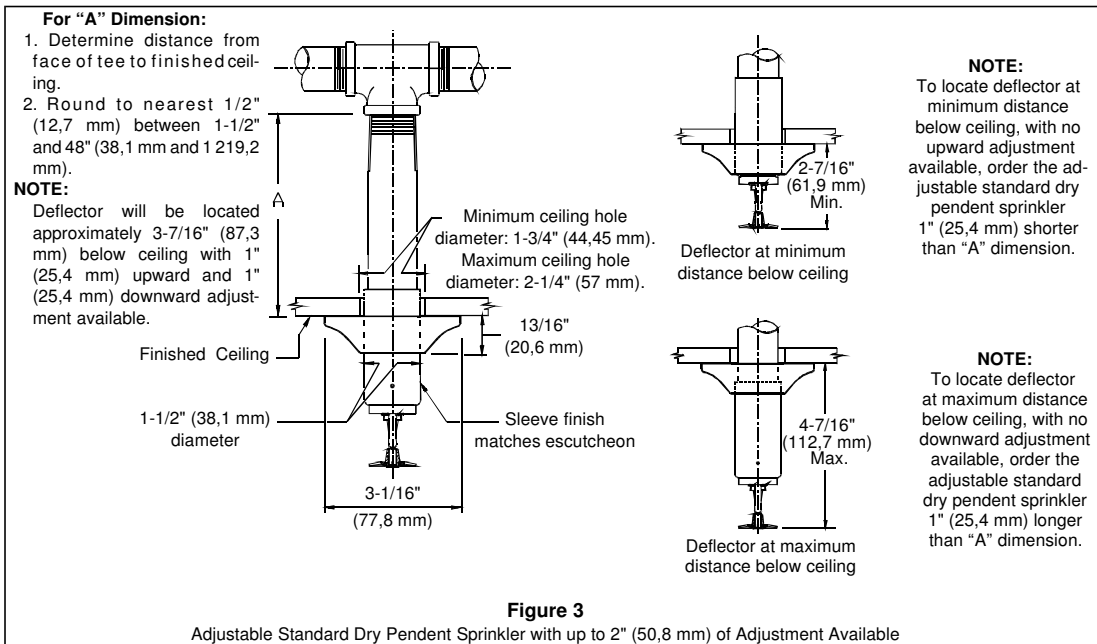
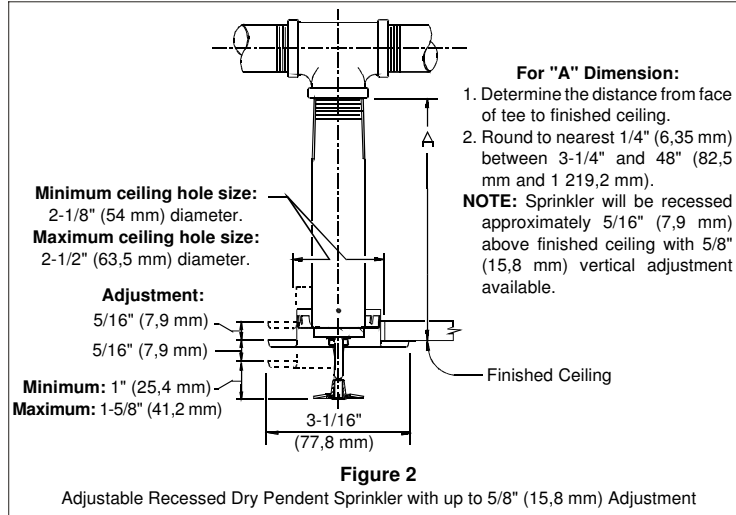
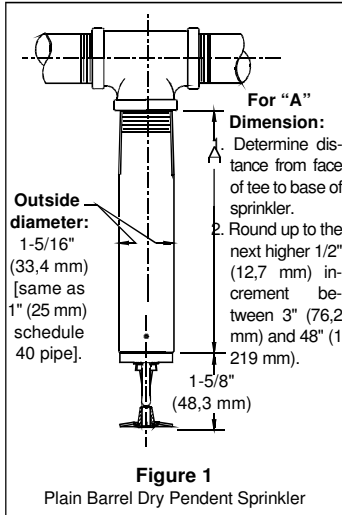
ished ceiling location (see Figures 1 through 3).  
 Sprinkler Base P/N 08383 may be ordered in lengths from 1-1/2" to 48" (38,1 mm to 1 219,2 mm)\*, while Sprinkler Base P/Ns 08385 and 08387 may be ordered in lengths from 3" to 48" (76,2 mm to 1 219,2 mm).  
 The sprinklers are available in 1/4" (6,35 mm) increments for the recessed style, and in 1/2" (12,7 mm) increments for the "adjustable ceiling

ing escutcheon" style, and the plain barrel style, installed with no escutcheon.

#### 4. ESCUTCHEON INSTALLATION

Viking Quick Response Dry Pendent Sprinklers may be installed with the barrel exposed (refer to Figure 1), or with one of two escutcheon styles. A recessed style escutcheon, with up to 5/8" (15,8 mm) adjustment (see Figure 2), provides an aestheti-

cally pleasing recessed appearance. For standard installations, the sprinkler is available with an adjustable, surface-mounted ceiling escutcheon, which allows up to 2" (50,8 mm) of adjustment (see Figure 3). **Install the sprinkler onto the piping prior to installing the escutcheon (refer to page DRY1-2 for instructions).**



New format replaces page 105 a-d, dated April 9, 1998.  
 Refer to technical data page DRY1-2 for general care, installation, and maintenance information.

Form No. F\_031793

SPR-10

DESCRIPTION: SPRINKLER, DRY QUICK-RESPONSE CONCEALED, BULB/FUSEABLE LINK TYPE, SMOOTH PROFILE WITH CEILING, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL.

MANUFACTURER & CATALOG NO.: VIKING M, RELIABLE F3QR, VICTAULIC 3618.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

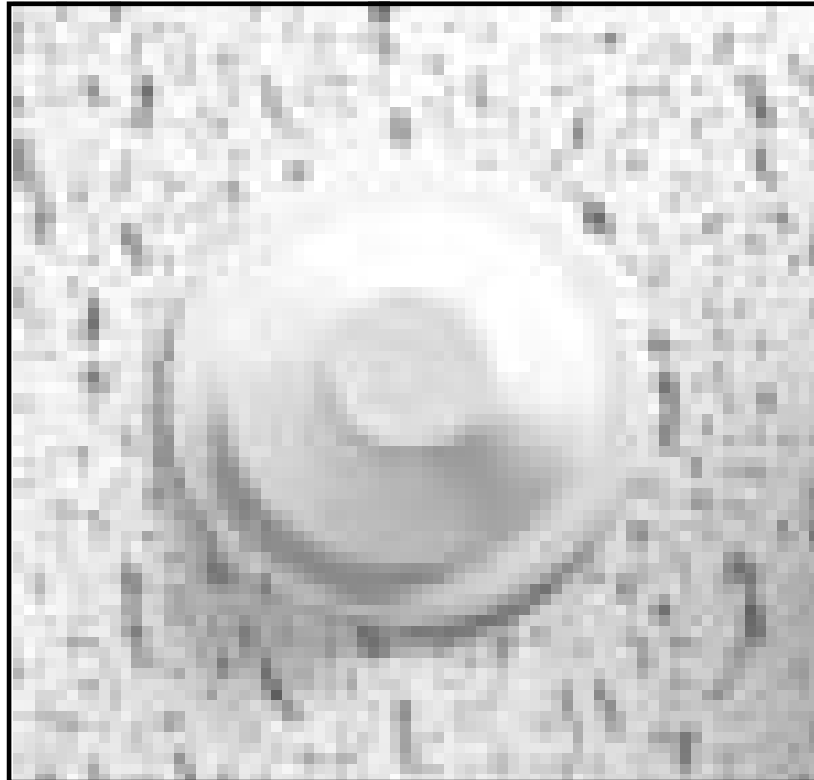
2. COLORS: Brass, Decorative white or black (Not all manufacturers apply, check literature.)

3. For corrosion resistance information, consult manufacturer.

4. For extended coverage information, consult manufacturer.

5. FM does not approve quick-response concealed sprinklers. Consult the FM authority for acceptable concealed sprinklers.

6. Victaulic sprinklers are not UL listed for high temperature class.



Concealed





# Model F3QR Quick Response Dry Sprinklers

Bulletin 157 Rev.B

Bulletin 157 Rev.B

## Features

1. The Model F3QR sprinkler utilizes Belleville Spring Closure Technology. Reliable is the first in the industry to produce a Quick Response Dry Concealed sprinkler utilizing this technology.
2. Styles available
  - Pendent
  - Recessed Pendent
  - Concealed
  - Horizontal Sidewall
  - Recessed Horizontal Sidewall
3. 1½ (38mm) escutcheon adjustment on pendent sprinkler.
4. ½ (13mm) escutcheon adjustment on recessed sprinkler with push-on/ thread-off FP Model Escutcheon ring.
5. ⅜ (9.5mm) cover plate adjustment on concealed sprinkler with push-on/ thread-off CCP Cover Plate.
6. Attractive appearance. Employs 3mm frangible glass bulb and galvanized nipple.
7. Lengths available to accommodate installation dimensions from 2 - to - 48 (51mm - to - 1219mm), in ¼ (6mm) increments.
8. Available in a variety of plated and painted finishes.
9. U.S. Patent Numbers 5,775,431 and 5,967,240.



Concealed

## Approvals

1. Listed by Underwriters Laboratories Inc. and UL Certified for Canada (cULus)
2. Factory Mutual Research Corp. (FM)
  - Light Hazard Occupancies No Limitations
  - Ordinary Hazard Occupancies Group 1 & 2 Wet System Only

**The Reliable Automatic Sprinkler Co., Inc.,** 525 North MacQuesten Parkway, Mount Vernon, New York 10552

# Model F3QR Dry Pendent Concealed Sprinkler

"A" Dim.	3 1/2 to 48 (89mm to 1219mm) in 1/4 (6mm) increments
----------	--

## CCP Cover Plate<sup>(1)</sup> Finishes<sup>(2)</sup>

Standard Finishes	Special Application Finishes
Chrome Plated White	Bright Brass Plated Black Plated Black Paint Off White Satin Chrome

<sup>(1)</sup> Utilizes the 1/2" cover plate with 3/8" total adjustment.

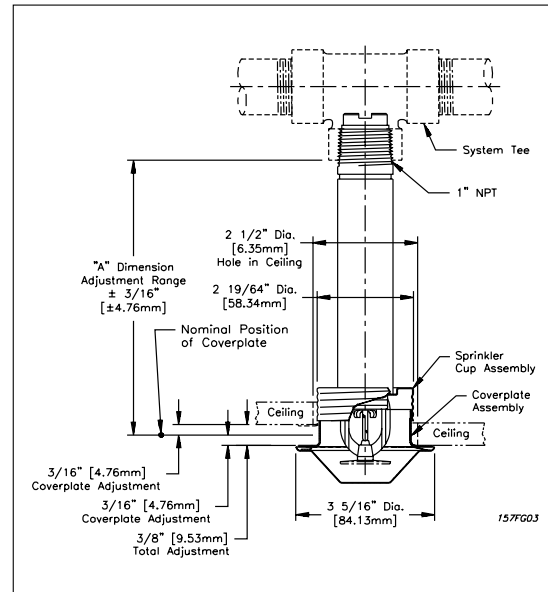
<sup>(2)</sup> Other finishes and colors are available on special order. Consult factory for details.

## Standard Temperature Ratings

Classification	Sprinkler Temperature Rating	Cover Plate Temp. Rating	Max. Ambient Temp.
Ordinary	135 F (57°C)	135°F (57°C)	100°F (38°C)
Ordinary	155°F (68°C)	135°F (57°C)	100°F (38°C)
Intermediate	200°F (93°C)	165°F (74°C)	150°F (66°C)
High*	286°F (141°C)	165°F (94°C)	225°F (107°C)

Sprinkler cup and CCP Cover plate fabricated of steel and recommended for interior applications.

\* Listed and Certified only by cULus.



**Note:** Do not install the Model F3QR Dry Pendent Concealed Sprinkler in ceilings which have positive pressure in the space above.

## Sprinkler Installation Wrench:

Model G3 R/C Sprinkler Wrench

## Sprinkler Identification Number (SIN): R5714

### Technical Data:

Orifice Size: 1/2" (15mm)  
Thread Size: 1 NPT per ANSI B2.1  
Working Pressure: 175 psi (12 bar)  
Nominal K Factor - US / (Metric): 5.6 / (80)

### Product Description

Reliable Model F3QR Dry Sprinklers are quick response sprinklers utilizing a durable 3mm frangible glass bulb. This quick response enables these sprinklers to apply water to a fire much sooner than standard response sprinklers of the similar temperature rating.

Model F3QR Dry Sprinklers are intended for use in dry and preaction systems and in areas subjected to freezing temperatures, such as freezers and unheated portions of buildings.

### Operation

The glass bulb consists of an accurately controlled amount of special fluid hermetically sealed inside a precisely manufactured glass capsule. This glass bulb is specially constructed to provide fast thermal response. When the temperature increases sufficiently, due to a fire, the bulb shatters allowing operating parts to clear the waterway. This enables the inlet seal to release air or water and subsequently, cause water flow over the deflector in a uniform spray pattern, controlling or extinguishing the fire.

### Ordering Information

Specify:

- Sprinkler Type (select one):
  - Model F3QR Dry Pendent
  - Model F3QR Dry Recessed Pendent
  - Model F3QR Dry Concealed Pendent
  - Model F3QR Dry Horizontal Sidewall
  - Model F3QR Dry Recessed Horizontal Sidewall
- Sprinkler Temperature Rating.
- Sprinkler Finish.
- Cover Plate/Escutcheon Finish.
- Length:
 

"A" Dimension (face of tee to face of ceiling or wall) in 1/4 (6mm) increments.

### Note:

- The "A" dimension is based on a nominally gauged pipe thread "make-up" of 0.600" (15mm) per ANSI B2.1 [7 1/2 threads approximately].
- All platings and paintings are decorative and intended for interior use.
- Acceptable appearance in conditions such as parking garages is generally provided with bronze sprinkler, brass cup and escutcheon for the Model F3QR Pendent only.



## General Installation Instructions

Model F3QR Dry Sprinklers must be installed only in standard (ANSI B 16.4) pipe tees, even at branch line ends. Dry sprinklers should not be installed into pipe couplings located on drop nipples to the sprinklers. The "A" dimension of a dry sprinkler, which extends into freezers from wet pipe systems, should be selected to provide at least 14" (356mm) between the freezer's outside wall or ceiling and the wet pipe line.

1. Cut the specified size hole (see illustrations) for the sprinkler in the ceiling directly in line with the tee.
2. Apply pipe joint compound to the 1" (25mm) pipe threads and install sprinkler using the Model G3 or G3 R/C Sprinkler Wrench as specified.
3. Install the push-on/thread-off escutcheon or cover plate.

**Note:** Installation of the Model F3QR Sprinklers in copper pipe systems is not recommended, as this may reduce the life expectancy of the sprinklers.

## Model F3QR Concealed and Recessed Installation Instructions

- The Model G3 R/C wrench (Fig. 1) is designed to locate on the wrenching pads of the recessed sprinkler while centering in the cup. A standard 1/2" drive ratchet may be used to drive this wrench. Figures 1 and 2 show sequentially the insertion of the wrench. First the wrench, with its jaws above the sprinkler deflector, is moved laterally until centered with the cup. Then raise the wrench inside of the cup until its jaws engage the sprinkler's square wrenching pads (Fig. 3). To remove the wrench, follow this procedure in reverse order. Care should be taken to avoid striking the deflector, with the wrench.
- Model G3 Wrench (Fig. 4) is used for installation of Pendent and Horizontal Sidewall sprinklers.

## Maintenance

The Model F3QR Quick Response Dry Sprinklers should be inspected quarterly and the sprinkler system maintained in accordance with NFPA 25. Do not clean sprinklers with soap and water, ammonia or any other cleaning fluids. Remove dust by using a soft brush or gently vacuuming. Remove any sprinkler which had been painted (other than factory applied) or damaged in any way. A stock of spare sprinklers should be maintained to allow quick replacement of damaged or operated sprinklers. Prior to installation, sprinklers should be maintained in the original cartons and packaging until used to minimize the potential for damage to sprinklers that would cause improper operation or non-operation.

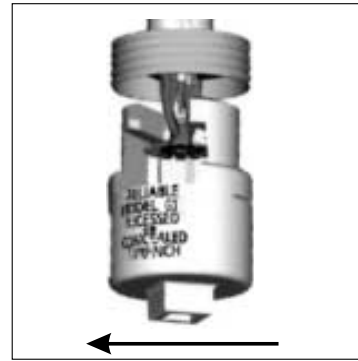


Fig. 1 - G3 R/C Wrench

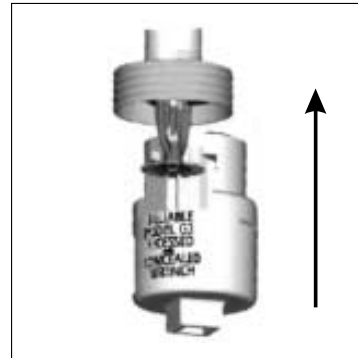


Fig. 2 - G3 R/C Wrench



Fig. 3 - G3 R/C Wrench



Fig. 4 - G3 Wrench

5.

SPR-11

DESCRIPTION: SPRINKLER, DRY QUICK-RESPONSE HORIZONTAL SIDEWALL, BULB TYPE, BRIGHT CHROME PLATED, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL/FM.

MANUFACTURER & CATALOG NO.: VIKING M, RELIABLE F3QR, TYCO DS-1, VICTAULIC V3610.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

2. COLORS: Brass, Decorative white or black (Not all manufacturers apply, check literature: i.e. Central white is not F.M. approved)

3. Central DS-1 is F.M. approved for light hazard occupancies only.

4. For corrosion resistance information, consult manufacturer.

5. For extended coverage information, consult manufacturer.

6. Viking & Victaulic sprinklers are not F.M. approved. Central & Gem are approved for light hazard only.





# TECHNICAL DATA

QUICK RESPONSE DRY  
HORIZONTAL SIDE WALL  
SPRINKLERS

**1. PRODUCT NAME**

Viking Model M Quick Response Dry Horizontal Sidewall Sprinklers

- Adjustable Recessed Sprinkler Base Part No. 08386 (SIN VK182†)
- Adjustable Standard Sprinkler Base Part No. 08384 (SIN VK178†)
- Plain Barrel Sprinkler Base Part No. 08388 (SIN VK174†)

Available since 1993.  
†Sprinkler identification numbers-provided in accordance with the 1999 edition of NFPA 13, Section 3-2.2.



**2. MANUFACTURER**

The Viking Corporation  
210 N. Industrial Park Road  
Hastings, Michigan 49058, USA  
Telephone: (616) 945-9501  
(877) 384-5464  
Fax: (616) 945-9599

**3. PRODUCT DESCRIPTION**

Viking Quick Response Dry Horizontal Side wall Sprinklers are thermosensitive glass-bulb spray sprinklers suitable for use in areas subject to freezing. They are designed for dry systems where it is necessary to prevent water or condensation from entering the supply nipples before the sprinklers operate. They may also be installed in spaces subject to freezing supplied from a wet system in an unheated area. The sprinkler assembles feature a sealed brass in let and a threaded steel barrel with an electrodeposited Epoxy Base coating. The sprinklers are of the Model M design with a recessed 3 mm glass bulb and horizontal side wall deflector. The 3 mm glass bulb uses the response criteria for quick response sprinklers. Viking Dry HSW Sprinklers are available in finishes and temperatures to meet design requirements. The seal at the threaded end of the assembly is held in place by force fitted from the compression screw, through the glass bulb and internal parts, onto a special sealing spring. During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the internal parts to open the water way. Water flowing through the sprinkler orifice strikes the spray deflector, forming a uniform spray pattern to extinguish or control the fire. Viking Quick Response Dry Horizontal Side wall Sprinklers may be installed with the barrel exposed (refer to Figure 1 on page 106 b), or with one of the es cutcheon styles. For recessed installations, a recessed style es cutcheon up to 5/8" (15,8 mm) ad just ment

Figure 4) is available. For standard installations, the sprinkler is available in an adjustable surface-mounted es cutcheon, which allows up to 2" (50,8 mm) of ad just ment (see Figures 2 and 3). Both es cutcheon styles slide over the sprinkler deflector, allowing installation of the es cutcheon after the wall finish has been applied. These sprinklers may be ordered in lengths from 1-1/2" (38,1 mm) for sprinkler 08384 or 2" (50,8 mm) for sprinklers 08386 and 08388. Lengths over 48" (1 219,2 mm)\* are available, with no approvals, on a "make-to-order" basis. Zoned Dry HSW up to 65-1/2" (1 664 mm) and Adjustable Standard Dry HSW up to 63-1/2" (1 613 mm). Plain Barrel Dry HSW up to 65" (1 651 mm).

Operating pressure: 7 psi (48,3 kPa)  
Nominal K-Factor: 5.6 U.S.†† (8,1 metric)  
†Nominal U.S. K-factors provided in accordance with the 1999 edition of NFPA 13, Section 3-2.3  
††Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in psi, multiply the metric K-Factor shown by 10.0  
Factory tested pneumatically at 100 psi (689,5 kPa).  
Spring: U.S.A. Patent No. 4,167,974  
Deflector: U.S.A. Patent No. 4,296,816  
Bulb: U.S.A. Patent No. 4,796,710

**SPRINKLER MATERIALS**  
Frame: Brass Castings UNS-C84400  
Deflector: Copper UNS-C19500  
Bulb: Glass, nominal 3 mm diameter  
Bellville Spring Sealing Assembly: Invar  
Barrel: Nickel Alloy, coated on both sides with Teflon  
Screws: Brass UNS-C36000  
Washer: Brass UNS-C31600  
Nut: Copper UNS-C21000  
Washer: Stainless Steel UNS-S30400  
Base: Brass UNS-C31400 or UNS-C31600  
Gasket: Buna-N  
Tube: ERW Hydraulic Steel Tube  
Inlet: Brass UNS-C36000  
Support (Internal): Stainless Steel UNS-S30400  
Washer: Electrodeposited Epoxy Base finish  
Barrel: Steel Pipe UNS-G10260, Electrodeposited Epoxy Base finish

**4. TECHNICAL DATA**

**LISTINGS AND APPROVALS**

Refer to Table 2 on page 106 d  
Approved to maximum length of 63-1/2" (1 613 mm)\*.  
Glass-bulb fluid temperature range: -55 °C (-67 °F).  
Rated to 175 psi (1 207 kPa) working pressure.  
Thread Size: 1" NPT

Sprinkler Temp. Classification	Nominal Sprinkler Temp. Rating (Fusing Point)	Maximum Ambient Ceiling Temperature	Bulb Color <sup>2</sup>
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue

**Footnotes**  
Two based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler installation requirements of the Authority Having Jurisdiction. Refer to specific installation temperature rating is stamped on the deflector.

**Table 1**

Note: Units of measure in parentheses may be approximately replaced page 106 a-d, dated October 1, 2000. (in for ma tion re gard ing re place ment es cutcheons).

<h1 style="margin: 0;">VIKING®</h1>	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<h3 style="margin: 0;">QUICK RESPONSE DRY HORIZONTAL SIDEWALL SPRINKLERS</h3>
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Sleeve: (for Adjustable Standard Dry Escutcheon only): Brass UNS-C26000

**ESUTCHEON MATERIALS**

- 1. Adjustable Standard Dry Escutcheon: Brass UNS-C26000
- 2. Recessed Dry Escutcheon: Rolled Steel UNS-G10080

**AVAILABLE FINISHES**

- Recessed: Chrome-Enloy (patent pending) or White Polyester
  - Standard Adjustable Chrome-Enloy
  - Plain Barrel: Chrome-Enloy
- Brass (sprinkler only)

**ACCESSORIES**

Standard Dry Sprinkler Wrench Part No. 07297W/B

Replacement Escutcheons:

- 1. Adjustable Standard Dry Escutcheon: Base Part No. 08086F
- 2. Recessed Dry Escutcheon: Base Part No. 05459A

**ORDERING INFORMATION**

For proper shipment, specify: model, finish, temperature rating, escutcheon type, and length ("A" Dimension). Viking Quick Response Dry Horizontal Sidewall Sprinklers are ordered in specific lengths noted as the "A" Dimension (see Figures 1 through 4). The A Dimension is the distance from the face of the sprinkler (tee) to the finished surface of the wall which it is to be installed. The Viking Quick Response Dry Horizontal Sidewall Sprinkler must be ordered manufactured specifically for one of the three styles of installation: with adjustable recessed escutcheon (see Figure 4), with the adjustable standard escutcheon (see Figures 2 and 3), or with plain barrel (see Figure 1). For land shipment, see Figure 4. Details and limits of adjustment for the recessed escutcheon, see Figure 4. Details and limits of adjustment for the standard escutcheon style, with 2" (50,8 mm)-of adjustment, are shown in Figures 2 and 3.

**5. AVAILABILITY AND SERVICE**

Viking products are available through a network of domestic, Canadian, and international distributors. See the Yellow Pages of the telephone directory for your local distributor (listed under "Sprinklers-Automatic-Fire") or contact Viking.

Viking Technical Data may be found on The Viking Corporation's Web site at <http://www.vikingcorp.com>. The Web site may include a more recent edition of this Technical Data page.

**6. GUARANTEES**

For details of warranty, refer to Viking's current list price schedule or contact The Viking Corporation directly.

**7. INSTALLATION**

**WARNING:** Viking sprinklers are manufactured and tested to meet the requirements of approving agencies. The sprinklers are designed to be installed in accordance with recognized installation standards. Deviation from the standards or any alteration to the sprinkler after it leaves the factory including, but not limited to: painting, plating, coating, or modification, may render the sprinkler inoperative and will automatically nullify the approval and any guarantee made by The Viking Corporation.

Sprinklers are to be installed in accordance with the latest published standards of the National Fire Protection Association, Factory Mutual, Loss Prevention Council, Assemblée Préventive, Verband der Sachversicherer or other similar organizations, and also with provisions of governmental codes, or ordinances, and local laws when ever applicable. Viking Quick Response Dry Horizontal Sidewall Sprinklers are subject to occupancy and hazard classification prior to installation. The sprinklers must be handled with care. They must be stored in a cool, dry place in their original container. Never install sprinklers that have been dropped or damaged in any way. Never install any glass-bulb sprinkler if the bulb is cracked or broken. If there is a loss of liquid from the glass bulb lacks the appropriate amount of fluid, it should be set aside and returned to Viking (or an authorized Viking distributor) for analysis as soon as possible. If the sprinkler is not returned to Viking, it should be destroyed. Never install the piping using the special dry

sprinklers that have been exposed to temperatures in excess of the maximum ambient temperature allowed. Such sprinklers should be destroyed immediately. Viking Quick Response Dry Horizontal Sidewall Sprinklers are not intended for use in corrosive environments when subject to open air at most spheres.

**WARNING: Viking Quick Response Dry Horizontal Sidewall Sprinklers MUST be installed into the 1" outlet of a cast iron or malleable iron tee fitting only.**

DO NOT install the dry sidewall sprinkler into a threaded elbow, coupling, or any other fitting that could interfere with thread penetration. Such installation would damage the brass seal.

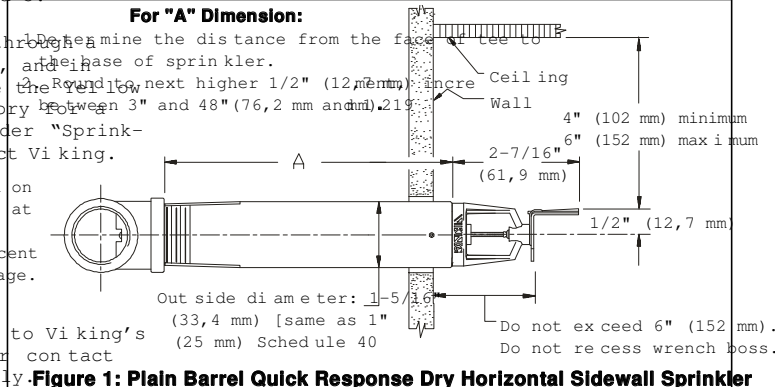
2. DO NOT install the dry sidewall sprinkler into a coupling or fitting that will allow condensation to accumulate above the seal, when located in an area subject to freezing.

3. NEVER try to modify the dry horizontal sidewall sprinkler. The sprinklers are manufactured for specific A Dimensions and can not be modified.

1. Before installing the sprinkler, make certain the A Dimension is correct and be sure to have the appropriate sprinkler model, style, and temperature rating.

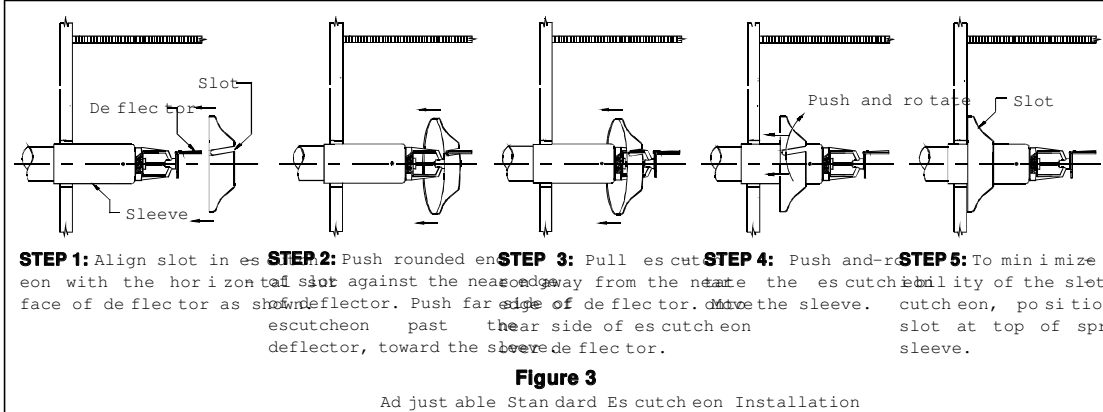
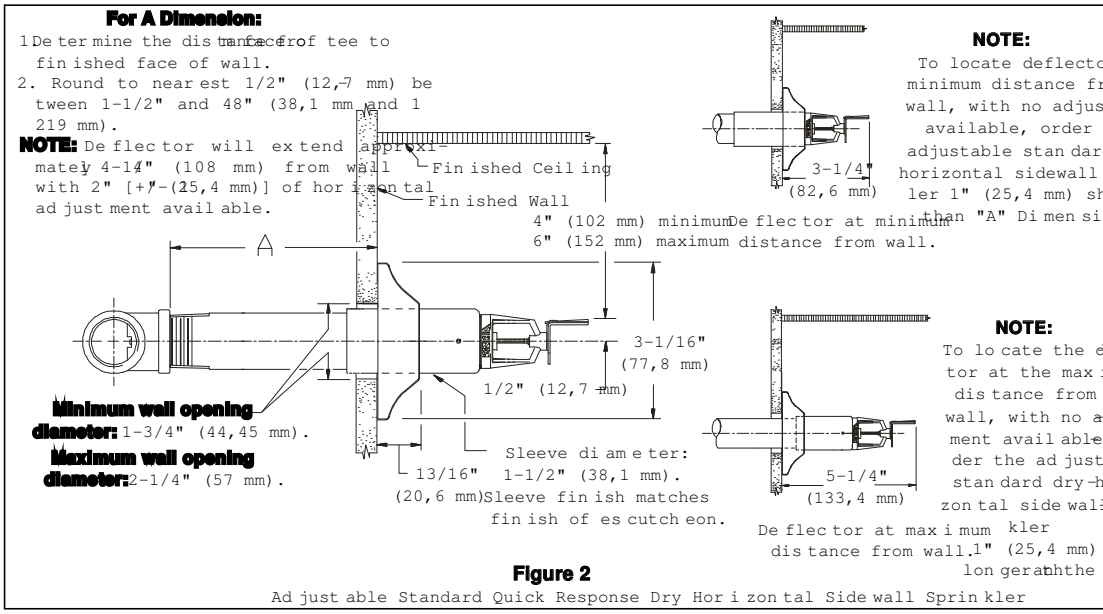
2. Apply a small amount of pipe-joint compound or tape to the male threads only, taking care not to allow a build-up of compound over the brass inlet and seal.

3. Install the dry sidewall sprinkler into the piping using the special dry



**Figure 1: Plain Barrel Quick Response Dry Horizontal Sidewall Sprinkler**

**VIKING®** TECHNICAL DATA QUICK RESPONSE DRY HORIZONTAL SIDEWALL SPRINKLERS



sprinkler wrench only, while taking care not to damage the sprinkler. DO NOT use a pipe wrench on the barrel of the dry sidewall sprinkler. A pipe wrench may damage the barrel finish.

4. To install the escutcheon for King Adjustable Standard Quick Response Dry Horizontal Side wall Sprinkler, refer to Figure 3.

E. After installation, the entire system must be tested in accordance with recognized installation standards. The test is applied after sprinkler installation to ensure that no damage has occurred to the sprinkler during shipment and installation, and to make certain the unit has been properly tightened. If a head leak occurs, normally the head must be removed, new pipe-joint compound or tape applied, and the fire protection requirements, refer to the National Fire Protection Association's Standard for the Care and Maintenance of Sprinkler Systems. In addition, the Authority Having Jurisdiction may have additional maintenance, test and inspection requirements that must be followed.

**8. MAINTENANCE**  
**NOTICE:** The owner is responsible for maintaining the fire-protection system devices in proper operating condition. For minimum maintenance and inspection requirements, refer to the National Fire Protection Association's Standard for the Care and Maintenance of Sprinkler Systems. In addition, the Authority Having Jurisdiction may have additional maintenance, test and inspection requirements that must be followed.

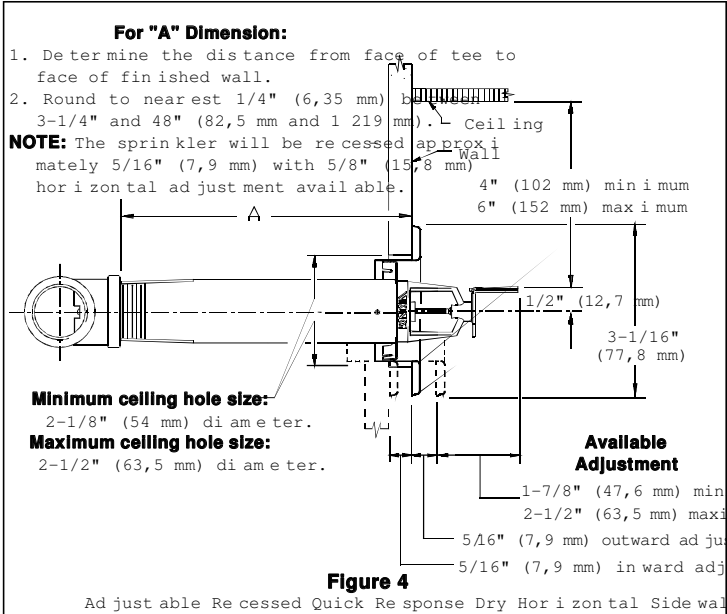
A. The sprinklers must be inspected on a regular basis for signs of corrosion.

VIKING®

TECHNICAL DATA

QUICK RESPONSE DRY  
HORIZONTAL SIDEWALL  
SPRINKLERS

mechanical damage, obstructions, or replaced after a specified time of sprinkler discharge pattern is correct. The frequency of inspection. Refer to the installation manual for proper fire protection. Note that conditions may vary due to corrosive conditions and the Authority Having Jurisdiction should be hung from, attached to, or supported by spheres, water supplies, and in accordance with the specifications of the manufacturer. All obstructions must be immediately removed or repaired. Never attempt to repair or reassemble old sprinklers. Damaged or corroded sprinklers must be replaced immediately. Sprinklers showing signs of corrosion shall be tested and/or replaced immediately as required by the installation standards. When replacing existing sprinklers, use only new sprinklers to be tested and, if necessary,



**Figure 4**

Adjustable Recessed Quick Response Dry Horizontal Side Wall Sprinkler

1. Remove the system from service, drain all water, and relieve all pressure on the piping.
  2. Using the special dry sprinkler wrench, remove the old sprinkler and install the new unit. Care must be taken to ensure that the replacement sprinkler is the proper model and style, with the appropriate A Dimension, orifice size, and temperature rating.
  3. Place the system back in service and secure all valves. Check for and repair all leaks.
- E. Sprinkler systems that have been subjected to fire must be returned to service as soon as possible. The entire system must be inspected for damage, and repaired or replaced as necessary. Sprinklers that have been exposed to corrosive products of combustion or high ambient temperatures, but have not operated, should be replaced. Refer to the Authority Having Jurisdiction for minimum replacement requirements.

Approval Chart Quick Response Dry Horizontal Side Wall Sprinklers												
Thread Size		Sprinkler Description			Nominal K-factor		Overall Length		Increment	Listings <sup>2</sup>		
NPT	BSP	Sprinkler Style	Base Part No.	SIN <sup>6</sup>	U.S. <sup>5</sup>	metric	Inches	mm	UL	C-UL	NYC <sup>5</sup>	
1"	-	Adjustable Standard	08384	VK178	5.6	8,1	1/2"	12,7	A1	A1	A1	
1"	-	Adjustable Recessed	08386	VK182	5.6	8,1	1/4"	6,35	B2	B2	B2	
1"	-	Plain Barrel	08388	VK174	5.6	8,1	1/2"	12,7	A3	A3	A3	
<b>Approved Temperature Ratings</b>					<b>Available Approved Finishes</b>							
A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79°C), 200 °F (93 °C), and 230 °F (141 °C)					Z Chrome-Enf, 2 Chrome-Enf, 2 White-Enf, 2 Polyester							
B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79°C), and 200 °F (93 °C)					3 Chrome-Enf, 3 Polyester							
<b>Footnotes</b>												
1 Base part number is shown. For complete part number, refer to Viking's current price schedule.												
2 This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals. UL and ULC Listings are limited to light-Hazard occupancies.												
3 Minimum length ("A" Dimension) = 1-1/2" (38,1 mm) for Sprinkler Base P/N 08384 and 08386. Maximum length (listed) length for Viking Quick Response Dry Horizontal Side Wall Sprinkler (Type 1).												
4 K-Factor applies for all lengths indicated in Footnote 3. Metric K-Factor is based on pressure measured in BAR, multiply the metric K-Factor shown by 10.0.												
5 Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 15.												
6 Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with NFPA 13, Section 3-2.3.												

**Table 2**

Replaces page 106 a-d, dated October 2000. Information regarding replacement escutcheons).

Form No. F\_031993



SPR-12

DESCRIPTION: SPRINKLER, DRY QUICK-RESPONSE RECESSED HORIZONTAL SIDEWALL, BULB TYPE, BRIGHT CHROME PLATED, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL/FM.

MANUFACTURER & CATALOG NO.: VIKING M, RELIABLE F3QR, TYCO DS-1, VICTAULIC V3610.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

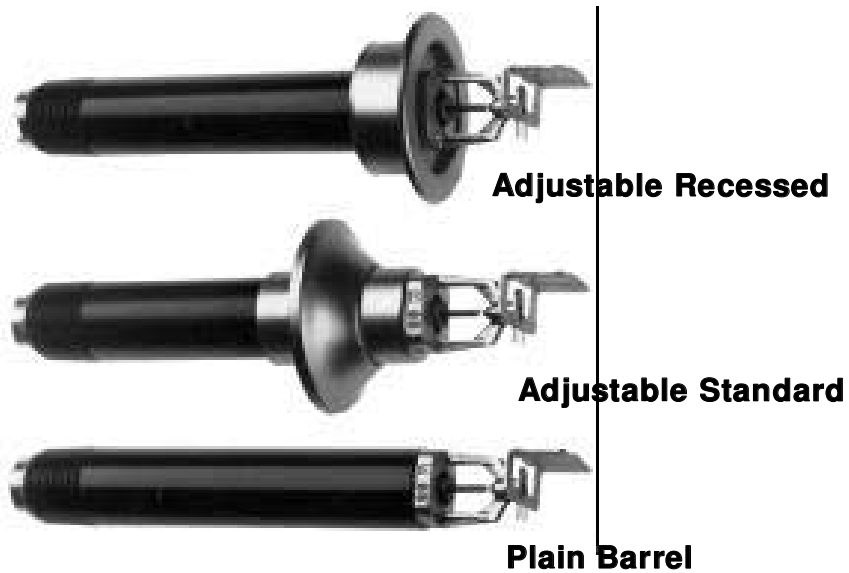
2. COLORS: Brass, Decorative white or black (Not all manufacturers apply, check literature: i.e. Central white is not F.M. approved)

3. Central DS-1 is F.M. approved for light hazard occupancies only.

4. For corrosion resistance information, consult manufacturer.

5. For extended coverage information, consult manufacturer.

6. Viking, Reliable, & Victaulic sprinklers are not F.M. approved. Central & Gem are F.M. approved for light hazard occupancies only.



**For Light-Hazard Occupancies Only**



## TECHNICAL DATA

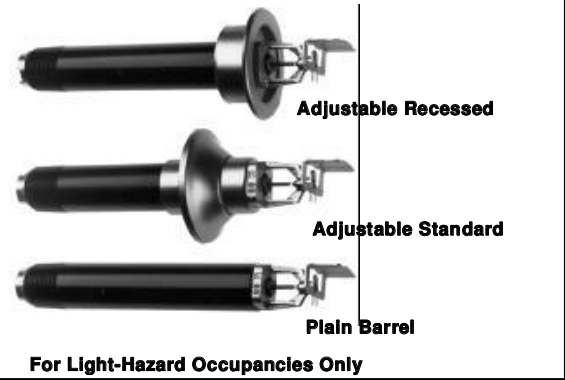
QUICK RESPONSE DRY  
HORIZONTAL SIDE WALL  
SPRINKLERS

**1. PRODUCT NAME**

Viking Model M Quick Response Dry Horizontal Sidewall Sprinklers

- Adjustable Recessed Sprinkler Base Part No. 08386 (SIN VK182†)
- Adjustable Standard Sprinkler Base Part No. 08384 (SIN VK178†)
- Plain Barrel Sprinkler Base Part No. 08388 (SIN VK174†)

Available since 1993.  
†Sprinkler identification numbers-provided in accordance with the 1999 edition of NFPA 13, Section 3-2.2.



**2. MANUFACTURER**

The Viking Corporation  
210 N. Industrial Park Road  
Hastings, Michigan 49058, USA  
Telephone: (616) 945-9501  
(877) 384-5464  
Fax: (616) 945-9599

**3. PRODUCT DESCRIPTION**

Viking Quick Response Dry Horizontal Side wall Sprinklers are thermostatically glass-bulb spray sprinklers suitable for use in areas subject to freezing. They are designed for dry systems and preaction systems where it is necessary to prevent water or condensation from entering the supply nipples before the sprinklers operate. They may also be installed in spaces subject to freezing supplied from a wet system in an adjacent heated area. The sprinkler assembles features a sealed brass in let and a threaded steel barrel with an electrodeposited Epoxy Base coating. The sprinklers are of the Model M design with a recessed 3 mm glass bulb and horizontal side wall deflector. The 3 mm glass bulb uses the response criteria for quick response sprinklers. Viking Dry HSW Sprinklers are available in finishes and temperatures to meet design requirements. The seal at the threaded end of the assembly is held in place by force from the compression screw, through the glass bulb and internal parts, a special sealing spring. During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the internal parts to open the water way. Water flowing through the sprinkler orifice strikes the deflector, forming a uniform spray pattern to extinguish or control the fire. Viking Quick Response Dry Horizontal Side wall Sprinklers may be installed with the barrel exposed (refer to Figure 1 on page 106 b), or with one of two es cutcheon styles. For recessed installations, a recessed style es cutcheon up to 5/8" (15,8 mm) adjustment

Figure 4) is available. For standard installations, the sprinkler is available in an adjustable surface-mounted es cutcheon, which allows up to 2" (50,8 mm) of adjustment (see Figures 3) on page 106 a and 3) on page 106 b). Both es cutcheon styles slide over the sprinkler deflector, allowing the es cutcheon after the valve has been applied. These sprinklers may be ordered in lengths from 1-1/2" (38,1 mm) for sprinkler 08386 and 08388 to a maximum of 48" (1 219,2 mm)\*. Lengths over 48" (1 219 mm) are available with approvals, made-to-order basis. Viking Quick Response Dry HSW up to 65-1/2" (1 664 mm) Adjustable Standard Dry HSW up to 63-1/2" (1 613 mm) Plain Barrel Dry HSW up to 65" (1 651 mm) The recessed style is available in 1/2" (12,7 mm) increments, while the standard es cutcheon style and plain barrel style, installed with es cutcheon, are available in 1/2" increments. Refer to Table 2 on page 106 d for approved maximum length of glass-bulb fluid temperature ratings (-55 °C). Rated to 175 psi (1 207 kPa) working pressure. Thread Size: 1" NPT

**4. TECHNICAL DATA LISTINGS AND APPROVALS**

Refer to Table 2 on page 106 d for approved maximum length of glass-bulb fluid temperature ratings (-55 °C). Rated to 175 psi (1 207 kPa) working pressure. Thread Size: 1" NPT

Sprinkler Temp. Classification	Nominal Sprinkler Temp. Rating (Fusing Point)	Maximum Ambient Ceiling Temperature	Bulb Color
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue

Footnotes:  
1. Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler installation and other requirements of the Authority Having Jurisdiction.  
2. Other temperature rating is stamped on the deflector.

**Table 1**

Note: Units of measure in parentheses may be approximations. See pages 106 a-d, dated October 2000, for information regarding replacement es cutcheons).

<h1>VIKING®</h1>	<h2>TECHNICAL DATA</h2>	<h3>QUICK RESPONSE DRY HORIZONTAL SIDEWALL SPRINKLERS</h3>
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Sleeve: (for Adjustable Standard only): Brass UNS-C26000  
**ESUTCHEON MATERIALS**  
 1. Adjustable Standard Dry Esutchcheon: Brass UNS-C26000  
 2. Recessed Dry Esutchcheon: Rolled Steel UNS-G10080

**AVAILABLE FINISHES**  
 • Recessed: Chrome-Enloy (patent pending) or White Polyester  
 • Standard Adjustable Chrome-Enloy  
 • Plain Barrel: Chrome-Enloy  
 Brass (sprinkler only)

**ACCESSORIES**  
 Standard Dry Sprinkler Wrench Part No. 07297W/B  
 Replace ment Esutchcheons:  
 1. Adjustable Standard Dry Esutchcheon: Base Part No. 08086F  
 2. Recessed Dry Esutchcheon: Base Part No. 05459A

**ORDERING INFORMATION**  
 For proper shipment, specify: model, finish, temperature rating, esutchcheon type, and length ("A" Dimension). Viking Quick Response Dry Horizontal Sidewall Sprinklers are ordered in specific lengths noted as the "A" Dimension (see Figures 1 through 4). The A Dimension is the distance from the face of the sprinkler (tee) to the finished surface of the wall which it is to be installed. The Viking Quick Response Dry Horizontal Sidewall Sprinkler must be ordered manufactured specifically for one of the three styles of installation: with adjustable recessed esutchcheon (see Figure 4), with the adjustable standard esutchcheon (see Figures 2 and 3), or with plain barrel (see Figure 1). For land's return, adjustment for the recessed esutchcheon, see Figure 4. Details and limits of adjustment for the standard esutchcheon style, with 2" (50,8 mm)-of adjustment, are shown in Figures 2 and 3.

**5. AVAILABILITY AND SERVICE**  
 Viking products are available through a network of domestic, Canadian, and international distributors. See the Yellow Pages of the telephone directory for a local distributor (listed under "Sprinklers-Automatic-Fire") or contact Viking.  
 Viking Technical Data may be found on The Viking Corporation's Web site at <http://www.vikingcorp.com>. The Web site may include a more recent edition of this Technical Data page.

**6. GUARANTEES**  
 For details of warranty, refer to Viking's current list price schedule or contact The Viking Corporation directly.

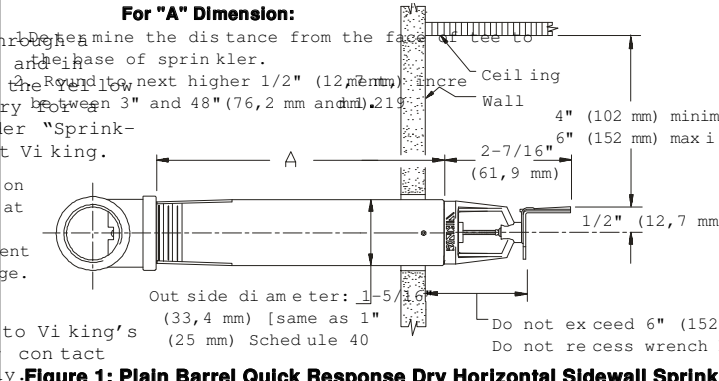
**7. INSTALLATION**  
**WARNING:** Viking sprinklers are manufactured and tested to meet the requirements of approving agencies. The sprinklers are designed to be installed in accordance with recognized standards. Deviation from the standards or any alteration to the sprinkler after it leaves the factory including, but not limited to: painting, plating, coating, or modification, may render the sprinkler inoperative and will automatically nullify the approval and any guarantee made by The Viking Corporation.

Sprinklers are to be installed in accordance with the latest published standards of the National Fire Protection Association, Factory Mutual, Loss Prevention Council, Assemblée Prévenière, Verband der Sachversicherer or other similar organizations, and also with provisions of governmental codes, or ordinances, and specifications when ever applicable. Viking Quick Response Dry Horizontal Sidewall Sprinklers are subject to occupancy and hazard classification prior to installation. The sprinklers must be stored in a cool, dry place in their original container. Never install sprinklers that have been dropped or damaged in any way. Never install any glass-bulb sprinkler if the bulb is cracked or broken. If there is a loss of liquid from the glass bulb lacks the appropriate amount of fluid, it should be set aside and returned to Viking (or an authorized Viking distributor) for analysis as soon as possible. If the sprinkler is not returned to Viking, it should be destroyed. Never install the piping using the special dry

sprinklers that have been exposed to temperatures in excess of the maximum ambient temperature allowed. Such sprinklers should be destroyed immediately.  
 Viking Quick Response Dry Horizontal Sidewall Sprinklers are not intended for use in corrosive environments when subject to open air at mo spheres

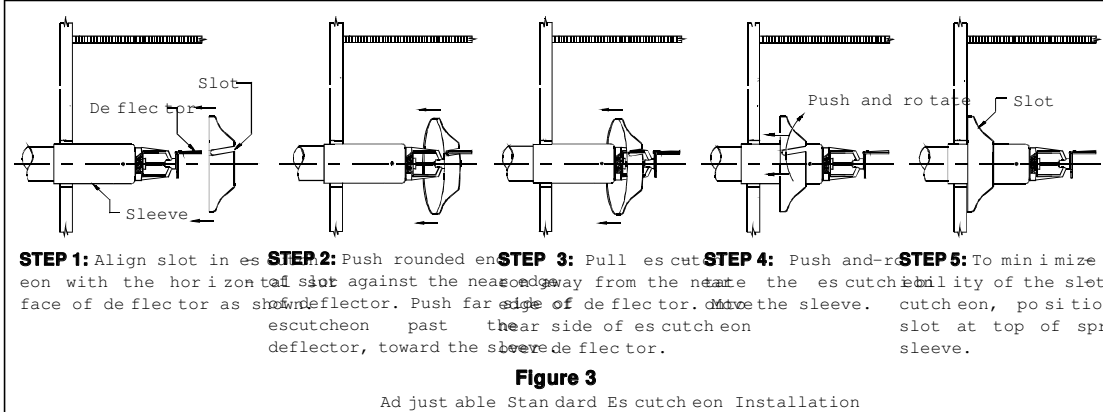
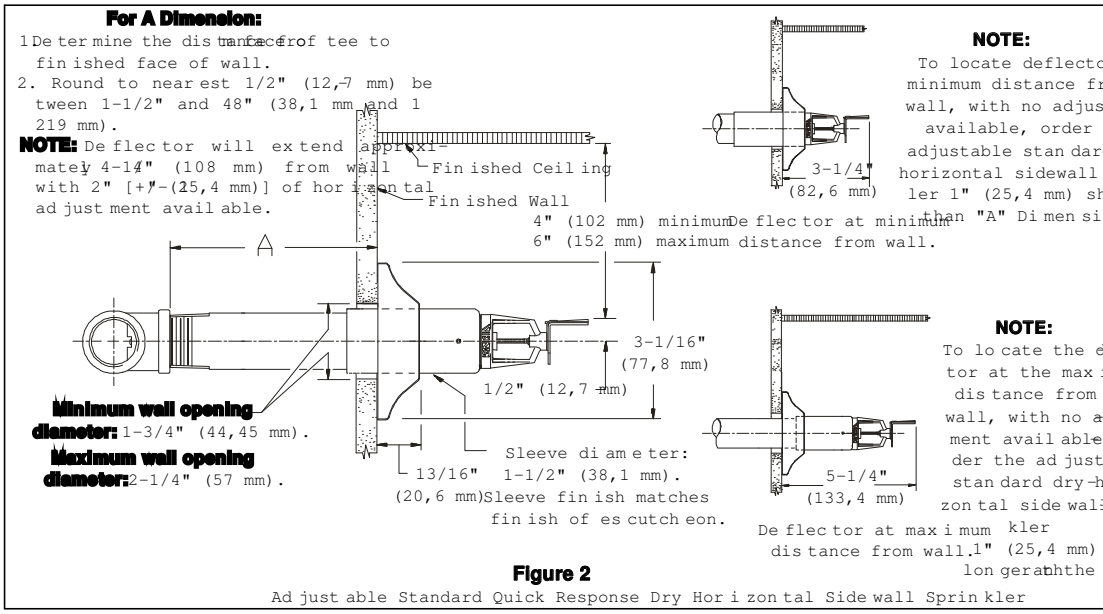
**WARNING: Viking Quick Response Dry Horizontal Sidewall Sprinklers MUST be installed into the 1" outlet of a cast iron or malleable iron tee fitting only.**

DO NOT install the dry sidewall sprinkler into a threaded elbow, coupling, or any other fitting that could interfere with thread penetration. Such installation would damage the brass seal.  
 2. DO NOT install the dry sidewall sprinkler into a coupling or fitting that will allow condensation to accumulate above the seal, when located in an area subject to freezing  
**NEVER** try to modify the dry horizontal sidewall sprinkler. The sprinklers are manufactured for specific A Dimensions and can not be modified.  
 The sprinkler must be installed after the piping is in place to prevent mechanical damage.  
 1. Before installing the sprinkler, make certain the A Dimension is correct and be sure to have the appropriate sprinkler model, style, and temperature rating.  
 2. Apply a small amount of pipe-joint compound or tape to the male threads only, taking care not to allow a build-up of compound over the brass inlet and seal.  
 3. Install the dry sidewall sprinkler into the piping using the special dry



**Figure 1: Plain Barrel Quick Response Dry Horizontal Sidewall Sprinkler**

**VIKING®** **TECHNICAL DATA** **QUICK RESPONSE DRY HORIZONTAL SIDEWALL SPRINKLERS**



sprinkler wrench only, while taking care not to damage the sprinkler. DO NOT use a pipe wrench on the barrel of the dry sidewall sprinkler. A pipe wrench may damage the barrel finish.

4. To install the escutcheon for the King Adjustable Standard Quick Response Dry Horizontal Side wall Sprinkler, refer to Figure 3.

E. After installation, the entire system must be tested in accordance with recognized installation standards. The test is applied after sprinkler installation to ensure that no damage has occurred to the sprinkler during shipment and installation, and to make certain the unit has been properly tightened. If a head leak occurs, normally the head must be removed, new pipe-joint compound or tape applied, and the fire protection requirements, refer to the National Fire Protection Association's listing. When the joint seal leaks, the compound should be washed out of the joint. Wet pipe systems supplying dry horizontal side wall sprinklers may have additional maintenance, test and inspection requirements that must be followed.

**8. MAINTENANCE**

**NOTICE:** The owner is responsible for maintaining the fire-protection system and devices in proper operating condition. For minimum maintenance and inspection requirements, refer to the National Fire Protection Association's listing. The Authority Having Jurisdiction may have additional maintenance, test and inspection requirements that must be followed.

A. The sprinklers must be inspected on a regular basis for signs of corrosion.

VIKING<sup>®</sup>

TECHNICAL DATA

QUICK RESPONSE DRY  
HORIZONTAL SIDEWALL  
SPRINKLERS

mechanical damage, obstructions, or replaced after a specified time of sprinkler discharge pattern is correct. The frequency of inspection. Refer to the installation manual for proper fire protection. Notations may vary due to corrosive conditions and the Authority Having Jurisdiction should be hung from, attached to, or moshpheres, water supplies, and in accordance with the specifications otherwise obstruct the discharge pattern around the device.

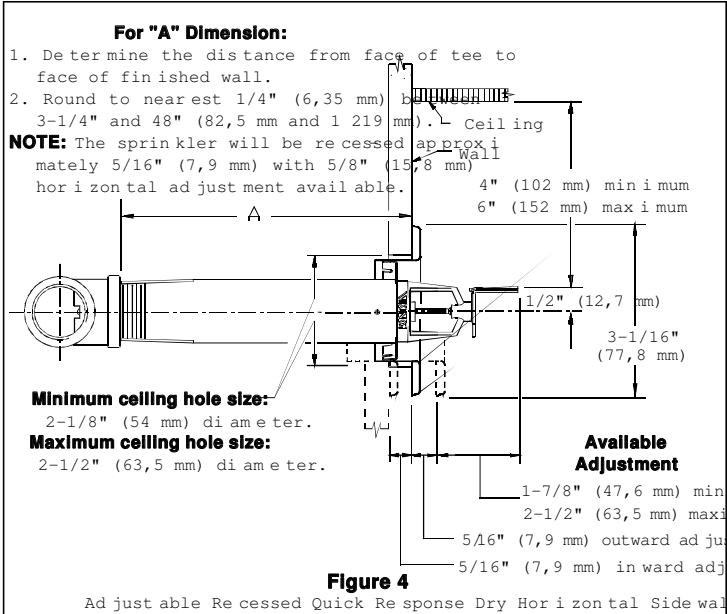
time after which testing and/or removal. All obstructions must be immediately replaced. If replacement is required. Never remove or, if necessary, add painted, caulked, or mechanical adjustment to repair or reassemble. Only original sprinklers must be installed. Damaged must be replaced immediately. Horizontal sidewall sprinklers when replacing existing sprinklers, immediately. Sprinklers showing signs of corrosion that have operated cannot be re-used. Corrosion shall be tested and/or reassembled or re-used, but must refer to the appropriate system description and/or valve instructions. Prior to moving the system from service, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected area.

1. Remove the system from service, drain all water, and relieve all pressure on the piping.

2. Using the special dry sprinkler wrench, remove the old sprinkler and install the new unit. Care must be taken to ensure that the replacement sprinkler is the proper model and style, with the appropriate A Dimension, orifice size, and temperature rating.

3. Place the system back in service and secure all valves. Check for and repair all leaks.

E. Sprinkler systems that have been subjected to fire must be returned to service as soon as possible. The entire system must be inspected for damage, and repaired or replaced as necessary. Sprinklers that have been exposed to corrosive products of combustion or high ambient temperatures, but have not operated, should be replaced. Refer to the Authority Having Jurisdiction for minimum replacement requirements.



**Figure 4**

Adjustable Recessed Quick Response Dry Horizontal Side Wall Sprinkler

<b>Approval Chart</b>											
<b>Quick Response</b>											
<b>Dry Horizontal Sidewall Sprinklers</b>											
<b>Thread Size</b>		<b>Sprinkler Description</b>				<b>Nominal K-factor</b>		<b>Overall Length</b>		<b>Increment</b>	
<b>NPT</b>	<b>BSP</b>	<b>Sprinkler Style</b>	<b>Base Part No.</b>	<b>SIN<sup>6</sup></b>	<b>U.S.<sup>5</sup></b>	<b>metric</b>	<b>Inches</b>	<b>mm</b>	<b>UL</b>	<b>C-UL</b>	
1"	-	Adjustable Standard	08384	VK178	5.6	8,1	1/2"	12,7	A1	A1	
1"	-	Adjustable Recessed	08386	VK182	5.6	8,1	1/4"	6,35	B2	B2	
1"	-	Plain Barrel	08388	VK174	5.6	8,1	1/2"	12,7	A3	A3	
<b>Approved Temperature Ratings</b>					<b>Available Approved Finishes</b>						
A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79°C), 200 °F (93 °C), and 230 °F (141 °C)					3 Chrome-Enamel 2 or White-Enamel 2 or Chrome-Enamel 2 or Brass						
B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79°C), and 200 °F (93 °C)					3 Chrome-Enamel 2 or White-Enamel 2 or Chrome-Enamel 2 or Brass						
<b>Footnotes</b>											
1 Base part number is shown. For complete part number, refer to Viking's current price schedule.											
2 This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals. UL and ULC Listings are limited to light-Hazard occupancies.											
3 Minimum length ("A" Dimension) = 1-1/2" (38,1 mm) for Sprinkler Base P/N 08384 and 08386. Maximum length (listed) length for Viking Quick Response Dry Horizontal Sidewall Sprinkler (Type 1).											
4 K-Factor applies for all lengths indicated in Footnote 3. Metric K-Factor is based on the pressure measured in BAR, multiply the metric K-Factor shown by 10.0.											
5 Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 15.											
6 Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with NFPA 13, Section 3-2.3.											

**Table 2**

Replaces page 106 a-d, dated October 2000. Information regarding replacement escutcheons).

Form No. F\_031993

SPR-13

DESCRIPTION: SPRINKLER, STANDARD-RESPONSE PENDENT, BULB TYPE, BRIGHT CHROME PLATED FINISH, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL/FM.

MANUFACTURER & CATALOG NO.: VIKING M, RELIABLE F1, TYCO TY-B, VICTAULIC V2707.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

2. COLORS: Brass, Decorative white or black (Not all manufacturers apply, check literature.)

3. For corrosion resistance information, consult manufacturer.

4. For extended coverage information, consult manufacturer.





# TECHNICAL DATA

MICROMATIC® AND  
Micromatic® HP STANDARD  
RESPONSE SPRINKLERS

**1. PRODUCT NAME**

Viking Micromatic Model M and Micromatic HP Model M Standard Response Glass-Bulb Style Sprinklers

• Available Styles: Upright, Pendant, and Conventional

**2. MANUFACTURER**

The Viking Corporation  
210 N. Industrial Park Road  
Hastings, Michigan 49058, U.S.A.  
Telephone:

Fax: (616) 945-9599  
e-mail: techsvcs@vikingcorp.com

**3. PRODUCT DESCRIPTION**

Viking Micromatic and Micromatic HP Standard Response Sprinklers are thermosensitive glass-bulb style sprinklers available in several temperature ratings, and orifice design requirements. The frame and rugged 5 mm glass bulb provide a pleasing appearance. Used in conjunction with one of the various corrosion-resistant coatings, the units provide protection against many corrosive environments. In addition, the Polyishes and Teflon coating can also be used in decorative applications where desired.

During fire conditions, the heat liquid in the glass bulb expands, the bulb to shatter, releasing the and sealing spring assembly. Water through the sprinkler orifice sprays through the deflector, forming a uniform pattern to extinguish or control fire. Viking Standard Response Glass-Bulb Style Sprinklers may be ordered used as open sprinklers (glass bulb pip-cap assembly removed) on defense systems.

**4. TECHNICAL DATA LISTINGS AND APPROVALS**

Refer to the charts on pages 11 and 12 for Spacing Requirements: Maximum spacing 15 ft. (4,6 m), minimum spacing 1,8 m).

Min. operating pressure: 7 psi (48,3 kPa)  
Glass-bulb fluid temperature rating: 101°F (-55 °C).

**Rated Water Working Pressure Sprinkler Base Part Nos. 09992, 09993, 09994, and 09995 are rated for use with water working pressures ranging from the minimum 7 psi (48,3 kPa) up to 250 psi (1 724 kPa) for high-pressure systems. High-pressure (HP) sprinklers can be identified by locating the number "250" on the deflector.**

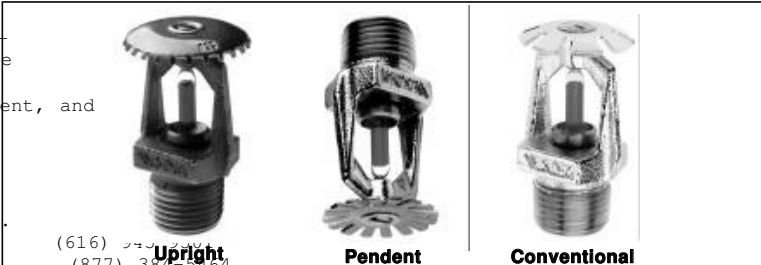
**All other Part Nos. not mentioned above are rated to a maximum 175 psi (1 207 kPa) wwp.**

Factory tested hydrostatically to 448 kPa.

Spring: U.S.A. Patent No. 4,167,974

Note: Units of measure in parentheses may be appropriate.

Form No. F\_100397



Sprinkler Classification	Nominal Sprinkler Temperature Rating (Fusing Point)	Max. Ambient Ceiling Temperature	Bulb Color <sup>2</sup>
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Small Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
Spray Intermediate	212 °F (100 °C)	150 °F (65 °C)	Green
Small High	286 °F (141 °C)	225 °F (107 °C)	Blue
Large High	360 °F (182 °C)	300 °F (149 °C)	Mauve
Small Ultra High	500 °F (260 °C)	465 °F (240 °C)	Black

**Sprinkler Finishes:** Brass, Bright Brass, Chrome-Plated Polyester (White Poly finish for P/Ns 10138, 10139, 10141, and 10220 only), Navajo White Polyester, Black Poly finish for P/Ns 10138, 10139, 10141, and 10220 only).

**Corrosion-Resistant Coatings:** White Polyester (White Poly finish for P/Ns 10138, 10141, and 10220 only), Navajo White Polyester, Black Polyester, and Black Teflon. Wax-Coated Brass and Wax Over Polyester. The following temperature ratings apply where noted:  
 135 °F (57 °C) Off-White Wax  
 155 °F (68 °C) Lt. Brown Wax  
 175 °F (79 °C) Brown Wax  
 200 °F (93 °C) Brown Wax  
 212 °F (100 °C) Brown Wax  
 225 °F (107 °C) Dk. Brown Wax  
 286 °F (141 °C) Dk. Brown Wax

<sup>1</sup>Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler type, and other requirements of the Authority Having Jurisdiction. Refer to specific installation instructions for temperature rating stamped on the deflector.

The corrosion-resistant coatings are standard corrosion test required by the performing agencies indicated on pages 11 b-d. These tests can not and do not represent the corrosion resistance in environments. Prior to installation, verify that the coatings are compatible with or suitable for the proposed environment. The coatings are applied to the exposed exterior surfaces only and, therefore, the units should not be used as open sprinklers. Note that the spring is exposed on the bulb and Teflon coatings.

Sprinklers of Ultra-High temperature rating are intended for use in side overhanging enclosures with normal operating temperatures above 300°F (149 °C). Use temperature around the Ultra-High temperature rated sprinkler is significant below 300 °F (149 °C), response time may be severely retarded.

<sup>5</sup> Wax Over Polyester unavailable for Sprinkler Base P/Ns 09992, 09993, 09994, a:

**SPRINKLER MATERIALS**

Frame: Brass Castings UNS-C84400  
 Deflector: Copper UNS-C19500 for Sprinkler Base Part Nos. 10138, 10139, 10141, 10169, 10170, 10173, 10174, 10187, 10190, 10193, 10223, and 10233. Brass UNS-C26000 for all other Part Nos.  
 Bushing (for Sprinkler Base Part Nos. 09994, 09995, 10191, 10192, 10218, and 10219): Brass UNS-C36000  
 Bulb: Glass, nominal 5 mm diameter  
 Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape  
 Screw: Brass UNS-C36000  
 Pip Cap for Sprinkler Base Part Nos. 09992, 09993, 09994, 09995: Bronze UNS-C31600  
 Inset Assembly for all temperatures: Copper UNS-C11000 and Stainless Steel UNS-S30400

Pip Cap At attachment: Brass UNS-C36000  
**Sprinklers with Teflon Coating**  
 Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape, exposed  
 Screw: Brass UNS-C36000, Nickel plate  
 Coated Pip Cap

**Sprinklers with Polyester Coating or Poly Finish**  
 Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape, exposed

**AVAILABLE FINISHES**  
 Brass, Bright Brass, Chrome-Plated (Nickel plating), White Polyester (White Poly finish for Sprinkler Base Part Nos. 10138, 10139, 10141, and 10220 only), Navajo White Polyester, Black Polyester, Black Teflon all temperature rating; Wax-Coated Brass or Wax Over Polyester\* for sprinklers with temperature ratings through 286 °F (141 °C).

(Continued on page 11 c.)

Refer to technical data page 11 a-d, dated Nov. 14, 2001 (updated the sprinkler materials). **Refer to technical data page SR1-2 for general care, installation, and maintenance information.**



## TECHNICAL DATA

MICROMATIC® AND  
Micromatic HP STANDARD  
RESPONSE SPRINKLERS

Approval Chart Micromatic Standard Response Pendent Sprinklers Maximum 175 PSI WWP Standard Orifice										Temperature Finish			
Thread Size	Max. Pressure PSIG	Sprinkler Style	Sprinkler Base P/N	Sprinkler I.D. No. <sup>10</sup>	Nominal K-Factor		Overall Length		Listings and Approvals				
					U.S. <sup>10</sup>	metric	Inch	mm	UL and C-UL <sup>5</sup>	FM	NYC <sup>3</sup>	Vds	LPCB
1/2	175	Pendent	10139	VK102	5.6	8.1	2-1/4	57	B2, D11, E13, F9, C6, F7	B2, D11, E13, F8	B8, D8		
-	175	Pendent	10173	VK102	5.6	8.1	2-1/4	57	B1, D10, E13, F9, C12, A8	B1, D10, E13, F8	B8, D8		
<b>Large Orifice</b>													
1/2	175	Pendent	10223	VK202	8.0	11.5	2-3/8	60	B1, D10, E13, F9, C12, F8	B1, D10, E13, F8	B8, D8		
3/4	175	Pendent	10142	VK202	8.0	11.5	2-3/8	60	B1, D10, E13, F9, C12, F8	B1, D10, E13, F8	B8, D8		
-	175	Pendent	10187	VK202	8.0	11.5	2-3/8	60	B1, D10, E13, F9, C12	-	B8, D8		
-	175	Pendent	10170	VK202	8.0	11.5	2-3/8	60	B1, D10, E13, C12, A8	-	B8, D8		
<b>Small Orifice</b>													
1/2	175	Pendent	10221	VK003	2.8	-	2-1/4	57	B1, D10, E13, D9, D12	-	-		
1/2	175	Pendent	10222	VK004	4.2	-	2-1/4	57	B1, D10, E13	-	-		
-	175	Pendent	10175	VK003	4.2	6.0	2-1/4	57	-	-	B8, D8		
-	175	Pendent	10188	VK004	4.2	-	2-1/4	57	B1, D10, E13	-	-		
-	175	Pendent	10189	VK003	2.8	-	2-1/4	57	B1, D10, E13	-	-		
<b>Installed with the Viking Micromatic Model E-1 or E-2 Recessed Escutcheons</b>													
1/2	175	Pendent	10139	VK102	5.6	-	2-1/4	57	D2	C5 <sup>8</sup>	D8	D2	
1/2	175	Pendent	10223	VK202	8.0	11.5	2-3/8	60	D1	D8 <sup>8</sup>	D1	D8	D1
1/2	175	Pendent	10221	VK003	2.8	-	2-1/4	57	D1	C8 <sup>8</sup>	D1	D8	D1
1/2	175	Pendent	10222	VK004	4.2	-	2-1/4	57	D1	-	D1	D8	D1
3/4	175	Pendent	10142	VK202	8.0	11.5	2-3/8	60	D1	D8 <sup>8</sup>	D1	D8	D1
-	175	Pendent	10173	VK102	5.6	8.1	2-1/4	57	D1	C8 <sup>8</sup>	-	D8	D1
-	175	Pendent	10170	VK202	8.0	11.5	2-3/8	60	D1	D8 <sup>8</sup>	-	D8	D1
<b>Installed with the Viking Micromatic Model F-1 Adjustable Escutcheons</b>													
1/2	175	Pendent	10139	VK102	5.6	-	2-1/4	57	D2	-	D2	E8	D2
1/2	175	Pendent	10223	VK202	8.0	11.5	2-3/8	60	D1	-	D1	E8	D1
1/2	175	Pendent	10221	VK003	2.8	-	2-1/4	57	D1	-	D1	E8	D1
1/2	175	Pendent	10222	VK004	4.2	-	2-1/4	57	D1	-	D1	E8	D1
3/4	175	Pendent	10142	VK202	8.0	11.5	2-3/8	60	D1	-	D1	E8	D1
-	175	Pendent	10173	VK102	5.6	8.1	2-1/4	57	-	-	-	E8	D1
-	175	Pendent	10170	VK202	8.0	11.5	2-3/8	60	-	-	-	E8	D1
<b>Approved Finishes</b>													
<b>Approved Temperature Ratings</b>					<p>1 - Brass, Bright Brass, Chrome-Enloy, White Poly Finish, Navajo White Poly Finish, Black Poly ester and Black Teflon</p> <p>2 - Brass, Bright Brass, Chrome-Enloy, White Poly Finish, Navajo White Poly ester, Black Poly ester and Black Teflon</p> <p>3 - White Poly ester, Navajo White Poly ester, Black Poly ester, Black Teflon, Wax-Coated Brass and Wax over Poly ester</p> <p>4 - White Poly Finish, Navajo White Poly ester, Black Poly ester, Black Teflon, Wax-Coated Brass and Wax over Poly Finish</p> <p>5 - Brass, Bright Brass, Chrome-Enloy, White Poly Finish</p> <p>6 - White Poly Finish and Wax-Coated Brass (corrosion resistant)</p> <p>7 - Brass, Chrome-Enloy and White Poly Finish</p> <p>8 - Brass, Bright Brass, and Chrome-Enloy</p> <p>9 - Brass and Chrome-Enloy</p> <p>10 - Wax-Coated Brass and Wax Over Poly ester (corrosion resistant)</p> <p>11 - Wax-Coated Brass and Wax Over Poly Finish (corrosion resistant)</p> <p>12 - Wax-Coated Brass (corrosion resistant)</p> <p>13 - High Temperature 200 °F (93 °C) Wax Coating (corrosion resistant); max. temperature allowed at ceiling = 150 °F (65 °C)</p>								
<b>Footnotes</b>													
<p><sup>1</sup> Base part number shown. For complete part number, refer to Viking's current price schedule.</p> <p><sup>2</sup> This table shows the listings and approvals available at the time of printing. Inquiries should be directed to Viking's Technical Department.</p> <p><sup>3</sup> Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. XII.</p> <p><sup>4</sup> UL/C-UL Listed as corrosion-resistant.</p> <p><sup>5</sup> Listed by Underwriters Laboratories Inc. for use in Canada.</p> <p><sup>6</sup> Metric K-factor shown is for use when pressure is measured in kPa. Where pressure is in psi, the metric K-factor shown by 10.0.</p> <p><sup>7</sup> Sprinklers of UL tra-High temperature rating are intended for use in areas where ambient temperatures are normal operating temperatures above 300 °F (149 °C). Where the ambient temperature around the sprinkler is significantly reduced below 300 °F (149 °C), the response time of the particular integrated sprinkler may be severely retarded.</p> <p><sup>8</sup> FM Approval of Viking Micromatic Standard Response Recessed Pendent Sprinklers in stalled with Model E-1 or E-2 Micromatic Recessed Escutcheon is limited to wet systems and preaction systems used for fire and gas detection in ordinary Hazard, Group II.</p> <p><sup>9</sup> Listings and Approvals limited to Light-Hazard Occupancies with wet systems and dry systems.</p> <p><sup>10</sup> Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with NFPA 13, Section 9.2.1 and Section 3-2.3.</p> <p><sup>11</sup> Refer to the "Sprinkler Accessories" section for technical data on the various escutcheons. Escutcheons must be ordered separately from sprinklers. Refer to Viking's current price schedule.</p>													
<p><b>Spacing Requirements:</b> maximum spacing 15 ft. (4,6 m), minimum spacing 6 ft. (1,8 m).</p>													





## TECHNICAL DATA

MICROMATIC® AND  
MicromaticHP STANDARD  
RESPONSE SPRINKLERS

**Approval Chart**  
**MicromaticHP Standard Response**  
**Pendent Sprinklers**  
**Maximum 250 PSI WWP**

Temperature **KEY**

Finish

A1

Standard Orifice															
Thread Size	Max. Pressure	Sprinkler Style	Sprinkler Base Part No. <sup>1</sup>	Sprinkler Identification No.	Nominal K-Factor		Overall Length		Listings and Approvals						
					U.S. <sup>8</sup>	metric <sup>5</sup>	Inch	mm	UL	C-UL <sup>4</sup>	FM	NYC	VdS	LPCB	
1/2"	15	250	Pendent	09992	VK122	5.6	8,1	2-1/4"	58	A1	A1	-	-	-	-

Small Orifice															
1/2"	15	250	Pendent	09994 <sup>7</sup>	VK023	2.8	4,0	2-1/4"	58	A1	A1	-	-	-	-

**Installed with the Viking Micromatic Model E-1 or E-2 Recessed Escutcheon**

1/2"	15	250	Pendent	09992	VK122	5.6	8,1	2-1/4"	58	B1	B1	-	-	-	-
1/2"	15	250	Pendent	09994 <sup>6,7</sup>	VK023	2.8	4,0	2-1/4"	58	B1	B1	-	-	-	-

**Installed with the Viking Micromatic Model F-1 Adjustable Escutcheon**

1/2"	15	250	Pendent	09992	VK122	5.6	8,1	2-1/4"	58	A1	A1	-	-	-	-
1/2"	15	250	Pendent	09994 <sup>6,7</sup>	VK023	2.8	4,0	2-1/4"	58	A1	A1	-	-	-	-

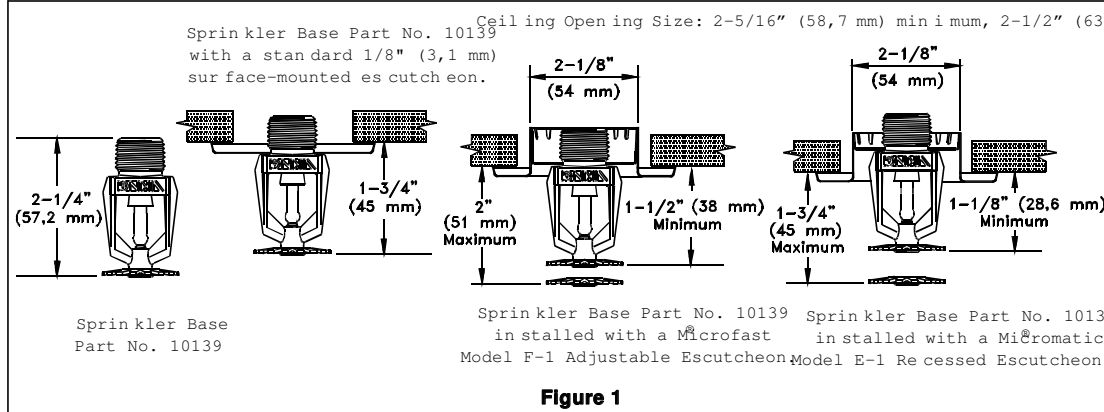
Approved Temperature Ratings								Approved Finishes							
A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (99 °C), and 200 °F (93 °C)								Brass, Bright Brass, Chrome, White Polyethylene, White Polyester, and Black Polyester							
B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79.3 °C) and 200 °F (93 °C)								White Polyethylene, White Polyester, and Black Polyester							

**Footnotes**

- <sup>1</sup> Base part number shown. For complete part number, refer to Viking's current price schedule.
- <sup>2</sup> This table shows the listings and approvals available at the time of printing.
- <sup>3</sup> UL/C-UL Listed as corrosion-resistant.
- <sup>4</sup> Listed by Underwriters Laboratories Inc. for use in Canada.
- <sup>5</sup> Metric K-factor shown is for use when pressure is measured in kPa. When pressure is measured in psi, the metric K-factor shown by 10.
- <sup>6</sup> Listings and Approvals limited to Light-Hazard Occupancies with wet systems and dry pipe systems.
- <sup>7</sup> The sprinkler orifice is bushed.
- <sup>8</sup> Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with NFPA 13, Section 9.2.1 and Section 3-2.3.
- <sup>9</sup> The Micromatic Model F-1 Adjustable Escutcheon is considered a surface-mounted escutcheon and the sustainer element of the sprinkler to be recessed behind the face of the wall or ceiling.
- <sup>10</sup> Refer to the "Sprinkler Accessories" section for technical data on other approved escutcheons. Escutcheons must be ordered separately from sprinklers. Refer to Viking's current price schedule.

**Spacing Requirements:** Maximum spacing 15 ft. (4,6 m), minimum spacing 6 ft. (1,8 m).

**Table 2**



**Figure 1**

\* Wax Over Polyester unavailable for Sprinkler Wrenches for coated and recessed sprinklers: Part No. 07398W\*\* (available since 1990).

**ACCESSORIES**

Sprinkler Wrenches:  
 A. Standard wrench: Part No. 10896W (available since 2000) or 05000W (no longer available).  
 \*A 1/2" ratchet is required (not available from Viking).

Refer to the "Sprinkler Accessories" section of the data book.



# TECHNICAL DATA

MICROMATIC® AND  
MicromaticHP STANDARD  
RESPONSE SPRINKLERS

**Approval Chart**  
Micromatic® and MicromaticHP® Standard Response  
Upright and Conventional Sprinklers

Temperature **KEY**  
Finish

**A1**

**Maximum 175 PSI WWP Standard Orifice<sup>1</sup>**

Thread Size	Max. Pressure PSIG	Sprinkler Style	Sprinkler Base Part No. <sup>1</sup>	Sprinkler I.D. No. <sup>10</sup>	Nominal K-Factor U.S. <sup>10</sup> metric <sup>5</sup>	Overall Length Inch mm	Listings and Approvals				
							UL and C-UL <sup>4</sup>	FM	NYC	VdS	LPCB
½ -	175	Upright	10138	VK100	5.6	2-1/4 57	B2, E12, F14,	G8B, D7, G8	B2, E12, F14	-	-
½ -	175	Upright	10233	VK100	5.6	2-1/4 57	-	B10, D13, G10	-	B9	B9, E3
- 15	175	Upright	10174	VK100	5.6	8,1 2-1/4 57	-	B10, D13, A9	-	B9	B9, E3
- 15	175	Upright	10193	VK100	5.6	8,1 2-1/4 57	B1, E11, F14,	G10, D13, A9	B1, E11, F14	-	-

**Large Orifice<sup>1</sup>**

½ -	175	Upright	10220	VK200	8.0	2-3/8 60	B2, E12, F14,	G8B, D7, G8	B2, E12	-	-
3/4 -	175	Upright	10141	VK200	8.0	11,5 2-3/8 60	B2, E12, F14,	G8B, D7, G8	B2, E12, F14	B9	B9, E4
- 15	175	Upright	10190	VK200	8.0	11,5 2-3/8 60	B1, E11, F14,	G10, D13	-	-	B9, E3
- 20	175	Upright	10169	VK200	8.0	11,5 2-3/8 60	B1, E11, F14	D13, A9	-	B9	B9, E3

**Small Orifice<sup>11</sup>**

½ -	175	Upright	10218 <sup>8</sup>	VK001	2.8	2-1/4 57	B1, E11, F14	E10, E11	-	-	-
½ -	175	Upright	10219 <sup>9</sup>	VK002	4.2	2-1/4 57	B1, E11, F14	-	-	-	-
- 15	175	Upright	10191 <sup>9</sup>	VK002	4.2	2-1/4 57	B1, E11, F14	-	-	-	-
- 15	175	Upright	10192 <sup>9</sup>	VK001	2.8	2-1/4 57	B1, E11, F14	A13	-	-	-
- 10	175	Upright	10176	VK001	4.2	6,0 2-1/4 57	-	-	-	B9	B9, E3

**Conventional<sup>1</sup>**

½ -	175	Conv.	10227	VK118	5.6	2-1/4 57	B1, E11, F14	-	B1, E11, F14	B9	B5, E11
3/4 -	175	Conv.	10228	VK120	8.0	2-3/8 60	B1, E11, F14	-	B1, E11, F14	B9	B5, E11
- 15	175	Conv.	10172	VK118	5.6	8,1 2-1/4 57	B1, E11, F14	-	-	B9	B5, E11
- 20	175	Conv.	10168	VK120	8.0	11,5 2-3/8 60	B1, E11, F14	-	-	B9	B5, E11

**Maximum 250 PSI WWP Standard Orifice**

½	15	250	Upright	09993	VK124	5.6	8,1 2-1/4 57	C1	-	-	-
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**Small Orifice<sup>8</sup>**

½	15	250	Upright	09995 <sup>9</sup>	VK021	2.8	4,0 2-1/4 57	C1	-	-	-
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**Approved Temperature Ratings**

A -135 °F (57 °C), 155 °F (68 °C), 175 °F (93 °C), 212 °F (100 °C), 286 °F (360 °F (182 °C)

B -135 °F (57 °C), 155 °F (68 °C), 175 °F (93 °C), 286 °F (141 °C), and 360 °F (182 °C)

C -135 °F (57 °C), 155 °F (68 °C), 200 °F (93 °C), and 286 °F (141 °C)

D -135 °F (57 °C), 155 °F (68 °C), 175 °F (93 °C), and 212 °F (100 °C)

E -135 °F (57 °C), 155 °F (68 °C), °C), and 200 (93 °C)

F - 286 °F (141 °C)

G - 500 °F (260 °C)

**Approved Finishes**

- 1 - Brass, Bright Brass, Chrome-Enamel, Poly Ester, Navajo White Poly Ester, Black Teflon
- 2 - Brass, Bright Brass, Chrome-Enamel, Poly Ester, Navajo White Poly Ester, Black Teflon
- 3 - Brass, Bright Brass, Chrome-Enamel, Poly Ester, Navajo White Poly Ester, Black Teflon
- 4 - White Poly Finish, Navajo White Poly Ester, Black Poly Ester, Black Teflon
- 5 - Brass, Bright Brass, Chrome-Enamel, Poly Ester, Navajo White Poly Ester, Black Teflon
- 6 - White Poly Ester, Navajo White Poly Ester, Black Poly Ester, and Wax-Coated
- 7 - White Poly Finish and Wax-Coated Brass (corrosion resistant)
- 8 - Brass, Chrome-Enamel, White Poly Finish
- 9 - Brass, Bright Brass, and Chrome-Enamel
- 10 - Brass and Chrome-Enamel
- 11 - Wax-Coated Brass and Wax over Poly Ester (corrosion resistant)
- 12 - Wax-Coated Brass and Wax over Poly Finish (corrosion resistant)
- 13 - Wax-Coated Brass (corrosion resistant)
- 14 - 200 °F (93 °C) High-Temperature Wax Coating (not for maximum ambient temperature allowed at ceiling = 150 °F (65 °C))

**Footnotes**

- 1 Base part number shown. For complete part number, refer to Viking's current price schedule.
  - 2 This table shows the listings and approvals available at the time of printing. Changes may be made without notice.
  - 3 Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. XII.
  - 4 UL/C-UL Listed as corrosion-resistant.
  - 5 Listed by Underwriters Laboratories Inc. for use in Canada.
  - 6 Metric K-factor shown is for use when pressure is measured in kPa. When pressure is measured in psi, the metric K-factor shown by 10.
  - 7 Sprinklers of UL tra-High temperature rating are intended for use in unclassified environments, normal operating temperatures above 300 °F (149 °C). Where the ambient temperature around the fixture is significantly reduced to 300 °F (149 °C), the response time of the UL tra-High temperature rating sprinkler may be severe.
  - 8 Listings and Approvals limited to Light-Hazard Occupancies with water supply calculated.
  - 9 The sprinkler orifice is bushed.
  - 10 Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with Section 3-2.3.
  - 11 Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. III.
- Spacing Requirements:** maximum spacing 15 ft. (4,6 m), minimum spacing 6 ft. (1,8 m).

**Table 3**

Replaces page 11 a-d, dated Nov. 14, 2001 (updated the sprinkler orifice list). Form No. F\_100397  
 Refer to technical data page SR1-2 for general care, installation, and maintenance information.

SPR-14

DESCRIPTION: SPRINKLER, STANDARD-RESPONSE UPRIGHT, BULB TYPE, BRIGHT CHROME PLATED FINISH, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL/FM.

MANUFACTURER & CATALOG NO.: VIKING M, RELIABLE F1, TYCO TY-B, VICTAULIC V2703.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

2. COLORS: Brass, Decorative white or black (Not all manufacturers apply, check literature.)

3. For corrosion resistance information, consult manufacturer.

4. For extended coverage information, consult manufacturer.





## TECHNICAL DATA

MICROMATIC® AND  
Micromatic® HP STANDARD  
RESPONSE SPRINKLERS

**1. PRODUCT NAME**

Viking Micromatic Model M and Micromatic Model M Standard Response Glass-Bulb Style Sprinklers

• Available Styles: Upright, Pendant, and Conventional

**2. MANUFACTURER**

The Viking Corporation  
210 N. Industrial Park Road  
Hastings, Michigan 49058, U.S.A.  
Telephone:

Fax: (616) 945-9599  
e-mail: techsvcs@vikingcorp.com

**3. PRODUCT DESCRIPTION**

Viking Micromatic and Micromatic HP Standard Response Sprinklers are thermosensitive glass-bulb style sprinklers available in several temperature ratings, and orifice meet design requirements. The frame and rugged 5 mm glass bulb provide a pleasing appearance. Used in conjunction with one of the various corrosion-resistant coatings, the units provide protection against many corrosive environments. In addition, the finishes and Teflon coating can also be used in decorative applications where desired.

During fire conditions, the heat liquid in the glass bulb expands, the bulb to shatter, releasing the water flowing through the sprinkler orifice. The water forms a uniform spray pattern to extinguish or control the fire. Viking Standard Response Glass-Bulb Style Sprinklers may be ordered used as open sprinklers (glass bulb and pip-cap as assembly removed) on desktops.

**4. TECHNICAL DATA LISTINGS AND APPROVALS**

Refer to the charts on pages 11 and 12 for listings and approvals. Spacing Requirements: Maximum spacing 15 ft. (4,6 m), minimum spacing (1,8 m).

Min. operating pressure: 7 psi (48,3 kPa)  
Glass-bulb fluid temperature rated (-55 °C).

**Rated Water Working Pressure**  
Sprinkler Base Part Nos. 09992, 09993, 09994, and 09995 are rated for use with water working pressures ranging from the minimum 7 psi (48,3 kPa) up to 250 psi (1 724 kPa) for high-pressure systems. High-pressure (HP) sprinklers can be identified by locating the number "250" on the deflector.

All other Part Nos. not mentioned above are rated to a maximum 175 psi (1 207 kPa) wwp.

Factory tested hydrostatically to 448 kPa.

Spring: U.S.A. Patent No. 4,167,974

Note: Units of measure in parentheses may be appropriate. Refer to page 11 a-d, dated Nov. 14, 2001 (updated the spring materials Form No. F\_100397



Sprinkler Classification	Nominal Temperature Rating (Fusing Point)	Max. Ambient Ceiling Temperature	Bulb Color <sup>2</sup>
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Small Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
Small Intermediate	212 °F (100 °C)	150 °F (65 °C)	Green
Finishes	286 °F (141 °C)	225 °F (107 °C)	Blue
Extra High	360 °F (182 °C)	300 °F (149 °C)	Mauve
Ultra High	500 °F (260 °C)	465 °F (240 °C)	Black

**Sprinkler Finishes:** Brass, Bright Brass, Chrome-White Polyester (White Poly finish for P/Ns 10138, 10139, 10141, and 10220 only), Navajo White Polyester, Black Polyester, and Black Teflon.

**Corrosion-Resistant Coatings:** White Polyester (White Poly finish for P/Ns 10138, 10141, and 10220 only), Navajo White Polyester, Black Polyester, and Black Teflon. Temperature ratings: Wax-Coated Brass and Wax over Polyester finishes with the following temperature ratings:  
135 °F (57 °C) Off-White Wax °F (79 °C) Brown Wax °F (100 °C) Brown Wax °F (135 °F) (68 °C) Lt. Brown Wax °F (93 °C) Brown Wax °F (141 °C) Dk. Brown Wax

Based on NFPA-13. Other limits may apply, depending on fire load and other requirements of the Authority Having Jurisdiction. Refer to specific listings for temperature rating is stamped on the deflector.

The corrosion-resistant coatings listed in this standard corrosion test required by the listing agencies indicated on pages 11 b-d. These tests cannot and do not represent the corrosion resistant environments. Prior to installation, verify that the coatings are compatible with or suitable for the proposed environment. The coatings are applied to the exposed exterior surfaces only and, therefore, the units should not be used as open sprinklers. Note that the spring is exposed on the finishes and Teflon coatings.

Sprinklers of Ultra-High temperature rating are intended for use in side overhead enclosures with normal operating temperatures above 300 °F (149 °C). Ultra-High temperature rating around the Ultra-High temperature rated sprinkler be low 300 °F (149 °C), response time may be severely retarded.

<sup>5</sup> Wax over Polyester an available for Sprinkler Base P/Ns 09992, 09993, 09994, and

**SPRINKLER MATERIALS**

- Frame: Brass Castings UNS-C84400
- UNS-C87400
- Deflector: Copper UNS-C19500 for Sprinkler Base Part Nos. 10138, 10139, 10141, 10142, 10169, 10170, 10173, 10174, 10187, 10190, 10193, 10220, 10223, and 10233. Brass UNS-C26000 for all other Part Nos.
- Bushing (for Sprinkler Base Part Nos. 09994, 09995, 10191, 10192, 10218, and 10219): Brass UNS-C36000
- Bulb: Glass, nominal 5 mm diameter
- Belleville Spring Sealing Assembly (Nickel Alloy Coating), White Polyester (White Alloy), coated on both sides with Teflon Tape
- Screw: Brass UNS-C36000
- Pip Cap for Sprinkler Base Part Nos. 09992, 09993, 09994, 09995: Bronze, Wax-Coated Brass or Wax over Polyester\* for sprinklers with temperature ratings through 286 °F (141 °C).
- Part Nos: Copper UNS-C11000 and Stainless Steel UNS-S30400

Pip Cap Attachment: Brass UNS-C36000

**Sprinklers with Teflon Coating**

- Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape, exposed
- Screw: Brass UNS-C36000, Nickel plate
- Teflon Coated Pip Cap

**Sprinklers with Polyester Coating or Poly Finish**

- Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape, exposed

**AVAILABLE FINISHES**

- Brass, Bright Brass, Chrome-White Polyester (White Poly finish for Sprinkler Base Part Nos. 10138, 10139, 10141, and 10220 only), Navajo White Polyester, Black Polyester, Black Teflon all temperature ratings through 286 °F (141 °C).

(Continued on page 11 c.)

Refer to page 11 a-d, dated Nov. 14, 2001 (updated the spring materials. Refer to technical data page SR1-2 for general care, installation, and maintenance information.



## TECHNICAL DATA

MICROMATIC® AND  
Micromatic HP STANDARD  
RESPONSE SPRINKLERS

Approval Chart Micromatic Standard Response Pendent Sprinklers Maximum 175 PSI WWP Standard Orifice										Temperature Finish			
Thread Size NPT BSP	Max. Pressure PSIG	Sprinkler Style	Sprinkler Base P/N	Sprinkler I.D. No. <sup>10</sup>	Nominal K-Factor		Overall Length		Listings and Approvals				
					U.S. <sup>10</sup>	metric	Inch	mm	UL and C-UL <sup>5</sup>	FM	NYC <sup>9</sup>	Vds	LPCB
1/2	-	175	Pendent	10139	VK102	5.6	-	2-1/4	57	B2, D11, E13, F9, C6, F7	B2, D11, E13, F8	B8, D8	D4
-	15	175	Pendent	10173	VK102	5.6	8,1	2-1/4	57	B1, D10, E13, F9, C12, AB1, D10, E13	B8	B8, D8	D8
<b>Large Orifice</b>													
1/2	-	175	Pendent	10223	VK202	8.0	11,5	2-3/8	60	B1, D10, E13, F9, C12, F91, D10, E13	-	-	-
3/4	-	175	Pendent	10142	VK202	8.0	11,5	2-3/8	60	B1, D10, E13, F9, C12, F91, D10, E13	B8	B8, D8	D8
-	15	175	Pendent	10187	VK202	8.0	11,5	2-3/8	60	B1, D10, E13, F9, C12	-	-	B8, D8
-	20	175	Pendent	10170	VK202	8.0	11,5	2-3/8	60	B1, D10, E13, C12, A8	-	B8	B8, D8
<b>Small Orifice</b>													
1/2	-	175	Pendent	10221	VK003	2.8	-	2-1/4	57	B1, D10, E13, D9, D12	-	-	-
1/2	-	175	Pendent	10222	VK004	4.2	-	2-1/4	57	B1, D10, E13	-	-	-
-	10	175	Pendent	10175	VK003	4.2	6,0	2-1/4	57	-	-	B8	B8, D8
-	15	175	Pendent	10188	VK004	4.2	-	-	-	B1, D10, E13	-	-	-
-	15	175	Pendent	10189	VK003	2.8	-	-	-	B1, D10, E13	-	-	-
<b>Installed with the Viking Micromatic Model E-1 or E-2 Recessed Escutcheons</b>													
1/2	-	175	Pendent	10139	VK102	5.6	-	2-1/4	57	-	D2	D8	D2
1/2	-	175	Pendent	10223	VK202	8.0	11,5	2-3/8	60	D1	D8 <sup>8</sup>	D1	D8
1/2	-	175	Pendent	10221	VK003	2.8	-	2-1/4	57	D1	C8 <sup>8</sup>	D1	D8
1/2	-	175	Pendent	10222	VK004	4.2	-	2-1/4	57	D1	-	D1	D8
3/4	-	175	Pendent	10142	VK202	8.0	11,5	2-3/8	60	D1	D8 <sup>8</sup>	D1	D8
-	15	175	Pendent	10173	VK102	5.6	8,1	2-1/4	57	D1	C8 <sup>8</sup>	-	D8
-	20	175	Pendent	10170	VK202	8.0	11,5	2-3/8	60	D1	D8 <sup>8</sup>	-	D8
<b>Installed with the Viking Micromatic Model F-1 Adjustable Escutcheons</b>													
1/2	-	175	Pendent	10139	VK102	5.6	-	2-1/4	57	-	-	D2	D8
1/2	-	175	Pendent	10223	VK202	8.0	11,5	2-3/8	60	D1	-	D1	D8
1/2	-	175	Pendent	10221	VK003	2.8	-	2-1/4	57	D1	-	D1	D8
1/2	-	175	Pendent	10222	VK004	4.2	-	2-1/4	57	D1	-	D1	D8
3/4	-	175	Pendent	10142	VK202	8.0	11,5	2-3/8	60	D1	-	D1	D8
-	15	175	Pendent	10173	VK102	5.6	8,1	2-1/4	57	-	-	-	D8
-	20	175	Pendent	10170	VK202	8.0	11,5	2-3/8	60	-	-	-	D8
<b>Approved Finishes</b>													
<b>Approved Temperature Ratings</b>					<p>1 - Brass, Bright Brass, Chrome-Enloy, White Poly Finish, Navajo White Poly Finish, Black Poly ester and Black Teflon</p> <p>2 - Brass, Bright Brass, Chrome-Enloy, White Poly Finish, Navajo White Poly Finish, Black Poly ester and Black Teflon</p> <p>3 - Brass, Bright Brass, Chrome-Enloy, White Poly Finish, Navajo White Poly Finish, Black Poly ester and Black Teflon</p> <p>4 - White Poly Finish, Navajo White Poly Finish, Black Poly ester and Black Teflon</p> <p>5 - Brass, Bright Brass, Chrome-Enloy, White Poly Finish</p> <p>6 - White Poly Finish and Wax-Coated Brass (corrosion resistant)</p> <p>7 - Brass, Chrome-Enloy and White Poly Finish</p> <p>8 - Brass, Bright Brass, and Chrome-Enloy</p> <p>9 - Brass and Chrome-Enloy</p> <p>10 - Wax-Coated Brass and Wax Over Polyester (corrosion resistant)</p> <p>11 - Wax-Coated Brass and Wax Over Poly Finish (corrosion resistant)</p> <p>12 - Wax-Coated Brass (corrosion resistant)</p> <p>13 - High Temperature 200 °F (93 °C) Wax Coating (corrosion resistant); max. temperature allowed at ceiling = 150 °F (65 °C)</p>								
<b>Footnotes</b>					<p><sup>1</sup> Base part number shown. For complete part number, refer to Viking's current price schedule.</p> <p><sup>2</sup> This table shows the listings and approvals available at the time of printing. Inquiries should be directed to Viking's technical department.</p> <p><sup>3</sup> Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. XII.</p> <p><sup>4</sup> UL/C-UL Listed as corrosion-resistant.</p> <p><sup>5</sup> Listed by Underwriters Laboratories Inc. for use in Canada.</p> <p><sup>6</sup> Metric K-factor shown is for use when pressure is measured in kPa. Where pressure is in psi, the metric K-factor shown by 10.0.</p> <p><sup>7</sup> Sprinklers of UL tra-High temperature rating are intended for use in areas where ambient temperatures are normal operating temperatures above 300 °F (149 °C). Where the ambient temperature around the sprinkler is significantly reduced below 300 °F (149 °C), the response time of the sprinkler may be severely retarded.</p> <p><sup>8</sup> FM Approval of Viking Micromatic Standard Response Recessed Pendent Sprinklers in stalled with Model E-1 or E-2 Micromatic Recessed Escutcheon is limited to wet systems and preaction systems used for fire and gas detection and in ordinary Hazard, Group II.</p> <p><sup>9</sup> Listings and Approvals limited to Light-Hazard Occupancies with wet systems and dry systems.</p> <p><sup>10</sup> Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with NFPA 13, Section 9.2.1 and Section 3-2.3.</p> <p><sup>11</sup> Refer to the "Sprinkler Accessories" section for technical data on the various escutcheons. Escutcheons must be ordered separately from sprinklers. Refer to Viking's current price schedule.</p>								
<p><b>Spacing Requirements:</b> maximum spacing 15 ft. (4,6 m), minimum spacing 6 ft. (1,8 m).</p>													



## TECHNICAL DATA

MICROMATIC® AND  
MicromaticHP STANDARD  
RESPONSE SPRINKLERS

**Approval Chart**  
**MicromaticHP Standard Response**  
**Pendent Sprinklers**  
**Maximum 250 PSI WWP**

Temperature **KEY**

Finish

A1

Standard Orifice															
Thread Size	Max. Pressure	Sprinkler Style	Sprinkler Base Part No. <sup>1</sup>	Sprinkler Identification No.	Nominal K-Factor		Overall Length		Listings and Approvals						
					U.S. <sup>8</sup>	metric <sup>5</sup>	Inch	mm	UL	C-UL <sup>4</sup>	FM	NYC	VdS	LPCB	
1/2"	15	250	Pendent	09992	VK122	5.6	8,1	2-1/4"	58	A1	A1	-	-	-	-

Small Orifice															
1/2"	15	250	Pendent	09994 <sup>7</sup>	VK023	2.8	4,0	2-1/4"	58	A1	A1	-	-	-	-

**Installed with the Viking Micromatic Model E-1 or E-2 Recessed Escutcheon**

1/2"	15	250	Pendent	09992	VK122	5.6	8,1	2-1/4"	58	B1	B1	-	-	-	-
1/2"	15	250	Pendent	09994 <sup>6,7</sup>	VK023	2.8	4,0	2-1/4"	58	B1	B1	-	-	-	-

**Installed with the Viking Micromatic Model F-1 Adjustable Escutcheon**

1/2"	15	250	Pendent	09992	VK122	5.6	8,1	2-1/4"	58	A1	A1	-	-	-	-
1/2"	15	250	Pendent	09994 <sup>6,7</sup>	VK023	2.8	4,0	2-1/4"	58	A1	A1	-	-	-	-

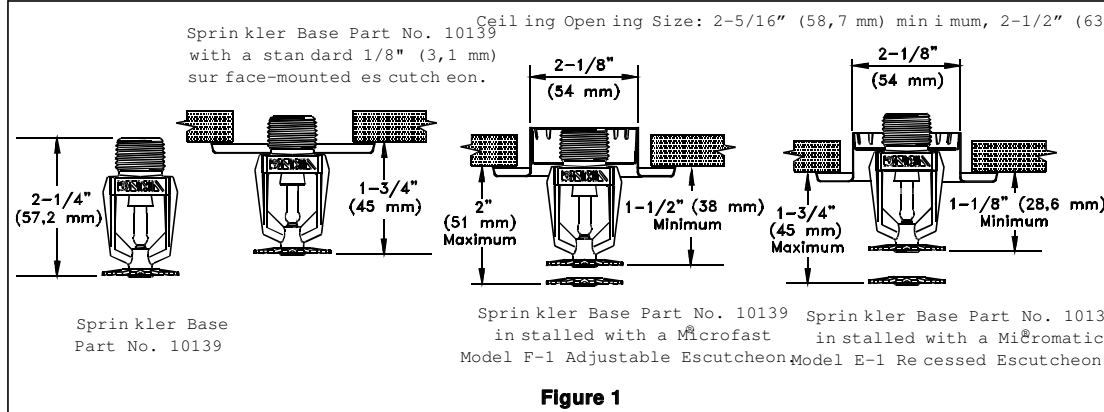
Approved Temperature Ratings								Approved Finishes							
A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (99 °C), and 200 °F (93 °C)								Brass, Bright Brass, Chrome, White Polyethylene, and Black Polyethylene							
B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (99 °C) and 200 °F (93 °C)								White Polyethylene, Black Polyethylene, and Black							

**Footnotes**

- <sup>1</sup> Base part number shown. For complete part number, refer to Viking's current price schedule.
- <sup>2</sup> This table shows the listings and approvals available at the time of printing.
- <sup>3</sup> UL/C-UL Listed as corrosion-resistant.
- <sup>4</sup> Listed by Underwriters Laboratories Inc. for use in Canada.
- <sup>5</sup> Metric K-factor shown is for use when pressure is measured in kPa. When pressure is measured in psi, the metric K-factor shown by 10.
- <sup>6</sup> Listings and Approvals limited to Light-Hazard Occupancies with wet-dry type hydraulic
- <sup>7</sup> The sprinkler orifice is bushed.
- <sup>8</sup> Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with Section 3-2.3.
- <sup>9</sup> The Micromatic Model F-1 Adjustable Escutcheon is considered a surface-mounted escutcheon and the element of the sprinkler to be recessed behind the face of the wall or ceiling.
- <sup>10</sup> Refer to the "Sprinkler Accessories" section for technical data on other approved escutcheons. Escutcheons must be ordered separately from sprinklers. Refer to Viking's current price schedule.

**Spacing Requirements:** Maximum spacing 15 ft. (4,6 m), minimum spacing 6 ft. (1,8 m).

**Table 2**



\* Wax Over Polyester unavailable for Sprinkler Wrenches for coated and recessed sprinklers: Part No. 07398W\*\* (available since 1990).

**ACCESSORIES**

Sprinkler Wrenches:  
 A. Standard wrench: Part No. 10896W (available since 2000) or 05000W (no longer available).  
 \*A 1/2" ratchet is required (not available from Viking).

Refer to the "Sprinkler Accessories" section of the data book.



## TECHNICAL DATA

MICROMATIC® AND  
MicromaticHP STANDARD  
RESPONSE SPRINKLERS

**Approval Chart**  
Micromatic® and MicromaticHP® Standard Response Upright and Conventional Sprinklers

Temperature **KEY**

Finish

A1

**Maximum 175 PSI WWP Standard Orifice<sup>1</sup>**

Thread Size	Max. Pressure PSIG	Sprinkler Style	Sprinkler Base Part No. <sup>1</sup>	Sprinkler I.D. No. <sup>10</sup>	Nominal K-Factor U.S. <sup>10</sup> metric <sup>5</sup>	Overall Length Inch mm	Listings and Approvals				
							UL and C-UL <sup>4</sup>	FM	NYC	Vds	LPCB
1/2 -	175	Upright	10138	VK100	5.6 -	2-1/4 57	B2, E12, F14,	G8B, D7, G8	B2, E12, F14	-	-
1/2 -	175	Upright	10233	VK100	5.6 -	2-1/4 57	-	B10, D13, G10	-	B9	B9, E3
-	15	175	Upright	10174	VK100	5.6 8,1	2-1/4 57	-	B10, D13, A9	-	B9 B9, E3
-	15	175	Upright	10193	VK100	5.6 8,1	2-1/4 57	B1, E11, F14,	G10, D13, A9	B1, E11, F14	-

**Large Orifice<sup>1</sup>**

1/2 -	175	Upright	10220	VK200	8.0 -	2-3/8 60	B2, E12, F14,	G8B, D7, G8	B2, E12	-	-
3/4 -	175	Upright	10141	VK200	8.0 11,5	2-3/8 60	B2, E12, F14,	G8B, D7, G8	B2, E12, F14	B9	B9, E4
-	15	175	Upright	10190	VK200	8.0 11,5	2-3/8 60	B1, E11, F14,	G10 D13	-	B9, E3
-	20	175	Upright	10169	VK200	8.0 11,5	2-3/8 60	B1, E11, F14	D13, A9	-	B9 B9, E3

**Small Orifice<sup>11</sup>**

1/2 -	175	Upright	10218 <sup>8</sup>	VK001	2.8 -	2-1/4 57	B1, E11, F14	E10, E11	-	-	-
1/2 -	175	Upright	10219 <sup>9</sup>	VK002	4.2 -	2-1/4 57	B1, E11, F14	-	-	-	-
-	15	175	Upright	10191 <sup>9</sup>	VK002	4.2 -	2-1/4 57	B1, E11, F14	-	-	-
-	15	175	Upright	10192 <sup>9</sup>	VK001	2.8 -	2-1/4 57	B1, E11, F14	A13	-	-
-	10	175	Upright	10176	VK001	4.2 6,0	2-1/4 57	-	-	B9	B9, E3

**Conventional<sup>1</sup>**

1/2 -	175	Conv.	10227	VK118	5.6 -	2-1/4 57	B1, E11, F14	-	B1, E11, F14	B9	B5, E11
3/4 -	175	Conv.	10228	VK120	8.0 -	2-3/8 60	B1, E11, F14	-	B1, E11, F14	B9	B5, E11
-	15	175	Conv.	10172	VK118	5.6 8,1	2-1/4 57	B1, E11, F14	-	-	B9 B5, E11
-	20	175	Conv.	10168	VK120	8.0 11,5	2-3/8 60	B1, E11, F14	-	-	B9 B5, E11

**Maximum 250 PSI WWP Standard Orifice**

1/2	15	250	Upright	09993	VK124	5.6 8,1	2-1/4 57	C1	-	-	-
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**Small Orifice<sup>8</sup>**

1/2	15	250	Upright	09995 <sup>9</sup>	VK021	2.8 4,0	2-1/4 57	C1	-	-	-
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Approved Temperature Ratings	Approved Finishes
<p>A -135 °F (57 °C), 155 °F (68 °C), 175 °F (93 °C), 212 °F (100 °C), 286 °F (360 °F (182 °C)</p> <p>B -135 °F (57 °C), 155 °F (68 °C), 175 °F (93 °C), 286 °F (141 °C), and 360 °F (182 °C)</p> <p>C -135 °F (57 °C), 155 °F (68 °C), 200 °F (93 °C), and 286 °F (141 °C)</p> <p>D -135 °F (57 °C), 155 °F (68 °C), 175 °F (93 °C), and 212 °F (100 °C)</p> <p>E -135 °F (57 °C), 155 °F (68 °C), °C), and 200 (93 °C)</p> <p>F - 286 °F (141 °C)</p> <p>G - 500 °F (260 °C)</p>	<p>1 - Brass, Bright Brass, Chrome-Enamel, Polycarbonate, Navajo White Poly ester, Black Poly ester, and Black Teflon</p> <p>2 - Brass, Bright Brass, Chrome-Enamel, Polycarbonate, Navajo White Poly ester, Black Poly ester, and Black Teflon</p> <p>3 - Brass, Bright Brass, Chrome-Enamel, Polycarbonate, Navajo White Poly ester, Black Poly ester, and Wax-Coated Black Teflon</p> <p>4 - White Poly Finish, Navajo White Poly ester, Black Poly ester, and Wax-Coated Black Teflon</p> <p>5 - Brass, Bright Brass, Chrome-Enamel, Polycarbonate, Navajo White Poly ester, Black Poly ester, and Wax over Polyester</p> <p>6 - White Poly ester, Navajo White Poly ester, Black Poly ester, and Wax-Coated Black Teflon</p> <p>7 - White Poly Finish and Wax-Coated Brass (corrosion resistant)</p> <p>8 - Brass, Chrome-Enamel, White Poly Finish</p> <p>9 - Brass, Bright Brass, and Chrome-Enamel</p> <p>10 - Brass and Chrome-Enamel</p> <p>11 - Wax-Coated Brass and Wax over Poly ester (corrosion resistant)</p> <p>12 - Wax-Coated Brass and Wax over Poly Finish (corrosion resistant)</p> <p>13 - Wax-Coated Brass (corrosion resistant)</p> <p>14 - 200 °F (93 °C) High-Temperature Wax Coating (not for maximum ambient temperature allowed at ceiling = 150 °F (65 °C))</p>

**Footnotes**

- <sup>1</sup> Base part number shown. For complete part number, refer to Viking's current price schedule.
- <sup>2</sup> This table shows the listings and approvals available at the time of printing. Changes may be made without notice.
- <sup>3</sup> Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. XII.
- <sup>4</sup> UL/C-UL Listed as corrosion-resistant.
- <sup>5</sup> Listed by Underwriters Laboratories Inc. for use in Canada.
- <sup>6</sup> Metric K-factor shown is for use when pressure is measured in kPa. When pressure is measured in psi, the metric K-factor shown by 10.
- <sup>7</sup> Sprinklers of UL tra-High temperature rating are intended for use in unclassified environments, normal operating temperatures above 300 °F (149 °C). Where the ambient temperature around the fixture is high, temperatures may be significantly reduced to 300 °F (149 °C), the response time of the UL tra-High temperature rating sprinkler may be severe.
- <sup>8</sup> Listings and Approvals limited to Light-Hazard Occupancies with water supply and hydraulic calculations.
- <sup>9</sup> The sprinkler orifice is bushed.
- <sup>10</sup> Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with the Section 9.1.1 and Section 3-2.3.
- <sup>11</sup> Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. III.

**Spacing Requirements:** maximum spacing 15 ft. (4,6 m), minimum spacing 6 ft. (1,8 m).

**Table 3**

Replaces page 11 a-d, dated Nov. 14, 2001 (updated the sprinkler materials list). Form No. F\_100397  
 technical data page SR1-2 for general care, installation, and maintenance information.

SPR-15

DESCRIPTION: SPRINKLER, STANDARD-RESPONSE RECESSED PENDENT, BULB TYPE, BRIGHT CHROME SPRINKLER AND ESCUTCHEON PLATE [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL/FM.

MANUFACTURER & CATALOG NO.: VIKING M, RELIABLE F1, TYCO TY-B, VICTAULIC V2708.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

2. COLORS: Brass, Decorative white or black (Not all manufacturers apply, check literature: i.e. Central white is not F.M. approved)

3. For corrosion resistance information, consult manufacturer.

4. For extended coverage information, consult manufacturer.

5. Victaulic sprinklers are not UL listed for high temperature class.







## TECHNICAL DATA

MICROMATIC® AND  
Micromatic® HP STANDARD  
RESPONSE SPRINKLERS

### 1. PRODUCT NAME

Viking Micromatic Model M and Micromatic HP Model M Standard Response Glass-Bulb Style Sprinklers

• Available Styles: Upright, Pendant, and Conventional

### 2. MANUFACTURER

The Viking Corporation  
210 N. Industrial Park Road  
Hastings, Michigan 49058, U.S.A.  
Telephone:

Fax: (616) 945-9599  
e-mail: techsvcs@vikingcorp.com

### 3. PRODUCT DESCRIPTION

Viking Micromatic and Micromatic HP Standard Response Sprinklers are thermosensitive glass-bulb style sprinklers available in several temperature ratings, and orifice sizes to meet design requirements. The frame and rugged 5 mm glass bulb provide a pleasing appearance. Used in conjunction with one of the various corrosion-resistant coatings, the units provide protection against many corrosive environments. In addition, the Polyishes and Teflon coating can also be used in decorative applications where desired.

During fire conditions, the heat liquid in the glass bulb expands, the bulb to shatter, releasing the and sealing spring assembly. Water flowing through the sprinkler orifice strikes the deflector, forming a uniform pattern to extinguish or control the fire. Viking Standard Response Glass-Bulb Style Sprinklers may be ordered used as open sprinklers (glass bulb pip-cap assembly removed) on detection systems.

### 4. TECHNICAL DATA LISTINGS AND APPROVALS

Refer to the charts on pages 11 and 12 for Spacing Requirements: Maximum spacing 15 ft. (4,6 m), minimum spacing 1,8 m).

Min. operating pressure: 7 psi (48,3 kPa)  
Glass-bulb fluid temperature rating: 101°F (-55 °C).

**Rated Water Working Pressure Sprinkler Base Part Nos. 09992, 09993, 09994, and 09995 are rated for use with water working pressures ranging from the minimum 7 psi (48,3 kPa) up to 250 psi (1 724 kPa) for high-pressure systems. High-pressure (HP) sprinklers can be identified by locating the number "250" on the deflector.**

**All other Part Nos. not mentioned above are rated to a maximum 175 psi (1 207 kPa) wwp.**

Factory tested hydrostatically to 448 kPa.

Spring: U.S.A. Patent No. 4,167,974

Note: Units of measure in parentheses may be appropriate.

Form No. F\_100397



Sprinkler Classification	Nominal Rating (Fusing Point)	Nominal Sprinkler Temperature	Max. Ambient Ceiling Temperature	Bulb Color <sup>2</sup>
Ordinary	135 °F (57 °C)	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	175 °F (79 °C)	150 °F (65 °C)	Yellow
Small orifice intermediate	200 °F (93 °C)	200 °F (93 °C)	150 °F (65 °C)	Green
Spray intermediate	212 °F (100 °C)	212 °F (100 °C)	150 °F (65 °C)	Green
Small orifice High	286 °F (141 °C)	286 °F (141 °C)	225 °F (107 °C)	Blue
Small orifice Ultra High	360 °F (182 °C)	360 °F (182 °C)	300 °F (149 °C)	Mauve
Small orifice Ultra High	500 °F (260 °C)	500 °F (260 °C)	465 °F (240 °C)	Black

**Sprinkler Finishes:** Brass, Bright Brass, Chrome-Brass, White Polyester (White Poly finish for P/Ns 10138, 10139, 10141, and 10220 only), Navajo White Polyester, Black Polyester, Black Deflon

**Corrosion-Resistant Coatings:** White Polyester (White Poly finish for P/Ns 10138, 10141, and 10220 only), Navajo White Polyester, Black Polyester, and Black Teflon. Wax-Coated Brass and Wax Over Poly are available with the following temperature ratings:  
 135 °F (57 °C) Off-White Wax  
 155 °F (68 °C) Lt. Brown Wax  
 175 °F (79 °C) Brown Wax  
 200 °F (93 °C) Brown Wax  
 212 °F (100 °C) Brown Wax  
 286 °F (141 °C) Dk. Brown Wax

<sup>1</sup>Based on NFPA-13. Other limits may apply, depending on fire load and, sprinkler other requirements of the Authority Having Jurisdiction. Beaded and specific ir

<sup>2</sup>The corrosion-resistant coatings listed in the standard corrosion test required by the following agencies indicated on pages 11 b-d. These tests can not and do not re

<sup>3</sup>Ultra High temperature rating are intended for use in side over 300 °F (149 °C).  
<sup>4</sup>Ultra High temperature rating around the Ultra-High temperature rated sprinkler is signifi

<sup>5</sup>Wax Over Polyester unavailable for Sprinkler Base P/Ns 09992, 09993, 09994, a:

### SPRINKLER MATERIALS

Frame: Brass Castings UNS-C84400  
 Deflector: Copper UNS-C19500 for Sprinkler Base Part Nos. 10138, 10139, 10141, 10169, 10170, 10173, 10174, 10187, 10190, 10193, 10223, and 10233. Brass UNS-C26000 for all other Part Nos.

Bushing (for Sprinkler Base Part Nos. 09994, 09995, 10191, 10192, 10218, and 10219): Brass UNS-C36000

Bulb: Glass, nominal 5 mm diameter  
 Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape, exposed

Screw: Brass UNS-C36000, Nickel plate  
 Teflon Coated Pip Cap

**Sprinklers with Polyester Coating or Poly Finish**  
 Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape, exposed

**AVAILABLE FINISHES**  
 Brass, Bright Brass, Chrome-Brass, White Polyester (White Poly finish for Sprinkler Base Part Nos. 10138, 10139, 10141, and 10220 only), Navajo White Polyester, Black Polyester.

Black Teflon all temperature rating; Wax-Coated Brass or Wax over Polyester\* for sprinklers with

temperature ratings through 286 °F (141 °C).

Part Nos: Copper UNS-C11000 and Stainless Steel UNS-S30400

Insert Assembly for all temperature ratings through 286 °F (141 °C).

(Continued on page 11 c.)

Refer to technical data page SR1-2 for general care, installation, and maintenance information.



## TECHNICAL DATA

MICROMATIC® AND  
Micromatic HP STANDARD  
RESPONSE SPRINKLERS

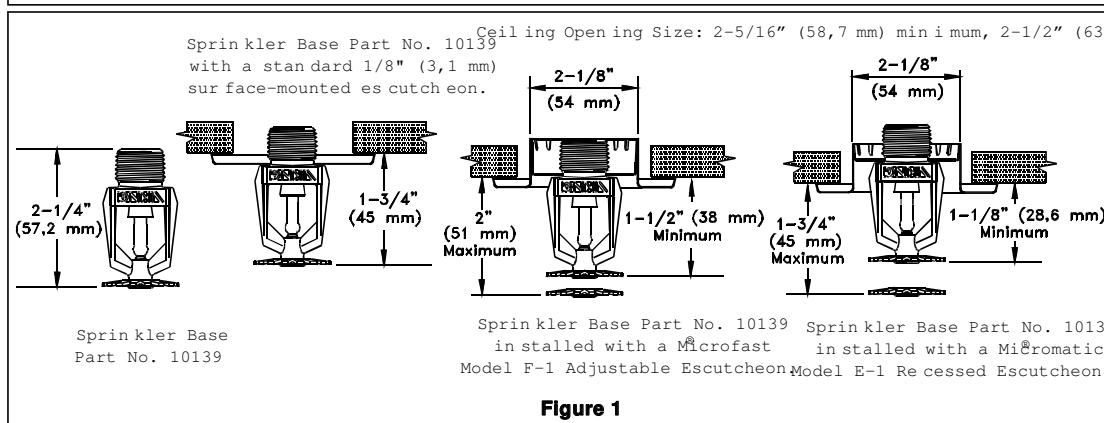
Approval Chart Micromatic Standard Response Pendent Sprinklers Maximum 175 PSI WWP Standard Orifice										Temperature Finish			
Thread Size	Max. Pressure PSIG	Sprinkler Style	Sprinkler Base P/N	Sprinkler I.D. No. <sup>10</sup>	Nominal K-Factor		Overall Length		Listings and Approvals				
					U.S. <sup>10</sup>	metric	Inch	mm	UL and C-UL <sup>5</sup>	FM	NYC <sup>3</sup>	Vds	LPCB
1/2	175	Pendent	10139	VK102	5.6	8.1	2-1/4	57	B2, D11, E13, F9, C6, F7	B2, D11, E13, F8	B8, D8		
-	15	Pendent	10173	VK102	5.6	8.1	2-1/4	57	B1, D10, E13, F9, C12, A8	B1, D10, E13, F8	B8, D8		
<b>Large Orifice</b>													
1/2	175	Pendent	10223	VK202	8.0	11.5	2-3/8	60	B1, D10, E13, F9, C12, F8	B1, D10, E13, F8	B8, D8		
3/4	175	Pendent	10142	VK202	8.0	11.5	2-3/8	60	B1, D10, E13, F9, C12, F8	B1, D10, E13, F8	B8, D8		
-	15	Pendent	10187	VK202	8.0	11.5	2-3/8	60	B1, D10, E13, F9, C12	-	B8, D8		
-	20	Pendent	10170	VK202	8.0	11.5	2-3/8	60	B1, D10, E13, C12, A8	-	B8, D8		
<b>Small Orifice</b>													
1/2	175	Pendent	10221	VK003	2.8	-	2-1/4	57	B1, D10, E13, D9, D12	-	-		
1/2	175	Pendent	10222	VK004	4.2	-	2-1/4	57	B1, D10, E13	-	-		
-	10	Pendent	10175	VK003	4.2	6.0	2-1/4	57	-	-	B8, D8		
-	15	Pendent	10188	VK004	4.2	-	-	-	B1, D10, E13	-	-		
-	15	Pendent	10189	VK003	2.8	-	-	-	B1, D10, E13	-	-		
<b>Installed with the Viking Micromatic Model E-1 or E-2 Recessed Escutcheon</b>													
1/2	175	Pendent	10139	VK102	5.6	-	2-1/4	57	D2	C5 <sup>8</sup>	D8	D2	
1/2	175	Pendent	10223	VK202	8.0	11.5	2-3/8	60	D1	D8 <sup>8</sup>	D1	D8	D1
1/2	175	Pendent	10221	VK003	2.8	-	2-1/4	57	D1	C8 <sup>8</sup>	D1	D8	D1
1/2	175	Pendent	10222	VK004	4.2	-	2-1/4	57	D1	-	D1	D8	D1
3/4	175	Pendent	10142	VK202	8.0	11.5	2-3/8	60	D1	D8 <sup>8</sup>	D1	D8	D1
-	15	Pendent	10173	VK102	5.6	8.1	2-1/4	57	D1	C8 <sup>8</sup>	-	D8	D1
-	20	Pendent	10170	VK202	8.0	11.5	2-3/8	60	D1	D8 <sup>8</sup>	-	D8	D1
<b>Installed with the Viking Micromatic Model F-1 Adjustable Escutcheon</b>													
1/2	175	Pendent	10139	VK102	5.6	-	2-1/4	57	D2	-	D2	E8	D2
1/2	175	Pendent	10223	VK202	8.0	11.5	2-3/8	60	D1	-	D1	E8	D1
1/2	175	Pendent	10221	VK003	2.8	-	2-1/4	57	D1	-	D1	E8	D1
1/2	175	Pendent	10222	VK004	4.2	-	2-1/4	57	D1	-	D1	E8	D1
3/4	175	Pendent	10142	VK202	8.0	11.5	2-3/8	60	D1	-	D1	E8	D1
-	15	Pendent	10173	VK102	5.6	8.1	2-1/4	57	-	-	-	E8	D1
-	20	Pendent	10170	VK202	8.0	11.5	2-3/8	60	-	-	-	E8	D1
<b>Approved Finishes</b>													
<b>Approved Temperature Ratings</b>					<p>1 - Brass, Bright Brass, Chrome-Enl<sup>8</sup> and White Poly Finish</p> <p>2 - Brass, Bright Brass, Chrome-Enl<sup>8</sup> and White Poly Finish</p> <p>3 - Brass, Bright Brass, Chrome-Enl<sup>8</sup> and White Poly Finish</p> <p>4 - White Poly Finish, Navajo White Poly ester, Black Poly wax coated Black Teflon</p> <p>5 - Brass, Bright Brass, Chrome-Enl<sup>8</sup> and White Poly Finish</p> <p>6 - White Poly Finish and Wax-Coated Brass (corrosion resistant)</p> <p>7 - Brass, Chrome-Enl<sup>8</sup> and White Poly Finish</p> <p>8 - Brass, Bright Brass, and Chrome-Enl<sup>8</sup></p> <p>9 - Brass and Chrome-Enl<sup>8</sup></p> <p>10 - Wax-Coated Brass and Wax Over Poly ester (corrosion resistant)</p> <p>11 - Wax-Coated Brass and Wax Over Poly Finish (corrosion resistant)</p> <p>12 - Wax-Coated Brass (corrosion resistant)</p> <p>13 - High Temperature 200 °F (93 °C) Wax Coating (corrosion resistant); max. temperature allowed at ceiling = 150 °F (65 °C)</p>								
<p>A - 135 °F (57 °C), 155 °F (68 °C), 200 °F (93 °C), 212 °F (100 °C), 286 °F (142 °C), and 360 °F (182 °C)</p> <p>B - 135 °F (57 °C), 155 °F (68 °C), 200 °F (93 °C), 286 °F (141 °C), and 360 °F (182 °C)</p> <p>C - 35 °F (57 °C), 155 °F (68 °C), 175 °F (93 °C), and 212 °F (100 °C)</p> <p>D - 135 °F (57 °C), 155 °F (68 °C), and 200 °F (93 °C)</p> <p>E - 286 °F (141 °C)</p> <p>F - 500 °F (260 °C)</p>					<p>1 - Brass, Bright Brass, Chrome-Enl<sup>8</sup> and White Poly Finish</p> <p>2 - Brass, Bright Brass, Chrome-Enl<sup>8</sup> and White Poly Finish</p> <p>3 - Brass, Bright Brass, Chrome-Enl<sup>8</sup> and White Poly Finish</p> <p>4 - White Poly Finish, Navajo White Poly ester, Black Poly wax coated Black Teflon</p> <p>5 - Brass, Bright Brass, Chrome-Enl<sup>8</sup> and White Poly Finish</p> <p>6 - White Poly Finish and Wax-Coated Brass (corrosion resistant)</p> <p>7 - Brass, Chrome-Enl<sup>8</sup> and White Poly Finish</p> <p>8 - Brass, Bright Brass, and Chrome-Enl<sup>8</sup></p> <p>9 - Brass and Chrome-Enl<sup>8</sup></p> <p>10 - Wax-Coated Brass and Wax Over Poly ester (corrosion resistant)</p> <p>11 - Wax-Coated Brass and Wax Over Poly Finish (corrosion resistant)</p> <p>12 - Wax-Coated Brass (corrosion resistant)</p> <p>13 - High Temperature 200 °F (93 °C) Wax Coating (corrosion resistant); max. temperature allowed at ceiling = 150 °F (65 °C)</p>								
<b>Footnotes</b>													
<p><sup>1</sup> Base part number shown. For complete part number, refer to Viking's current price schedule.</p> <p><sup>2</sup> This table shows the listings and approvals available at the time of printing. Inquiries should be directed to Viking's technical department.</p> <p><sup>3</sup> Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. XII.</p> <p><sup>4</sup> UL/C-UL Listed as corrosion-resistant.</p> <p><sup>5</sup> Listed by Underwriters Laboratories Inc. for use in Canada.</p> <p><sup>6</sup> Metric K-factor shown is for use when pressure is measured in kPa. Where pressure is in psi, the metric K-factor shown by 10.0.</p> <p><sup>7</sup> Sprinklers of UL tra-High temperature rating are intended for use in areas where ambient temperatures are normal operating temperatures above 300 °F (149 °C). Where the ambient temperature around the sprinkler is significantly reduced below 300 °F (149 °C), the response time of the sprinkler may be severely retarded.</p> <p><sup>8</sup> FM Approval of Viking Micromatic Standard Response Recessed Pendent Sprinklers in stalled with Model E-1 or E-2 Recessed Escutcheon is limited to wet systems and preaction systems used for fire protection in ordinary Hazard, Group II.</p> <p><sup>9</sup> Listings and Approvals limited to Light-Hazard Occupancies with wet systems and dry systems.</p> <p><sup>10</sup> Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with NFPA 13, Section 9.2.1 and Section 3-2.3.</p> <p><sup>11</sup> Refer to the "Sprinkler Accessories" section for technical data on other accessories. Escutcheons must be ordered separately from sprinklers. Refer to Viking's current price schedule.</p>													
<p><b>Spacing Requirements:</b> maximum spacing 15 ft. (4,6 m), minimum spacing 6 ft. (1,8 m).</p>													
<b>Table 1</b>													

VIKING<sup>®</sup>

TECHNICAL DATA

MICROMATIC<sup>®</sup> AND  
 MicromaticHP STANDARD  
 RESPONSE SPRINKLERS

Approval Chart MicromaticHP Standard Response Pendent Sprinklers Maximum 250 PSI WWP															
Standard Orifice										KEY					
Thread Size	Max. Pressure	Sprinkler Style	Sprinkler Base Part No. <sup>1</sup>	Sprinkler Identification No.	Nominal K-Factor		Overall Length		Listings and Approvals						
					U.S. <sup>8</sup>	metric <sup>5</sup>	Inch	mm	UL	C-UL <sup>4</sup>	FM	NYC	VdS	LPCB	
1/2	15	250	Pendent	09992	VK122	5.6	8,1	2-1/4	58	A1	A1	-	-	-	-
Small Orifice															
1/2	15	250	Pendent	09994 <sup>7</sup>	VK023	2.8	4,0	2-1/4	58	A1	A1	-	-	-	-
Installed with the Viking Micromatic Model E-1 or E-2 Recessed Escutcheon															
1/2	15	250	Pendent	09992	VK122	5.6	8,1	2-1/4	58	B1	B1	-	-	-	-
1/2	15	250	Pendent	09994 <sup>6,7</sup>	VK023	2.8	4,0	2-1/4	58	B1	B1	-	-	-	-
Installed with the Viking Micromatic Model F-1 Adjustable Escutcheon															
1/2	15	250	Pendent	09992	VK122	5.6	8,1	2-1/4	58	A1	A1	-	-	-	-
1/2	15	250	Pendent	09994 <sup>6,7</sup>	VK023	2.8	4,0	2-1/4	58	A1	A1	-	-	-	-
Approved Temperature Ratings							Approved Finishes								
A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (99 °C), and 200 °F (93 °C)							Brass, Bright Brass, Chrome, White Polyethylene, and Black Polyethylene								
B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79.3 °C) and 200 °F (93.3 °C)							White Polyethylene, Black Polyethylene, and Black								
Footnotes															
1 Base part number shown. For complete part number, refer to Viking's current price schedule. 2 This table shows the listings and approvals available at the time of printing. 3 UL/C-UL Listed as corrosion-resistant. 4 Listed by Underwriters Laboratories Inc. for use in Canada. 5 Metric K-factor shown is for use when pressure is measured in kPa. When pressure is measured in psi, the metric K-factor shown by 10. 6 Listings and Approvals limited to Light-Hazard Occupancies with wet systems and dry-culminated. 7 The sprinkler orifice is bushed. 8 Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with Section 3-2.3. 9 The Micromatic Model F-1 Adjustable Escutcheon is considered a surface-mounted escutcheon and the sustainer element of the sprinkler to be recessed behind the face of the wall or ceiling. 10 Refer to the "Sprinkler Accessories" section for technical data on other provided escutcheons. Escutcheons must be ordered separately from sprinklers. Refer to Viking's current price schedule.															
Spacing Requirements															
maximum spacing 15 ft. (4,6 m), minimum spacing 6 ft. (1,8 m).															



\* Wax Over Polyester unavailable for Sprinkler Wrenches for coated and recessed sprinklers: Part No. 07398W\*\* (available since 1990).

**ACCESSORIES**

Sprinkler Wrenches:  
 A. Standard wrench: Part No. 10896W (available since 2000) or 05000W (no longer available).  
 \*A 1/2" ratchet is required (not available from Viking).

Refer to the "Sprinkler Accessories" section of the data book.



# TECHNICAL DATA

MICROMATIC® AND  
MicromaticHP STANDARD  
RESPONSE SPRINKLERS

**Approval Chart**  
Micromatic® and MicromaticHP® Standard Response  
Upright and Conventional Sprinklers

Temperature **KEY**  
Finish

**A1**

**Maximum 175 PSI WWP Standard Orifice<sup>1</sup>**

Thread Size	Max. Pressure PSIG	Sprinkler Style	Sprinkler Base Part No. <sup>1</sup>	Sprinkler I.D. No. <sup>10</sup>	Nominal K-Factor U.S. <sup>10</sup> metric <sup>5</sup>	Overall Length Inch mm	Listings and Approvals				
							UL and C-UL <sup>4</sup>	FM	NYC	VdS	LPCB
½ -	175	Upright	10138	VK100	5.6	2-1/4 57	B2, E12, F14,	G8B, D7, G8	B2, E12, F14	-	-
½ -	175	Upright	10233	VK100	5.6	2-1/4 57	-	B10, D13, G10	-	B9	B9, E3
- 15	175	Upright	10174	VK100	5.6	8,1 2-1/4 57	-	B10, D13, A9	-	B9	B9, E3
- 15	175	Upright	10193	VK100	5.6	8,1 2-1/4 57	B1, E11, F14,	G10, D13, A9	B1, E11, F14	-	-

**Large Orifice<sup>1</sup>**

½ -	175	Upright	10220	VK200	8.0	2-3/8 60	B2, E12, F14,	G8B, D7, G8	B2, E12	-	-
3/4 -	175	Upright	10141	VK200	8.0	11,5 2-3/8 60	B2, E12, F14,	G8B, D7, G8	B2, E12, F14	B9	B9, E4
- 15	175	Upright	10190	VK200	8.0	11,5 2-3/8 60	B1, E11, F14,	G10, D13	-	-	B9, E3
- 20	175	Upright	10169	VK200	8.0	11,5 2-3/8 60	B1, E11, F14	D13, A9	-	B9	B9, E3

**Small Orifice<sup>11</sup>**

½ -	175	Upright	10218 <sup>8</sup>	VK001	2.8	2-1/4 57	B1, E11, F14	E10, E11	-	-	-
½ -	175	Upright	10219 <sup>9</sup>	VK002	4.2	2-1/4 57	B1, E11, F14	-	-	-	-
- 15	175	Upright	10191 <sup>9</sup>	VK002	4.2	2-1/4 57	B1, E11, F14	-	-	-	-
- 15	175	Upright	10192 <sup>9</sup>	VK001	2.8	2-1/4 57	B1, E11, F14	A13	-	-	-
- 10	175	Upright	10176	VK001	4.2	6,0 2-1/4 57	-	-	-	B9	B9, E3

**Conventional<sup>1</sup>**

½ -	175	Conv.	10227	VK118	5.6	2-1/4 57	B1, E11, F14	-	B1, E11, F14	B9	B5, E11
3/4 -	175	Conv.	10228	VK120	8.0	2-3/8 60	B1, E11, F14	-	B1, E11, F14	B9	B5, E11
- 15	175	Conv.	10172	VK118	5.6	8,1 2-1/4 57	B1, E11, F14	-	-	B9	B5, E11
- 20	175	Conv.	10168	VK120	8.0	11,5 2-3/8 60	B1, E11, F14	-	-	B9	B5, E11

**Maximum 250 PSI WWP Standard Orifice**

½	15	250	Upright	09993	VK124	5.6	8,1 2-1/4 57	C1	-	-	-
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**Small Orifice<sup>8</sup>**

½	15	250	Upright	09995 <sup>9</sup>	VK021	2.8	4,0 2-1/4 57	C1	-	-	-
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**Approved Temperature Ratings**

A -135 °F (57 °C), 155 °F (68 °C), 175 °F (93 °C), 212 °F (100 °C), 286 °F (360 °F (182 °C)

B -135 °F (57 °C), 155 °F (68 °C), 175 °F (93 °C), 286 °F (141 °C), and 360 °F (182 °C)

C -135 °F (57 °C), 155 °F (68 °C), 200 °F (93 °C), and 286 °F (141 °C)

D -135 °F (57 °C), 155 °F (68 °C), 175 °F (93 °C), and 212 °F (100 °C)

E -135 °F (57 °C), 155 °F (68 °C), °C), and 200 (93 °C)

F - 286 °F (141 °C)

G - 500 °F (260 °C)

**Approved Finishes**

- 1 - Brass, Bright Brass, Chrome-Enamel, Poly Ester, Navajo White Poly Ester, Black Teflon
- 2 - Brass, Bright Brass, Chrome-Enamel, Poly Ester, Navajo White Poly Ester, Black Teflon
- 3 - Brass, Bright Brass, Chrome-Enamel, Poly Ester, Navajo White Poly Ester, Black Teflon
- 4 - White Poly Finish, Navajo White Poly Ester, Black Poly Ester, Wax-Coated Black Teflon
- 5 - Brass, Bright Brass, Chrome-Enamel, Poly Ester, Navajo White Poly Ester, Black Teflon
- 6 - White Poly Ester, Navajo White Poly Ester, Black Poly Ester, and Wax-Coated Black Teflon
- 7 - White Poly Finish and Wax-Coated Brass (corrosion resistant)
- 8 - Brass, Chrome-Enamel, White Poly Finish
- 9 - Brass, Bright Brass, and Chrome-Enamel
- 10 - Brass and Chrome-Enamel
- 11 - Wax-Coated Brass and Wax over Poly Ester (corrosion resistant)
- 12 - Wax-Coated Brass and Wax over Poly Finish (corrosion resistant)
- 13 - Wax-Coated Brass (corrosion resistant)
- 14 - 200 °F (93 °C) High-Temperature Wax Coating (not for maximum ambient temperature allowed at ceiling = 150 °F (65 °C))

**Footnotes**

- 1 Base part number shown. For complete part number, refer to Viking's current price schedule.
  - 2 This table shows the listings and approvals available at the time of printing. Changes may be made without notice.
  - 3 Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. XII.
  - 4 UL/C-UL Listed as corrosion-resistant.
  - 5 Listed by Underwriters Laboratories Inc. for use in Canada.
  - 6 Metric K-factor shown is for use when pressure is measured in kPa. When pressure is measured in psi, the metric K-factor shown by 10.
  - 7 Sprinklers of UL tra-High temperature rating are intended for use in unclassified environments, normal operating temperatures above 300 °F (149 °C). Where the ambient temperature around the fixture is significantly reduced to 300 °F (149 °C), the response time of the UL tra-High temperature rating sprinkler may be severe.
  - 8 Listings and Approvals limited to Light-Hazard Occupancies with water supply calculated.
  - 9 The sprinkler orifice is bushed.
  - 10 Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with Section 3-2.3.
  - 11 Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. III.
- Spacing Requirements:** maximum spacing 15 ft. (4,6 m), minimum spacing 6 ft. (1,8 m).

**Table 3**

Replaces page 11 a-d, dated Nov. 14, 2001 (updated the sprinkler materials list). Form No. F\_100397  
 technical data page SR1-2 for general care, installation, and maintenance information.

SPR-16

DESCRIPTION: SPRINKLER, STANDARD-RESPONSE CONCEALED, BULB/FUSEABLE LINK TYPE, SMOOTH PROFILE WITH CEILING, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL/FM.

MANUFACTURER & CATALOG NO.: VIKING B-2, RELIABLE G4FR, TYCO RFII, VICTAULIC V3802.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

2. COLORS: Brass, Decorative white or black many manufacturers can produce custom colors. refer to manufacturers literature for information.

3. For corrosion resistance information, consult manufacturer.

4. For extended coverage information, consult manufacturer.

5. Victaulic sprinklers are not F.M. approved.

6. Victaulic sprinklers are not UL listed for high temperature class.





# TECHNICAL DATA

**HORIZON® MIRAGE™  
STANDARD AND QUICK  
RESPONSE CONCEALED  
PENDENT SPRINKLERS**

**1. PRODUCT NAME**

Viking Horizon® Mirage™ Model B-1 and Model B-2 Standard and Quick Response Concealed Pendent Sprinklers

A. Sprinkler Base Part No. 09782A with Cover Plate Assembly Part No. 09804 or 11225: UL and ULC Listed as Standard Response

B. Sprinkler Base Part No. 09783A with Cover Plate Assembly Part No. 09804 or 11225: UL and ULC Listed as Quick Response **or**

C. Sprinkler Base Part No. 09783A with Cover Plate Assembly Part No. 09804: Factory Mutual Approved as Standard Response

(Refer to Footnote 7 in the approval chart on page 20 b.)

Available since 1996.

**2. MANUFACTURER**

The Viking Corporation  
210 N. Industrial Park Road  
Hastings, Michigan 49058 U.S.A.  
Telephone: (616) 945-9501  
(877) 384-5464

Fax: (616) 945-9599  
e-mail: techsvcs@vikingcorp.com

**3. PRODUCT DESCRIPTION**

Viking Horizon® Mirage™ Standard and Quick Response Concealed Sprinklers are small solder link and lever spray sprinklers designed for installation on concealed pipe systems where the appearance of a smooth ceiling is desired.

- **The sprinklers are UL and ULC Listed for water working pressures up to 250 psi (1 724 kPa).**
- **The sprinklers are Factory Mutual Approved for water working pressures up to 175 psi (1 207 kPa).**
- **The sprinklers are Accepted for use by the City of New York Department of Buildings for water working pressures up to 250 psi (1724 kPa).**

Horizon® Mirage™ Standard and Quick Response Concealed Sprinklers are hidden from view by low-profile, small-diameter cover plates installed flush to the ceiling. The cover plates are available in several decorative finishes to meet design requirements.

The two-piece design allows installation and testing of the sprinklers prior to installation of the cover plates. After the system has been tested and the ceiling finish applied, the "push-on", "thread-off" design of the cover plate assemblies allows easy installation of the cover plates with up to 1/2" (12,7 mm) adjustment available. The "thread-off" feature is designed to prevent unwanted disengagement of the cover assemblies. This feature also permits temporary removal of ceiling panels without taking the sprinkler system out of service or removing the sprinkler.

Note: Units of measure in parentheses may be approximations.

Form No. F\_021993



**Viking Horizon® Mirage™ Concealed Sprinkler Installed in Acoustical Ceiling**

Inside the body of the Horizon® Mirage™ Standard and Quick Response Concealed Sprinkler, the deflector and sealing assembly are held in position by the heat-sensitive fusible link. During fire conditions, when the temperature around the sprinkler approaches its operating temperature, the cover plate detaches. Continued heating of the sprinkler causes the heat-sensitive fusible link to disengage, releasing the deflector and sealing assembly. Water flowing through the sprinkler orifice strikes the deflector, forming a uniform spray pattern to extinguish or control the fire.

**4. TECHNICAL DATA LISTINGS AND APPROVALS**

See the approval chart on page 20 b.  
**UL and ULC Listed for 250 psi (1 724 kPa) water working pressure.**

**Factory Mutual Approved for 175 psi (1 207 kPa) water working pressure.**

**Accepted for use by the City of New York Department of Buildings for 250 psi (1 724 kPa) water working pressure.**

Spring: U.S.A. Patent No. 4,570,720  
Thread Size: 1/2" (15 mm) NPT  
Orifice Size: Standard Orifice  
K-Factor: 5.6 U.S.† (7,9 metric\*, for use when pressure is measured in kPa).

† Nominal U.S. K-factors provided in accordance with the 1999 edition of NFPA 13, Section 3-2.3.

\* Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor shown by 10.0.  
Minimum Operating Pressure: 7 psi (48,3 kPa).

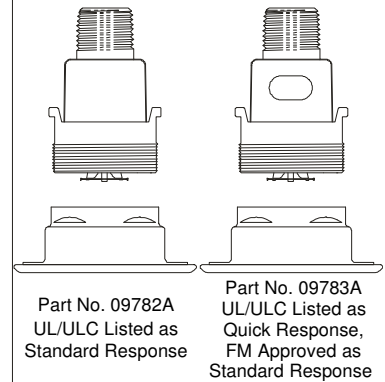
Available Cover Plate Adjustment: 1/2" (12,7 mm) +/- 1/4" (6,4 mm)

Cover Plate Assembly Temperature Ratings:  
Part No. 11225: 135 °F (57 °C) for use with 165 °F temperature rated sprinkler only.

Part No. 09804: 165 °F (74 °C) for use with 165 °F or 220 °F temperature rated sprinklers.

**SPRINKLER MATERIALS**

Body: Brass Casting UNS-C84400



- Body Cap: Brass UNS-C26000  
Deflector: Copper UNS-C19500  
Deflector Pins: Stainless Steel UNS-S30300  
Lever Bar: Copper Alloy UNS-C72500  
Compression Screw: Brass UNS-C36000  
Fusible Link Assembly\*\*: Nickel Alloy and Eutectic Solder

\*\*The fusible link of the Quick Response Concealed Sprinkler is marked with a purple stripe or dot for identification purposes only.

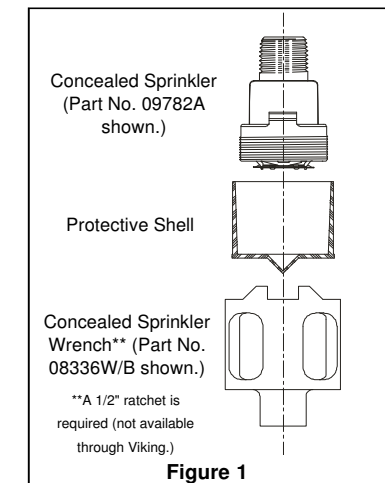
Fusible Link Levers: Stainless Steel UNS-S31600

Seal: Teflon® Tape  
Spring: Nickel Alloy

**COVER PLATE ASSEMBLY MATERIALS**  
Cover Plate Assembly: Brass UNS-C26000  
Spring: Nickel Alloy  
Solder: Eutectic

**AVAILABLE COVER FINISHES**

- Part No. 11225:  
Bright Brass  
Polished Chrome  
Part No. 09804:  
Bright Brass  
Polished Chrome  
Painted<sup>1</sup> White (No. 1004)<sup>2</sup>

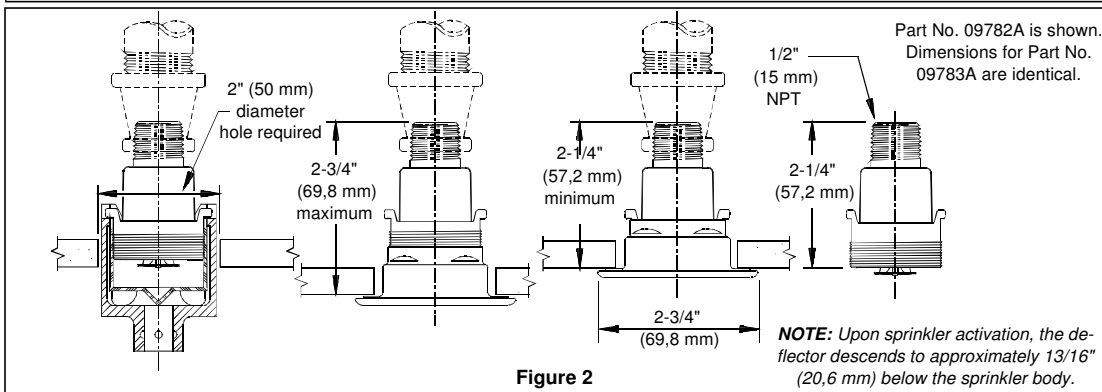


**Figure 1**

New format, replaces page 20 a-d and page 57 a-d, dated July 20, 2000. Refer to technical data page QR1-2 for general care, installation, and maintenance information.

	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<p><b>HORIZON® MIRAGE™</b> STANDARD AND QUICK RESPONSE CONCEALED PENDENT SPRINKLERS</p>
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Approval Chart Horizon® Mirage™ Standard and Quick Response Concealed Pendent Sprinklers																
					<table border="0" style="font-size: small;"> <tr> <td style="border: none;">—</td> <td style="border: none;">Temperature</td> <td rowspan="3" style="border: none; vertical-align: middle;"><b>KEY</b></td> </tr> <tr> <td style="border: none;">↓</td> <td style="border: none;">Finish</td> </tr> <tr> <td style="border: none;">AIX ←</td> <td style="border: none;">Escutcheon (if applicable)</td> </tr> </table>					—	Temperature	<b>KEY</b>	↓	Finish	AIX ←	Escutcheon (if applicable)
—	Temperature	<b>KEY</b>														
↓	Finish															
AIX ←	Escutcheon (if applicable)															
Sprinkler Temperature Classification	Sprinkler Nominal Temp. Rating <sup>1</sup>	Highest Ambient Temp. Allowed at Ceiling <sup>2</sup>		Temp. Rating of the Required Cover Assembly		Cover Plate Assembly Base Part No. <sup>5</sup>										
Ordinary	165 °F (74 °C)	100 °F (38 °C)		135 °F (57 °C)		11225										
Intermediate	220 °F (104 °C)	150 °F (65 °C)		165 °F (74 °C)		09804										
Standard Response Applications																
Sprinkler Base Part No. <sup>5</sup>	Sprinkler Identification No. <sup>10</sup>	NPT Thread Size		K-Factor		Max Rated Water Working Pressure <sup>3</sup>	Listings and Approvals <sup>4</sup>									
		Inches	mm	U.S. <sup>10</sup>	metric		UL <sup>7</sup>	ULC <sup>6,7</sup>	FM <sup>7</sup>	NYC <sup>8</sup>						
09782A	VK405	1/2	15	5.6	7.9	250 psi	AX2, AY1, BY1	AX2, AY1, BY1	--	AY1, BY1						
09783A	VK404	1/2	15	5.6	7.9	175 psi	--	--	AY1	--						
Quick Response Applications																
09783A	VK404	1/2	15	5.6	7.9	250 psi	AX2, AY1, BY1	AX2, AY1, BY1	--	AY1, BY1						
Sprinkler Temp. Ratings		Cover Plate Assembly Temp. Ratings				Finishes of the Cover Plate Assembly										
A - 165 °F (74 °C) B - 220 °F (104 °C)		X - 135 °F (57 °C) Cover Base Part No. 11225 Y - 165 °F (74 °C) Cover Base Part No. 09804				1 - Bright Brass, Polished Chrome, Painted White, Painted Ivory, or Painted Black <sup>9</sup> 2 - Bright Brass and Polished Chrome										
Footnotes																
<sup>1</sup> The temperature rating of Viking Horizon® Mirage™ Standard and Quick Response Concealed Sprinklers is stamped on the sprinkler body. <sup>2</sup> Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards. <sup>3</sup> Water Working Pressure rating of the Viking Horizon® Mirage™ Standard and Quick Response Concealed Sprinkler is stamped on the sprinkler body. <sup>4</sup> This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. <sup>5</sup> Base part number is shown. For complete part number, refer to Viking's current price list schedule. <sup>6</sup> Listed by Underwriters Laboratories, Inc. for use in Canada. <sup>7</sup> Listing is limited to smooth, flat, horizontal ceilings. <sup>8</sup> Accepted for use, City of New York Department of Buildings, MEA No. 89-92-E, Vol. XVI. <sup>9</sup> Other paint colors are available on request with the same Listings and Approvals as the standard paint finishes. <sup>10</sup> Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with the 1999 edition of NFPA 13, Section 3-2.2 and Section 3-2.3.																



Painted<sup>1</sup> Ivory (No. 1634)<sup>2</sup>  
 Painted<sup>1</sup> Black (No. 1007)<sup>2</sup>  
<sup>1</sup> Painted finish consists of Polyester Baked Enamel.  
<sup>2</sup> Sherwin-Williams® Color Answers™ Interior Color Number. Other colors are available on request. See Sherwin-Williams® Color Answers™ Interior Color Selection color numbers.

**ORDERING INSTRUCTIONS**

- To order Viking Horizon® Mirage™ Standard and Quick Response Concealed Pendent Sprinklers, refer to the following:
  - Base Part No. 09782A or
  - Base Part No. 09783A.
- To order Cover Plate Assemblies, refer to:
  - Base Part No. 11225, rated 135 °F
  - Base Part No. 09804, rated 165 °F

Specify sprinkler temperature rating and temperature ring and finish of cover plate assembly.

**ACCESSORIES**

Sprinkler Cabinet: Part No. 01731A  
 Capacity: six (6) sprinklers  
 Available since 1971.

Flush/Concealed Sprinkler Wrenches\*\*

- Heavy Duty Part No. 08336W/B  
 Available since 1983, or
- Light Duty Part No. 10366W/B†  
 Available since 1998.

\*\*Requires a 1/2" ratchet (not available from Viking).  
 †Ideal for sprinkler cabinets.

**NOTE:** Cover Plate Assembly Part Number 09804 **must** be used for all

Factory Mutual Approved installations. Previous Model B-1 Cover Plate Assembly Part Number 08310 may still be used for UL/ULC installations. The correct Horizon® Mirage™ Concealed Sprinkler can be verified by checking the fusible link for the following identification scheme:

UL/ULC Standard Response: No stripe or dot.  
 UL/ULC Quick Response and FM Standard Response: Purple stripe or dot.  
 UL/ULC QREC: Yellow stripe or dot  
 (Refer to technical data page 87 a-c for additional information.)

New format, replaces page 20 a-d and page 57 a-d, dated July 20, 2000. Refer to technical data page QR1-2 for general care, installation, and maintenance information.

Form No. F\_021993

SPR-17

DESCRIPTION: SPRINKLER, STANDARD-RESPONSE HORIZONTAL SIDEWALL, BULB/FUSIBLE LINK TYPE, BRIGHT CHROME PLATED, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL/FM.

MANUFACTURER & CATALOG NO.: VIKING M, RELIABLE F1, TYCO TY-B, VICTAULIC V2709.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

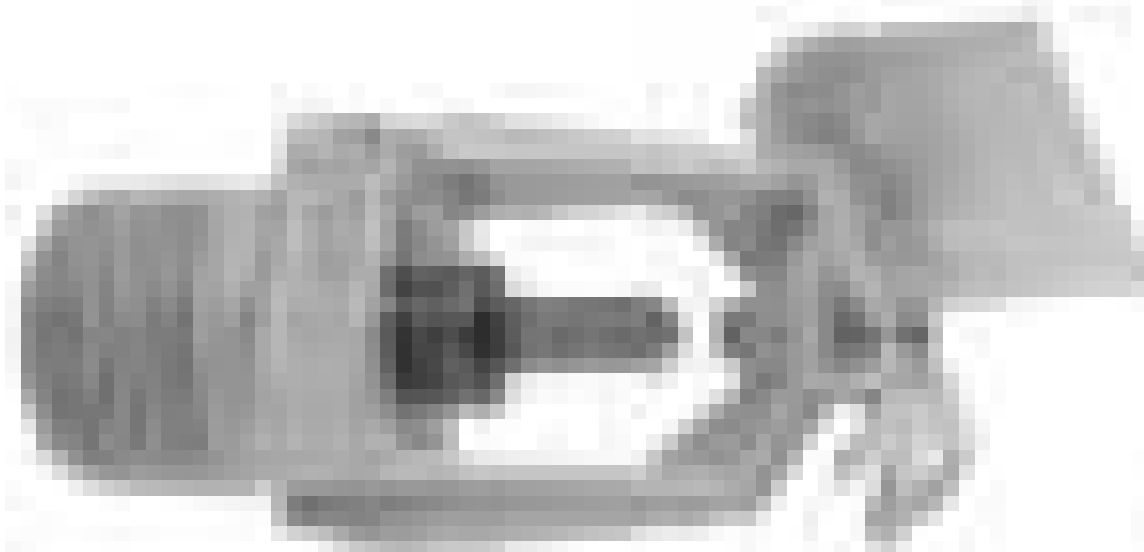
See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

2. COLORS: Brass, Decorative white or black (Not all manufacturers apply, check literature: i.e. Central white is not F.M. approved)

3. For corrosion resistance information, consult manufacturer.

4. For extended coverage information, consult manufacturer.

5. Victaulic sprinklers are for light hazard only.





	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<h3 style="margin: 0;">MICROMATIC® AND MicromaticHP® STANDARD RESPONSE HORIZONTAL SIDEWALL SPRINKLERS</h3>
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**1. PRODUCT NAME**

Viking Micromatic® Model M/M-5 and MicromaticHP® Model M Standard Response Horizontal Sidewall Glass-Bulb Style Sprinklers

**2. MANUFACTURER**

The Viking Corporation  
210 N. Industrial Park Road  
Hastings, Michigan 49058 U.S.A.  
Telephone: (616) 945-9501  
(877) 384-5464  
Fax: (616) 945-9599  
e-mail: techsvcs@vikingcorp.com

**3. PRODUCT DESCRIPTION**

Viking Micromatic® and MicromaticHP® Standard Response Horizontal Sidewall (HSW) Sprinklers are small thermosensitive glass-bulb style spray sprinklers available with finishes and temperature ratings to meet design requirements. Used in conjunction with one of the various corrosion-resistant coatings, the units provide protection against many corrosive environments. In addition, the special Polyester or Teflon® coatings can be used in decorative applications. During fire conditions, the heat-sensitive liquid in the 5 mm glass bulb expands, causing the bulb to shatter, releasing the pip-cap and sealing spring assembly. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

Viking Standard Response Glass-Bulb Style Sprinklers may be ordered and/or used as open sprinklers (glass bulb and pip-cap assembly removed) on deluge systems.

**4. TECHNICAL DATA**

**LISTINGS AND APPROVALS**

Refer to the approval chart on page 14 f.

Glass-bulb fluid temperature rated to -65° F (-55° C).

**Rated Water Working Pressure:**

**Sprinkler Base Part Nos. 09849 and 09997 are rated for use with water working pressures ranging from the minimum 7 psi (48,3 kPa) up to 250 psi (1 724 kPa) for high-pressure systems. High-pressure (HP) sprinkler can be identified by locating the number "250" on the deflector.**

**All Other Part Nos: Maximum 175 psi (1 207 kPa) wwp.**

Factory tested hydrostatically to 500 psi (3 448 kPa).

Minimum operating pressure: 7 psi (48,3 kPa)

Spring: U.S.A. Patent No. 4,167,974

Bulb: U.S.A. Patent No. 4,796,710

Note: Units of measure in parentheses may be approximations.

Form No. F\_123096



**SPRINKLER MATERIALS**

Frame: Brass Castings UNS-C84400  
Deflector: For Sprinkler Base Part No. 09997: Brass UNS-C26000. For all other Part Nos.: Copper UNS-C19500.

Bushing (for High-Pressure Sprinklers): Brass UNS-C36000

Bulb: Glass, nominal 5 mm diameter

Seal: Teflon® Tape

Spring: Nickel Alloy

Screw: Brass UNS-C36000

Pip Cap: Copper UNS-C31600 for Sprinkler Base Part No. 10224. For all other Part Nos.: Copper UNS-C11000 and Stainless Steel UNS-S30400.

**Polyester Coated Sprinklers**

Spring: Nickel Alloy, exposed

Screw: Brass UNS-C36000

Nickel plated.

Pip Cap: For Part Number 10224: Copper UNS-C31600. For all others: Copper UNS-C11000 and Stainless Steel UNS-S30400.

**Teflon® Coated Sprinklers**

Spring: Nickel Alloy, exposed

Screw: Brass UNS-C36000

Nickel plated.

Pip Cap (Teflon® coated): For Part Number 10224: Copper UNS-C31600. For all other Part Numbers: Copper UNS-C11000 and Stainless Steel UNS-S30400.

**AVAILABLE FINISHES**

Brass, Bright Brass, Chrome-Enloy®, White Polyester, Navajo White Polyester, Black Polyester, and Black Teflon® in all temperature ratings; Wax-Coated Brass or Wax Over Polyester for sprinklers with temperature ratings through 286 °F (141 °C)

**ACCESSORIES**

Sprinkler Cabinets:

A. Six-head capacity: Part No. 01724A

B. Twelve-head capacity: Part No. 01725A

Available since 1971.

Sprinkler Wrenches:

A. Standard Wrench: Part No. 10896W/B (available since 2000) or Part No. 05000CW/B (no longer available).

B. Wrench for coated and recessed sprinklers: Part No. 07398W\*

Available since 1990.

\* A 1/2" ratchet is required (not available from Viking).

Refer to the "Sprinkler Accessories" section of the *Viking Engineering and Design Data* book.

Sprinkler Temperature Classification	Nominal Sprinkler Temp. Rating (Fusing Point)	Ceiling Temperature at Sprinkler		Bulb Color <sup>3</sup>
		Max. Ambient Temp. Allowed <sup>1</sup>	Max. Recommended Ambient Temp. <sup>2</sup>	
Ordinary	135 °F (57 °C)	115 °F (46 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	135 °F (57 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	155 °F (68 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	180 °F (82 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	266 °F (130 °C)	225 °F (107 °C)	Blue
Extra High	360 °F (182 °C)	340 °F (171 °C)	300 °F (149 °C)	Mauve

**Sprinkler Finishes:** Brass, Bright Brass, Chrome-Enloy® (patents pending), White Polyester, Navajo White Polyester, Black Polyester, and Black Teflon®

**Corrosion-Resistant Coatings<sup>4</sup>:** White Polyester, Navajo White Polyester, Black Polyester, and Black Teflon® in all temperature ratings. Wax-Coated Brass and Wax over Polyester for sprinklers with the following temperature ratings:

135 °F (57 °C) Off-White Wax	200 °F (93 °C) Brown Wax
155 °F (68 °C) Light Brown Wax	286 °F (141 °C) Dark Brown Wax
175 °F (79 °C) Brown Wax	

**Footnotes**

<sup>1</sup> Based on National Fire Prevention and Control Administration Contract No. 7-34860.

<sup>2</sup> Based on NFPA-13. Other limits may apply depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.

<sup>3</sup> The temperature rating is stamped on the deflector.

<sup>4</sup> The corrosion-resistant coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Chart on page 14 f. These tests cannot and do not represent all possible corrosive environments. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. The coatings indicated are applied to the exposed exterior surfaces only and, therefore, cannot be used as open sprinklers. Note that the spring is exposed on sprinklers with Teflon® or Polyester coating.

**Table 1**

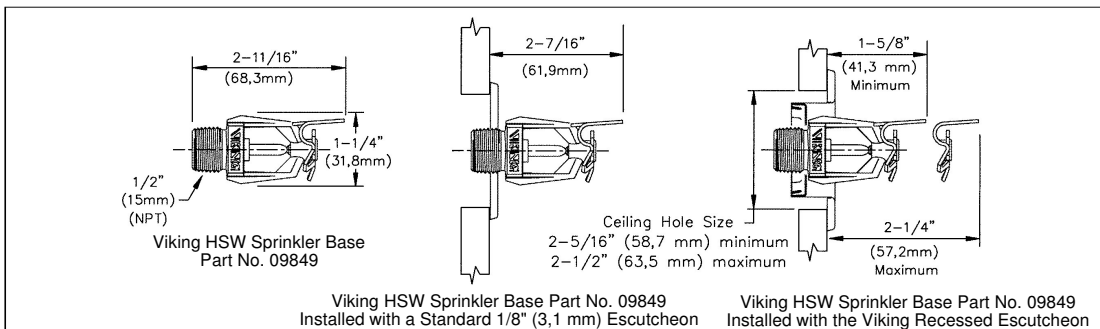
New format replaces page 14 a-d, dated October 14, 1999, page 14 e-g, dated June 4, 1999, and page 31 a-d, dated May 27, 1999. **Refer to technical data page SR1-2 for general care, installation, and maintenance information.**



# TECHNICAL DATA

**MICROMATIC® AND  
MicromaticHP® STANDARD  
RESPONSE HORIZONTAL  
SIDEWALL SPRINKLERS**

Approval Chart Micromatic® and MicromaticHP® Standard Response HSW Sprinklers										KEY			
										Temperature	A1X ←		
										Finish	Escutcheon (if applicable)		
<b>Maximum 175 psi wwp Standard Orifice</b>													
Thread Size	Max. Pressure	Sprinkler Base Part No. <sup>1</sup>	Sprinkler I.D. No. <sup>12</sup>	Nominal K-factor	Overall Length	Listings and Approvals <sup>2</sup>							
NPT	BSP	PSIG		U.S. <sup>12</sup>	metric <sup>6</sup>	Inches	mm	UL <sup>3</sup>	ULC <sup>3</sup>	NYC <sup>11</sup>	FM <sup>4</sup>	LPCB	
1/2"	15 mm	175	10224	VK104	5.6	7.9	2.5	64	A1X, A1Z, B4X, B1Y, B4Y, B4Z, C6X	A1X, B1Y, B1Z, B4X, B4Z, B4Y	A1X, A1Z, B4X, B1Y, B4Y, B4Z, C6X	A2X, B3X	A2X, B3X, B5X
--	15 mm	175	10171	VK104	--	7.9	2.2	53					
1/2"	15 mm	175	09849	VK116	5.6	7.9	2.5	64	UL <sup>7</sup> D7W, B7Y	C-UL <sup>7</sup> D7W, B7Y	NYC	FM	LPCB
<b>Small Orifice</b>													
--	10 mm	175	09126	--	--	5.8	2.4	61.9	UL	ULC	NYC	FM	LPCB
<b>Maximum 250 psi wwp Standard Orifice, for Installation 4" to 12" (102 mm to 305 mm) Below Ceilings.</b>													
1/2"	15 mm	250	09849	VK116	5.6	7.9	2.5	64	UL D1W, B1V	C-UL D1W, B1V	NYC	FM	LPCB
<b>Small Orifice<sup>9</sup>, for Installation 4" to 6" (102 mm to 152 mm) Below Ceilings.</b>													
1/2"	15 mm	250	09997 <sup>10</sup>	VK015	2.8	3.9	2.5	64	D1W, B1V	D1W, B1V	--	--	--
<b>Approved Temperature Ratings</b>				<b>Approved Finishes</b>				<b>Approved Escutcheons</b>					
A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C), and 360 °F (182 °C) B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C) C - 286 °F (141 °C) D - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)				1 - Brass, Bright Brass, Chrome-Enloy®, White Polyester <sup>5</sup> , Navajo White Polyester <sup>5</sup> , Black Polyester <sup>5</sup> , and Black Teflon <sup>65</sup> 2 - Brass, Bright Brass, and Chrome-Enloy® 3 - Wax-Coated Brass (corrosion resistant) 4 - Wax-Coated Brass and Wax Over Polyester (corrosion resistant) 5 - White Polyester, Navajo White Polyester, and Black Polyester 6 - 200 °F (93 °C) Wax Coating (corrosion resistant) maximum ambient temperature at ceiling = 150 °F (65 °C) 7 - Brass, Bright Brass, Chrome-Enloy®, White Polyester <sup>5</sup> , Navajo White Polyester <sup>5</sup> , Black Polyester <sup>5</sup> , Black Teflon <sup>65</sup> , Wax-Coated Brass <sup>5</sup> , and Wax Over Polyester <sup>5</sup>				V - Installed with standard surface-mounted escutcheons or the Viking Micromatic® Model E-1 Recessed Escutcheon. W - Installed with standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon. X - Installed with standard surface-mounted escutcheons only. Y - Recessed with the Viking Micromatic® Model E-1 Recessed Escutcheon. Z - Installed with the Viking Microfast® Model F-1 Adjustable Escutcheon.					
<b>Footnotes</b>													
<sup>1</sup> Base part number is shown. For complete part number, refer to Viking's current price schedule. <sup>2</sup> This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals. <sup>3</sup> UL and ULC Listed for Light-Hazard occupancies only. Locate with deflectors 4" to 12" (102 mm to 304 mm) below ceilings. <sup>4</sup> FM Approved for Light-Hazard occupancies only. Locate with deflectors 4" to 6" (102 mm to 152 mm) below ceilings. <sup>5</sup> UL and ULC, and C-UL Listed as corrosion-resistant. <sup>6</sup> Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor shown by 10.0. <sup>7</sup> UL and C-UL Listed for Light-Hazard, Ordinary Hazard Group I, and Ordinary Hazard Group II occupancies. Locate with deflectors 4" to 12" (102 mm to 305 mm) below ceilings. <sup>8</sup> The Viking Microfast® Model F-1 Adjustable Escutcheon is considered a surface-mounted escutcheon because it does not allow the fusible element of the sprinkler to be recessed behind the face of the wall or ceiling. <sup>9</sup> UL and C-UL Listings limited to Light-Hazard Occupancies with hydraulically calculated wet systems. <sup>10</sup> The sprinkler orifice is bushed. <sup>11</sup> Approved by the New York City Board of Standards and Appeals under Calendar Number 219-76-SA and Accepted for Use, City of New York Department of Buildings, MEA 89-92-E, Vol. XII. <sup>12</sup> Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with the 1999 edition of NFPA 13, Section 3-2.2 and Section 3-2.3. <b>NOTE:</b> Locate with deflectors 4" to 6" (102 mm to 152 mm) from walls. <b>Exception:</b> Horizontal sidewall sprinklers may be installed with the deflectors less than 4" (102 mm) from the wall in which they are installed. Align horizontal sidewall sprinklers with top of deflectors parallel to the ceiling or roof.													



New format replaces page 14 a-d, dated October 14, 1999, page 14 e-g, dated June 4, 1999, and page 31 a-d, dated May 27, 1999. Refer to technical data page SR1-2 for general care, installation, and maintenance information.

Form No. F\_123096

SPR-18

DESCRIPTION: SPRINKLER, STANDARD-RESPONSE RECESSED HORIZONTAL SIDEWALL, BULB/FUSIBLE LINK TYPE, BRIGHT CHROME PLATED, [135-170] [175-225] [250-300] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL/FM.

MANUFACTURER & CATALOG NO.: VIKING M, RELIABLE G/F1, TYCO TY-B, VICTAULIC V2709.

Notes to Specifier:

1. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

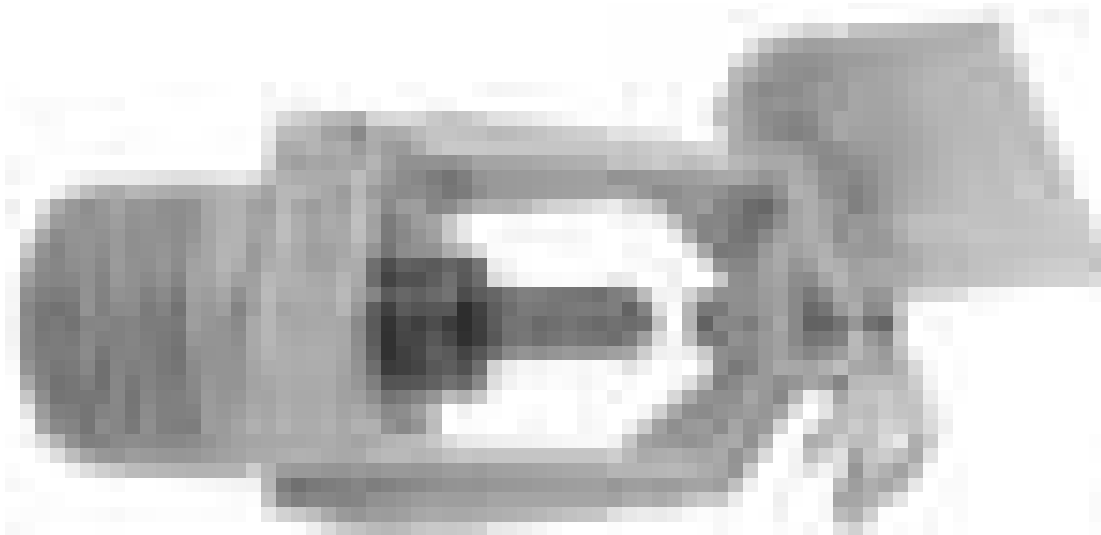
See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

2. COLORS: Brass, Decorative white or black (Not all manufacturers apply, check literature: i.e. Central white is not F.M. approved)

3. For corrosion resistance information, consult manufacturer.

4. For extended coverage information, consult manufacturer.

5. Victaulic sprinklers are for light hazard only, and are not UL listed for high temperature class.





## TECHNICAL DATA

**MICROMATIC® AND  
MicromaticHP® STANDARD  
RESPONSE HORIZONTAL  
SIDEWALL SPRINKLERS**

**1. PRODUCT NAME**

Viking Micromatic® Model M/M-5 and MicromaticHP® Model M Standard Response Horizontal Sidewall Glass-Bulb Style Sprinklers

**2. MANUFACTURER**

The Viking Corporation  
210 N. Industrial Park Road  
Hastings, Michigan 49058 U.S.A.  
Telephone: (616) 945-9501  
(877) 384-5464  
Fax: (616) 945-9599  
e-mail: techsvcs@vikingcorp.com

**3. PRODUCT DESCRIPTION**

Viking Micromatic® and MicromaticHP® Standard Response Horizontal Sidewall (HSW) Sprinklers are small thermosensitive glass-bulb style spray sprinklers available with finishes and temperature ratings to meet design requirements. Used in conjunction with one of the various corrosion-resistant coatings, the units provide protection against many corrosive environments. In addition, the special Polyester or Teflon® coatings can be used in decorative applications. During fire conditions, the heat-sensitive liquid in the 5 mm glass bulb expands, causing the bulb to shatter, releasing the pip-cap and sealing spring assembly. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

Viking Standard Response Glass-Bulb Style Sprinklers may be ordered and/or used as open sprinklers (glass bulb and pip-cap assembly removed) on deluge systems.

**4. TECHNICAL DATA**

**LISTINGS AND APPROVALS**

Refer to the approval chart on page 14 f.

Glass-bulb fluid temperature rated to -65° F (-55° C).

**Rated Water Working Pressure:**

**Sprinkler Base Part Nos. 09849 and 09997 are rated for use with water working pressures ranging from the minimum 7 psi (48,3 kPa) up to 250 psi (1 724 kPa) for high-pressure systems. High-pressure (HP) sprinkler can be identified by locating the number "250" on the deflector.**

**All Other Part Nos: Maximum 175 psi (1 207 kPa) wwp.**

Factory tested hydrostatically to 500 psi (3 448 kPa).

Minimum operating pressure: 7 psi (48,3 kPa)

Spring: U.S.A. Patent No. 4,167,974

Bulb: U.S.A. Patent No. 4,796,710

Note: Units of measure in parentheses may be approximations.

Form No. F\_123096



**SPRINKLER MATERIALS**

Frame: Brass Castings UNS-C84400  
Deflector: For Sprinkler Base Part No. 09997: Brass UNS-C26000. For all other Part Nos.: Copper UNS-C19500.

Bushing (for High-Pressure Sprinklers): Brass UNS-C36000

Bulb: Glass, nominal 5 mm diameter

Seal: Teflon® Tape

Spring: Nickel Alloy

Screw: Brass UNS-C36000

Pip Cap: Copper UNS-C31600 for Sprinkler Base Part No. 10224. For all other Part Nos.: Copper UNS-C11000 and Stainless Steel UNS-S30400.

**Polyester Coated Sprinklers**

Spring: Nickel Alloy, exposed

Screw: Brass UNS-C36000

Nickel plated.

Pip Cap: For Part Number 10224: Copper UNS-C31600. For all others: Copper UNS-C11000 and Stainless Steel UNS-S30400.

**Teflon® Coated Sprinklers**

Spring: Nickel Alloy, exposed

Screw: Brass UNS-C36000

Nickel plated.

Pip Cap (Teflon® coated): For Part Number 10224: Copper UNS-C31600. For all other Part Numbers: Copper UNS-C11000 and Stainless Steel UNS-S30400.

**AVAILABLE FINISHES**

Brass, Bright Brass, Chrome-Enloy®, White Polyester, Navajo White Polyester, Black Polyester, and Black Teflon® in all temperature ratings; Wax-Coated Brass or Wax Over Polyester for sprinklers with temperature ratings through 286 °F (141 °C)

**ACCESSORIES**

Sprinkler Cabinets:

- A. Six-head capacity: Part No. 01724A
- B. Twelve-head capacity: Part No. 01725A

Available since 1971.

Sprinkler Wrenches:

- A. Standard Wrench: Part No. 10896W/B (available since 2000) or Part No. 05000CW/B (no longer available).
- B. Wrench for coated and recessed sprinklers: Part No. 07398W\* Available since 1990.

\* A 1/2" ratchet is required (not available from Viking).

Refer to the "Sprinkler Accessories" section of the *Viking Engineering and Design Data* book.

Sprinkler Temperature Classification	Nominal Sprinkler Temp. Rating (Fusing Point)	Ceiling Temperature at Sprinkler		Bulb Color <sup>3</sup>
		Max. Ambient Temp. Allowed <sup>1</sup>	Max. Recommended Ambient Temp. <sup>2</sup>	
Ordinary	135 °F (57 °C)	115 °F (46 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	135 °F (57 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	155 °F (68 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	180 °F (82 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	266 °F (130 °C)	225 °F (107 °C)	Blue
Extra High	360 °F (182 °C)	340 °F (171 °C)	300 °F (149 °C)	Mauve

**Sprinkler Finishes:** Brass, Bright Brass, Chrome-Enloy® (patents pending), White Polyester, Navajo White Polyester, Black Polyester, and Black Teflon®

**Corrosion-Resistant Coatings<sup>4</sup>:** White Polyester, Navajo White Polyester, Black Polyester, and Black Teflon® in all temperature ratings. Wax-Coated Brass and Wax over Polyester for sprinklers with the following temperature ratings:

135 °F (57 °C) Off-White Wax	200 °F (93 °C) Brown Wax
155 °F (68 °C) Light Brown Wax	286 °F (141 °C) Dark Brown Wax
175 °F (79 °C) Brown Wax	

**Footnotes**

- <sup>1</sup> Based on National Fire Prevention and Control Administration Contract No. 7-34860.
- <sup>2</sup> Based on NFPA-13. Other limits may apply depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.
- <sup>3</sup> The temperature rating is stamped on the deflector.
- <sup>4</sup> The corrosion-resistant coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Chart on page 14 f. These tests cannot and do not represent all possible corrosive environments. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. The coatings indicated are applied to the exposed exterior surfaces only and, therefore, cannot be used as open sprinklers. Note that the spring is exposed on sprinklers with Teflon® or Polyester coating.

**Table 1**

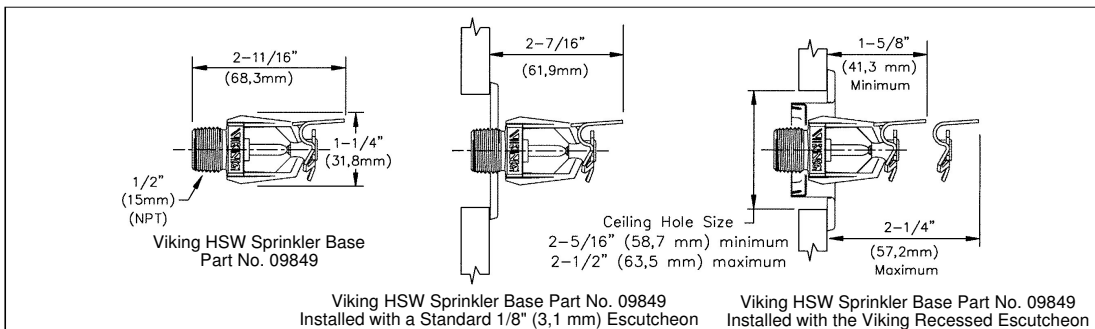
New format replaces page 14 a-d, dated October 14, 1999, page 14 e-g, dated June 4, 1999, and page 31 a-d, dated May 27, 1999. **Refer to technical data page SR1-2 for general care, installation, and maintenance information.**



# TECHNICAL DATA

**MICROMATIC® AND  
MicromaticHP® STANDARD  
RESPONSE HORIZONTAL  
SIDEWALL SPRINKLERS**

Approval Chart Micromatic® and MicromaticHP® Standard Response HSW Sprinklers										KEY			
										Temperature	Finish		
										A1X ← Escutcheon (if applicable)			
<b>Maximum 175 psi wwp Standard Orifice</b>													
Thread Size	Max. Pressure	Sprinkler Base Part No. <sup>1</sup>	Sprinkler I.D. No. <sup>12</sup>	Nominal K-factor	Overall Length	Listings and Approvals <sup>2</sup>							
NPT	BSP	PSIG		U.S. <sup>12</sup>	metric <sup>6</sup>	Inches	mm	UL <sup>3</sup>	ULC <sup>3</sup>	NYC <sup>11</sup>	FM <sup>4</sup>	LPCB	
1/2"	15 mm	175	10224	VK104	5.6	7.9	2.5	64	A1X, A1Z, B4X, B1Y, B4Y, B4Z, C6X	A1X, B1Y, B1Z, B4X, B4Z, B4Y	A1X, A1Z, B4X, B1Y, B4Y, B4Z, C6X	A2X, B3X	A2X, B3X, B5X
--	15 mm	175	10171	VK104	--	7.9	2.2	53					
1/2"	15 mm	175	09849	VK116	5.6	7.9	2.5	64	UL <sup>7</sup> D7W, B7Y	C-UL <sup>7</sup> D7W, B7Y	NYC	FM	LPCB
<b>Small Orifice</b>													
--	10 mm	175	09126	--	--	5.8	2.4	61.9	UL	ULC	NYC	FM	LPCB
<b>Maximum 250 psi wwp Standard Orifice, for Installation 4" to 12" (102 mm to 305 mm) Below Ceilings.</b>													
1/2"	15 mm	250	09849	VK116	5.6	7.9	2.5	64	UL D1W, B1V	C-UL D1W, B1V	NYC	FM	LPCB
<b>Small Orifice<sup>9</sup>, for Installation 4" to 6" (102 mm to 152 mm) Below Ceilings.</b>													
1/2"	15 mm	250	09997 <sup>10</sup>	VK015	2.8	3.9	2.5	64	D1W, B1V	D1W, B1V	--	--	--
<b>Approved Temperature Ratings</b>				<b>Approved Finishes</b>				<b>Approved Escutcheons</b>					
A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C), and 360 °F (182 °C) B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C) C - 286 °F (141 °C) D - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)				1 - Brass, Bright Brass, Chrome-Enloy®, White Polyester <sup>5</sup> , Navajo White Polyester <sup>5</sup> , Black Polyester <sup>5</sup> , and Black Teflon <sup>65</sup> 2 - Brass, Bright Brass, and Chrome-Enloy® 3 - Wax-Coated Brass (corrosion resistant) 4 - Wax-Coated Brass and Wax Over Polyester (corrosion resistant) 5 - White Polyester, Navajo White Polyester, and Black Polyester 6 - 200 °F (93 °C) Wax Coating (corrosion resistant) maximum ambient temperature at ceiling = 150 °F (65 °C) 7 - Brass, Bright Brass, Chrome-Enloy®, White Polyester <sup>5</sup> , Navajo White Polyester <sup>5</sup> , Black Polyester <sup>5</sup> , Black Teflon <sup>65</sup> , Wax-Coated Brass <sup>5</sup> , and Wax Over Polyester <sup>5</sup>				V - Installed with standard surface-mounted escutcheons or the Viking Micromatic® Model E-1 Recessed Escutcheon. W - Installed with standard surface-mounted escutcheons or the Viking Microfast® Model F-1 Adjustable Escutcheon. X - Installed with standard surface-mounted escutcheons only. Y - Recessed with the Viking Micromatic® Model E-1 Recessed Escutcheon. Z - Installed with the Viking Microfast® Model F-1 Adjustable Escutcheon.					
<b>Footnotes</b>													
<sup>1</sup> Base part number is shown. For complete part number, refer to Viking's current price schedule. <sup>2</sup> This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals. <sup>3</sup> UL and ULC Listed for Light-Hazard occupancies only. Locate with deflectors 4" to 12" (102 mm to 304 mm) below ceilings. <sup>4</sup> FM Approved for Light-Hazard occupancies only. Locate with deflectors 4" to 6" (102 mm to 152 mm) below ceilings. <sup>5</sup> UL and ULC, and C-UL Listed as corrosion-resistant. <sup>6</sup> Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor shown by 10.0. <sup>7</sup> UL and C-UL Listed for Light-Hazard, Ordinary Hazard Group I, and Ordinary Hazard Group II occupancies. Locate with deflectors 4" to 12" (102 mm to 305 mm) below ceilings. <sup>8</sup> The Viking Microfast® Model F-1 Adjustable Escutcheon is considered a surface-mounted escutcheon because it does not allow the fusible element of the sprinkler to be recessed behind the face of the wall or ceiling. <sup>9</sup> UL and C-UL Listings limited to Light-Hazard Occupancies with hydraulically calculated wet systems. <sup>10</sup> The sprinkler orifice is bushed. <sup>11</sup> Approved by the New York City Board of Standards and Appeals under Calendar Number 219-76-SA and Accepted for Use, City of New York Department of Buildings, MEA 89-92-E, Vol. XII. <sup>12</sup> Sprinkler I.D. Nos. and nominal U.S. K-factors provided in accordance with the 1999 edition of NFPA 13, Section 3-2.2 and Section 3-2.3. <b>NOTE:</b> Locate with deflectors 4" to 6" (102 mm to 152 mm) from walls. <b>Exception:</b> Horizontal sidewall sprinklers may be installed with the deflectors less than 4" (102 mm) from the wall in which they are installed. Align horizontal sidewall sprinklers with top of deflectors parallel to the ceiling or roof.													



New format replaces page 14 a-d, dated October 14, 1999, page 14 e-g, dated June 4, 1999, and page 31 a-d, dated May 27, 1999. **Refer to technical data page SR1-2 for general care, installation, and maintenance information.**

Form No. F\_123096

SPR-19

DESCRIPTION: SPRINKLER, QUICK-RESPONSE CONCEALED, [SPECIFICALLY DESIGNED & TESTED FOR USE IN MRI TYPE APPLICATIONS], NON-FERROUS, BULB/FUSIBLE LINK TYPE, SMOOTH PROFILE WITH CEILING, WHITE COVER PLATE, 135-170 DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL.

MANUFACTURER & CATALOG NO.: RELIABLE F4FR-NF

Notes to Specifier:

1. This sprinkler can be used in MRI rooms, swimming pools, and other corrosive environments.
2. COLORS: Brass, Chrome, Decorative white or black (Not all manufacturers apply, check literature).
3. For corrosion resistance information, consult manufacturer.
4. For extended coverage information, consult manufacturer.
5. Quick response cannot be used for extra hazard occupancies.
6. FM does not approve quick-response concealed sprinklers. Consult the FM authority for acceptable concealed sprinklers.

# Reliable®

## Model F4FR-NF Non-Ferrous Quick Response Concealed Automatic Sprinkler for MRI Type Applications

### The Non-Ferrous Concealer®

#### Features

1. Completely Non-Ferrous material designed for MRI rooms, swimming pools, and many corrosive environments.
2. Laboratory tested in an MRI room environment.
3. Cup and skirt fabricated from corrosion resistant brass.
4. Simple sturdy cover attachment.
5. Smooth aesthetic ceiling profile.
6. Available in bright brass, chrome and black plated, and white or other color painted finishes.
7. Ordinary temperature rating.
8. Threaded cover plate does not require clips or springs.

#### Listings and Approvals

1. Listed by Underwriters' Laboratories Inc. and UL certified for Canada (cULus).
2. NYC MEA 258-93-E

**Note:** Approvals are light and ordinary hazard.

#### UL Listing Categories

Sprinklers, Automatic & Open  
Quick Response Sprinkler

#### UL Guide Number

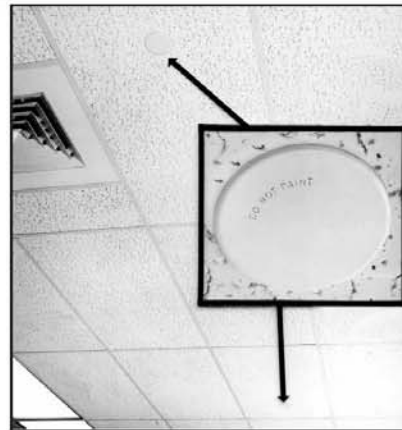
VNIV

**U.S. Patent No. 4,880,063.**

#### Application

The Reliable Model F4FR-NF Non-Ferrous Concealer® is the only sprinkler designed specifically for MRI rooms and many corrosive environments. A test setup of the sprinkler assembly was tested in a laboratory with a magnetic field up to 6 Tesla. The highest clinical magnet system commercially available today is 3 Tesla. There was no recorded influence of the magnetic field on the sprinklers. The test exposed the sprinklers to magnetic fields and field gradients that would far exceed a standard peripheral MRI room environment.

The Model F4FR-NF is the most versatile, non-corrosive, quick response sprinkler available. This sprinkler provides



the best form of fire protection by offering an attractive appearance and 1/2" (13mm) cover adjustment for ease of installation. The small diameter cover plate is easily and positively attached and blends into the ceiling, concealing the most dependable fire protection available, an automatic sprinkler system.

The Model F4FR-NF Non-Ferrous Concealer® is designed for use where aesthetic appearance is important. MRI rooms, swimming pools, and many corrosive environments are possible applications for this unique sprinkler.

The Model F4FR-NF is a quick response concealed sprinkler intended for use in accordance with NFPA 13.

The Non-Ferrous Concealer® can eliminate the need for precise cutting of drop nipples. The threaded cover plate assembly can be adjusted without tools to fit accurately against the ceiling. The fire protection system need not be shut down to adjust or remove the cover plate assembly.

#### Product Description

The Non-Ferrous Concealer® for quick response applications uses a 135°F (57°C) 3mm diameter glass bulb in a standard style sprinkler frame with a drop-down deflector. This assembly is recessed into the ceiling and concealed by a flat cover plate. The cover plate and sprinkler cup assemblies are attached using a strong threaded engagement. This threaded engagement provides 1/2" (13mm) of cover adjustment. The cover plate is attached to the skirt using 135°F (57°C) ordinary temperature classification solder. When the ceiling temperature rises, the solder holding the cover plate fuses, thus releasing the plate and exposing the sprinkler inside to ambient temperature. The subsequent shattering of the sprinkler bulb opens the waterway and causes the deflector to drop into position to distribute the discharging water. Any secure engagement between the cover plate and cup will assure that the drop-down deflector is properly located below the ceiling.

**The Reliable Automatic Sprinkler Co., Inc., 525 North MacQuesten Parkway, Mount Vernon, New York, 10552**

## Installation

Do not install The Non-Ferrous Concealer® in ceilings which have positive pressure in the space above. In addition, inspect all sprinklers after installation to ensure that both the gap between the cover plate and ceiling and the four (4) slots in the cup are open and free from any air flow impediment.

After a 2 5/8" diameter hole is cut in the ceiling, the sprinkler is to be installed with the Model G4 Wrench. When installing a sprinkler, the wrench is first positioned into the sprinkler/cup assembly until two wrench tangs fully engage drive slots in the top of the cup (there are two pairs of drive slots in the cup). The sprinkler is then tightened into the pipe fitting to a torque of 15-20 ft-lbs. When inserting or removing the wrench from the sprinkler/cup assembly care should be taken to prevent damage to the sprinkler. **DO NOT WRENCH ON ANY OTHER PART OF THE SPRINKLER/CUP ASSEMBLY.**

## Maintenance

The Model F4FR-NF should be inspected quarterly and the sprinkler system maintained in accordance with NFPA 25. Do not clean sprinklers with soap and water, ammonia or any other cleaning fluids. Remove any sprinkler that has been painted (other than factory applied) or damaged in any way. A stock of spare sprinklers should be maintained to allow quick replacement of damaged or operated sprinklers. Prior to installation, sprinklers should be maintained in the original cartons and packaging to minimize the potential for damage to sprinklers that would cause improper operation or non-operation.

## Engineering Specification

Sprinklers shall be cULus Listed, non-ferrous, quick response concealed pendent sprinklers specifically designed and tested for use in MRI type applications, and able to withstand exposure to a magnetic field of up to 6 Tesla. The concealed sprinkler frame and cover plate assembly shall be of all brass construction, including the drop-down deflector and sprinkler cup assembly. The water seal shall consist of a Teflon film coated Belleville spring washer and bulb/machined cup assembly utilizing a 3mm glass bulb thermal element. Concealed sprinklers shall have a 1/2" NPT with a nominal K-factor of 5.6 (80.0). Temperature rating of both

## Temperatures Ratings

Classification	Sprinkler	Cover Plate	Max. Ceiling Temp.
Ordinary	135°F/57°C	135°F/57°C	100°F/38°C

## Installation Data

Total Adjustment	Nominal Orifice	Nominal K Factor		Thread	Approval	Sprinkler Identification Number (SIN)
		US	Metric			
1/2" (13mm)	1/2" (15mm)	5.6	80	1/2" NPT (R1/2)	cULus	RA0212

The equipment presented in this bulletin is to be installed in accordance with the latest pertinent Standards of the National Fire Protection Association, Factory Mutual Research Corporation, or other similar organizations and also with the provisions of governmental codes or ordinances whenever applicable.

Products manufactured and distributed by Reliable have been protecting life and property for over 80 years, and are installed and serviced by the most highly qualified and reputable sprinkler contractors located throughout the United States, Canada and foreign countries.

Manufactured by

# Reliable®

The Reliable Automatic Sprinkler Co., Inc.  
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 www.reliable sprinkler.com Internet Address



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the sprinkler and the cover plate shall be 135 °F (57 °C). Sprinkler cover plate shall be capable of providing 1/2" of adjustment and shall attach to the sprinkler cup by a strong threaded engagement. The sprinkler cup shall be reinforced with an attached brass wrenching plate to protect the sprinkler cup from damage during installation. Concealed sprinklers shall be UL Listed for Light Hazard and Ordinary Hazard occupancies. Standard cover finish to be: [Bronze] [Chrome Plated] [White] [Bright Brass Plated] [Black Plated] [Specialty – specify]. Quick Response Concealed Pendent Sprinklers shall be the Reliable Non-Ferrous Concealer, Model F4FR-NF, SIN RA0212.

## Ordering Information Specify

1. Sprinkler Model
2. Cover Plate Finish

## Installation Wrench

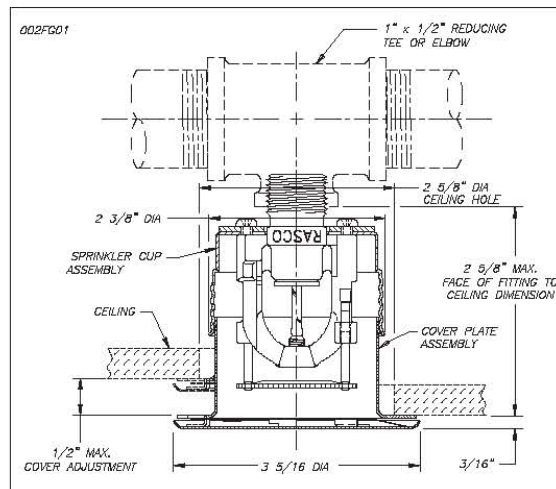
Model G4 Sprinkler Wrench

## Finishes (1):

Standard Finishes:
Bronze
Bright Brass Plated
Chrome Plated
Black Plated
White

**Note:** Paint or any other coatings applied over the factory finish will void all approvals and warranties.

(1) Other colors and finishes are available. Consult factory for details.



1/2" NPT (R1/2) inlet - Figure 1



SPR-20

DESCRIPTION: SPRINKLER, STANDARD-RESPONSE CONCEALED, BULB/FUSIBLE LINK TYPE, "SEALING" CONCEALED TYPE, WHITE COVER PLATE WITH GASKET SEAL FOR DUST FREE ENVIRONMENTS, SMOOTH PROFILE WITH CEILING, [135-170] [175-225] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL.

MANUFACTURER & CATALOG NO.: RELIABLE G4FR, TYCO RFII.

Notes to Specifier:

1. This sprinkler can be used in Clean Rooms & Surgery Suites.
2. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)

See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

3. COLORS: Brass, Chrome, Decorative white or black (Not all manufacturers apply, check literature).
4. For corrosion resistance information, consult manufacturer.
5. For extended coverage information, consult manufacturer.
6. Do not install in positive pressure plenums.
7. NFPA requires quick-response sprinklers for light hazard occupancies. This sprinkler should be reviewed with the AHJ prior to use in light hazard occupancies.



## Model G4 and G4FR "Sealing" Concealed Automatic Sprinklers

Bulletin 123 Rev.G

### The Concealer®

**A Concealed Sprinkler with a ½" (13mm) or 1½" (38mm) ½Adjustment and a Dust Tight Seal**

#### Features

1. Cover Plate with a Gasket Seal assembly for dust free environments.
2. A Total adjustment of ½" (13mm) provided by economical standard inlet version.
3. A Total adjustment of 1½" (38mm) provided by adjustable inlet versions.
4. Adjustable inlet version available with either 1" NPT male or female threads eliminating costing reducing couplings.
5. Available in chrome plated or white painted finish.
6. Ordinary and intermediate temperature rating.
7. Multiple orifices for design flexibility.
8. The cover plate does not require clips or springs.

#### Approvals & Listings

1. Underwriters Laboratories, Inc. (UL)
2. Underwriters Laboratories of Canada (ULC)
3. NYC MEA 258-93-E

**Note:** Approvals are for light and ordinary hazard, except for small orifice sprinkler which are limited to light hazard occupancies. The cup and skirt are fabricated from plated steel and are intended for interior non-corrosive applications

**US. Patent No. 4,880,063.**



#### Applications

Models G4 and G4FR "Sealing" Concealer provide fire protection in dust free environments while offering an attractive appearance and ½" (13mm) adjustment for easy installation. The adjustable 1" NPT inlet versions have 1½" (38mm) of total adjustment and also eliminate the need for a reducing coupling. The small diameter gasketed cover plate



assembly is easily and positively attached and blends into the ceiling, concealing the most dependable fire protection available, an automatic sprinkler system.

The Models G4 and G4FR "Sealing" Concealer utilize a gasketed cover plate assembly designed solely for use in dust free environments such as a clean room. These sprinklers are available in different orifice sizes allowing the designer to optimize system performance, thereby achieving a most efficient installation.

The Concealer® can eliminate the need for precise cutting of drop nipples. The gasketed cover plate assembly can be adjusted without tools to fit accurately on the ceiling. The fire protection system need not be shut down to adjust or remove the gasketed cover plate assembly.

The Models G4 and G4FR "Sealing" Concealer are standard response sprinklers. The G4FR does offer faster thermal response for those applications where this is desired.

#### Product Description

Models G4 and G4FR "Sealing" Concealer use proven fusible elements in a standard style sprinkler frame with a drop-down deflector. This assembly is recessed into the ceiling and concealed by a flat gasketed cover plate. This threaded engagement provides ½" (13mm) of cover adjustment to the threaded cup. The flat cover plate is attached to the skirt using the same ordinary temperature classification solder that is used in sprinklers. This results in ordinary temperature rated cover plates concealing either ordinary temperature sprinklers or intermediate temperature sprinklers which can be installed in 150°F environments. When the ceiling temperature rises, the solder holding the flat cover plate fuses, the cover plate released, thus exposing the sprinkler inside the cup to the rising ambient temperature.

The subsequent fusing of the solder element in the sprinkler opens the waterway and causes the deflector to drop into position to distribute the discharging water. Any secure engagement between the gasket cover plate and cup will

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assure that the drop-down deflector is properly located below the ceiling.

**Installation**

Do not install The Concealer® in ceilings which have positive pressure in the space above.

- Cut a 2 5/8" (67mm) diameter hole in the ceiling, and install the non-adjustable inlet sprinkler with the Model G4 Wrench. The wrench has drive tangs which insert into cup slots. When installing a sprinkler, the wrench is first positioned into the sprinkler/cup assembly until the wrench tangs engage drive slots in the top of the cup (there are two sets of mating drive slots in the top of the cup). The sprinkler is then tightened into the pipe fitting. When inserting or removing the wrench from the sprinkler/cup assembly, care should be taken to prevent damage to the sprinkler. **DO NOT WRENCH ON ANY OTHER PART OF THE SPRINKLER/CUP ASSEMBLY.** Install the cover plate assembly by turning it clockwise until tight against ceiling.

The adjustable inlet versions are similar to The Concealer® described above except that an additional 1" adjustment is provided by means of a telescoping inlet section that threads in or out of a stationary coupling reducer (either 1" (25mm) male or female) as shown in Figures 2 or 3. These sprinklers must be installed before the ceiling is in place by wrenching on only the coupling reducer hex flats. After the ceiling has

been installed the telescoping inlet section is to be adjusted with the G4 Wrench. Install the cover plate assembly by turning it clockwise until tight against the ceiling.

- If required to reassemble the gasket to the cover plate, do not glue the gasket into place or allow the gasket to overlap both the cover plate and flange of the skirt.
- The gasket and cover plate of the Model G4 and G4FR "Sealing" sprinklers are not to be interchanged with other models of concealed sprinklers.
- Paint or any other coating over the factory finish on cover plates will void all approvals and warranties.

**Ordering Information**

1. Sprinkler Model
2. Temperature Rating
3. Nominal Orifice
4. Inlet Type
5. Gasketed Cover Plate Assembly Finish

**Push-on/Thread-off Cover Plate Finish**

- White Paint
  - Chrome Plated
- Other Finishes available upon request.

**Gasket Color**

- White only



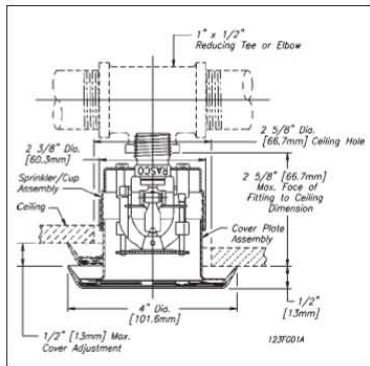
Model G4 Wrench

**Standard Temperatures**

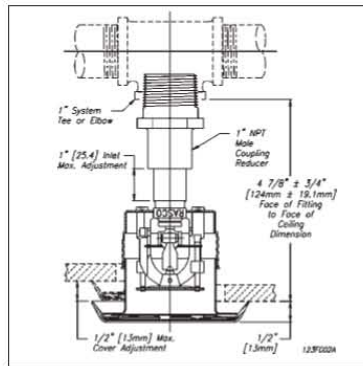
Model	Classification	Sprinkler	Cover Plate	Max. Ceiling Temp.
G4	Ordinary	135°F/57°C	135°F/57°C	100°F/38°C
G4, G4FR	Ordinary	165°F/74°C	135°F/57°C	100°F/38°C
G4	Intermediate	212°F/100°C	165°F/74°C	150°F/66°C

**Technical Installation Data**

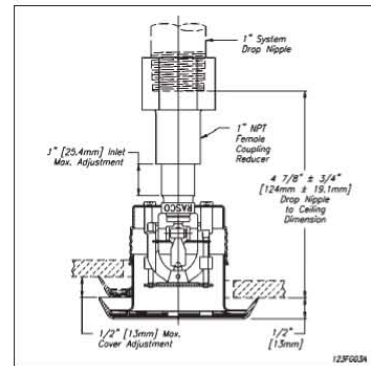
Model	Sprinkler Inlet	Total Adjustment	Nominal Orifice	Nominal K Factor		Thread	Sprinkler Identification Number (SIN)	
				US	Metric		G4	G4FR
G4 and G4FR	Non-Adjustment	1/2" (13mm)	1/2" (15mm)	5.6	80	1/2" NPT (R1/2)	R2115	R2215
	Non-Adjustment	1/2" (13mm)	7/16" (11mm)	4.2	60	1/2" NPT (R1/2)	R2113	R2213
	Non-Adjustment	1/2" (13mm)	3/8" (10mm)	2.8	40	1/2" NPT (R1/2)	R2111	R2211
	Adjustment	1 1/2" (38mm)	1/2" (15mm)	5.6	80	1" NPT Male or Female	R2118	R2218
	Adjustment	1 1/2" (38mm)	7/16" (11mm)	4.2	60	1" NPT Male or Female	R2113	R2213
	Adjustment	1 1/2" (38mm)	3/8" (10mm)	2.8	40	1" NPT Male or Female	R2112	R2212



1/2" NPT (R1/2) Non Adjustable Inlet  
\* Figure 1



1" NPT Male - Adjustable Inlet



1" NPT Female - Adjustable Inlet  
\* Figure 3

\*Illustration shows Model G4; use the same dimensional configuration for the Model G4FR

The equipment presented in this bulletin is to be installed in accordance with the latest pertinent Standards of the National Fire Protection Association, Factory Mutual Research Corporation, or other similar organizations and also with the provisions of governmental codes or ordinances whenever applicable. Products manufactured and distributed by Reliable have been protecting life and property for over 80 years, and are installed and serviced by the most highly qualified and reputable sprinkler contractors located throughout the United States, Canada and foreign countries.

Manufactured by



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SPR-21

DESCRIPTION: WINDOW SPRINKLER, QUICK-RESPONSE [HORIZONTAL] [PENDENT VERTICAL], BULB TYPE, DEFLECTOR DESIGNED FOR SPRAY PATTERN TO WET ENTIRE SURFACE OF WINDOW, [135-170] [175-225] DEGREE F TEMPERATURE RANGE, 1/2" ORIFICE, UL.

MANUFACTURER & CATALOG NO.: TYCO [TY3388] [TY3488]

Notes to Specifier:

1. THERE ARE MANY REGULATIONS FOR USING THIS SPRINKLER. READ ENTIRE TYCO DATA SHEET (see link below) AND RELEVANT SECTIONS OF NFPA 13 BEFORE SPECIFYING.

[http://www.tyco-fire.com/index.php?P=show&id=TFP620\\_07\\_2005&B=&BK=product&SB=S6](http://www.tyco-fire.com/index.php?P=show&id=TFP620_07_2005&B=&BK=product&SB=S6)

2. EDIT SPRINKLER TEMPERATURE RATINGS PER NFPA 13: TABLE 6.2.5.1 AND SECTION 8.3.2.

Max Ceiling

Temperature	Temp. Rating (Classification)
100	135-170 (Ordinary)
150	175-225 (Intermediate)
225	250-300 (High)

See NFPA for higher requirements. Glass or plastic skylights where heads are in direct sunlight require intermediate temperature classification per NFPA 13: 8.3.2.5(4).

3. COLORS: Brass, Chrome, Decorative white or black (Not all manufacturers apply, check literature).

4. For corrosion resistance information, consult manufacturer.

5. For extended coverage information, consult manufacturer.

6. Quick response cannot be used for extra hazard occupancies.

7. TY3388 is horizontal sidewall. TY3488 is pendent vertical sidewall.

8. These sprinklers are designed for protection of a glass window, protection from one closely located building to another, or protection of columns/beams to preserve structural integrity.

## **Model WS™ — 5.6 K-factor Specific Application Window Sprinklers, Horizontal and Pendent Vertical Sidewall**

### **General Description**

The Model WS, 5.6 K-factor, Horizontal Sidewall and Pendent Vertical Sidewall, Specific Application Window Sprinklers are fast response, glass bulb type spray sprinklers.

These sprinklers are the first sprinklers ever to be specifically Listed to provide protection for heat strengthened or tempered glass windows using closed sprinklers. As part of the testing, the gas flow required to achieve the time/temperature relationship specified in ASTM E119 was established in a test furnace without sprinkler protection. A window assembly protected with Model WS Specific Application Window Sprinklers was then installed in the test furnace and the same gas flow conditions were maintained for a two hour test period. No cracking or visible damage to the window was permitted during the test period (even when a hose stream was directed at the window).

The success of the Model WS Specific Application Window Sprinkler is based on its specially designed deflector that ensures that the spray pattern wets the entire surface of the window, and its fast response thermal sensitivity.

Based on this successful testing, the Model WS Specific Application Win-

dow Sprinkler can be used as interior protection of windows or glazing in a sprinklered building or non-sprinklered building. Also, the Model WS Specific Application Window Sprinkler can be used as an open sprinkler for "Outside Sprinkler Protection against Exposure Fire", using the design requirements of NFPA.

As with any specific application sprinkler, the installation instructions included in this data sheet must be precisely followed. ICC Evaluation Service, Underwriters Laboratories of Canada (ULC), or Building Materials Evaluation Commission (BMEC) guidelines apply, consult the specific approval report.

#### **WARNING**

*The Model WS Specific Application Window Sprinklers described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the performance of these devices.*

*The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or manufacturer should be contacted with any questions.*



**IMPORTANT**  
*Always refer to Technical Data Sheet TFP700 for the "INSTALLER WARNING" that provides cautions with respect to handling and installation of sprinkler systems and components. Improper handling and installation can permanently damage a sprinkler system or its components and cause the sprinkler to fail to operate in a fire situation or cause it to operate prematurely.*

### **Sprinkler Identification Number**

**TY3388 - Horizontal Sidewall  
TY3488 - Pendent Vertical Sidewall**

TY3388 is a redesignation for C3388.  
TY3488 is a redesignation for C3488.

## Technical Data

### Approvals

UL, C-UL, and ULC Listed.  
 NYC under MEA 289-04-E.  
 (The approvals only apply to the service conditions indicated in the Design Criteria section.)

### Additional Recognition

- ICC Evaluation Service (ICC-ES Legacy Report NER-516)
- Building Materials Evaluation Commission (BMEC 01-11-263)

### Pipe Thread Connection

1/2 inch NPT

### Discharge Coefficient

$K = 5.6 \text{ GPM/psi}^{1/2}$   
 (80,6 LPM/bar<sup>1/2</sup>)

### Temperature Rating

155°F/68°C & 200°F/93°C

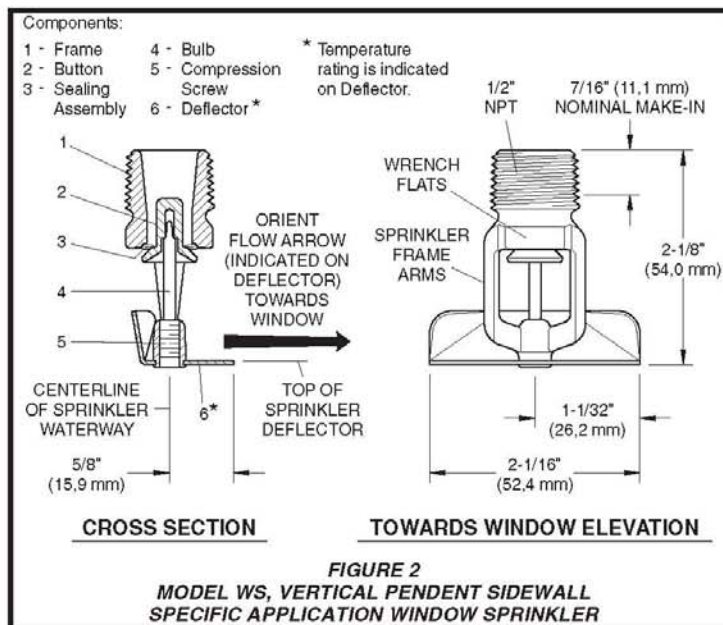
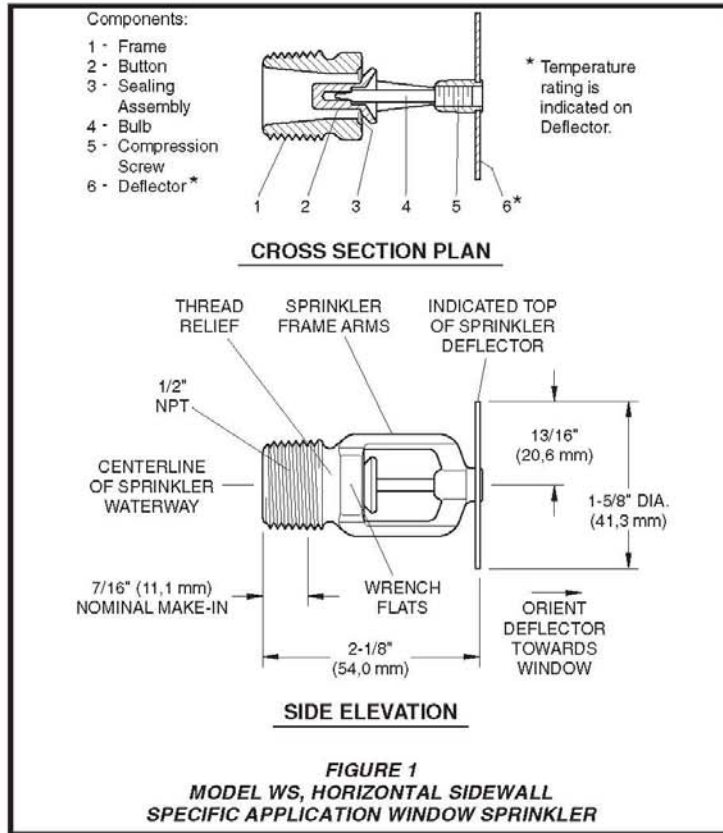
### Finish

Polyester Coated, Chrome Plated, or Natural Brass

### Physical Characteristics

Frame . . . . . Brass  
 Button . . . . . Bronze/Copper  
 Sealing Assembly . . . . .  
 . . . . . Beryllium Nickel w/Teflon†  
 Bulb . . . . . Glass (3 mm dia.)  
 Compression Screw . . . . . Brass  
 Deflector . . . . . Brass/Bronze  
 † DuPont Registered Trademark

The glass bulb contains a fluid that expands when exposed to heat. When the rated temperature is reached, the fluid expands sufficiently to shatter the glass bulb, allowing the sprinkler to activate and water to flow.



## Design Criteria

The Model WS Window Sprinklers are listed by UL and C-UL, and NYC Approved (MEA 335-01-E) for use as a "Specific Application Window Sprinkler" and as open sprinklers for "Outside" use. These sprinklers are also recognized by the International Code Council Evaluation Service, Underwriters Laboratories of Canada (ULC), and the Building Materials Evaluation Commission (BMEC) for use in the Province of Ontario, Canada as providing a two-hour equivalency for a fire separation assembly, when installed in accordance with the NES Report (NER 516), ULC/ORD-C263.1 Appendix A, and BMEC Report (01-11-263).

### NOTE

NER 516 can be obtained at [www.icc-es.org](http://www.icc-es.org). ULC/ORD-C263.1 Appendix A and BMEC 01-11-263 may be obtained by contacting Technical Services.

### Area Of Use:

When acceptable to the Authority Having Jurisdiction and unless modified by one of the reports mentioned above, the Model WS Specific Application Window Sprinklers may be used in either a sprinklered or unsprinklered building to protect nonoperable window openings that are part of a fire separation provided:

- in an interior fire separation, the window sprinklers are installed on both sides of the window in the fire separation. (Ref. Figure 3A-1),
- in jurisdictions where exterior spatial separation (i.e., separation from adjacent space) is defined as protecting an adjacent building from a fire in your building, window sprinklers are installed on the interior side of the building (Ref. Figure 3A-2), or
- in jurisdictions where exterior spatial separation is defined as protecting your building from a fire in an adjacent building (i.e., exposure protection), open window sprinklers are installed on the exterior side of the building (Ref. Figure 3A-3).

### System Type:

Interior Protection - Wet Systems.

Outside Exposure Protection - Deluge.

### Glass Type:

Non-opererable, heat-strengthened, tempered, single-glazed (single pane); non-opererable, heat-strengthened, tempered, double-glazed (double pane or insulated); or, non-opererable, stronger glass window assemblies. In all three cases, each individual pane of the window assembly is to be minimum 6 mm (1/4") thick.

### Type of Window Frame/Mullion:

Noncombustible Frame with a standard EPDM rubber gasket seal. Vertical joints of glass panes must be connected by butt-joints sealed with a silicone sealant between the individual panes or by Noncombustible Mullions (Ref. Figure 3B-1 & 3B-2).

### Maximum Length Of Window Assembly:

Unlimited.

### Maximum Height Of Window Assembly:

13' (3.96 m) (Ref. Figure 3C & 3D).

### Maximum Distance Between Window Sprinklers:

8' (2.44 m) (Ref. Figure 3B-1 & 3B-2).

### Minimum Distance Between Window Sprinklers:

6' (1.83 m) (Ref. Figure 3B-1 & 3B-2), unless separated by a baffle or mullion of sufficient depth to act as a baffle. (A mullion will act as a baffle, when in the case of the Pendant Vertical Sidewall, the mullion extends to the back of the sprinkler deflector, and in the case of the Horizontal Sidewall, the mullion extends to the sprinkler wrench flat.)

### Minimum Distance From Standard Sprinklers:

6' (1.83 m) unless separated by a baffle.

### Sprinkler Location:

Mullioned Glazing Assemblies - Locate window sprinklers within each mullioned glazing segment (Ref. Figure 3B-1).

Butt Jointed Glazing Assemblies - Locate window sprinklers on maximum 8' (2.44 m) centers (Ref. Figure 3B-2).

### Maximum Distance From Vertical Mullion:

4' (1.22 m) (Ref. Figure 3B-1).

### Minimum Distance From Vertical Mullions:

4" (101.6 mm) (Ref. Figure 3B-1).

### Intermediate Horizontal Mullions:

Intermediate Horizontal Mullions were not tested with the window sprinkler. Their use is outside the scope of the "Specific Application" Listing for the window sprinklers (Ref. Figure 3B-3).

### Deflector Location:

Sprinkler Deflectors must be located as described below in order to ensure that the entire surface of the glass window is covered. Sprinkler Deflectors are positioned with respect to the window frame, not the ceiling.

Horizontal Sidewall - Locate within the outside edge of the window frame from 1/2" to 4" (12.7 mm to 101.6 mm) away from the glass and 2" ± 1" (50.8 mm ± 25.4 mm) down from the top of exposed glass (Ref. Figure 3C).

Pendant Vertical Sidewall - Locate 4" to 12" (101.6 mm to 304.8 mm) from the face of the glass and 3" ± 1" (76.2 mm ± 25.4 mm) down from the top of exposed glass (Ref. Figure 3D).

### Minimum Clearance From Face Of Glass To Combustible Materials:

All combustible materials shall be kept 2" (50.8 mm) from the front face of the glass. This can be accomplished by a minimum 36" (914.4 mm) pony wall or other method acceptable to the Authority Having Jurisdiction.

### Escutcheon Assemblies:

The window sprinklers can be used with any metallic flush or extended escutcheon, provided the dimensions from the sprinkler deflector to the window frame and glass surface as specified in this data sheet are maintained. These sprinklers are not listed for recessed applications.

### Recommended Hydraulic Requirements:

The Authority Having Jurisdiction should be consulted to determine the hydraulic requirements for each installation.

Interior Protection Sprinklered Building - Identify which compartmented area has the most hydraulically demanding window sprinklers. Calculate all of the sprinklers within a compartmented area or the number of window sprinklers required to cover a combined linear length of glass equal to 1.2 x the square root of the system area of operation, whichever is greater. For example if the building design area is 1500 ft<sup>2</sup> then  $1.2 \times (1500 \text{ ft}^2)^{1/2} = 46.5$  linear feet of glass or  $1.2 \times (139 \text{ m}^2)^{1/2} = 14.2$  linear meters of glass. Add the window sprinkler demand to your most demanding hydraulic design area.

Interior Protection Non-Sprinklered - Calculate all the sprinklers on the most demanding side of the glazing assembly within the enclosure.

Exterior Exposure Protection - Calculate all sprinklers controlled by the deluge valve using the design requirements of NFPA.

### Duration Of Water Supply:

The duration of the water supply must comply with the requirements of NFPA. In the event the window sprinklers are being used to provide the equivalency of a fire rating, the water supply must be capable of supplying water for the required rating period.

### Minimum Flow Per Sprinkler:

20 GPM (75.7 LPM) for sprinkler spacing of 6 to 8 ft. (1.83 to 2.44 m) or 15 GPM (56.8 mLPM) for sprinkler spacing less than 6 ft. (1.83 m).

### Maximum Pressure Per Sprinkler:

Horizontal Sidewall = 70\* psi (4.83 bar).

Vertical Sidewall = 175 psi (12.07 bar).

\*The 70 psi is only for cold solder purposes. If there is a baffle or mullion of sufficient depth to act as a baffle, separating the sprinklers, the maximum pressure is 175 psi.

## Installation

The Model WS Specific Application Window Sprinklers must be installed in accordance with the following instructions:

### NOTES

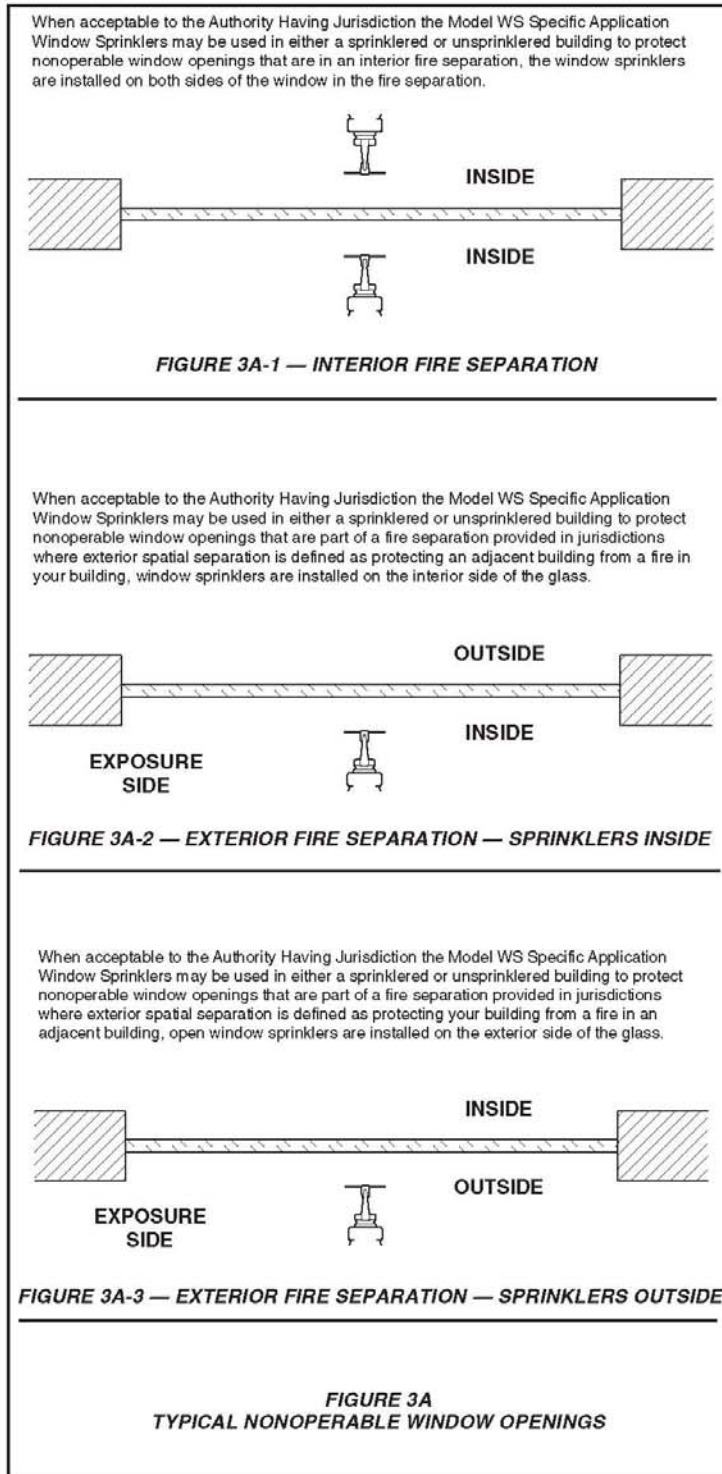
Do not install any bulb type sprinkler if the bulb is cracked or there is a loss of liquid from the bulb. With the sprinkler held horizontally, a small air bubble should be present. The diameter of the air bubble is approximately 1/16 inch (1,6 mm).

A leak tight 1/2 inch NPT sprinkler joint should be obtained with a torque of 7 to 14 ft.lbs. (9,5 to 19,0 Nm). A maximum of 20 ft.lbs. (28,5 Nm) of torque is to be used to install sprinklers. Higher levels of torque may distort the sprinkler inlet with consequent leakage or impairment of the sprinkler.

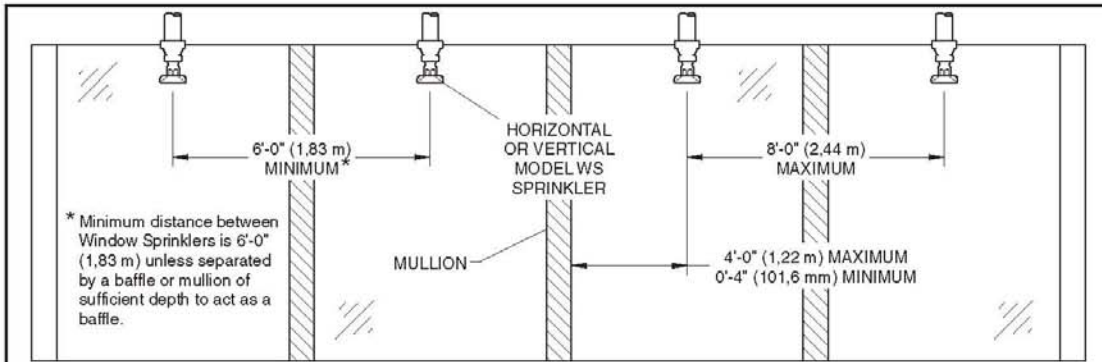
**Step 1.** The pendent vertical sidewall sprinkler must be installed only in the pendent position with the centerline of the sprinkler parallel to the glass surface. The sprinkler must be orientated so that the direction of flow indicated on the sprinkler deflector is facing the window. The horizontal sidewall sprinkler must be installed only in the horizontal position with the centerline of the sprinkler perpendicular to the glass surface. The sprinkler must be orientated so that the word "Top" indicated on the sprinkler deflector is facing the top of window frame.

**Step 2.** With pipe thread sealant applied to the pipe threads, hand tighten the sprinkler into the sprinkler fitting.

**Step 3.** Wrench tighten the Sprinkler using only the W-Type 20 (End A) Sprinkler Wrench (Ref. Figure 4). The W-Type 20 (End A) Sprinkler Wrench is to be applied to the Sprinkler Wrench flats only.

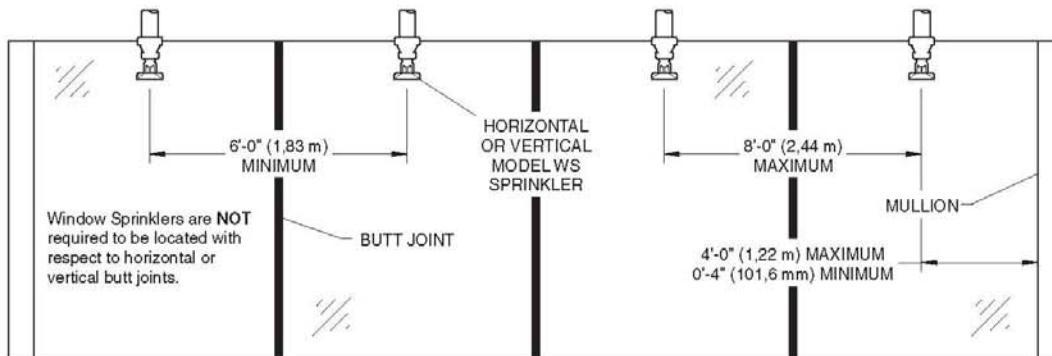




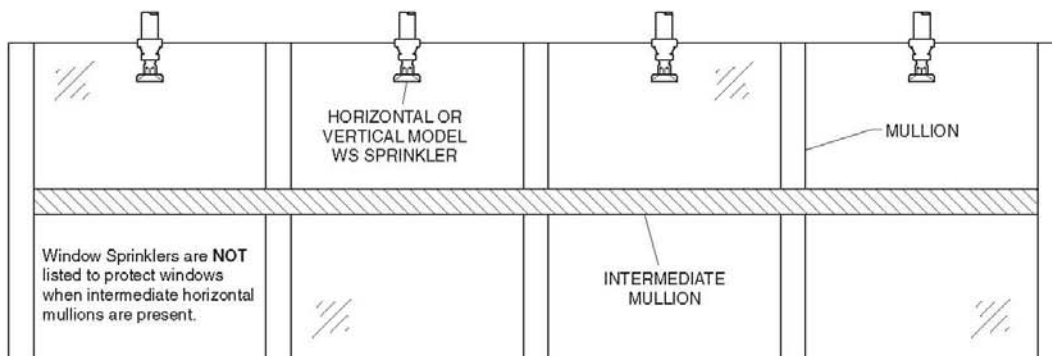


A Window Sprinkler must be provided at each window glazing segment, regardless of width of segment. If segment is less than 6'-0", a baffle or mullion to act as a baffle must be provided.

**FIGURE 3B-1 — MULTIPLE WINDOWS SEPARATED BY MULLIONS**

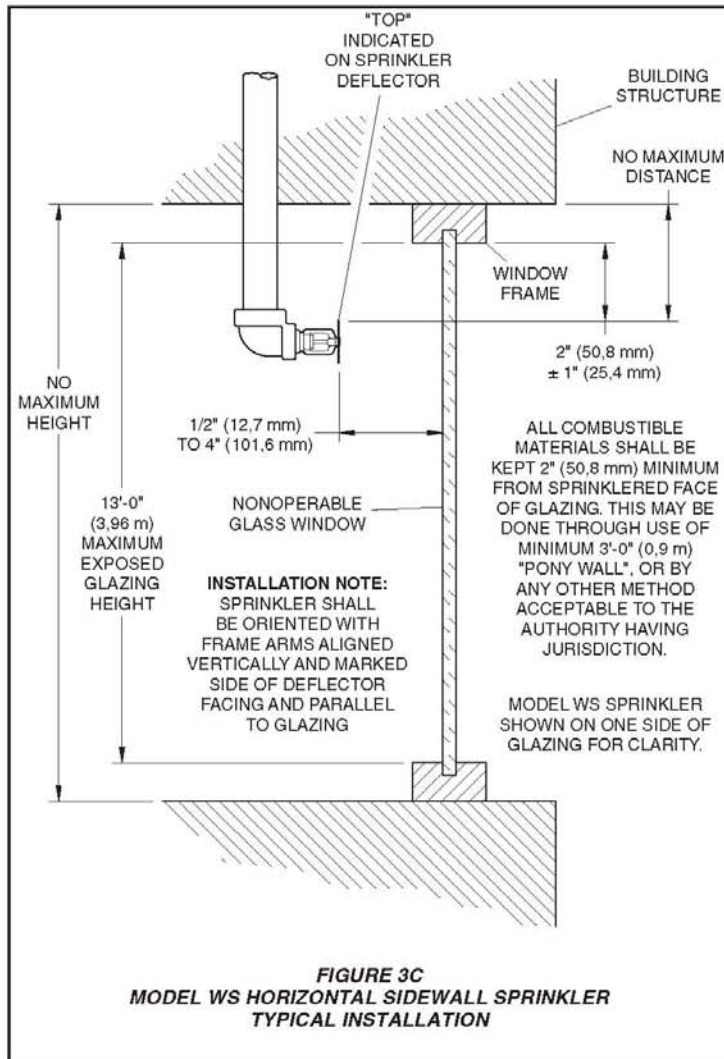


**FIGURE 3B-2 — MULTIPLE WINDOWS SEPARATED BY BUTT JOINTS**



**Figure 3B-3 — WINDOWS WITH HORIZONTAL MULLIONS**

**FIGURE 3B  
WINDOW MULLIONS AND BUTT JOINTS**



## Care and Maintenance

The Model WS Specific Application Window Sprinklers must be maintained and serviced in accordance with the following instructions:

### NOTE

*Before closing a fire protection system main control valve for maintenance work on the fire protection system that it controls, permission to shut down the affected fire protection systems must be obtained from the proper authorities and all personnel who may be affected by this action must be notified.*

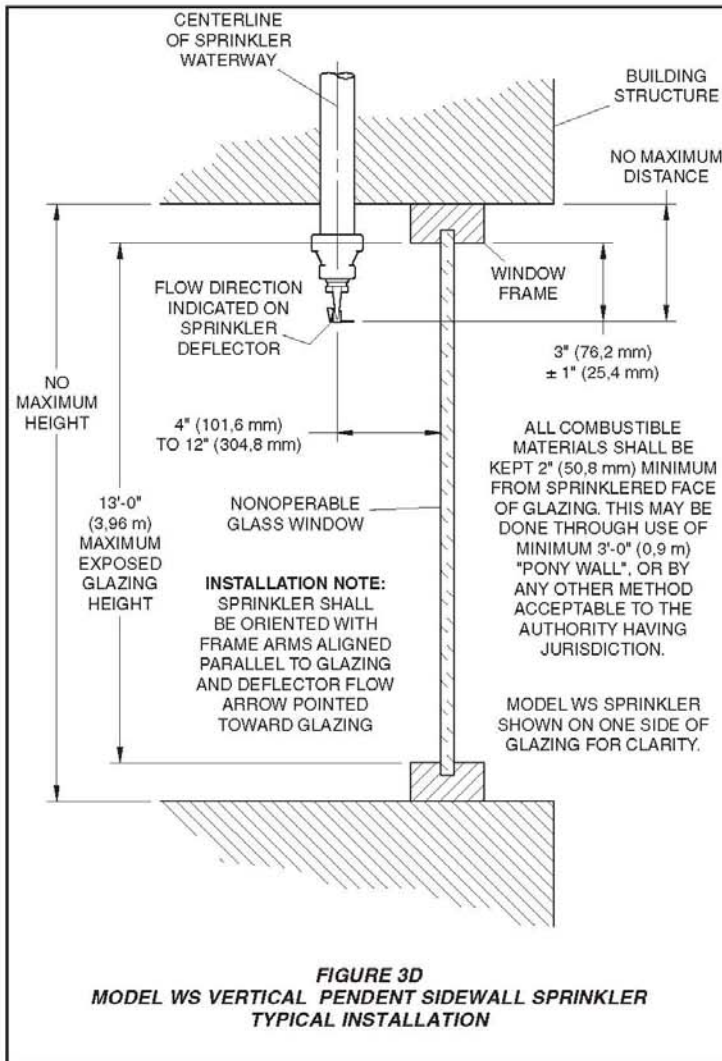
Sprinklers that are found to be leaking or exhibiting visible signs of corrosion must be replaced.

Automatic sprinklers must never be painted, plated, coated, or otherwise altered after leaving the factory. Modified sprinklers must be replaced. Sprinklers that have been exposed to corrosive products of combustion, but have not operated, should be replaced if they cannot be completely cleaned by wiping the sprinkler with a cloth or by brushing it with a soft bristle brush.

Care must be exercised to avoid damage to the sprinklers - before, during, and after installation. Sprinklers damaged by dropping, striking, wrench twist/slippage, or the like, must be replaced. Also, replace any sprinkler that has a cracked bulb or that has lost liquid from its bulb. (Ref. Installation Section).

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of the National Fire Protection Association (e.g., NFPA 25), in addition to the standards of any other authorities having jurisdiction. The installing contractor or sprinkler manufacturer should be contacted relative to any questions.

It is recommended that automatic sprinkler systems be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

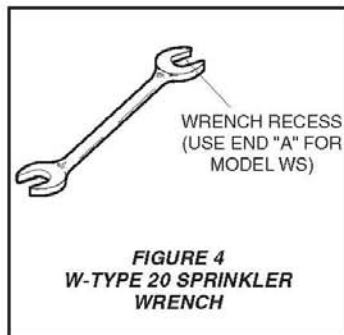
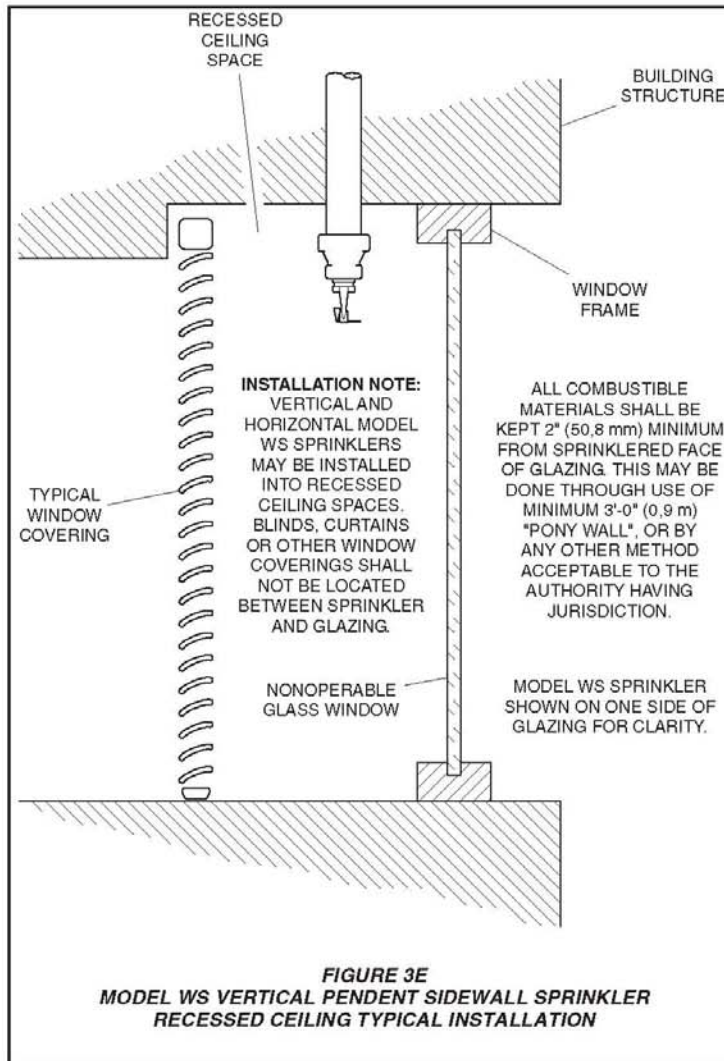


## Limited Warranty

Products manufactured by Tyco Fire & Building Products are warranted solely to the original Buyer for ten (10) years against defects in material and workmanship when paid for and properly installed and maintained under normal use and service. This warranty will expire ten (10) years from date of shipment by Tyco Fire & Building Products. No warranty is given for products or components manufactured by companies not affiliated by ownership with Tyco Fire & Building Products or for products and components which have been subject to misuse, improper installation, corrosion, or which have not been installed, maintained, modified or repaired in accordance with applicable Standards of the National Fire Protection Association, and/or the standards of any other Authorities Having Jurisdiction. Materials found by Tyco Fire & Building Products to be defective shall be either repaired or replaced, at Tyco Fire & Building Products' sole option. Tyco Fire & Building Products neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. Tyco Fire & Building Products shall not be responsible for sprinkler system design errors or inaccurate or incomplete information supplied by Buyer or Buyer's representatives.

IN NO EVENT SHALL TYCO FIRE & BUILDING PRODUCTS BE LIABLE, IN CONTRACT, TORT, STRICT LIABILITY OR UNDER ANY OTHER LEGAL THEORY, FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LABOR CHARGES, REGARDLESS OF WHETHER TYCO FIRE & BUILDING PRODUCTS WAS INFORMED ABOUT THE POSSIBILITY OF SUCH DAMAGES, AND IN NO EVENT SHALL TYCO FIRE & BUILDING PRODUCTS' LIABILITY EXCEED AN AMOUNT EQUAL TO THE SALES PRICE.

**THE FOREGOING WARRANTY IS MADE IN LIEU OF ANY AND ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**



## Ordering Procedure

Contact your local distributor for availability.

### Sprinkler Assemblies with NPT Thread Connections:

Specify: Model WS, (Specify SIN), (specify Horizontal or Vertical Pendent) Specific Application Window Sprinkler, with (specify temperature rating), (specify finish), P/N (specify).

#### WS (TY3388) Horizontal Sidewall Window Sprinkler

155°F/68°C, Natural Brass	.....	P/N 50-305-1-155
155°F/68°C, Chrome Plated	.....	P/N 50-305-9-155
155°F/68°C, White Coated	.....	P/N 50-305-4-155
155°F/68°C, White RAL9010*	.....	P/N 50-305-3-155
200°F/93°C, Natural Brass	.....	P/N 50-305-1-200
200°F/93°C, Chrome Plated	.....	P/N 50-305-9-200
200°F/93°C, White Coated	.....	P/N 50-305-4-200
200°F/93°C, White RAL9010*	.....	P/N 50-305-3-200

#### WS (TY3488) Vertical Pendent Sidewall Window Sprinkler

155°F/68°C, Natural Brass	.....	P/N 50-304-1-155
155°F/68°C, Chrome Plated	.....	P/N 50-304-9-155
155°F/68°C, White Coated	.....	P/N 50-304-4-155
155°F/68°C, White RAL9010*	.....	P/N 50-304-3-155
200°F/93°C, Natural Brass	.....	P/N 50-304-1-200
200°F/93°C, Chrome Plated	.....	P/N 50-304-9-200
200°F/93°C, White Coated	.....	P/N 50-304-4-200
200°F/93°C, White RAL9010*	.....	P/N 50-304-3-200


\* Eastern Hemisphere sales only.

### Sprinkler Wrench:


Specify: W-Type 20 Sprinkler Wrench, P/N 56-000-1-106.

**DESCRIPTION:** VALVE CABINET, ACCOMMODATES A SINGLE 2-1/2" F.D. VALVE WITH CAP AND CHAIN, [RECESSED, SEMI-RECESSED, SURFACE] MOUNTED, 20 GAUGE WHITE BAKED ENAMEL STEEL BOX, 20 GAUGE TUBULAR STEEL DOOR WITH 18 GAUGE FRAME WITH A CONTINUOUS STEEL HINGE (BRASS PIN), STEEL CORNER SEAMS WELDED AND GROUND SMOOTH, DOOR AND FRAME FINISHED WITH A WHITE POLYESTER PRIME COAT. HOSE THREADS TO MATCH LOCAL FIRE DEPARTMENT.

**MANUFACTURER & CATALOG NO.:** POTTER-ROEMER 1810 SERIES, CROKER 2700 SERIES.



## 1800 SERIES VALVE CABINETS

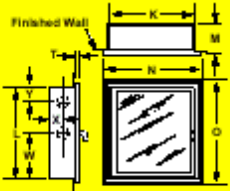


**REGULARLY FURNISHED:** 20 ga. box, 20 ga. tubular steel door with 20 ga. frame and a continuous steel hinge (brass pin). Steel corner seams welded and ground smooth. Recessed, semi-recessed and surface mounted cabinets are furnished with square edges. All components are powder-coated with an electrostatically-applied, thermally-fused, recoatable white polyester finish. Wall mounting and size of cabinet as selected by model number.

**OPTIONAL MATERIALS:**  
Door and Frame available in aluminum, stainless steel, brass, or bronze. Red powder-coated finish available. When red finish is specified for door and frame, the box remains white, except for surface mounted cabinets. Refer to page 9.

**OPTIONAL CONSTRUCTION:**  
Rolled-radius edges available, add Suffix "--RR".

### 1810 SERIES



RECESSED

**FOR USE WITH**

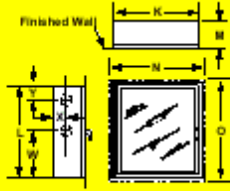
- 2 1/2" (6.4 cm) FIRE DEPT VALVE

**FUNCTION:** 1810 Series cabinets accommodate a single 2 1/2" (6.4 cm) fire dept valve with cap and chain.

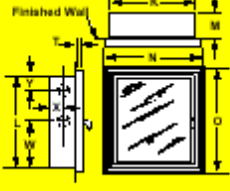
**ORDERING INFORMATION**

- Select cabinet model number
- Select cabinet door style (Refer to page 10)
- Select type of fire dept valve with cap and chain (Refer to Section 4000)

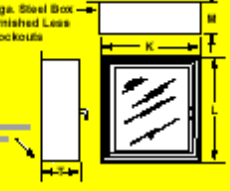
**SPECIFICATION:** Fire dept valve cabinet shall be Model No. \_\_\_\_\_ as manufactured by Potter-Roemer, Cerritos, CA 800-366-FIRE; door style Suffix \_\_\_\_\_, containing Model No. \_\_\_\_\_ fire dept valve with Model No. \_\_\_\_\_ cap and chain. (If reducer and 1 1/2" (3.8 cm) cap is required, specify 10" (25.4 cm) deep can recessed.)



TRIMLESS



SEMI-RECESSED



SURFACE

Model No.	Wall Mounting	MAX. CAPACITY			Overall Frame		Wall Opening Required			Trim	Inlet Location			ADA	
		Box Dimensions			N	O	H	I	J		K	W	X		Y
		K	L	M											
1810	Recessed	18 45.7	18 45.7	8 20.3	21 1/2 55.2	21 1/2 55.2	19 48.2	19 48.2	8 1/2 21.5	7 1/2	9	4	4	Yes	
1811	Trimless	18 45.7	18 45.7	8 1/4 22.2	21 53.3	21 53.3	19 48.2	19 48.2	22.4	—	9	4	4	Yes	
1812	Semi-Recessed	18 45.7	18 45.7	8 20.3	21 1/2 54.6	21 1/2 54.6	19 48.2	19 48.2	18.5	5	22.9	4	4	Yes	
1815	Surface	20 50.8	20 50.8	9 1/4 23.4	—	—	—	—	—	9 1/4	—	—	—	No	

Page 1-11.

All dimensions in English and Metric.

**DESCRIPTION:** VALVE CABINET, ACCOMMODATES A 1-1/2" AND 2-1/2" F.D. VALVE WITH CAP AND CHAIN, AND PORTABLE FIRE EXTINGUISHER, [RECESSED, SEMI-RECESSED, SURFACE] MOUNTED, 20 GAUGE WHITE BAKED ENAMEL STEEL BOX, 20 GAUGE TUBULAR STEEL DOOR WITH 18 GAUGE FRAME WITH A CONTINUOUS STEEL HINGE (BRASS PIN), STEEL CORNER SEAMS WELDED AND GROUND SMOOTH, DOOR AND FRAME FINISHED WITH A WHITE POLYESTER PRIME COAT. HOSE THREADS TO MATCH LOCAL FIRE DEPARTMENT.

**MANUFACTURER & CATALOG NO.:** POTTER-ROEMER 1880 SERIES, CROKER 2750 SERIES.

## 1800 SERIES VALVE AND EXTINGUISHER CABINETS



**REGULARLY FURNISHED:** 20 ga. box, 20 ga. tubular steel door with 20 ga. frame and a continuous steel hinge (brass pin). Steel corner seams welded and ground smooth. Recessed, semi-recessed and surface mounted cabinets are furnished with square edges. All components are powder-coated with an electrostatically-applied, thermally-fused, recoatable white polyester finish. Wall mounting and size of cabinet as selected by model number.

**OPTIONAL MATERIALS:**

Door and Frame available in aluminum, stainless steel, brass, or bronze. Red powder-coated finish available. When red finish is specified for door and frame, the box remains white, except for surface mounted cabinets. Refer to page 9.

**OPTIONAL CONSTRUCTION:**

Rolled-radius edges available, add Suffix "-RR".



**1880 SERIES**

**FOR USE WITH**

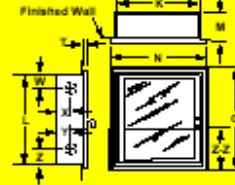
- 1 1/2" / 3.8 cm FIRE DEPT VALVE
- 2 1/2" / 6.4 cm FIRE DEPT VALVE
- PORTABLE FIRE EXTINGUISHER

**FUNCTION:** 1880 Series cabinets accommodate a 1 1/2" / 3.8 cm and 2 1/2" / 6.4 cm fire dept valve with cap, chain and a portable fire extinguisher.

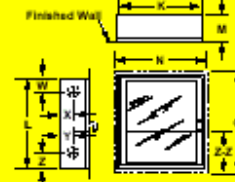
**ORDERING INFORMATION**

- Select cabinet model number
- Select cabinet door style (Refer to page 10)
- Select type of fire dept valve with cap and chain (Refer to Section 4000)
- Select type and size of fire extinguisher (Maximum sizes are 10 lb./4.5 kg dry chemical or 5 lb./2.3 kg carbon dioxide. Refer to Section 3000)

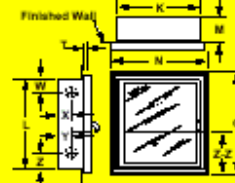
**SPECIFICATION:** Combination fire extinguisher and fire dept valve cabinet shall be Model No. \_\_\_\_\_ as manufactured by Potter-Roemer, Cerritos, CA 800-366-FIRE; door style Suffix \_\_\_\_\_; containing a 1 1/2" / 3.8 cm Model No. \_\_\_\_\_; a 2 1/2" / 6.4 cm Model No. \_\_\_\_\_ fire dept valve with Model No. \_\_\_\_\_ cap and chain; Model No. \_\_\_\_\_ fire extinguisher. (If reducer and 1 1/2" / 3.8 cm cap is required, specify 10" / 25.4 cm deep can recessed.)



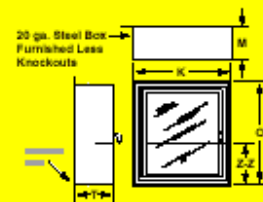
**RECESSED**



**TRIMLESS**



**SEMI-RECESSED**



**SURFACE**

Model No.	Wall Mounting	MAX. CAPACITY			Overall Frame			Wall Opening Required			Trim	Inlet Location				Shift	ADA	
		K	L	M	N	O	P	Q	R	S		T	W	X	Y			Z
		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.

1800 VALVE AND EXTINGUISHER CABINET WITH SHELF																		
1800	Recessed	18 45.7	24 61	8 20.3	21 1/2 55.2	27 1/2 70.4	19 48.2	25 63.5	8 1/2 21.5	1 1/2 3.8	4 10.2	4 10.2	4 10.2	4 10.2	—	—	—	Yes
1801	Trimless	18 45.7	24 61	8 1/2 21.2	21 53.3	27 68.8	19 48.2	25 63.5	9 1/2 23.4	—	4 10.2	4 10.2	4 10.2	4 10.2	—	—	—	Yes
1802	Semi-Recessed	18 45.7	24 61	8 20.3	21 1/2 54.8	27 1/2 69.8	19 48.2	25 63.5	8 1/2 21.5	2 5	4 10.2	4 10.2	4 10.2	4 10.2	—	—	—	Yes
1805	Surface	20 50.8	26 67	9 1/2 23.4	—	—	—	—	—	9 1/2 22.4	—	—	—	—	—	—	—	No


All dimensions in English and Metric.


**DESCRIPTION:** VALVE CABINET, ACCOMMODATES A SINGLE 1" BUTTERFLY VALVE (BF-2) WITH CAP AND CHAIN, AND PORTABLE FIRE EXTINGUISHER, [SURFACE, RECESSED] MOUNTED, 20 GAUGE WHITE BAKED ENAMEL STEEL BOX, 20 GAUGE TUBULAR STEEL DOOR WITH 18 GAUGE FRAME WITH A CONTINUOUS STEEL HINGE (BRASS PIN), STEEL CORNER SEAMS WELDED AND GROUND SMOOTH, DOOR AND FRAME FINISHED WITH A WHITE POLYESTER PRIME COAT. HOSE THREADS TO MATCH LOCAL FIRE DEPARTMENT.

**MANUFACTURER & CATALOG NO.:** POTTER-ROEMER 1800 SERIES, CROKER 2700 SERIES.

## 1800 SERIES

### VALVE AND EXTINGUISHER CABINETS



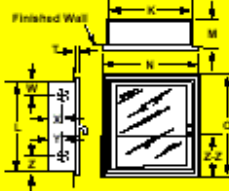


**1870 SERIES**

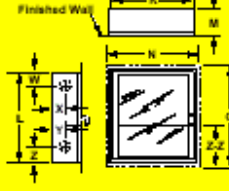
**REGULARLY FURNISHED:** 20 ga. box, 20 ga. tubular steel door with 20 ga. frame and a continuous steel hinge (brass pin). Steel corner seams welded and ground smooth. Recessed, semi-recessed and surface mounted cabinets are furnished with square edges. All components are powder-coated with an electrostatically-applied, thermally-fused, recoatable white polyester finish. Wall mounting and size of cabinet as selected by model number.

**OPTIONAL MATERIALS:**  
Door and Frame available in aluminum, stainless steel, brass, or bronze. Red powder-coated finish available. When red finish is specified for door and frame, the box remains white, except for surface mounted cabinets. Refer to page 9.

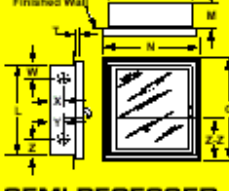
**OPTIONAL CONSTRUCTION:**  
Rolled-radius edges available, add Suffix "-RR".



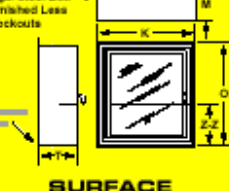
**RECESSED**



**TRIMLESS**



**SEMI-RECESSED**



**SURFACE**

**FOR USE WITH**

- 2 1/2" / 6.4 cm FIRE DEPT VALVE
- PORTABLE FIRE EXTINGUISHER

**FUNCTION:** 1870 Series cabinets accommodate a 2 1/2" / 6.4 cm fire dept valve with cap, chain and a portable fire extinguisher on shelf above the valve.

**ORDERING INFORMATION**

- Select cabinet model number
- Select cabinet door style (Refer to page 10)
- Select type of fire dept valve with cap and chain (Refer to Section 4000)
- Select type and size of fire extinguisher (Maximum sizes are 20 lb. / 9 kg dry chemical, or 10 lb. / 4.5 kg carbon dioxide. Refer to Section 3000)

**SPECIFICATION:** Combination fire extinguisher and fire dept valve cabinet shall be Model No. \_\_\_\_\_ as manufactured by Potter-Roemer, Cerritos, CA 800-366-FIRE; door style Suffix \_\_\_\_\_, containing a 2 1/2" / 6.4 cm Model No. \_\_\_\_\_ fire dept valve with Model No. \_\_\_\_\_ cap and chain Model No. \_\_\_\_\_ fire extinguisher. (If reducer and 1 1/2" / 3.8 cm cap is required, specify 10" / 25.4 cm deep can recessed.)

Model No.	Wall Mounting	MAX. CAPACITY			Overall Frame		Wall Opening Required			Trim	Inlet Location				Shelf	ADA
		K	L	M	N	O	P	Q	R		W	X	Y	Z		
		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
<b>1800 VALVE AND EXTINGUISHER CABINET WITH SHELF</b>																
1870	Recessed	14	40	8	17 1/4	45 1/2	15	41	8 1/2	0	—	—	4	4	12	Yes
		35.6	101.6	20.3	44.1	115.8	38.1	104.1	21.5	0	—	—	10.2	10.2	30.4	
1871	Trimless	14	40	8 1/2	17	43	15	41	8 1/2	—	—	—	4	4	12	Yes
		35.6	101.6	21.2	44.4	108.2	38.1	104.1	22.4	—	—	—	10.2	10.2	30.4	
1872	Semi-Recessed	14	40	8	17 1/4	45 1/2	15	41	8 1/2	2	—	—	4	4	12	Yes
		35.6	101.6	20.3	44.4	115.8	38.1	104.1	16.5	2	—	—	10.2	10.2	30.4	
1875	Surface	16	42	8 1/2	—	—	—	—	—	9 1/2	—	—	—	—	12	No
		40.6	108.8	21.4	—	—	—	—	—	23.4	—	—	—	—	30.4	

All dimensions in English and Metric.

Page 1-12.

**DESCRIPTION:** VALVE CABINET - FIRE RATED, ACCOMMODATES A SINGLE 2-1/2" F.D. VALVE WITH CAP AND CHAIN, SEMI-RECESSED MOUNTED, LISTED AND RATED FOR INSTALLATION IN A [ONE-HOUR, TWO-HOUR] RATED WALL, ASTM E-814, DOUBLE 18 GAUGE WHITE BAKED ENAMEL STEEL BOX CONSTRUCTION WITH 5/8" FIRE BARRIER MATERIAL, [STAINLESS STEEL, WHITE BAKED ENAMEL STEEL] FRAME AND DOOR, CONTINUOUS STEEL HINGE (BRASS PIN), CORNER SEAMS WELDED AND GROUND SMOOTH.

**MANUFACTURER & CATALOG NO.:** LARSONS FS VC-1818, POTTER-ROEMER, CROKER.

Notes to Specifier:

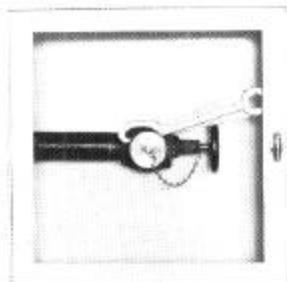
1. Verify wall construction with valve cabinet installation. One or two layers of gyp. board is needed behind the cabinet. Verify the rough-in depth needed.

# Larsen's® VALVE CABINETS

## VC1818 and VC2626 SERIES



VC1818



VC2626

The VC2626 Series is designed specifically to meet fire codes which require the continuous revolution of a 12" long spanner wrench.

### TO SPECIFY THE VC1818 and VC2626 SERIES:

1. Insert, after "VC," the appropriate prefix for the trim and door material (please refer to page 13). If STEEL — Use S. If ALUMINUM — Use AL. If STAINLESS STEEL — Use SS. If BRASS — Use B. If BRONZE — Use BZ.
2. Select the required model number from the table below.
3. Select the door style from the illustrations on page 13.

### DIMENSIONS

Model Number	Trim Style and Projection	Inside Box Dimensions H x W x D	Outside Trim Dimensions H x W***	Rough Opening H x W x D	Knockout Locations** E G	Interior Capacity
VC1818-R	Rec.-5/16	18 x 18 x 8	21½ x 21½	19 x 19 x 8¼	9" 4"	One 2½" Fire Dept. valve with cap and chain
FS VC1818-R	Rec.-5/16	18 x 18 x 8	21½ x 21½	20½ x 20½ x 9½	—	
VC1818-RK	Semi-Rec. 1¼	18 x 18 x 8	21½ x 21½	19 x 19 x 7¼	9" 4"	
FS VC1818-RK	Semi-Rec. 1¼	18 x 18 x 8	21½ x 21½	20½ x 20½ x 8½	—	
VC1818-RL	Semi-Rec. 2½	18 x 18 x 8	21½ x 21½	19 x 19 x 6	9" 4"	
FS VC1818-RL	Semi-Rec. 2½	18 x 18 x 8	21½ x 21½	20½ x 20½ x 7	—	One 2½" Fire Dept. valve with cap and chain
VC1818-RT	Trimless	18 x 18 x 8	—	— x — x 8½†	9" 4"	
VC1818-SM	Surface Mtd	21½ x 21½ x 8½	21½ x 21½	—	—	
VC2626-R	Rec.-5/16	26 x 26 x 8	29½ x 29½	27 x 27 x 8¼	13" 4"	
FS VC2626-R	Rec.-5/16	26 x 26 x 8	29½ x 29½	28½ x 28½ x 9½	—	
VC2626-RK	Semi-Rec. 1¼	26 x 26 x 8	29½ x 29½	27 x 27 x 7¼	13" 4"	One 2½" Fire Dept. valve with cap and chain
FS VC2626-RK	Semi-Rec. 1¼	26 x 26 x 8	29½ x 29½	28½ x 28½ x 8½	—	
VC2626-RL	Semi-Rec. 2½	26 x 26 x 8	29½ x 29½	27 x 27 x 6	13" 4"	
FS VC2626-RL	Semi-Rec. 2½	26 x 26 x 8	29½ x 29½	28½ x 28½ x 7	—	
VC2626-RT	Trimless	26 x 26 x 8	—	— x — x 8½†	13" 4"	
VC2626-SM	Surface Mtd	29½ x 29½ x 8½	29½ x 29½	—	—	

**NOTE:** "FS" models denote Larsen's "Flame-Shield" fire-rated cabinets. When specifying Larsen's "Flame-Shield" fire-rated cabinet option for the VC1818 and VC2626 Series, refer to the dimension chart above and select from the models with an "FS" prefix. No knock-outs are provided with fire-rated valve cabinets. Pipe holes must be drilled by installer and complete instructions are supplied with each fire-rated valve cabinet. For complete details of the "Flame-Shield" option, see page 3.



# Larsen's® FIRE-RATED CABINETS FLAME-SHIELD® OPTION

10520/LAR  
Buyline 3054

**GENERAL DESCRIPTION:** As pictured below, the FLAME-SHIELD option is available for a variety of Larsen's fire extinguisher, fire department valve, fire hose, and fire blanket cabinets. It is designed specifically to maintain the integrity of one and two hour fire walls with all Larsen's recessed and semi-recessed cabinets. Warnock-Hersey has certified and listed Larsen's FLAME-SHIELD option for one and two hour combustible and non-combustible wall systems to meet the requirements of UBC Standard 43-6 (ASTM E-814). Larsen's FLAME-SHIELD option assures the specifier that life safety codes will be maintained and by eliminating the need to continue the fire wall within the rough opening, saves the installer considerable time and expense. Larsen's FLAME-SHIELD option is appropriate for either new construction or renovation projects.

**BOX SPECIFICATION:** All boxes for Larsen's fire extinguisher, fire department valve, fire hose, and fire blanket cabinets having the FLAME-SHIELD option are constructed with a double wall of 18 gauge (.040) cold-rolled steel and baked acrylic enamel finish. The space between the double walls is lined entirely with 5/8" thick fire barrier material.

**DOOR AND TRIM SPECIFICATION:** All of Larsen's door styles are available with the FLAME-SHIELD option. Please refer to the following catalog pages for illustrations and descriptions of these door styles:

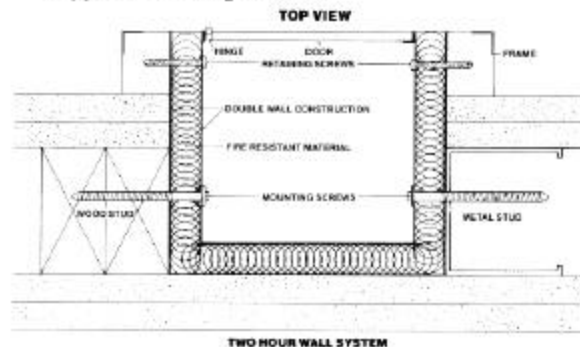
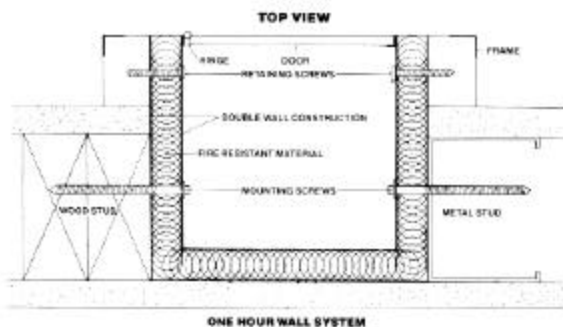
1. Architectural Series Door Styles—page 6
2. Gemini Series Door Styles—pages 9, 18, & 19
3. Cameo Series Door Styles—page 10
4. Occult Series Door Styles—pages 11 & 17
5. Vista & Rota Series Door Styles—page 12
6. Valve and Hose Cabinet Door Styles—page 13

All of Larsen's door and trim materials are available with the FLAME-SHIELD option:

1. **Steel:** One piece, cold-rolled with a standard finish of white baked acrylic enamel.
2. **Aluminum:** Extruded or fabricated construction with a standard clear satin anodized finish. A wide selection of optional color anodized finishes is available.
3. **Stainless Steel:** One piece, 304 stainless steel with a standard #4 brushed finish or optional #8 polished finish.
4. **Solid Brass or Solid Bronze:** One piece with a standard #4 satin or optional #8 polished finish. All doors and trims have a clear protective coating.

## TO SPECIFY LARSEN'S FLAME-SHIELD OPTION

1. **SELECT THE CABINET TYPE AND SERIES REQUIRED**
  - A. Fire Extinguisher Cabinets — pages 6-12
  - B. Fire Department Valve Cabinets — page 16
  - C. Fire Hose Cabinets — pages 14-15, 17-18
  - D. Fire Blanket Cabinets — page 19
2. **SELECT THE SPECIFIC CABINET REQUIRED FROM THE MODEL NUMBERS WITH "FS" PREFIX**  
Refer to the dimension charts on pages 7-12 and 14-19.
3. **INDICATE THE SPECIFIC DOOR STYLE REQUIRED**  
See door and trim specifications at the left.
4. **SELECT ANY OPTIONS**
  - A. Die-Cut Lettering, Vigilante Alarm, Fire Handle — see page 20.
  - B. Special Finishes (Paint, Color Anodized Aluminum, #8 Stainless Steel, Brass or Bronze)
5. **SPECIFY: "Provide fire-rated cabinet with Larsen's Flame-Shield option, certified and listed by Warnock-Hersey for one and two hour combustible and non-combustible wall systems to meet the requirements of UBC Standard 43-6 (ASTM E-814). All fire-rated cabinets to have trims with reinforced corners, both boxes constructed entirely of 18 gauge steel, and factory supplied anchoring devices."**



**DESCRIPTION:** HOSE CABINET, ACCOMODATES A 2-1/2" F.D. VALVE WITH CAP AND CHAIN, 1-1/2" HOSE VALVE WITH HOSE RACK ASSEMBLY, UP TO 100' OF 1-1/2" HOSE, [AND PORTABLE FIRE EXTINGUISHER]. [RECESSED] [SEMI-RECESSED] [TRIMLESS] [SURFACE] MOUNTED, 20 GAUGE WHITE BAKED ENAMEL STEEL BOX, 20 GAUGE TUBULAR STEEL DOOR WITH 18 GAUGE FRAME WITH A CONCEALED OR CONTINUOUS STEEL HINGE (BRASS PIN), STEEL CORNER SEAMS WELDED AND GROUND SMOOTH, DOOR AND FRAME FINISHED WITH A WHITE POLYESTER PRIME COAT. NOMINAL DIMENSIONS OF 42"H x 26"W x 8"D [42"H x 32"W x 8"D]. HOSE THREADS TO MATCH LOCAL FIRE DEPARTMENT. [BLACK] [RED], [VERTICAL] [HORIZONTAL] DIE CUT LETTERING LABELED "FIRE HOSE" [AND "FIRE EXTINGUISHER"]. VERIFY EXACT DIMENSIONS PER MANUFACTURER. UL[F/M].

**MANUFACTURER & CATALOG NO.:** POTTER-ROEMER 1200 [1500] SERIES, LARSENS HC2642 [HC3242] SERIES, CROKER 2200 [2400] SERIES.

Notes to Specifier:

1. Specify larger cabinet size and second model number if including a fire extinguisher.
2. For 1-1/2" hose valves, confirm hose requirement with AHJ.
3. Trimless cabinets must be installed before the drywall. Plaster stop must be behind the drywall. Trimless are not recommended for block wall installation.
4. Surface mounted cabinets will be slightly larger than other types. Verify exact size with manufacturer.

**1200 SERIES  
FIRE HOSE CABINETS**



**FOR USE WITH** • 1 1/2" / 3.8 cm FIRE HOSE RACK ASSEMBLY  
• 2 1/2" / 6.4 cm FIRE DEPT VALVE

**FUNCTION:** 1200 Series cabinets accommodate a single 1 1/2" / 3.8 cm fire hose rack assembly with either Polyflex or PR-Superflex hose and a 2 1/2" / 6.4 cm fire dept valve with cap and chain. 1200 Series will also accommodate a portable 5 lb / 2.2 kg ABC fire extinguisher when required. (Refer to Section 3000)

**OPTIONAL MATERIALS:** Door and Frame available in aluminum, stainless steel, brass or bronze. When optional materials are specified, recessed, semi-recessed and surface mounted cabinets are furnished with square edges. Red powder-coated finish available. When red finish is specified for door and frame, the box remains white, except for surface mounted cabinets. Refer to page 9.

**REGULARLY FURNISHED:** 20 ga. box, 20 ga. tubular steel door with 18 ga. frame and a continuous steel hinge (brass pin). Steel corner seams welded and ground smooth. Recessed, semi-recessed and surface mounted cabinets are furnished with .125" / 0.31 cm radiused frame. Semi-recessed and surface mounted cabinets are furnished with rolled radius. All components are powder-coated with an electrostatically-applied, thermally-fused, recoatable white polyester finish. Wall mounting and size of cabinet as selected by model number.

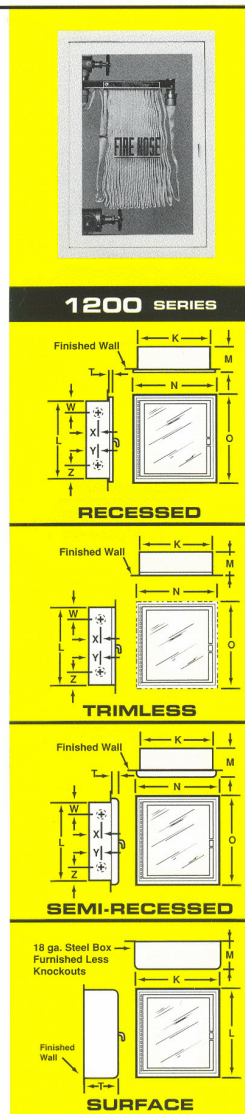
**ORDERING INFORMATION**

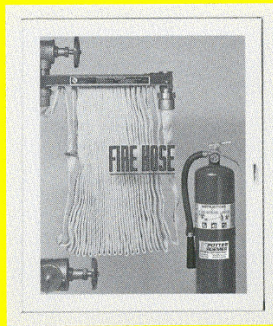
- Select cabinet model number
- Select cabinet door style (Refer to page 10)
- Select type of hose assembly (Refer to Section 2000)
- Select a portable 5 lb / 2.2 kg ABC fire extinguisher, if required (Refer to Section 3000)
- Select type of fire dept valve

**SPECIFICATION:**

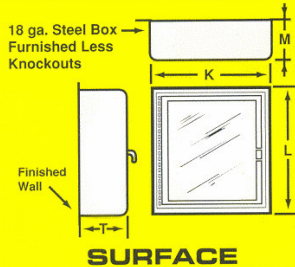
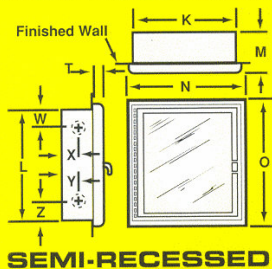
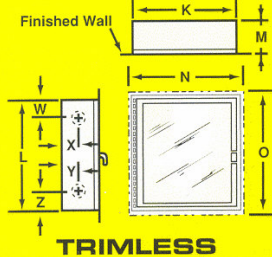
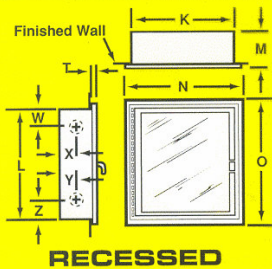
Fire hose cabinet shall be Model No. \_\_\_\_\_ as manufactured by Potter Roemer, Santa Ana, CA 800-366-FIRE; door style Suffix \_\_\_\_\_, containing Model No. \_\_\_\_\_ fire hose rack assembly. (If reducer and 1 1/2" / 3.8 cm cap is required, specify 10" / 25.4 cm deep recessed can.)

Model No.	Wall Mounting	MAX. CAPACITY			Box Dimensions			Overall Frame			Wall Opening Required			Inlet Location				ADA
		Poly Flex	Super Flex	PR	K	L	M	N	O	W	H	D	Trim	W	X	Y	Z	
		ft.	ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1204	Recessed	75	50	24	36	8	27 1/4	39 1/4	25	37	8 1/4	1 1/2	10.1	10.1	10.1	10.1		Yes
1206	Recessed	100	75	24	40	8	27 1/4	43 1/4	25	41	9 1/4	1 1/2	10.1	10.1	10.1	10.1		Yes
1208	Recessed	—	100	24	44	8	27 1/4	47 1/4	25	45	9 1/4	1 1/2	10.1	10.1	10.1	10.1		Yes
1214	Trimless	75	50	24	36	8 1/4	27	39	25	37	9 1/4	—	4	4	4	4		Yes
1216	Trimless	100	75	24	40	8 1/4	27	43	25	41	9 1/4	—	4	4	4	4		Yes
1218	Trimless	—	100	24	44	8 1/4	27	47	25	45	9 1/4	—	4	4	4	4		Yes
1224	Semi-Recessed	75	50	24	36	8	27 1/4	39 1/4	25	37	6 1/2	2	4	4	4	4		Yes
1226	Semi-Recessed	100	75	24	40	8	27 1/4	43 1/4	25	41	6 1/2	2	4	4	4	4		Yes
1228	Semi-Recessed	—	100	24	44	8	27 1/4	47 1/4	25	45	6 1/2	2	4	4	4	4		Yes
1254	Surface	75	50	26	38	9 1/4	—	—	—	—	—	9 1/4	—	—	—	—	—	No
1256	Surface	100	75	26	42	9 1/4	—	—	—	—	—	9 1/4	—	—	—	—	—	No
1258	Surface	—	100	26	46	9 1/4	—	—	—	—	—	9 1/4	—	—	—	—	—	No





## 1500 SERIES



- FOR USE WITH**
- $1\frac{1}{2}$ " / 3.8 cm FIRE HOSE RACK ASSEMBLY
  - PORTABLE FIRE EXTINGUISHER
  - $2\frac{1}{2}$ " / 6.4 cm FIRE DEPT VALVE

**FUNCTION:** 1500 Series cabinets accommodate a single  $1\frac{1}{2}$ " / 3.8 cm fire hose rack assembly with either Polyflex or PR-Superflex hose and a portable fire extinguisher and a  $2\frac{1}{2}$ " / 6.4 cm fire dept valve with cap and chain.

**OPTIONAL MATERIALS:** Door and Frame available in aluminum, stainless steel, brass or bronze. When optional materials are specified, recessed, semi-recessed and surface mounted cabinets are furnished with square edges. Red powder-coated finish available. When red finish is specified for door and frame, the box remains white, except for surface mounted cabinets. Refer to page 9.

**REGULARLY FURNISHED:**

20 ga. box, 20 ga. tubular steel door with 18 ga. frame and a continuous steel hinge (brass pin). Steel corner seams welded and ground smooth. Recessed, semi-recessed and surface mounted cabinets are furnished with  $.125$ " /  $0.31$  cm radiused frame. Semi-recessed and surface mounted cabinets are furnished with rolled radius. All components are powder-coated with an electrostatically-applied, thermally-fused, recoatable white polyester finish. Wall mounting and size of cabinet as selected by model number.

## ORDERING INFORMATION

- Select cabinet model number
- Select cabinet door style (Refer to page 10)
- Select type of hose assembly (Refer to Section 2000)
- Select type and size of extinguisher (Maximum sizes are  $2\frac{1}{2}$  gallon / 9.4 l water, 20 lb. / 9 kg dry chemical, or 10 lb. / 4.5 kg carbon dioxide. Refer to Section 3000)
- Select type of fire dept valve with cap and chain (Refer to Section 4000)

**SPECIFICATION:**

Fire hose cabinet shall be Model No. \_\_\_\_\_ as manufactured by Potter Roemer, Santa Ana, CA 800-366-FIRE; door style Suffix \_\_\_\_\_, containing Model No. \_\_\_\_\_ fire hose rack assembly and Model No. \_\_\_\_\_ fire extinguisher and Model No. \_\_\_\_\_ fire dept valve with Model No. \_\_\_\_\_ cap and chain. (If reducer and  $1\frac{1}{2}$ " / 3.8 cm cap is required, specify  $10$ " /  $25.4$  cm deep recessed can.)

Model No.	Wall Mounting	MAX. CAPACITY		Box Dimensions			Overall Frame		Wall Opening Required			Trim T	Inlet Location				ADA
		Poly Flex	PR Super Flex	K	L	M	N	O	W	H	D		W	X	Y	Z	
		ft. / m	ft. / m	in. / cm	in. / cm	in. / cm	in. / cm	in. / cm	in. / cm	in. / cm	in. / cm	in. / cm	in. / cm	in. / cm	in. / cm	in. / cm	
1504	Recessed	75 / 22.8	50 / 15.2	30 / 76.2	36 / 91.4	8 / 20.3	33 3/4 / 86	39 1/4 / 100.9	31 / 78.7	37 / 94	8 1/2 / 21.5	1.5	4 / 10.2	4 / 10.2	4 / 10.2	4 / 10.2	Yes
1506	Recessed	100 / 30.4	75 / 22.8	30 / 76.2	40 / 102	8 / 20.3	33 3/4 / 86	43 1/4 / 111.1	31 / 78.7	41 / 104.1	8 1/2 / 21.5	1.5	4 / 10.2	4 / 10.2	4 / 10.2	4 / 10.2	Yes
1508	Recessed	—	100 / 30.4	30 / 76.2	44 / 111.7	8 / 20.3	33 3/4 / 86	47 1/4 / 121.2	31 / 78.7	45 / 114.3	8 1/2 / 21.5	1.5	4 / 10.2	4 / 10.2	4 / 10.2	4 / 10.2	Yes
1514	Trimless	75 / 22.8	50 / 15.2	30 / 76.2	36 / 91.4	8 1/4 / 22.2	33 / 83.8	39 / 99	31 / 78.7	37 / 94	9 1/4 / 23.4	—	4 / 10.2	4 / 10.2	4 / 10.2	4 / 10.2	Yes
1516	Trimless	100 / 30.4	75 / 22.8	30 / 76.2	40 / 102	8 1/4 / 22.2	33 / 83.8	43 / 109.3	31 / 78.7	41 / 104.1	9 1/4 / 23.4	—	4 / 10.2	4 / 10.2	4 / 10.2	4 / 10.2	Yes
1518	Trimless	—	100 / 30.4	30 / 76.2	44 / 111.7	8 1/4 / 22.2	33 / 83.8	47 / 119.3	31 / 78.7	45 / 114.3	9 1/4 / 23.4	—	4 / 10.2	4 / 10.2	4 / 10.2	4 / 10.2	Yes
1534	Semi-Recessed	75 / 22.8	50 / 15.2	30 / 76.2	36 / 91.4	8 / 20.3	33 1/2 / 85	39 1/2 / 100.3	31 / 78.7	37 / 94	6 1/4 / 15.9	2 1/4 / 7	4 / 10.2	4 / 10.2	4 / 10.2	4 / 10.2	Yes
1536	Semi-Recessed	100 / 30.4	75 / 22.8	30 / 76.2	40 / 102	8 / 20.3	33 1/2 / 85	43 1/2 / 110.4	31 / 78.7	41 / 104.1	6 1/4 / 15.9	2 1/4 / 7	4 / 10.2	4 / 10.2	4 / 10.2	4 / 10.2	Yes
1538	Semi-Recessed	—	100 / 30.4	30 / 76.2	44 / 111.7	8 / 20.3	33 1/2 / 85	47 1/2 / 120.6	31 / 78.7	45 / 114.3	6 1/4 / 15.9	2 1/4 / 7	4 / 10.2	4 / 10.2	4 / 10.2	4 / 10.2	Yes
1554	Surface	75 / 22.8	50 / 15.2	32 / 81.3	38 / 96.5	9 1/4 / 23.4	—	—	—	—	—	—	9 1/4 / 23.4	—	—	—	No
1556	Surface	100 / 30.4	75 / 22.8	32 / 81.3	42 / 106.6	9 1/4 / 23.4	—	—	—	—	—	—	9 1/4 / 23.4	—	—	—	No
1558	Surface	—	100 / 30.4	32 / 81.3	46 / 116.8	9 1/4 / 23.4	—	—	—	—	—	—	9 1/4 / 23.4	—	—	—	No

**DESCRIPTION:** HOSE CABINET - FIRE RATED, ACCOMODATES A 2-1/2" F.D. VALVE WITH CAP AND CHAIN, 1-1/2" HOSE VALVE WITH HOSE RACK ASSEMBLY, UP TO 100' OF 1-1/2" HOSE, [AND PORTABLE FIRE EXTINGUISHER]. [RECESSED] [SEMI-RECESSED] [TRIMLESS] MOUNTED, LISTED AND RATED FOR INSTALLATION IN A [ONE-HOUR] [TWO-HOUR] RATED WALL, ASTM-814, DOUBLE 18-GAUGE WHITE BAKED ENAMEL STEEL BOX CONSTRUCTION WITH 5/8" FIRE BARRIER MATERIAL, [STAINLESS STEEL] [WHITE BAKED ENAMEL STEEL] FRAME AND [SOLID] [FULL GLASS] DOOR WITH CONCEALED OR CONTINUOUS STEEL HINGE (BRASS PIN), CORNER SEAMS WELDED AND GROUND SMOOTH. NOMINAL DIMENSIONS OF 42"H x 26"W x 8"D [42"H x 32"W x 8"D]. [BLACK] [RED], [VERTICAL] [HORIZONTAL] DIE CUT LETTERING LABELED "FIRE HOSE" [AND "FIRE EXTINGUISHER"]. VERIFY EXACT DIMENSIONS PER MANUFACTURER. UL[F/M].

**MANUFACTURER & CATALOG NO.:** LARSENS FS HC2642 [FS HC3242], POTTER-ROEMER, CROKER.

Notes to Specifier:

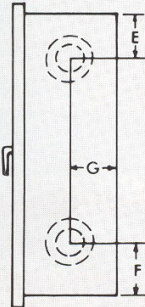
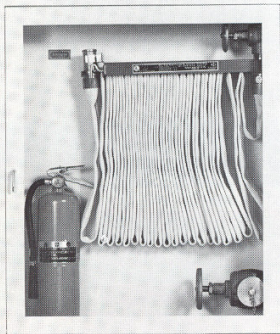
1. Specify larger cabinet size and second model number if including a fire extinguisher.
2. For 1-1/2" hose valves, confirm hose requirement with AHJ.
3. Trimless cabinets must be installed before the drywall. Plaster stop must be behind the drywall. Trimless are not recommended for block wall installation.

## HC3238 and HC3242 SERIES

### TO SPECIFY THE HC3238 and HC3242 SERIES:

1. Insert, after "HC," the appropriate prefix for the trim and door material (please refer to page 13). If STEEL — Use S. If ALUMINUM — Use AL. If STAINLESS STEEL — Use SS.
2. Select the required model number from the table below.
3. Select the door style from the illustrations on page 13.

### DIMENSIONS



Model Number	Trim Style and Projection	Inside Box Dimensions* H x W x D	Outside Trim Dimensions H x W***	Rough Opening H x W x D	Knockout Locations** E F G	Interior Capacity
HC3238-R	Rec. 5/16	38x32x8	41½x35½	39x33x8¼	4" 4" 4"	One hose rack unit with 100 ft. of rack hose, fire extinguisher and a Fire Dept. valve
FS HC3238-R	Rec. 5/16	38x32x8	41½x35½	40⅞x34⅞x9⅞	-----	
HC3238-RK	Semi-Rec. 1¼	38x32x8	41½x35½	39x33x7¼	4" 4" 4"	
FS HC3238-RK	Semi-Rec. 1¼	38x32x8	41½x35½	40⅞x34⅞x8⅞	-----	
HC3238-RL	Semi-Rec. 2½	38x32x8	41½x35½	39x33x6	4" 4" 4"	
FS HC3238-RL	Semi-Rec. 2½	38x32x8	41½x35½	40⅞x34⅞x7	-----	
HC3238-RT	Trimless	38x32x8	-----	-x-x8½†	4" 4" 4"	One hose rack unit with 125 ft. of rack hose, fire extinguisher and a Fire Dept. valve
HC3238-SM	Surface Mtd.	41½x35½x8½	41½x35½	-----	-----	
HC3242-R	Rec. 5/16	42x32x8	45½x35½	43x33x8¼	4" 4" 4"	
FS HC3242-R	Rec. 5/16	42x32x8	45½x35½	44⅞x34⅞x9⅞	-----	
HC3242-RK	Semi-Rec. 1¼	42x32x8	45½x35½	43x33x7¼	4" 4" 4"	
FS HC3242-RK	Semi-Rec. 1¼	42x32x8	45½x35½	44⅞x34⅞x8⅞	-----	
HC3242-RL	Semi-Rec. 2½	42x32x8	45½x35½	43x33x6	4" 4" 4"	One hose rack unit with 125 ft. of rack hose, fire extinguisher and a Fire Dept. valve
FS HC3242-RL	Semi-Rec. 2½	42x32x8	45½x35½	44⅞x34⅞x7	-----	
HC3242-RT	Trimless	42x32x8	-----	-x-x8½†	4" 4" 4"	
HC3242-SM	Surface Mtd.	45½x35½x8½	45½x35½	-----	-----	

\* All Hose Cabinets are available with 6" deep box, at no charge, if specified.

\*\* No knockouts are provided for surface-mounted cabinets unless specified.

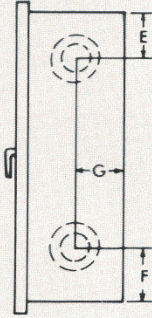
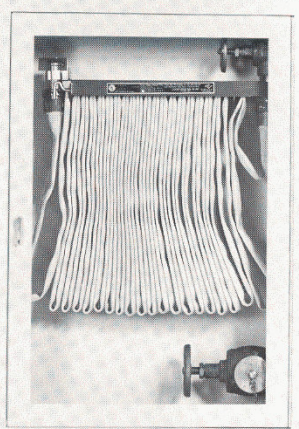
† Trimless cabinets must be installed before the drywall. Plaster stop must be behind the drywall. Trimless are not recommended for block wall installation.

\*\*\* Deduct ¼" from HxW Dimensions for Cabinets with Aluminum Door & Trim. This does not apply to "FS" fire-rated option.

# HC2438, HC2638, and HC2642 SERIES

## TO SPECIFY THE HC2438, HC2638 and HC2642 SERIES:

1. Insert, after "HC," the appropriate prefix for the trim and door material (please refer to page 13).  
If STEEL — Use S. If ALUMINUM — Use AL. If STAINLESS STEEL — Use SS.  
If BRASS — Use B. If BRONZE — Use BZ.
2. Select the required model number from the table below.
3. Select the door style from the illustrations on page 13.



Model Number	Trim Style and Projection	Inside Box Dimensions* H x W x D	Outside Trim Dimensions H x W**	Rough Opening H x W x D	Knockout Locations** E F G	Interior Capacity
HC2438-R	Rec. 5/16	38x24x8	41½x27½	39x25x8¼	4" 4" 4"	One hose rack unit with 75 ft. of rack hose and a 2½" Fire Dept Valve
<b>FS HC2438-R</b>	<b>Rec. 5/16</b>	<b>38x24x8</b>	<b>41½x27½</b>	<b>40⅞x26⅞x9⅞</b>	-----	
HC2438-RK	Semi-Rec. 1¼	38x24x8	41½x27½	39x25x7¼	4" 4" 4"	
<b>FS HC2438-RK</b>	<b>Semi-Rec. 1¼</b>	<b>38x24x8</b>	<b>41½x27½</b>	<b>40⅞x26⅞x8⅞</b>	-----	
HC2438-RL	Semi-Rec. 2½	38x24x8	41½x27½	39x25x6	4" 4" 4"	One hose rack unit with 100 ft. of rack hose and a 2½" Fire Dept Valve
<b>FS HC2438-RL</b>	<b>Semi-Rec. 2½</b>	<b>38x24x8</b>	<b>41½x27½</b>	<b>40⅞x26⅞x7</b>	-----	
HC2438-RT	Trimless	38x24x8	---	-x-x8½†	4" 4" 4"	
HC2438-SM	Surface Mtd	41½x27½x8½	41½x27½	---	---	
HC2638-R	Rec. 5/16	38x26x8	41½x29½	39x27x8¼	4" 4" 4"	One hose rack unit with 125 ft. of rack hose and a 2½" Fire Dept Valve
<b>FS HC2638-R</b>	<b>Rec. 5/16</b>	<b>38x26x8</b>	<b>41½x29½</b>	<b>40⅞x28⅞x9⅞</b>	-----	
HC2638-RK	Semi-Rec. 1¼	38x26x8	41½x29½	39x27x7¼	4" 4" 4"	
<b>FS HC2638-RK</b>	<b>Semi-Rec. 1¼</b>	<b>38x26x8</b>	<b>41½x29½</b>	<b>40⅞x28⅞x8⅞</b>	-----	
HC2638-RL	Semi-Rec. 2½	38x26x8	41½x29½	39x27x6	4" 4" 4"	One hose rack unit with 125 ft. of rack hose and a 2½" Fire Dept Valve
<b>FS HC2638-RL</b>	<b>Semi-Rec. 2½</b>	<b>38x26x8</b>	<b>41½x29½</b>	<b>40⅞x28⅞x7</b>	-----	
HC2638-RT	Trimless	38x26x8	---	-x-x8½†	4" 4" 4"	
HC2638-SM	Surface Mtd	41½x29½x8½	41½x29½	---	---	
HC2642-R	Rec. 5/16	42x26x8	45½x29½	43x27x8¼	4" 4" 4"	One hose rack unit with 125 ft. of rack hose and a 2½" Fire Dept Valve
<b>FS HC2642-R</b>	<b>Rec. 5/16</b>	<b>42x26x8</b>	<b>45½x29½</b>	<b>44⅞x28⅞x9⅞</b>	-----	
HC2642-RK	Semi-Rec. 1¼	42x26x8	45½x29½	43x27x7¼	4" 4" 4"	
<b>FS HC2642-RK</b>	<b>Semi-Rec. 1¼</b>	<b>42x26x8</b>	<b>45½x29½</b>	<b>44⅞x28⅞x8⅞</b>	-----	
HC2642-RL	Semi-Rec. 2½	42x26x8	45½x29½	43x27x6	4" 4" 4"	One hose rack unit with 125 ft. of rack hose and a 2½" Fire Dept Valve
<b>FS HC2642-RL</b>	<b>Semi-Rec. 2½</b>	<b>42x26x8</b>	<b>45½x29½</b>	<b>44⅞x28⅞x7</b>	-----	
HC2642-RT	Trimless	42x26x8	---	-x-x8½†	4" 4" 4"	
HC2642-SM	Surface Mtd	45½x29½x8½	45½x29½	---	---	

\* All Hose Cabinets are available with 6" deep box, at no charge, if specified.  
 \*\* No knockouts are provided for surface-mounted cabinets unless specified.  
 † Trimless cabinets must be installed before the drywall — plaster stop must be behind the drywall. Trimless are not recommended for block wall installation.  
 \*\*\* Deduct ¼" from HxW Dimensions for Cabinets with Aluminum Door & Trim. This does not apply to "FS" fire-rated option.

**DESCRIPTION:** HOSE CABINET, ACCOMODATES A 1-1/2" HOSE VALVE WITH HOSE RACK ASSEMBLY, UP TO 100' OF 1-1/2" HOSE, [AND PORTABLE FIRE EXTINGUISHER]. [RECESSED] [SEMI-RECESSED] [TRIMLESS] [SURFACE] MOUNTED, 20 GAUGE WHITE BAKED ENAMEL STEEL BOX, 20 GAUGE TUBULAR STEEL DOOR WITH 18 GAUGE FRAME WITH A CONCEALED OR CONTINUOUS STEEL HINGE (BRASS PIN), STEEL CORNER SEAMS WELDED AND GROUND SMOOTH, DOOR AND FRAME FINISHED WITH A WHITE POLYESTER PRIME COAT. NOMINAL DIMENSIONS OF 36"H x 24"W x 6"D [36"H x 30"W x 8"D]. HOSE THREADS TO MATCH LOCAL FIRE DEPARTMENT. [BLACK] [RED], [VERTICAL] [HORIZONTAL] DIE CUT LETTERING LABELED "FIRE HOSE" [AND "FIRE EXTINGUISHER"]. VERIFY EXACT DIMENSIONS PER MANUFACTURER. UL[FM].

**MANUFACTURER & CATALOG NO.:** POTTER-ROEMER 1000 [1300] SERIES, LARSENS HC2634 [HC3232] SERIES, CROKER 2000 [2400] SERIES.

**Notes to Specifier:**

1. Specify larger cabinet size and second model number if including a fire extinguisher.
2. For 1-1/2" hose valves, confirm hose requirement with AHJ.
3. Trimless cabinets must be installed before the drywall. Plaster stop must be behind the drywall. Trimless are not recommended for block wall installation.
4. Surface mounted cabinets will be slightly larger than other types. Verify exact size with manufacturer.



**FOR USE WITH • 1 1/2" / 3.8 cm FIRE HOSE RACK ASSEMBLY**

**FUNCTION:** 1000 Series cabinets accommodate a single 1 1/2" / 3.8 cm fire hose assembly with either Polyflex or PR-Superflex hose. 1000 Series cabinets will also accommodate a portable 5 lb. 2.2 kg ABC fire extinguisher when required. (Refer to Section 3000)

**OPTIONAL MATERIALS:**

Door and Frame available in aluminum, stainless steel, brass or bronze. When optional materials are specified, recessed, semi-recessed and surface mounted cabinets are furnished with square edges. Red powder-coated finish available. When red finish is specified for door and frame, the box remains white, except for surface mounted cabinets. Refer to page 9.

**REGULARLY FURNISHED:**

20 ga. box, 20 ga. tubular steel door with 18 ga. frame and a continuous steel hinge (brass pin). Steel corner seams welded and ground smooth. Recessed, semi-recessed and surface mounted cabinets are furnished with 125" / 3.1 cm radiused frame. Semi-recessed and surface mounted cabinets are furnished with rolled radius. All components are powder-coated with an electrostatically-applied, thermally-fused, recoatable white polyester finish. Wall mounting and size of cabinet as selected by model number.



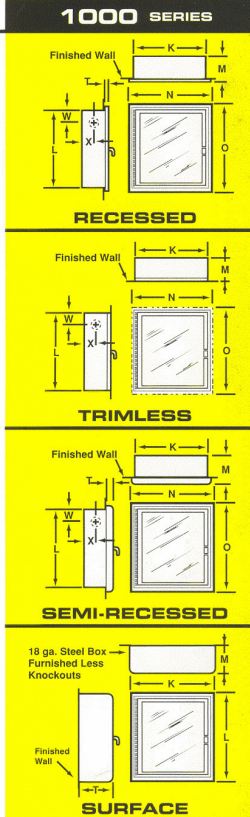
**ORDERING INFORMATION**

- Select cabinet model number
- Select cabinet door style (Refer to page 10)
- Select type of hose assembly (Refer to Section 2000)
- Select a portable 5 lb. 2.2 kg ABC fire extinguisher, if required (Refer to Section 3000)

**SPECIFICATION:**

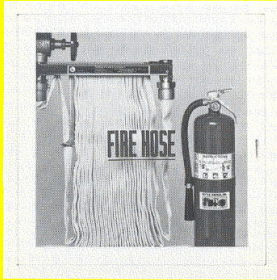
Fire hose cabinet shall be Model No. \_\_\_\_\_ as manufactured by Potter Roemer, Santa Ana, CA 800-366-FIRE; door style Suffix \_\_\_\_\_, containing Model No. \_\_\_\_\_ fire hose rack assembly.

Model No.	Wall Mounting	MAX. CAPACITY			Box Dimensions			Overall Frame			Wall Opening Required					Inlet Location	ADA
		Poly Flex ft.	Super Flex ft.		K	L	M	N	O	W	H	D	T	Trim	W		
1002	Recessed	75	50		24	30	5 1/2	27 1/4	33 1/4	25	31	6	1 1/2	4	2 1/4	Yes	
		22.8	15.2		61	76.2	14	70.5	85.7	63.5	78.7	15.2	1.6	10.1	6.9		
1004	Recessed	100	75		24	36	5 1/2	27 1/4	39 1/4	25	37	6	1 1/2	4	2 1/4	Yes	
		30.4	22.8		61	91.4	14	70.5	100.9	63.5	83.9	15.2	1.6	10.1	6.9		
1006	Recessed	—	100		24	40	5 1/2	27 1/4	43 1/4	25	41	6	1 1/2	4	2 1/4	Yes	
			30.4		61	102	14	70.5	111.1	63.5	104.1	15.2	1.6	10.1	6.9		
1012	Trimless	75	50		24	30	6 1/4	27	33	25	31	6 1/4	—	4	2 1/4	Yes	
		22.8	15.2		61	76.2	15.3	68.6	83.8	63.5	78.7	17.1	—	10.1	6.9		
1014	Trimless	100	75		24	36	6 1/4	27	39	25	37	6 1/4	—	4	2 1/4	Yes	
		30.4	22.8		61	91.4	15.9	68.6	99	63.5	94	17.1	—	10.1	6.9		
1016	Trimless	—	100		24	40	6 1/4	27	43	25	41	6 1/4	—	4	2 1/4	Yes	
			30.4		61	102	15.3	68.6	109.2	63.5	104.1	17.1	—	10.1	6.9		
1022	Semi-Recessed	75	50		24	30	5 1/2	27 1/4	33 1/4	25	31	4	2	4	2 1/4	Yes	
		22.8	15.2		61	76.2	14	70	85	63.5	78.7	10.1	5	10.1	6.9		
1024	Semi-Recessed	100	75		24	36	5 1/2	27 1/4	39 1/4	25	37	4	2	4	2 1/4	Yes	
		30.4	22.8		61	91.4	14	70	100.3	63.5	83.9	10.1	5	10.1	6.9		
1026	Semi-Recessed	—	100		24	40	5 1/2	27 1/4	43 1/4	25	41	4	2	4	2 1/4	Yes	
			30.4		61	102	14	70	110.4	63.5	104.1	10.1	5	10.1	6.9		
1052	Surface	75	50		26	32	5	—	—	—	—	—	6	—	No		
		22.8	15.2		66	81.3	15.2	—	—	—	—	—	15.2	—			
1054	Surface	100	75		26	38	6	—	—	—	—	—	6	—	No		
		30.4	22.8		66	96.5	15.2	—	—	—	—	—	15.2	—			
1056	Surface	—	100		26	42	6	—	—	—	—	—	6	—	No		
			30.4		66	107	15.2	—	—	—	—	—	15.2	—			



# 1300 SERIES FIRE HOSE CABINETS

**FOR USE WITH** • 1½" / 3.8 cm FIRE HOSE RACK ASSEMBLY  
• PORTABLE FIRE EXTINGUISHER



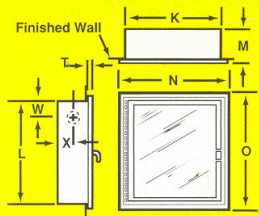
**FUNCTION:** 1300 Series cabinets accommodate a single 1½" / 3.8 cm fire hose rack assembly with either Polyflex or PR-Superflex hose and a portable fire extinguisher.

**OPTIONAL MATERIALS:**  
Door and Frame available in aluminum, stainless steel, brass or bronze. When optional materials are specified, recessed, semi-recessed and surface mounted cabinets are furnished with square edges. Red powder-coated finish available. When red finish is specified for door and frame, the box remains white, except for surface mounted cabinets. Refer to page 9.

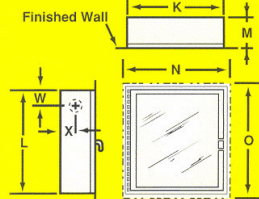
**REGULARLY FURNISHED:**

20 ga. box, 20 ga. tubular steel door with 18 ga. frame and a continuous steel hinge (brass pin). Steel corner seams welded and ground smooth. Recessed, semi-recessed and surface mounted cabinets are furnished with .125" / 0.31 cm radiused frame. Semi-recessed and surface mounted cabinets are furnished with rolled radius. All components are powder-coated with an electrostatically-applied, thermally-fused, recoatable white polyester finish. Wall mounting and size of cabinet as selected by model number.

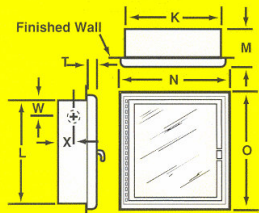
**1300 SERIES**



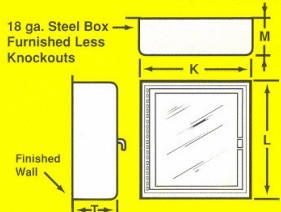
**RECESSED**



**TRIMLESS**



**SEMI-RECESSED**



**SURFACE**

**ORDERING INFORMATION**

- Select cabinet model number
- Select cabinet door style (Refer to page 10)
- Select type of hose assembly (Refer to Section 2000)
- Select type and size of extinguisher (Maximum sizes are 2½ gallon / 9.4 l water, 20 lb. / 9 kg dry chemical, or 10 lb. / 4.5 kg carbon dioxide. Refer to Section 3000)

**SPECIFICATION:**

Fire hose cabinet shall be Model No. \_\_\_\_\_ as manufactured by Potter Roemer, Santa Ana, CA 800-366-FIRE; door style Suffix \_\_\_\_\_, containing Model No. \_\_\_\_\_ fire hose rack assembly and Model No. \_\_\_\_\_ fire extinguisher.

Model No.	Wall Mounting	MAX. CAPACITY			Box Dimensions			Overall Frame		Wall Opening Required				Inlet Location		ADA
		Poly Flex	PR Super Flex		K	L	M	N	O	W	H	D	T	W	X	
		ft.	ft.		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
1302	Recessed	75 22.8	50 15.2	30 76.2	30 76.2	8 20.3	33½ 86	33½ 86	31 78.7	31 78.7	8½ 21.5	1½ 3.8	4 10.2	4 10.2	Yes	
1304	Recessed	100 30.4	75 22.8	30 76.2	36 91.4	8 20.3	33½ 86	39½ 100.9	31 78.7	37 94	8½ 21.5	1½ 3.8	4 10.2	4 10.2	Yes	
1306	Recessed	—	100 30.4	30 76.2	40 102	8 20.3	33½ 86	43½ 111.1	31 78.7	41 104.1	8½ 21.5	1½ 3.8	4 10.2	4 10.2	Yes	
1312	Trimless	75 22.8	50 15.2	30 76.2	30 76.2	8 20.3	33 83.8	33 83.8	31 78.7	31 78.7	9½ 23.4	—	4 10.2	4 10.2	Yes	
1314	Trimless	100 30.4	75 22.8	30 76.2	36 91.4	8 20.3	33 83.8	39 99	31 78.7	37 94	9½ 23.4	—	4 10.2	4 10.2	Yes	
1316	Trimless	—	100 30.4	30 76.2	40 102	8 20.3	33 83.8	43 109.2	31 78.7	41 104.1	9½ 23.4	—	4 10.2	4 10.2	Yes	
1332	Semi-Recessed	75 22.8	50 15.2	30 76.2	30 76.2	8 20.3	33½ 85	33½ 85	31 78.7	31 78.7	5½ 14	2½ 7	4 10.2	2½ 7	Yes	
1334	Semi-Recessed	100 30.4	75 22.8	30 76.2	36 91.4	8 20.3	33½ 85	39½ 100.3	31 78.7	37 94	5½ 14	2½ 7	4 10.2	2½ 7	Yes	
1336	Semi-Recessed	—	100 30.4	30 76.2	40 102	8 20.3	33½ 85	43½ 110.4	31 78.7	41 104.1	5½ 14	2½ 7	4 10.2	2½ 7	Yes	
1342	Semi-Recessed	75 22.8	50 15.2	30 76.2	30 76.2	8 20.3	33½ 85	33½ 85	31 78.7	31 78.7	4½ 10.7	4½ 11.2	4 10.2	2½ 7	No	
1344	Semi-Recessed	100 30.4	75 22.8	30 76.2	36 91.4	8 20.3	33½ 85	39½ 100.3	31 78.7	37 94	4½ 10.7	4½ 11.2	4 10.2	2½ 7	No	
1346	Semi-Recessed	—	100 30.4	30 76.2	40 102	8 20.3	33½ 85	43½ 110.4	31 78.7	41 104.1	4½ 10.7	4½ 11.2	4 10.2	2½ 7	No	
1352	Surface	75 22.8	50 15.2	32 81.3	32 81.3	9½ 23.4	—	—	31	31	—	—	9½ 23.4	—	No	
1354	Surface	100 30.4	75 22.8	32 81.3	38 96.5	9½ 23.4	—	—	31	37	—	—	9½ 23.4	—	No	
1356	Surface	—	100 30.4	32 81.3	42 106.6	9½ 23.4	—	—	31	41	—	—	9½ 23.4	—	No	

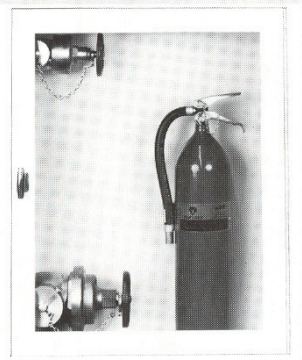
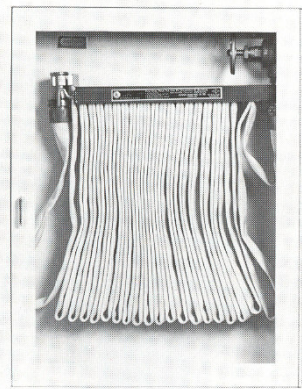
**DESCRIPTION:** HOSE CABINET - FIRE RATED, ACCOMODATES A 1-1/2" HOSE VALVE WITH HOSE RACK ASSEMBLY, UP TO 100' OF 1-1/2" HOSE, [AND PORTABLE FIRE EXTINGUISHER]. [RECESSED] [SEMI-RECESSED] [TRIMLESS] MOUNTED, LISTED AND RATED FOR INSTALLATION IN A [ONE-HOUR] [TWO-HOUR] RATED WALL, ASTM-814, DOUBLE 18-GAUGE WHITE BAKED ENAMEL STEEL BOX CONSTRUCTION WITH 5/8" FIRE BARRIER MATERIAL, [STAINLESS STEEL] [WHITE BAKED ENAMEL STEEL] FRAME AND DOOR WITH CONCEALED OR CONTINUOUS STEEL HINGE (BRASS PIN), CORNER SEAMS WELDED AND GROUND SMOOTH. NOMINAL DIMENSIONS OF 34"H x 26"W x 8"D [32"H x 32"W x 8"D]. [BLACK] [RED], [VERTICAL] [HORIZONTAL] DIE CUT LETTERING LABELED "FIRE HOSE" [AND "FIRE EXTINGUISHER"]. VERIFY EXACT DIMENSIONS PER MANUFACTURER. UL/FM.

**MANUFACTURER & CATALOG NO.:** LARSENS FS HC2634 [FS HC3232], POTTER-ROEMER, CROKER.

Notes to Specifier:

1. Specify larger cabinet size and second model number if including a fire extinguisher.
2. For 1-1/2" hose valves, confirm hose requirement with AHJ.
3. Trimless cabinets must be installed before the drywall. Plaster stop must be behind the drywall. Trimless are not recommended for block wall installation.

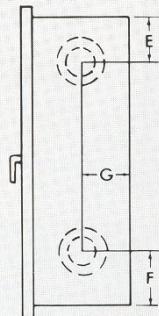
### HC2434, HC2634, and VC2430 SERIES



**TO SPECIFY THE HC2434, HC2634 or VC2430 SERIES:**

1. Insert, after "HC" or "VC," the appropriate prefix for the trim and door material (please refer to page 13). If STEEL — Use S. If ALUMINUM — Use AL. If STAINLESS STEEL — Use SS. If BRASS — Use B. If BRONZE — Use BZ.
2. Select the required model number from the table below.
3. Select the door style from the illustrations on page 13.

**HC2434  
OR  
HC2634**



**VC2430**

Model Number	Trim Style and Projection	Inside Box Dimensions* H x W x D	Outside Trim Dimensions H x W***	Rough Opening H x W x D	Knockout Locations** E F G	Interior Capacity
HC2434-R	Rec. 5/16	34x24x8	37 1/2x27 1/2	35x25x8 1/4	4" 4" 4"	One hose rack unit with 75 ft. of rack hose
FS HC2434-R	Rec. 5/16	34x24x8	37 1/2x27 1/2	36 1/8x26 1/8x9 1/8	-----	
HC2434-RK	Semi-Rec. 1 1/4	34x24x8	37 1/2x27 1/2	35x25x7 1/4	4" 4" 4"	
FS HC2434-RK	Semi-Rec. 1 1/4	34x24x8	37 1/2x27 1/2	36 1/8x26 1/8x8 1/8	-----	
HC2434-RL	Semi-Rec. 2 1/2	34x24x8	37 1/2x27 1/2	35x25x6	4" 4" 4"	
FS HC2434-RL	Semi-Rec. 2 1/2	34x24x8	37 1/2x27 1/2	36 1/8x26 1/8x7	-----	
HC2434-RT	Trimless	34x24x8	---	---x-8 1/2†	4" 4" 4"	One hose rack unit with 100 ft. of rack hose
HC2434-SM	Surface Mtd.	37 1/2x27 1/2x8 1/2	37 1/2x27 1/2	---	-----	
HC2634-R	Rec. 5/16	34x26x8	37 1/2x29 1/2	35x27x8 1/4	4" 4" 4"	
FS HC2634-R	Rec. 5/16	34x26x8	37 1/2x29 1/2	36 1/8x28 1/8x9 1/8	-----	
HC2634-RK	Semi-Rec. 1 1/4	34x26x8	37 1/2x29 1/2	35x27x7 1/4	4" 4" 4"	
FS HC2634-RK	Semi-Rec. 1 1/4	34x26x8	37 1/2x29 1/2	36 1/8x28 1/8x8 1/8	-----	
HC2634-RL	Semi-Rec. 2 1/2	34x26x8	37 1/2x29 1/2	35x27x6	4" 4" 4"	Two Fire Dept. valves and a fire extinguisher or One hose rack unit with 75 ft. of rack hose
FS HC2634-RL	Semi-Rec. 2 1/2	34x26x8	37 1/2x29 1/2	36 1/8x28 1/8x7	-----	
HC2634-RT	Trimless	34x26x8	---	---x-8 1/2†	4" 4" 4"	
HC2634-SM	Surface Mtd.	37 1/2x29 1/2x8 1/2	37 1/2x29 1/2	---	-----	
VC2430-R	Rec. 5/16	30x24x8	33 1/2x27 1/2	31x25x8 1/4	4" 4" 4"	
FS VC2430-R	Rec. 5/16	30x24x8	33 1/2x27 1/2	32 1/8x26 1/8x9 1/8	-----	
VC2430-RK	Semi-Rec. 1 1/4	30x24x8	33 1/2x27 1/2	31x25x7 1/4	4" 4" 4"	
FS VC2430-RK	Semi-Rec. 1 1/4	30x24x8	33 1/2x27 1/2	32 1/8x26 1/8x8 1/8	-----	
VC2430-RL	Semi-Rec. 2 1/2	30x24x8	33 1/2x27 1/2	31x25x6	4" 4" 4"	
FS VC2430-RL	Semi-Rec. 2 1/2	30x24x8	33 1/2x27 1/2	32 1/8x26 1/8x7	-----	
VC2430-RT	Trimless	30x24x8	---	---x-8 1/2†	4" 4" 4"	
VC2430-SM	Surface Mtd.	33 1/2x27 1/2x8 1/2	33 1/2x27 1/2	---	-----	

**NOTE: "FS" models denote Larsen's "Flame-Shield" fire-rated cabinets. When specifying Larsen's "Flame-Shield" fire-rated cabinet option for valve and hose cabinets, refer to the dimension chart and select from the models with an "FS" prefix. No knock-outs are provided with fire-rated valve and hose cabinets. Pipe holes must be drilled by installer and complete instructions are supplied with each fire-rated valve and hose cabinet. For complete details of the "Flame-Shield" option, see page 3.**

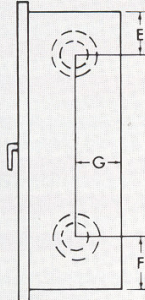
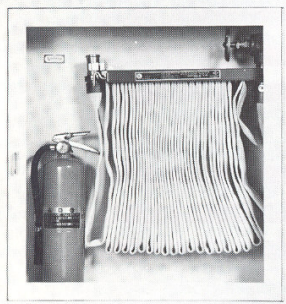


# HC3030, HC3232, and HC3234 SERIES

## TO SPECIFY THE HC3030, HC3232, and HC3234 SERIES:

1. Insert, after "HC," the appropriate prefix for the trim and door material (please refer to page 13). If STEEL — Use S. If ALUMINUM — Use AL. If STAINLESS STEEL — Use SS. If BRASS — Use B. If BRONZE — Use BZ. (Brass and Bronze available only in the HC3030 Series.)
2. Select the required model number from the table below.
3. Select the door style from the illustrations on page 13.

## DIMENSIONS



**NOTE:** "FS" models denote Larsen's "Flame-Shield" fire-rated cabinets. When specifying Larsen's "Flame-Shield" fire-rated cabinet option for valve and hose cabinets, refer to the dimension chart and select from the models with an "FS" prefix. No knock-outs are provided with fire-rated valve and hose cabinets. Pipe holes must be drilled by installer and complete instructions are supplied with each fire-rated valve and hose cabinet. For complete details of the "Flame-Shield" option, see page 3.

Model Number	Trim Style and Projection	Inside Box Dimensions* H x W x D	Outside Trim Dimensions H x W***	Rough Opening H x W x D	Knockout Locations** E F G	Interior Capacity
HC3030-R	Rec. 5/16	30x30x8	33½x33½	31x31x8¼	4" 4" 4"	One hose rack unit with 100 ft. of rack hose and a fire extinguisher
<b>FS</b> HC3030-R	Rec. 5/16	30x30x8	33½x33½	32½x32½x9¼	-----	
HC3030-RK	Semi-Rec. 1/4	30x30x8	33½x33½	31x31x7¼	4" 4" 4"	
<b>FS</b> HC3030-RK	Semi-Rec. 1/4	30x30x8	33½x33½	32½x32½x8¼	-----	
HC3030-RL	Semi-Rec. 2½	30x30x8	33½x33½	31x31x6	4" 4" 4"	
<b>FS</b> HC3030-RL	Semi-Rec. 2½	30x30x8	33½x33½	32½x32½x7	-----	
HC3030-RT	Trimless	30x30x8	-----	-x-x8½†	4" 4" 4"	One hose rack unit with 100 ft. of rack hose and a fire extinguisher
HC3030-SM	Surface Mtd.	33½x33½x8½	33½x33½	-----	-----	
HC3232-R	Rec. 5/16	32x32x8	35½x35½	33x33x8¼	4" 4" 4"	
<b>FS</b> HC3232-R	Rec. 5/16	32x32x8	35½x35½	34½x34½x9¼	-----	
HC3232-RK	Semi-Rec. 1/4	32x32x8	35½x35½	33x33x7¼	4" 4" 4"	
<b>FS</b> HC3232-RK	Semi-Rec. 1/4	32x32x8	35½x35½	34½x34½x8¼	-----	
HC3232-RL	Semi-Rec. 2½	32x32x8	35½x35½	33x33x6	4" 4" 4"	
<b>FS</b> HC3232-RL	Semi-Rec. 2½	32x32x8	35½x35½	34½x34½x7	-----	
HC3232-RT	Trimless	32x32x8	-----	-x-x8½†	4" 4" 4"	One hose rack unit with 100 ft. of rack hose and a fire extinguisher
HC3232-SM	Surface Mtd.	35½x35½x8½	35½x35½	-----	-----	
HC3234-R	Rec. 5/16	34x32x8	37½x35½	35x33x8¼	4" 4" 4"	
<b>FS</b> HC3234-R	Rec. 5/16	34x32x8	37½x35½	36½x34½x9¼	-----	
HC3234-RK	Semi-Rec. 1/4	34x32x8	37½x35½	35x33x7¼	4" 4" 4"	
<b>FS</b> HC3234-RK	Semi-Rec. 1/4	34x32x8	37½x35½	36½x34½x8¼	-----	
HC3234-RL	Semi-Rec. 2½	34x32x8	37½x35½	35x33x6	4" 4" 4"	
<b>FS</b> HC3234-RL	Semi-Rec. 2½	34x32x8	37½x35½	36½x34½x7	-----	
HC3234-RT	Trimless	34x32x8	-----	-x-x8½†	4" 4" 4"	One hose rack unit with 100 ft. of rack hose and a fire extinguisher
HC3234-SM	Surface Mtd.	37½x35½x8½	37½x35½	-----	-----	

**DESCRIPTION:** [FIRE RATED] VALVE CABINET. [RECESSED] [SEMI-RECESSED] [TRIMLESS] MOUNTED, [LISTED AND RATED FOR INSTALLATION IN A [ONE-HOUR] [TWO-HOUR] RATED WALL, ASTM-814,], [20-GAUGE WHITE BAKED ENAMEL STEEL BOX] [DOUBLE 18-GAUGE WHITE BAKED ENAMEL STEEL BOX WITH 5/8" FIRE BARRIER MATERIAL], [STAINLESS STEEL] [WHITE BAKED ENAMEL STEEL] FRAME AND DOOR WITH CONCEALED OR CONTINUOUS STEEL HINGE (BRASS PIN), CORNER SEAMS WELDED AND GROUND SMOOTH. NOMINAL DIMENSIONS OF [30"H x 24"W x 8"D] [40"H x 24"W x 8"D]. [BLACK] [RED] [VERTICAL] [HORIZONTAL] DIE CUT LETTERING TO READ ["SPRINKLER CONTROL VALVE"] ["FIRE DEPT. VALVE"]. VERIFY EXACT DIMENSIONS PER MANUFACTURER. UL[FM].

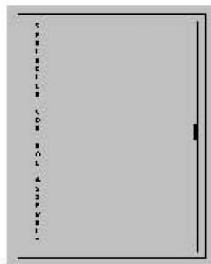
**MANUFACTURER & CATALOG NO.:** CROKER, POTTER-ROEMER, LARSENS.

**Notes to Specifier:**

1. This cabinet is for use with sprinkler control valve assembly and may include a hose valve. Use standard Control Valve Cabinet Detail.
1. Specify larger cabinet size if including a hose valve.
2. 20-gauge box is NOT fire rated. 18-gauge box with 5/8" fire barrier material IS fire rated.
3. Trimless cabinets must be installed before the drywall. Plaster stop must be behind the drywall. Trimless are not recommended for block wall installation.
4. Pick "FIRE DEPT. VALVE" lettering only when cabinet contains a hose valve.



**For Use with Sprinkler Control Valves and Valve Assemblies**



2940 Series

Series 2940 cabinets will accommodate sprinkler control assemblies and sprinkler control valves.

**STANDARD EQUIPMENT**

- † Heavy gauge steel construction tub, door and trim- white enamel interior
- † Electrostatic white primer white powder coat finish
- † Continuous steel piano hinge
- † Pull handle with roller catch

**CABINET OPTIONS**

- † Prefix **FR** for Fire Rated Cabinet
- † Suffix **AL** for clear anodized aluminum door and frame
- † Suffix **SS** for Stainless Steel # 4 finish door and frame
- † Suffix **FF** for Delation Grade Heavy Steel Door And Trim
- † Door Styles See page 2-5
- † Other cabinet options See page 2-7, 2-19 and 2-20

**ORDERING PROCEDURE**

- † Select cabinet Figure No.
- † Select door style
- † Select cabinet options

Figure No.	Trim Style	Trim Pcj. Tp.	Inside box dimensions			Overall Outside dim		Wall Opening Required			FIRE RATED CABINETS		
			A	B	C	D	E	Width	Height	Depth	Wall Opening Required FX Option		
2940	Recessed	3/8"	26	26	10	29 3/8	29 3/8	27	27	9 3/4	28	28 1/8	10 5/8
2948	Surface	3/8"	29 3/16	29 3/16	10	29 3/8	29 3/8						
2950	Recessed	3/8"	32 3/4	38 3/4	10	36 1/8	42 1/8	33 3/4	39 3/4	9 3/4	35	40 7/8	10 5/8
2958	Surface	3/8"	35 5/16	41 15/16	10	36 1/8	42 1/8						
2960	Recessed	3/8"	32 3/4	44 3/4	10	36 1/8	46 1/8	33 3/4	45 3/4	9 3/4	35	46 7/8	10 5/8
2968	Surface	3/8"	34 1/8	48 1/8	10	35	48 1/4						

\*10" Standard Depth  
 \*12" Optional Depth available  
 \* Other sizes available upon request  
 LETTERING: "SPRINKLER CONTROL ASSEMBLY"  
 "FIRE SPRINKLER FLOOR CONTROL VALVES"  
 Other lettering available upon request

