

## Model CV-1F Grooved End Swing Check Valves

### General Description

The TYCO Model CV-1F Grooved End Swing Check Valves are compact and rugged swing-type units that allow water flow in one direction and prevent flow in the opposite direction. A resilient elastomer seal facing on the spring-loaded clapper ensures a leak-tight seal and non-sticking operation. The Model CV-1F Check Valves are designed to minimize water hammer caused by flow reversal.

The Model CV-1F Grooved End Swing Check Valves are furnished with grooved ends and can be installed using GRINNELL Grooved Couplings or GRINNELL Figure 71 Flange Adapters. The Model CV-1F Check Valves have been designed with a removable cover for ease of field maintenance. These valves can be installed horizontally (with cover in the upward position) or vertically with the flow in the upward direction (Ref. Figure 3).

A check valve maintenance kit is available to allow backflushing through a fire department connection without removing the Model CV-1F Grooved End Swing Check Valve from the riser. Refer to technical data sheet TFP1555.

Model CV-1F is a re-designation for Central Figure 590F and GRINNELL Figure 590F Grooved End Swing Check Valves.

#### NOTICE

*The TYCO Model CV-1F Grooved End Swing Check Valves described herein must be installed and maintained in compliance with this document and with the applicable standards of the National Fire Protection Association (NFPA), in addition to the standards of any authorities having jurisdiction. Failure to do so may impair the performance of these devices.*

*Never remove any piping component nor correct or modify any piping deficiencies without first de-pressurizing and draining the system. Failure to do so may result in serious personal injury, property damage, and/or impaired device performance.*

*The owner is responsible for maintaining their fire protection system and devices in proper operating condition. Contact the installing contractor or product manufacturer with any questions.*

### Technical Data

#### Approvals

Compliance with CE Pressure Equipment Directive (PED) and Standards of Engineering Practice

- 2 to 12 Inch (DN50 to DN300):  
UL and C-UL Listed, FM Approved, Bureau Veritas
- 2-1/2 to 10 Inch (DN65 to DN250):  
VdS Approved  
Certificate No. G4060018

#### Sizes

2 to 12 Inch (DN50 to DN300)

#### Maximum Working Pressure

UL/FM - 300 psi (20,7 bar)  
VdS - 16 bar

#### Valve Assembly Finish

Red, non-lead paint



### Installation

The Model CV-1F Grooved End Swing Check Valves are to be installed in accordance with this section:

**Step 1.** The arrow cast on the body must point in the direction of the flow.

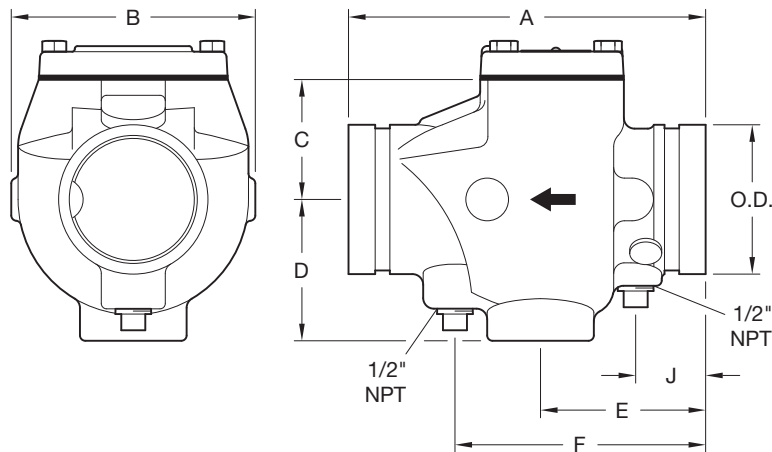
**Step 2.** Valves installed vertically must be positioned with the flow in the upward direction.

**Step 3.** Valves installed horizontally must be positioned with the cover facing up (Ref. Figure 3).

**Step 4.** Grooved end pipe couplings used with the Model CV-1F Grooved End Swing Check Valves must be installed in accordance with manufacturer's instructions.

**Note:** Valves should be installed a reasonable distance downstream from pumps, elbows, expanders, reducers, or other similar devices to extend the valve life. Standard piping practices call for a minimum of five (5) times the pipe diameter for general use.

| Nominal Pipe Size          |                           | Nominal Dimensions<br>Inch<br>(mm) |                  |                 |                 |                 |                  |                | Cover Bolt Torque<br>Lbs.-ft.<br>(Nm) | Approx. Weight<br>Lbs.<br>(kg) |
|----------------------------|---------------------------|------------------------------------|------------------|-----------------|-----------------|-----------------|------------------|----------------|---------------------------------------|--------------------------------|
| Valve Size<br>Inch<br>(DN) | Pipe O.D.<br>Inch<br>(mm) | A                                  | B                | C               | D               | E               | F                | J              |                                       |                                |
| 2<br>(50)                  | 2.37<br>(60,3)            | 6.75<br>(171,5)                    | 1.96<br>(49,8)   | 1.96<br>(49,8)  | 2.57<br>(65,3)  | 3.25<br>(82,3)  | 4.75<br>(120,7)  | 1.62<br>(41,5) | 18<br>(25)                            | 9.0<br>(4,5)                   |
| 2-1/2<br>(65)              | 2.88<br>(73,0)            | 8.00<br>(203,2)                    | 5.38<br>(136,7)  | 2.63<br>(66,7)  | 3.09<br>(78,5)  | 3.87<br>(98,3)  | 5.87<br>(149,1)  | 1.63<br>(41,7) | 39<br>(54)                            | 10.0<br>(4,5)                  |
| 76,1 mm<br>(65)            | 3.00<br>(76,1)            | 8.00<br>(203,2)                    | 5.38<br>(136,7)  | 2.63<br>(66,7)  | 3.09<br>(78,5)  | 3.87<br>(98,3)  | 5.87<br>(149,1)  | 1.63<br>(41,7) | 39<br>(54)                            | 10.0<br>(4,5)                  |
| 3<br>(80)                  | 3.50<br>(88,9)            | 8.37<br>(212,6)                    | 5.72<br>(145,3)  | 2.81<br>(71,4)  | 3.31<br>(84,1)  | 3.87<br>(98,3)  | 5.87<br>(149,1)  | 1.63<br>(41,7) | 39<br>(54)                            | 11.0<br>(5,0)                  |
| 4<br>(100)                 | 4.50<br>(114,3)           | 9.63<br>(244,6)                    | 6.68<br>(169,7)  | 3.80<br>(96,5)  | 3.63<br>(92,2)  | 4.53<br>(115,4) | 7.13<br>(181,1)  | 1.84<br>(46,7) | 50<br>(69)                            | 25.0<br>(11,3)                 |
| 139,7 mm<br>(125)          | 5.50<br>(139,7)           | 10.50<br>(266,7)                   | 7.40<br>(188,0)  | 4.46<br>(113,3) | 4.13<br>(104,9) | 4.90<br>(124,5) | 7.50<br>(190,5)  | 1.75<br>(44,5) | 39<br>(54)                            | 29.0<br>(13,2)                 |
| 5<br>(125)                 | 5.56<br>(141,3)           | 10.50<br>(266,7)                   | 7.40<br>(188,0)  | 4.46<br>(113,3) | 4.13<br>(104,9) | 4.90<br>(124,5) | 7.50<br>(190,5)  | 1.75<br>(44,5) | 39<br>(54)                            | 29.0<br>(13,2)                 |
| 165,1 mm<br>(150)          | 6.50<br>(165,1)           | 11.50<br>(292,1)                   | 8.00<br>(203,2)  | 4.62<br>(117,3) | 4.50<br>(114,3) | 5.00<br>(127,0) | 7.60<br>(193,0)  | 1.85<br>(47,0) | 60<br>(82)                            | 47.0<br>(21,3)                 |
| 6<br>(150)                 | 6.63<br>(168,3)           | 11.50<br>(292,1)                   | 8.00<br>(203,2)  | 4.62<br>(117,3) | 4.50<br>(114,3) | 5.00<br>(127,0) | 7.60<br>(193,0)  | 1.85<br>(47,0) | 60<br>(82)                            | 47.0<br>(21,3)                 |
| 8<br>(200)                 | 8.63<br>(219,1)           | 14.00<br>(355,6)                   | 10.14<br>(257,8) | 6.67<br>(169,4) | 5.52<br>(140,2) | 5.46<br>(138,7) | 8.46<br>(214,9)  | 2.13<br>(54,1) | 120<br>(164)                          | 66.0<br>(29,9)                 |
| 10<br>(250)                | 10.75<br>(273,1)          | 18.00<br>(457,2)                   | 12.38<br>(314,5) | 8.62<br>(218,9) | 6.41<br>(162,8) | 7.50<br>(190,5) | 10.50<br>(266,7) | 3.00<br>(76,2) | 130<br>(178)                          | 109.7<br>(49,4)                |
| 12<br>(300)                | 12.75<br>(323,9)          | 21.00<br>(533,4)                   | 14.28<br>(362,7) | 9.93<br>(252,2) | 7.27<br>(184,7) | 7.62<br>(193,5) | 10.62<br>(269,7) | 2.75<br>(69,9) | 130<br>(178)                          | 151.0<br>(68,0)                |



**FIGURE 1**  
**MODEL CV-1F GROOVED END SWING CHECK VALVES**  
**NOMINAL DIMENSIONS**

## Care and Maintenance

The TYCO Model CV-1F Grooved End Swing Check Valves must be maintained and serviced in accordance with this section.

Before closing a fire protection system main control valve for maintenance work on the fire protection system that it controls, obtain permission to shut down the affected fire protection

system from the proper authorities and notify all personnel who may be affected by this decision.

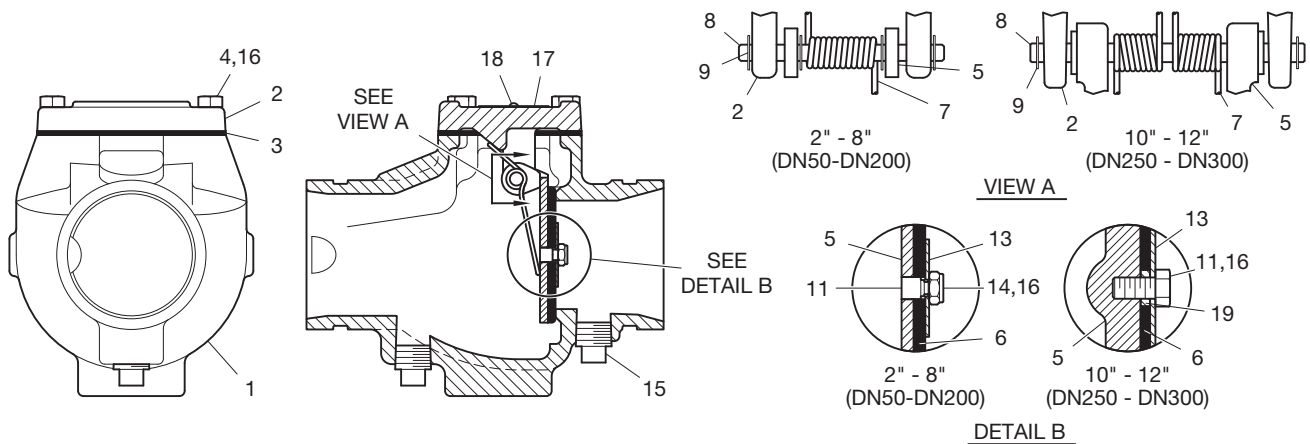
After placing a fire protection system in service, notify the proper authorities and advise those responsible for monitoring proprietary and/or central station alarms.

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

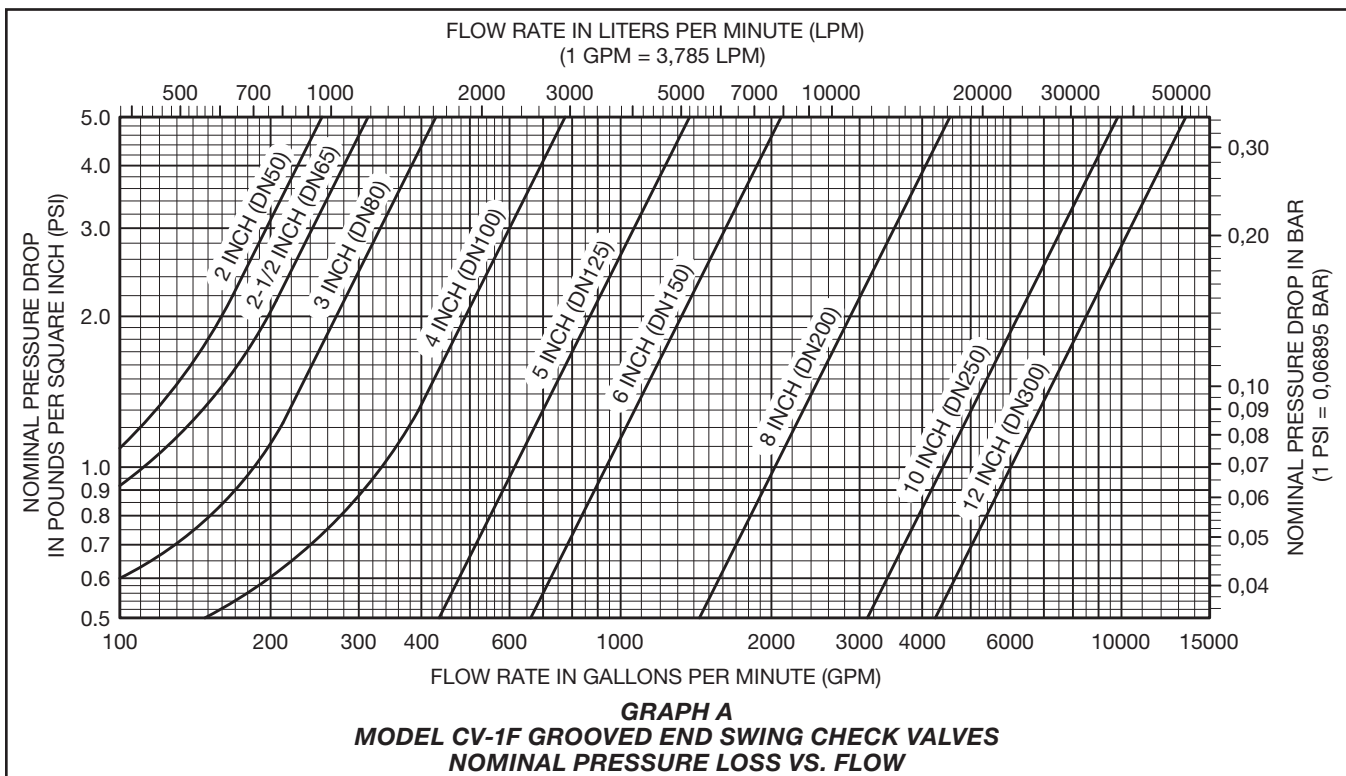
of the National Fire Protection Association (e.g., NFPA 25), in addition to the standards of any authority having jurisdiction. Contact the installing contractor or product manufacturer with any questions. Any impairments must be immediately corrected.

Automatic sprinkler systems are recommended to be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

| No. | Part                         | Material           | Qty. | No. | Part           | Material        | Qty. | No. | Part          | Material        | Qty. |
|-----|------------------------------|--------------------|------|-----|----------------|-----------------|------|-----|---------------|-----------------|------|
| 1   | Body                         | Ductile Iron       | 1    | 6   | Clapper Facing | EPDM Grade "E"  | 1    | 14  | Locknut       | Stainless Steel | 1    |
| 2   | Cover                        | Ductile Iron       | 1    | 7   | Spring         | Stainless Steel | 1    | 15  | Plug 1/2" NPT | Cast Iron       | 2    |
| 3   | Cover Gasket                 | Nitrile Rubber     | 1    | 8   | Hinge Shaft    | Stainless Steel | 1    | 16  | Adhesive      | Thread Sealer   | AR   |
| 4   | Hex Cap Screw                | Steel, Zinc Plated | AR   | 9   | Retaining Ring | Stainless Steel | AR   | 17  | Nameplate     | Aluminum        | 1    |
| 5   | Clapper, 2"-8" (DN50-200)    | Stainless Steel    | 1    | 11  | Retention Bolt | Stainless Steel | 1    | 18  | Rivet         | Steel           | 2    |
|     | Clapper, 10"-12" (DN250-300) | Ductile Iron       |      | 13  | Retaining Disc | Stainless Steel | 1    | 19  | Spacer        | Stainless Steel | 1    |



**FIGURE 2**  
**MODEL CV-1F GROOVED END SWING CHECK VALVES ASSEMBLY**



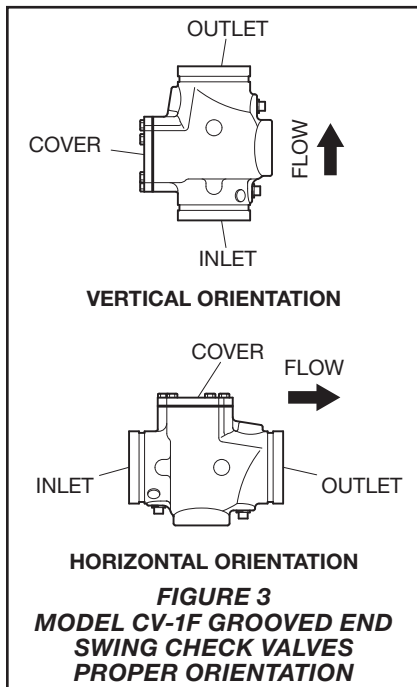
**GRAPH A**  
**MODEL CV-1F GROOVED END SWING CHECK VALVES NOMINAL PRESSURE LOSS VS. FLOW**

| Valve Size<br>Inch<br>(DN) | Pipe O.D.<br>Inch<br>(mm) | Part Number  |
|----------------------------|---------------------------|--------------|
| 2<br>(50)                  | 2.37<br>(60,3)            | 59-590-0-020 |
| 2-1/2<br>(65)              | 2.88<br>(73,0)            | 59-590-0-025 |
| 76,1 mm<br>(65)            | 3.00<br>(76,1)            | 59-590-0-076 |
| 3<br>(80)                  | 3.50<br>(88,9)            | 59-590-0-030 |
| 4<br>(100)                 | 4.50<br>(114,3)           | 59-590-0-040 |
| 139,7 mm<br>(125)          | 5.50<br>(139,7)           | 59-590-0-139 |
| 5<br>(125)                 | 5.56<br>(141,3)           | 59-590-0-050 |
| 165,1 mm<br>(150)          | 6.50<br>(165,1)           | 59-590-0-165 |
| 6<br>(150)                 | 6.63<br>(168,3)           | 59-590-0-060 |
| 8<br>(200)                 | 8.63<br>(219,1)           | 59-590-0-080 |
| 10<br>(250)                | 10.75<br>(273,1)          | 59-590-0-100 |
| 12<br>(300)                | 12.75<br>(323,9)          | 59-590-0-120 |

**TABLE A**  
**MODEL CV-1F GROOVED END SWING CHECK VALVES**  
**PART NUMBER SELECTION**

| Valve Size<br>Inch<br>(DN) | Pipe O.D.<br>Inch<br>(mm) | Cover Gasket Part Number |           | Clapper Facing Part Number |           | Clapper Assembly Part Number |           |
|----------------------------|---------------------------|--------------------------|-----------|----------------------------|-----------|------------------------------|-----------|
|                            |                           | Americas Only            | EMEA/APAC | Americas Only              | EMEA/APAC | Americas Only                | EMEA/APAC |
| 2<br>(50)                  | 2.37<br>(60,3)            | 595907020                | 97670501  | 59020EPDM                  | 59020EPDM | 97670201A                    | 97670201  |
| 2-1/2<br>(65)              | 2.88<br>(73,0)            | 595907030                | 97561801  | 59025EPDME                 | 59025EPDM | 97562801A                    | 97562065  |
| 76,1 mm<br>(65)            | 3.00<br>(76,1)            | 595907030                | 97561801  | 59025EPDME                 | 59025EPDM | —                            | 97562801  |
| 3<br>(80)                  | 3.50<br>(88,9)            | 595907030                | 97561801  | 59030EPDME                 | 59030EPDM | 97562201A                    | 97562201  |
| 4<br>(100)                 | 4.50<br>(114,3)           | 595907040                | 97512001  | 59040EPDME                 | 59040EPDM | 97549001A                    | 97549001  |
| 139,7 mm<br>(125)          | 5.50<br>(139,7)           | 595907040                | 97512001  | 59050EPDME                 | 59050EPDM | —                            | 97565501  |
| 5<br>(125)                 | 5.56<br>(141,3)           | 595907040                | 97512001  | 59050EPDME                 | 59050EPDM | 97565501A                    | 97562125  |
| 165,1 mm<br>(150)          | 6.50<br>(165,1)           | 595907060                | 97521801  | 59060EPDME                 | 59060EPDM | —                            | 97524101  |
| 6<br>(150)                 | 6.63<br>(168,3)           | 595907060                | 97521801  | 59060EPDME                 | 59060EPDM | 97524101A                    | 97562150  |
| 8<br>(200)                 | 8.63<br>(219,1)           | 595907080                | 97547901  | 59080EPDME                 | 59080EPDM | 97592201A                    | 97592201  |
| 10<br>(250)                | 10.75<br>(273,1)          | 595907100                | 97600001  | 59100EPDM                  | 59100EPDM | 97598001A                    | 97598001  |
| 12<br>(300)                | 12.75<br>(323,9)          | 595907120                | 97600002  | 59120EPDM                  | 59120EPDM | 97647701A                    | 97647701  |

**TABLE B**  
**MODEL CV-1F GROOVED END SWING CHECK VALVES REPLACEMENT VALVE PARTS**  
**PART NUMBER SELECTION**



## Limited Warranty

For warranty terms and conditions, visit [www.tyco-fire.com](http://www.tyco-fire.com).

## Ordering Procedure

Contact your local distributor for availability. When placing an order, indicate the full product name and Part Number (P/N).

### Model CV-1F Check Valve

Specify: Model CV-1F Grooved End Swing Check Valve, size (specify), P/N (specify per Table A)

### Replacement Valve Parts

Refer to Figure 2 to identify Parts.

### Cover Gasket

Specify: Model CV-1F Grooved End Swing Check Valve, Cover Gasket, size (specify), P/N (specify per Table B)

### Clapper Facing

Specify: Model CV-1F Grooved End Swing Check Valve, Clapper Seal Facing, EPDM Grade "E", size (specify), P/N (specify per Table B)

### Clapper Assembly

Includes items 2, 3, 5-14, and 17-19.

Specify: Model CV-1F Grooved End Swing Check Valve, Clapper Assembly, size (specify), P/N (specify per Table B)

