Model CV-1F Grooved End Swing Check Valves

IMPORTANT
Refer to Technical Data Sheet TFP2300 for warnings pertaining to regulatory and health information.

Scan the QR code or enter the URL in a web browser to access the most up-to-date electronic version of this document. Data rates may apply.

docs.jci.com/tycofire/tfp1550

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

Sizes
2 in. to 12 in. (DN50 to DN300)

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

Valve Assembly Finish
Red, non-lead paint



For fire protection pressure rating, listing and approval information, contact your TYCO representative.

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, see 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 In. (mm)							Cover Bolt Torque lb-ft (N·m)	Approx. Weight lb (kg)
Valve Size In. (DN)	Pipe O.D. In. (mm)	A	B	C	D	E	F	J		
2 (50)	2.37 (60.3)	6.75 (171.5)	1.96 (49.8)	1.96 (49.8)	2.57 (65.3)	3.25 (82.3)	4.75 (120.7)	1.62 (41.5)	7 (10)	9.0 (4.5)
2 1/2 (65)	2.88 (73.0)	8.00 (203.2)	5.38 (136.7)	2.63 (66.7)	3.09 (78.5)	3.87 (98.3)	5.87 (149.1)	1.63 (41.7)	10 (14)	10.0 (4.5)
76.1 mm (65)	3.00 (76.1)	8.00 (203.2)	5.38 (136.7)	2.63 (66.7)	3.09 (78.5)	3.87 (98.3)	5.87 (149.1)	1.63 (41.7)	10 (14)	10.0 (4.5)
3 (80)	3.50 (88.9)	8.37 (212.6)	5.72 (145.3)	2.81 (71.4)	3.31 (84.1)	3.87 (98.3)	5.87 (149.1)	1.63 (41.7)	10 (14)	11.0 (5.0)
4 (100)	4.50 (114.3)	9.63 (244.6)	6.68 (169.7)	3.80 (96.5)	3.63 (92.2)	4.53 (115.4)	7.13 (181.1)	1.84 (46.7)	10 (14)	25.0 (11.3)
139.7 mm (125)	5.50 (139.7)	10.50 (266.7)	7.40 (188.0)	4.46 (113.3)	4.13 (104.9)	4.90 (124.5)	7.50 (190.5)	1.75 (44.5)	10 (14)	29.0 (13.2)
5 (125)	5.56 (141.3)	10.50 (266.7)	7.40 (188.0)	4.46 (113.3)	4.13 (104.9)	4.90 (124.5)	7.50 (190.5)	1.75 (44.5)	10 (14)	29.0 (13.2)
165.1 mm (150)	6.50 (165.1)	11.50 (292.1)	8.00 (203.2)	4.62 (117.3)	4.50 (114.3)	5.00 (127.0)	7.60 (193.0)	1.85 (47.0)	30 (40)	47.0 (21.3)
6 (150)	6.63 (168.3)	11.50 (292.1)	8.00 (203.2)	4.62 (117.3)	4.50 (114.3)	5.00 (127,0)	7.60 (193,0)	1.85 (47.0)	30 (40)	47.0 (21.3)
8 (200)	8.63 (219.1)	14.00 (355.6)	10.14 (257.8)	6.67 (169.4)	5.52 (140.2)	5.46 (138.7)	8.46 (214.9)	2.13 (54.1)	50 (68)	66.0 (29.9)
10 (250)	10.75 (273.1)	18.00 (457.2)	12.38 (314.5)	8.62 (218.9)	6.41 (162.8)	7.50 (190.5)	10.50 (266.7)	3.00 (76.2)	70 (95)	109.7 (49.4)
12 (300)	12.75 (323.9)	21.00 (533.4)	14.28 (362.7)	9.93 (252.2)	7.27 (184.7)	7.62 (193.5)	10.62 (269.7)	2.75 (69.9)	80 (108)	151.0 (68.0)

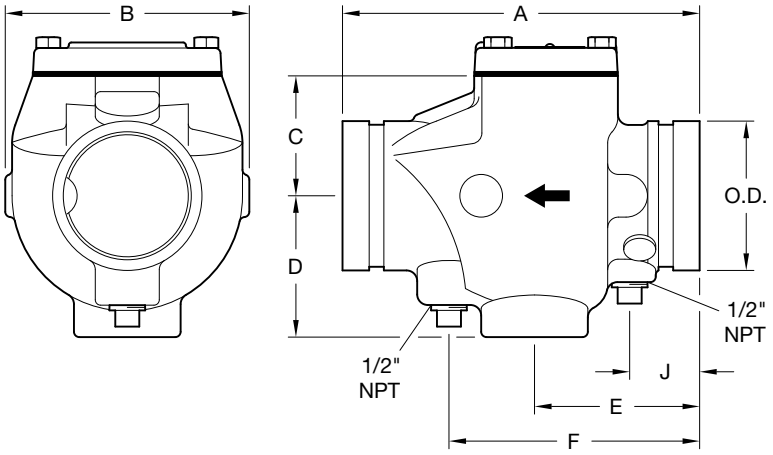


FIGURE 1
MODEL CV-1F GROOVED END SWING CHECK VALVES
NOMINAL DIMENSIONS

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, such as 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.
1	Body	Ductile Iron	1
2	Cover	Ductile Iron	1
3	Cover Gasket	Nitrile Rubber	1
4	Hex Cap Screw	Steel, Zinc Plated	AR
5	Clapper, 2 in. to 8 in. (DN50 to DN200)	Stainless Steel	1
	Clapper, 10 in. to 12 in. (DN250 to DN300)	Ductile Iron	

No.	Part	Material	Qty.
6	Clapper Facing	EPDM Grade "E"	1
7	Spring	Stainless Steel	1
8	Hinge Shaft	Stainless Steel	1
9	Retaining Ring	Stainless Steel	AR
11	Retention Bolt	Stainless Steel	1
13	Retaining Disc	Stainless Steel	1

No.	Part	Material	Qty.
14	Locknut	Stainless Steel	1
15	Plug 1/2 in. NPT	Cast Iron	2
16	Adhesive	Thread Sealer	AR
17	Nameplate	Aluminum	1
18	Rivet	Steel	2
19	Spacer	Stainless Steel	1

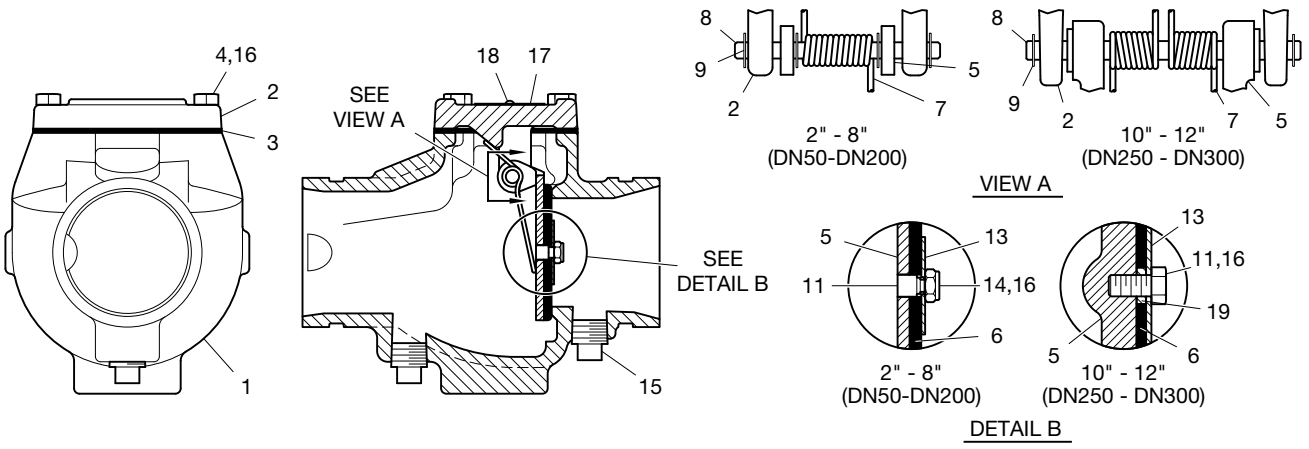
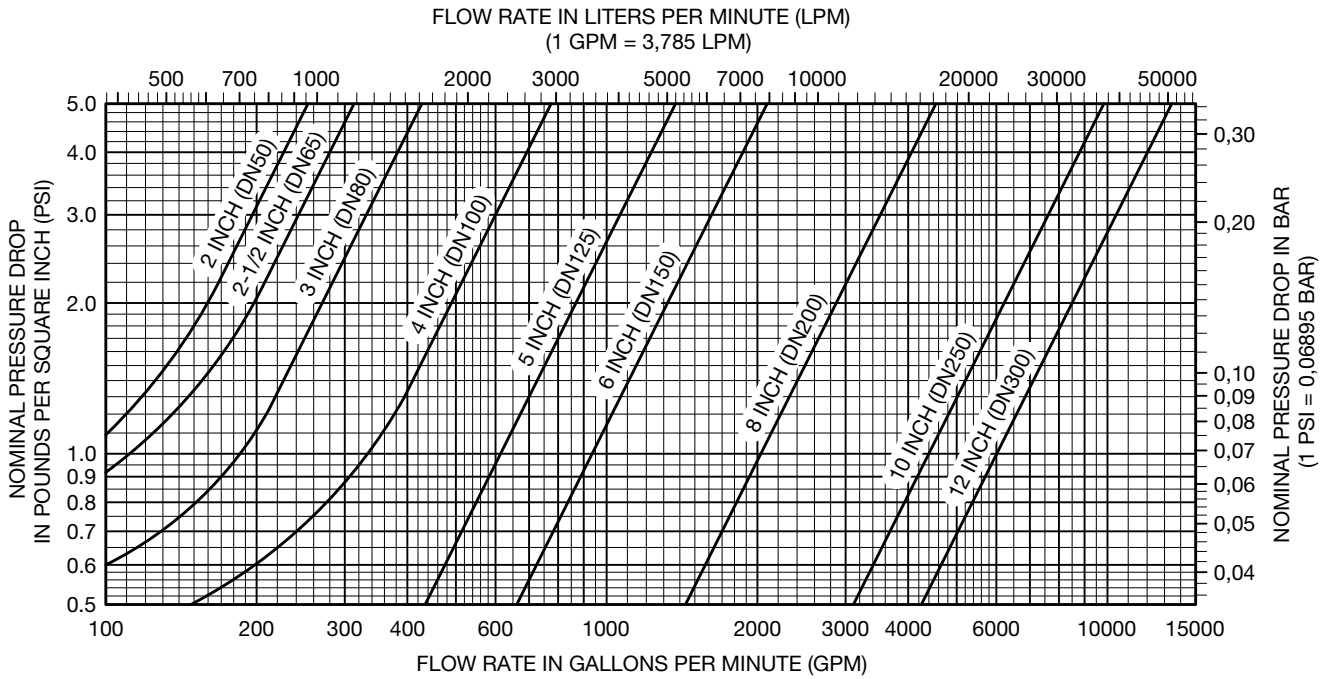


FIGURE 2
MODEL CV-1F GROOVED END SWING CHECK VALVES
ASSEMBLY



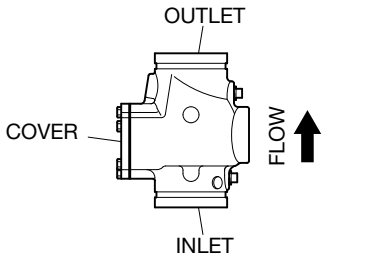
GRAPH A
MODEL CV-1F GROOVED END SWING CHECK VALVES
NOMINAL PRESSURE LOSS VS. FLOW

Valve Size In. (DN)	Pipe O.D. In. (mm)	Part Number
2 (50)	2.37 (60.3)	59-590-0-020
2 1/2 (65)	2.88 (73.0)	59-590-0-025
76.1 mm (65)	3.00 (76.1)	59-590-0-076
3 (80)	3.50 (88.9)	59-590-0-030
4 (100)	4.50 (114.3)	59-590-0-040
139.7 mm (125)	5.50 (139,7)	59-590-0-139
5 (125)	5.56 (141.3)	59-590-0-050
165.1 mm (150)	6.50 (165.1)	59-590-0-165
6 (150)	6.63 (168.3)	59-590-0-060
8 (200)	8.63 (219.1)	59-590-0-080
10 (250)	10.75 (273.1)	59-590-0-100
12 (300)	12.75 (323.9)	59-590-0-120

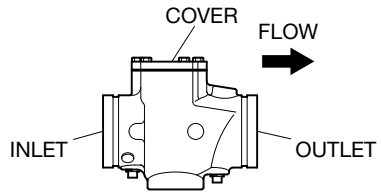
TABLE A
MODEL CV-1F GROOVED END SWING CHECK VALVES
PART NUMBER SELECTION

Valve Size In. (DN)	Pipe O.D. In. (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 (50)	2.37 (60.3)	595907020	97670501	59020EPDM	59020EPDM	97670201A	97670201
2 1/2 (65)	2.88 (73.0)	595907030	97561801	59025EPDME	59025EPDM	97562801A	97562065
76.1 mm (65)	3.00 (76.1)	595907030	97561801	59025EPDME	59025EPDM	—	97562801
3 (80)	3.50 (88.9)	595907030	97561801	59030EPDME	59030EPDM	97562201A	97562201
4 (100)	4.50 (114.3)	595907040	97512001	59040EPDME	59040EPDM	97549001A	97549001
139.7 mm (125)	5.50 (139.7)	595907040	97512001	59050EPDME	59050EPDM	—	97565501
5 (125)	5.56 (141.3)	595907040	97512001	59050EPDME	59050EPDM	97565501A	97562125
165.1 mm (150)	6.50 (165.1)	595907060	97521801	59060EPDME	59060EPDM	—	97524101
6 (150)	6.63 (168.3)	595907060	97521801	59060EPDME	59060EPDM	97524101A	97562150
8 (200)	8.63 (219.1)	595907080	97547901	59080EPDME	59080EPDM	97592201A	97592201
10 (250)	10.75 (273.1)	595907100	97600001	59100EPDM	59100EPDM	97598001A	97598001
12 (300)	12.75 (323.9)	595907120	97600002	59120EPDM	59120EPDM	97647701A	97647701

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



VERTICAL ORIENTATION



HORIZONTAL ORIENTATION

FIGURE 3
MODEL CV-1F GROOVED END SWING CHECK VALVES PROPER ORIENTATION

Limited Warranty

For warranty terms and conditions, visit 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
See 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 to 14, and 17 to 19.

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

1467 Elmwood Avenue, Cranston, RI 02910 | Telephone +1-401-781-8220

© 2022 Johnson Controls. All rights reserved. All specifications and other information shown were current as of document revision date and are subject to change without notice.

NATIONAL FIRE PROTECTION ASSOCIATION and NFPA are registered trademarks of National Fire Protection Association;