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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

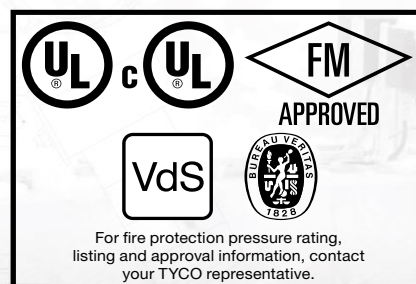
2 in. to 12 in. (DN50 to DN300)

Maximum Working Pressure

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

Valve Assembly Finish

Red, non-lead paint



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)

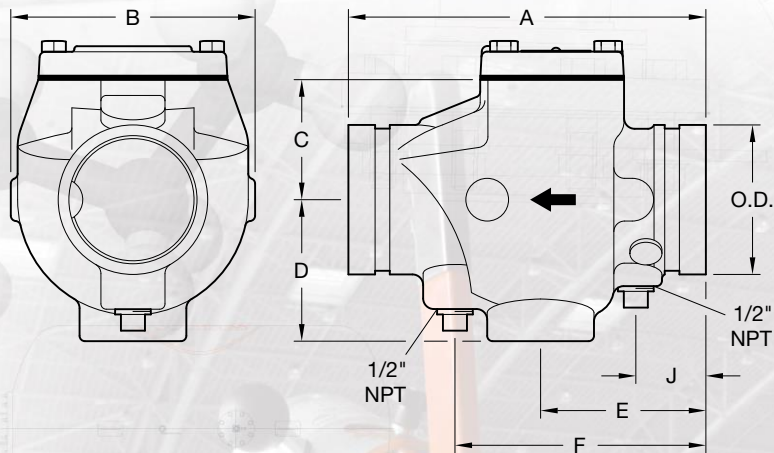


FIGURE 1
MODEL CV-1F GROOVED END SWING CHECK VALVES
NOMINAL DIMENSIONS

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.	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 in. 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 in. to 8 in. (DN50 to DN200)	Stainless Steel	1	11	Retention Bolt	Stainless Steel	1	18	Rivet	Steel	2
	Clapper, 10 in. to 12 in. (DN250 to DN300)	Ductile Iron		13	Retaining Disc	Stainless Steel	1	19	Spacer	Stainless Steel	1

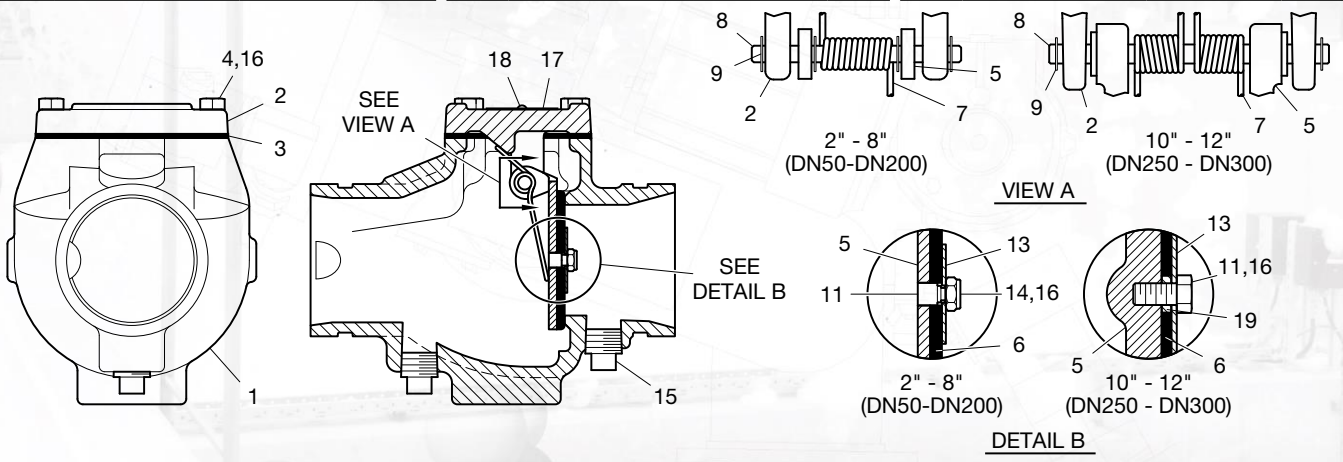
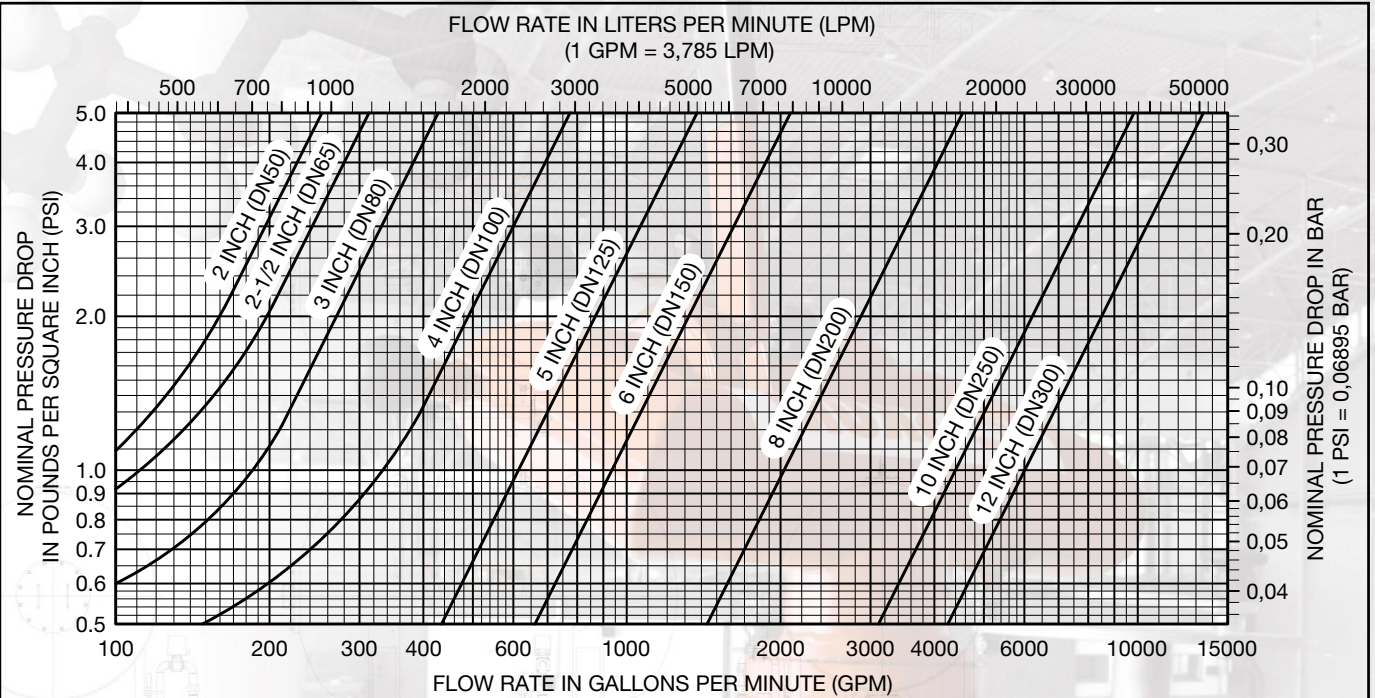


FIGURE 2
MODEL CV-1F GROOVED END SWING CHECK VALVES ASSEMBLY



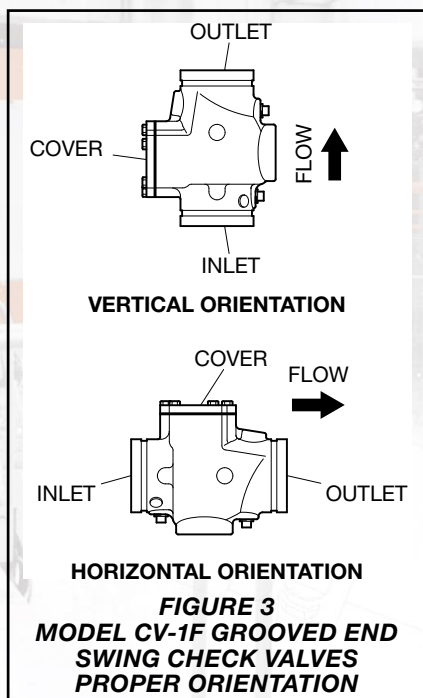
GRAPH A
MODEL CV-1F GROOVED END SWING CHECK VALVES NOMINAL PRESSURE LOSS VS. FLOW

Valve Size 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



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)

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TFP1550 Change History Appendix

ISSUE DATE	NOTES
08-22	Page 1, added QR code and URL to allow convenient access to electronic version from printed document; Page 1, General Description, end of paragraph 1, removed statement The Model CV-1F Check Valves are designed to minimize water hammer caused by flow reversal; Page 6, changed corporate address and telephone number to 1467 Elmwood Avenue, Cranston, RI 02910 Telephone +1-401-781-8220, formerly 1400 Pennbrook Parkway, Lansdale, PA 19446 Telephone +1-215-362-0700.
12-20	Updated recommended handhole cover bolt torque specifications.
06-20	Changed Cover Bolt Torque to Max. Cover Bolt Torque in Figure 1; Added recommended handhole cover bolt torque specifications.
08-18	Updated Tyco® branding and document format; Added Johnson Controls copyright; Added disclaimer stating specifications and information subject to change without notice; Added reference to Regulatory and Health Warning Technical Data Sheet TFP2300.
02-16	Organized valve part numbers into selection table; Clarified Replacement Parts part number selection table.
08-15	Added VdS Approved for 16 bar maximum working pressure; Added Bureau Veritas Certification.
09-14	Updated guidance on installing valve downstream from equipment (pump, etc.) to extend product life.
04-14	Updated physical dimensions.
10-10	Clarified installation orientation; Added C-UL Listed; Removed Seal Ring from Clapper Retention Bolt; Clarified Installation and Care and Maintenance sections.
07-08	Updated pressure loss data; Changed Cover Gasket material to nitrile rubber, formerly synthetic fiber.
09-04	Removed unnecessary reference to TFP1895 for guidance in selecting proper coupling gasket (coupling gaskets not ordered as part of CV-1F).
07-04	New Technical Data Sheet TFP1550 describes Model CV-1F Check Valves.

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