

## Tyco Fire Products Model CV-1FR Riser Check Valve

### General Description



See Fire Protection  
Submittal Sheet for  
Pressure Rating and  
Listing/Approval Information

The Model CV-1FR Fire Protection Riser Check Valve is a compact and rugged swing-type unit that allows water flow in one direction and prevents flow in the opposite direction. A resilient elastomer seal facing on the spring loaded clapper ensures a leak tight seal and non-sticking operation. All Model CV-1FR Riser Check Valves are designed to minimize water hammer caused by flow reversal.

The valve is furnished with grooved ends and can be installed using grooved couplings. The Model CV-1FR can be installed with ANSI class 150 Flanges utilizing Grinnell® Figure 71 flange adapters and also ANSI class 300 Flange Adapters on the upstream connection. Should these connections be desired on the downstream connection, longer 1/4" gauge nipple connections are required. All Model CV-1FR Riser Check Valves have been designed with a removable cover for ease of field maintenance. Valves installed horizontally or inclined (flow up or down) are to be positioned with the cap facing up. Valves installed vertically may be positioned with flow up or down.

**Applications:** Model CV-1FR Riser Check Valves are intended for use in wet type automatic sprinkler system riser, as a more compact and economical alternative to the alarm check valve. Provisions must be made for a local alarm, using an approved flow switch (not included).

A Maintenance Check Valve Kit is available to allow the maintenance procedure of back-flushing through the fire department connection without removing the Model CV-1FR Riser Check Valve from the pipe line.

The Model CV-1FR Riser Check Valves are a redesignation for the Central Figure 590FR and Grinnell Figure 590FR.

#### WARNING

*The Model CV-1FR Riser Check Valve 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 this device.*

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

### Technical Data

**Model:** CV-1FR

**Sizes:** 2", 2½", 76.1mm, 3", 4", 139.7mm, 5", 165.1mm, 6" and 8"

**Max. Working Pressure:** 300 psi (2068 kPa)

**Factory Hydro Test:** 100% at 600 psi (4137 kPa)

- Seat and shell complies with test requirements of MSS SP-71, UL, FM and ULC

**Approvals:** UL, FM and ULC;

See Fire Protection Submittal Sheet for exact Listing / Approval information.

**Body and Cap:** Ductile iron conforming to ASTM A-536, Grade 65-45-12

**Clapper:** Stainless Steel

**Seal:** Grade "E" EPDM

**Protective Coatings:** Valve assembly  
• Non-lead paint

**Trim:** Sold separately (un-assembled)

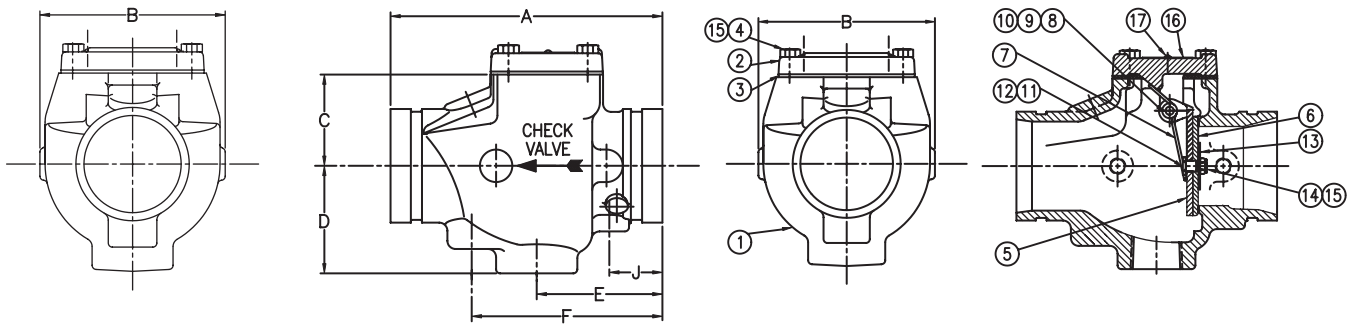
### Ordering Procedure

When placing an order, indicate the full product name. Please specify the quantity, valve model number, size, type of seal, Grade "E" EPDM, and part number from the following lists.

Valve Size	Valve Part Number
2"	59-590-1-020
2½"	59-590-1-025
76.1mm	59-590-1-076
3"	59-590-1-030
4"	59-590-1-040
139.7mm	59-590-1-139
5"	59-590-1-050
165.1mm	59-590-1-165
6"	59-590-1-060
8"	59-590-1-080
Trim Size	Trim Part Number
2"	59-591-1-020
2½"	59-591-1-030
76.1mm	59-591-1-030
3"	59-591-1-030
4"	59-591-1-080
139.7mm	59-591-1-080
5"	59-591-1-080
165.1mm	59-591-1-080
6"	59-591-1-080
8"	59-591-1-080

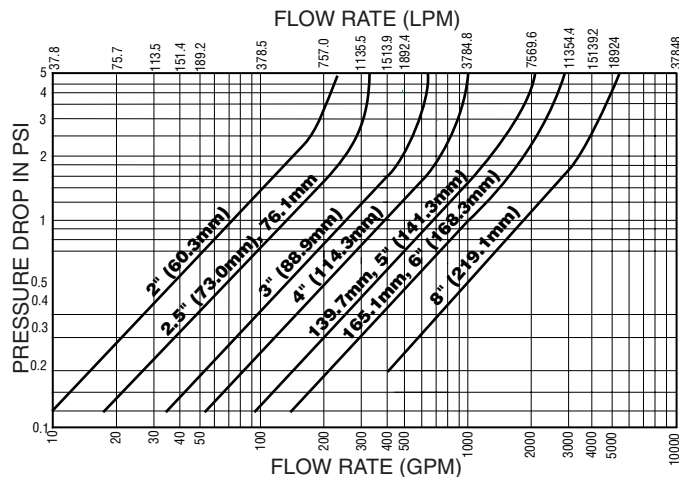
Tyco Fire Products, valves, accessories and other products are available throughout the U.S., Canada, and internationally, through a network of distribution centers. You may write directly or call 215-362-0700 for the distributor nearest you.

# Model CV-1FR Check Valve



Nominal Dimensions									Approx. Weight lbs. Kg.
Size Inches mm	A Inches mm	B Inches mm	C Inches mm	D Inches mm	E Inches mm	F Inches mm	J Inches mm	Cover Bolt Torq. Lb.-ft./Nm	
2"	6.75	4.38	2.55	2.57	3.25	4.75	1.62	15	9.0
60.3	171.5	111.3	64.8	65.3	82.3	120.7	41.5	21	4.5
2½"	8.00	5.80	3.41	3.40	3.88	6.00	1.70	39	10.0
73.0	203.2	147.3	86.6	86.4	98.6	152.4	43.2	54	4.5
76.1mm	8.00	5.80	3.41	3.40	3.88	6.00	1.70	39	10.00
	203.2	147.3	86.6	86.4	98.6	152.4	43.2	54	4.5
3"	8.37	5.76	3.60	3.40	3.88	6.00	1.70	39	11.0
88.9	212.6	146.3	91.4	86.4	98.6	152.4	43.2	54	5.0
4"	9.63	6.74	4.61	3.63	4.56	7.13	1.84	39	25.0
114.3	244.6	171.2	117.1	92.2	115.1	181.1	46.7	54	11.3
139.7mm	10.50	7.50	5.29	4.20	4.90	7.60	1.90	39	29.0
	266.7	190.5	134.4	106.7	124.5	193.0	48.3	54	13.2
5"	10.50	7.50	5.29	4.20	4.90	7.60	1.90	39	29.0
141.3	266.7	190.5	134.4	106.7	124.5	193.0	48.3	54	13.2
165.1mm	11.50	8.05	5.75	4.50	5.00	7.60	1.48	60	47.0
	292.1	204.5	146.1	114.3	127.0	193.0	37.6	82	21.3
6"	11.50	8.05	5.75	4.50	5.00	7.60	1.48	60	47.0
168.3	292.1	204.5	146.1	114.3	127.0	193.0	37.6	82	21.3
8"	14.00	10.25	7.75	5.62	5.45	8.40	2.20	120	66.0
219.1	355.6	260.4	196.9	142.7	138.4	213.4	58.9	164	29.9

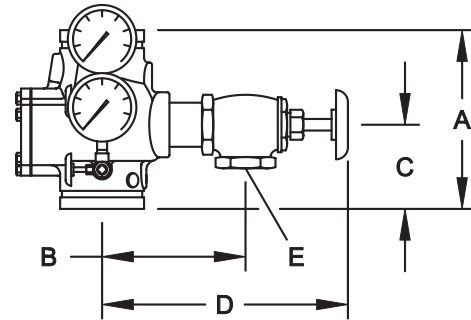
Detail	Part	Material	Qty.
1	Body	Ductile Iron	1
2	Cap	Ductile Iron	1
3	Gasket	Synthetic Fiber	1
4	Hex Cap Screw	Steel, Zinc Plated	AR
5	Clapper	Stainless Steel or Ductile Iron	1
6	Seal Facing	EPDM Grade "E"	1
7	Spring	Stainless Steel	1
8	Hinge Shaft	Stainless Steel	1
9	Retaining Ring	Stainless Steel	AR
10	Washer	Teflon	2
11	Retention Bolt	Stainless Steel	1
12	Seal Ring	Neoprene	1
13	Retaining Disc	Stainless Steel	1
14	Locknut	Stainless Steel	1
15	Adhesive	Thread Sealer	AR
16	Nameplate	Aluminum	1
17	Rivet	Steel	2



Note: It is good piping practice to apply a safety factor of 15% to 20% to the values in the above table for design purposes.

# Model CV-1FR Check Valve

Valve Size Inches mm	Nominal Dimensions				
	A Inches mm	B Inches mm	C Inches mm	D Inches mm	E Inches NPT
2 60.3	6.75 171.5	6.50 165.1	3.25 82.6	10.13 257.2	1
2½ 73.0	8.00 203.2	6.56 166.7	3.88 98.6	11.13 282.6	1¼
76.1mm	8.00 203.2	6.56 166.7	3.88 98.6	11.13 282.6	1¼
3 88.9	8.37 212.6	6.81 173.0	3.88 98.6	11.31 287.3	1¼
4 114.3	9.63 244.3	7.75 196.9	5.00 127.0	13.25 336.6	2
139.7mm	10.50 266.7	8.25 209.6	5.00 127.0	13.81 350.8	2
5 141.3	10.50 266.7	8.25 209.6	5.00 127.0	13.81 350.8	2
165.1mm	11.50 292.1	8.56 217.5	5.00 127.0	14.13 358.8	2
6 168.3	11.50 292.1	8.56 217.5	5.00 127.0	14.13 358.8	2
8 219.1	14.00 355.6	9.75 247.7	5.50 139.7	15.25 387.4	2



## Trim Kits

Part Number 59-591-1-020
2" Riser Check Valve
Main Drain 1" x 3" Nipple 1" Angle Valve
Gauge (system side) 0-300 psi Gauge ¼" x 2" Nipple ¼" Three-Way Globe Valve ¼" Plug
Gauge (supply side) 0-300 psi Gauge ¼" x 5" Nipple ¼" Three-Way Globe Valve ¼" Plug

Part Number 59-591-1-030
2½", 76.1mm & 3" Riser Check Valve
Main Drain 1¼" x 3" Nipple 1¼" Angle Valve
Gauge (system side) 0-300 psi Gauge ¼" x 2" Nipple ¼" Three-Way Globe Valve ¼" Plug
Gauge (supply side) 0-300 psi Gauge ¼" x 5" Nipple ¼" Three-Way Globe Valve ¼" Plug

Part Number 59-591-1-080
4", 139.7mm, 5", 165.1mm 6" & 8" Riser Check Valve
Main Drain 2" x 3" Nipple 2" Angle Valve
Gauge (system side) 0-300 psi Gauge ¼" x 2" Nipple ¼" Three-Way Globe Valve ¼" Plug
Gauge (supply side) 0-300 psi Gauge ¼" x 5" Nipple ¼" Three-Way Globe Valve ¼" Plug

## Care and Maintenance

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in accordance with the applicable standards of the National Fire Protection Association (e.g., NFPA 25), in addition to the standards of any authority having jurisdiction. The installing contractor or product manufacturer should be contacted relative to any questions. Any impairment must be immediately corrected. It is recommended that automatic sprinkler systems be inspected, tested, and maintained by a qualified Inspection Service.

## Limited Warranty

Products manufactured by Tyco Fire 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 Products. No warranty is given for products or components manufactured by companies not affiliated by ownership with Tyco Fire 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 (NFPA), and/or the standards of any other Authorities Having Jurisdiction. Materials found by Tyco Fire Products to be defective shall be either repaired or replaced, at Tyco Fire Products' sole option. Tyco Fire 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 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 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 PRODUCTS WAS INFORMED ABOUT THE POSSIBILITY OF SUCH DAMAGES, AND IN NO EVENT SHALL TYCO FIRE 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.**

General Notes: It is the Designer's responsibility to select products suitable for the intended service and to ensure that pressure ratings and performance data is not exceeded. Always read and understand the installation instructions (IH-1000). Never remove any piping component or correct or modify any piping deficiencies without first depressurizing and draining the system. Material and gasket selection should be verified to be compatible for the specific application.



Certified Company