

Reliable®

Model CR Commercial Riser Riser Manifold for Commercial Applications

Available Sizes/Pressure Ratings:

1½”(40mm) and 2”(50mm) Threaded - 250 psi (17,2 bar) Working Pressure

2”(50mm), 2½”(65mm), & 3”(80mm) Grooved - 300 psi (20,7 bar) Working Pressure

4”(100mm), 6”(150mm), & 8”(200mm) Grooved - 300 psi (20,7 bar) Working Pressure

Features

1. Cast stainless steel body construction for threaded manifolds.
2. Painted, cast ductile iron body construction for grooved manifolds.
3. Brass and galvanized Trim.
4. Factory assembled and pressure tested.
5. Available with Test and Drain Valves in various orifice sizes. Grooved end Test and Drain valves are available as MTO.
6. Optional Pressure Relief Valve Kit available for all sizes.
7. Same take-out dimensions for the 1½”(40mm) and 2”(50mm) threaded sizes.
8. Same end-to-end dimensions for the 2”(50mm) through 8”(200mm) grooved sizes.
9. Approved for installation in horizontal or vertical positions.
10. Built in drain port allows hydrostatic testing without draining the system.
11. ¼” three-way valve allows for easy testing and replacing of pressure gauge.
12. Dedicated UL Listed, ULC Listed and FM Approved Waterflow Detector assures optimum sensitivity. See Table 3 for triggering flow rates.

Product Description

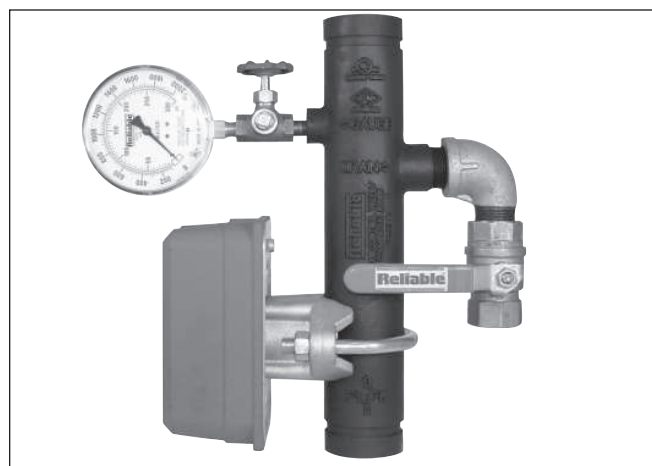
The Model CR Commercial Riser comes factory assembled with the necessary accessories for a cost effective, yet complete riser assembly. These assemblies are UL Listed, ULC Listed and FM Approved as a unit.

Cast-on lettering on the manifold identifies manifold pipe size, flow direction, gauge and drain outlets, and UL Listing and FM Approval markings.

The Model CR Commercial Riser is available in four configurations (see Figures 1 and 2):

- **Basic Trim**

Commercial riser manifold assembly includes a cULus Listed pressure gauge, a ¼” three-way valve, a drain (ball) valve, and a dedicated waterflow detector containing two sets of SPDT (Form C) contacts, having an electrical rating of 10A @ 125/250 VAC/2.5 A @



24 VDC. See Table 3 for triggering flow rates.

- **Basic Trim with Pressure Relief Kit**

Commercial riser manifold assembly includes a cULus Listed pressure gauge, a ¼” three-way valve, a drain (ball) valve, and a dedicated waterflow detector containing two sets of SPDT (Form C) contacts, having an electrical rating of 10A @ 125/250 VAC/2.5 A @ 24 VDC. See Table 3 for triggering flow rates. The non-adj (2) unstable Pressure Relief Kit will maintain system pressures below 175 psi (12,1 bar).

- **Basic Trim with Test and Drain Valves Valve**

Commercial riser manifold assembly includes a cULus Listed pressure gauge, a ¼” three-way valve, a Test and Drain Valve, and a dedicated waterflow detector containing two sets of SPDT (Form C) contacts, having an electrical rating of 10A @ 125/250 VAC/2.5 A @ 24 VDC. See Table 3 for triggering flow rates. The available test orifice size inside the Test and Drain Valve are

(Choose one):

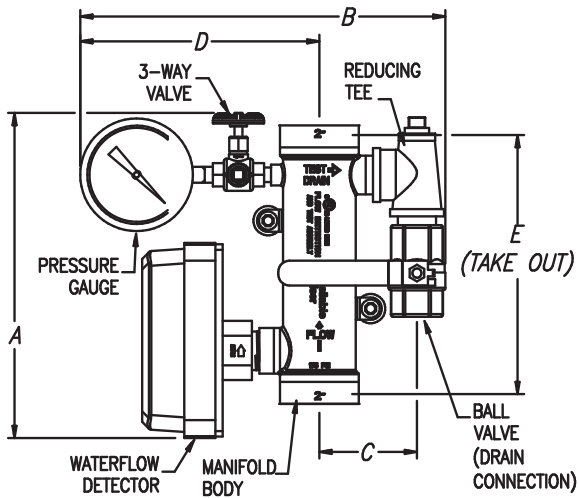
- 3/8” (K-2.8)⁽¹⁾
- 7/16” (K-4.2)
- 1/2” (K-5.6)
- 17/32” (K-8.0)
- 5/8” (K-11.2)⁽³⁾
- 3/4” (K-14.0)⁽³⁾
- 15/16” (K-16.8)^{(2) (3)}
- 1⁵/₆₄” (K-22.4)^{(2) (3)}
- 1⁹/₆₄” (K-25.2)^{(2) (3)}

⁽¹⁾ Not available for 4”, 6” and 8” risers.

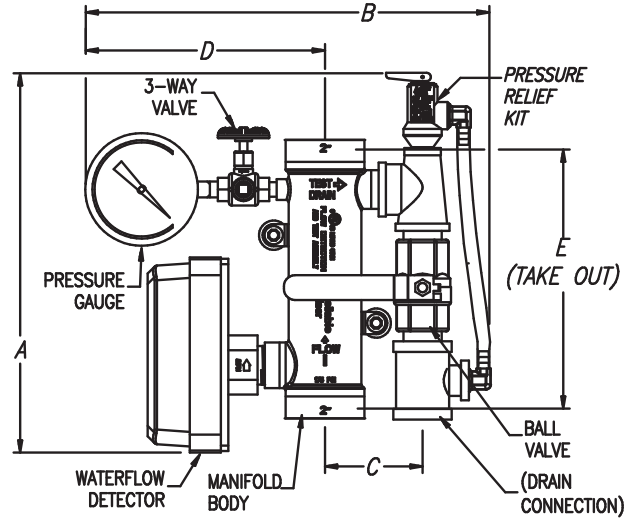
⁽²⁾ Not available for 1½” to 3” risers.

⁽³⁾ Not available for 1½” to 2” threaded & 2” grooved risers.

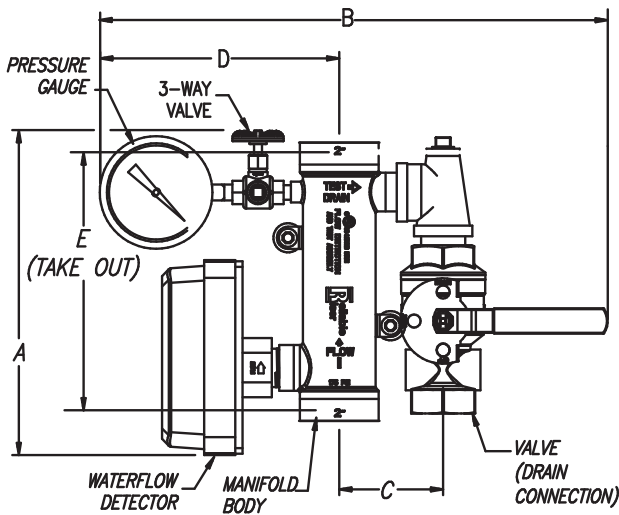
THREADED ENDS ASSEMBLIES (1-1/2"(40MM) & 2"(50MM) ONLY)



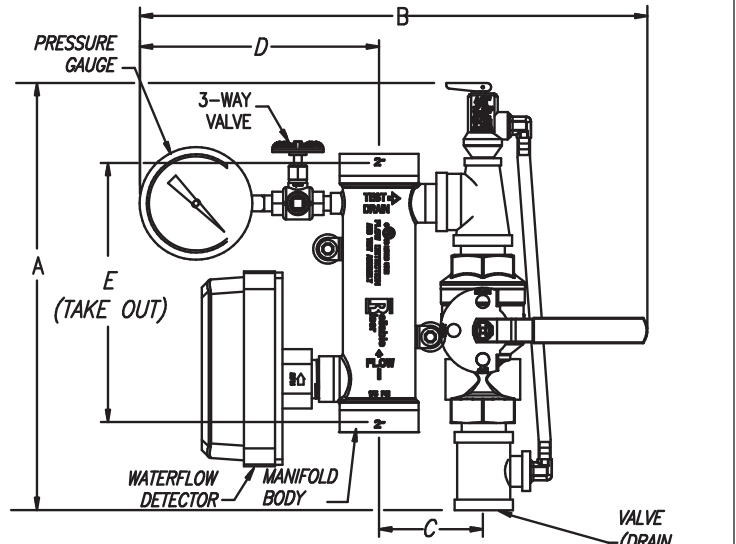
**BASIC ASSEMBLY (2" (50MM) VERSION SHOWN)
SEE TABLE 1.**



**BASIC ASSEMBLY WITH PRESSURE RELIEF KIT
(2" (50MM) VERSION SHOWN) SEE TABLE 1.**



**BASIC ASSEMBLY WITH TEST AND DRAIN VALVE
(2" (50MM) VERSION SHOWN) SEE TABLE 2.
(TEST AND DRAIN SHOWN IN "OFF" POSITION)**



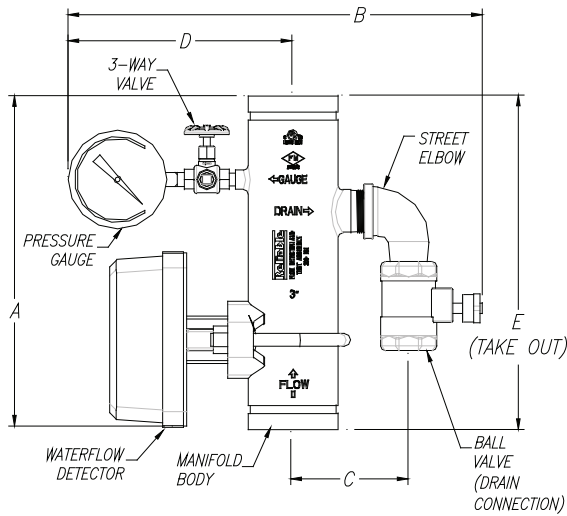
**BASIC ASSEMBLY WITH TEST AND DRAIN VALVE
& PRESSURE RELIEF KIT
(2" (50MM) VERSION SHOWN) SEE TABLE 2.
(TEST AND DRAIN SHOWN IN "OFF" POSITION)**

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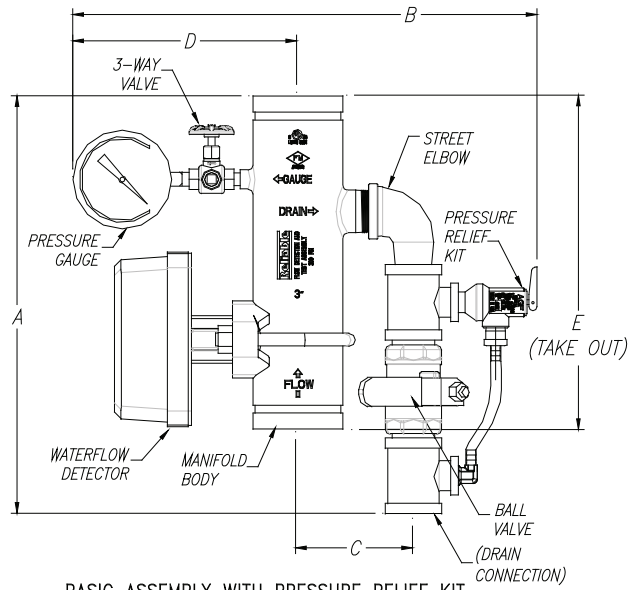
Fig. 1

Note: 1/4" Grooved end Test and Drain valves are available in various orifice size as Made To Order (MTO).

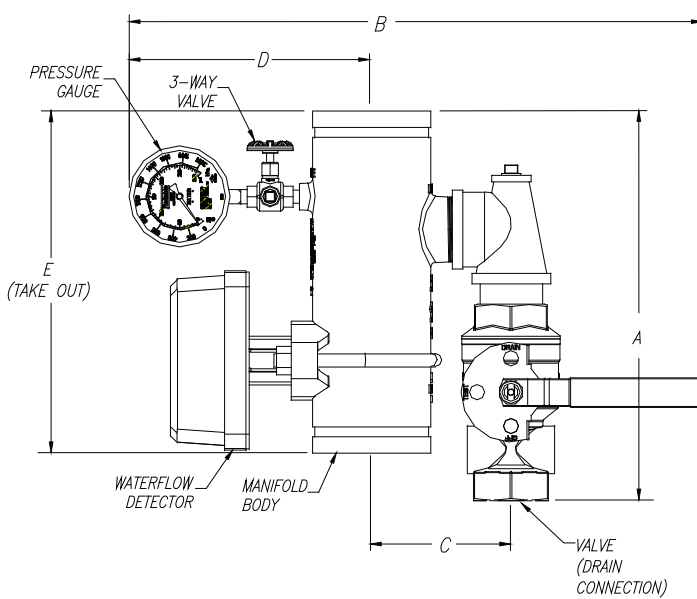
GROOVED ENDS ASSEMBLIES (2"(50MM), 2-1/2"(65MM), 3"(80MM), 4"(100MM), 6"(150MM), & 8" (200MM))



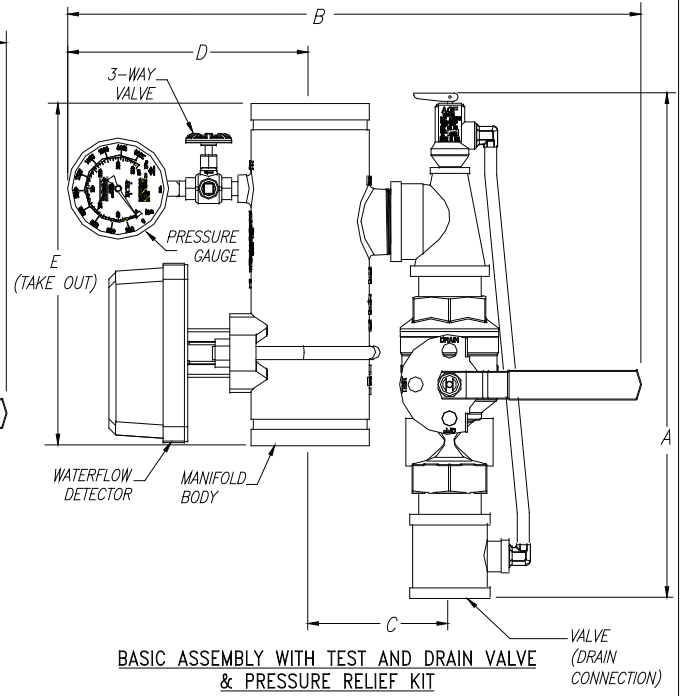
BASIC ASSEMBLY (3" (80MM) VERSION SHOWN)
(SEE TABLE 1.)



BASIC ASSEMBLY WITH PRESSURE RELIEF KIT
(3" (80MM) VERSION SHOWN) (SEE TABLE 1.)



BASIC ASSEMBLY WITH TEST AND DRAIN VALVE
(4" (100MM) VERSION SHOWN) (SEE TABLE 2.)
(TEST AND DRAIN SHOWN IN "OFF" POSITION)



BASIC ASSEMBLY WITH TEST AND DRAIN VALVE
& PRESSURE RELIEF KIT
(4" (100MM) VERSION SHOWN) (SEE TABLE 2.)
(TEST AND DRAIN SHOWN IN "OFF" POSITION)

617FG02A

Fig. 2

Note: 1 1/4" Grooved end Test and Drain valves are available in various orifice size as Made To Order (MTO).

Table 1		Dimensions & Weights											
		Basic Assembly					Basic Assembly with Pressure Relief Kit						
Manifold Pipe Size in (mm)	A	B	C	D	E	Weight lbs (kg)	A	B	C	D	E	Weight lbs (kg)	
	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	
Threaded Ends (See Fig. 1)	1 1/2 (40)	11 (279)	11 1/2 (292)	3 (76)	7 3/4 (197)	8 1/4 (210)	8.3 (3.8)	13 1/2 (343)	12 3/4 (324)	3 (76)	7 3/4 (197)	8 1/4 (210)	10.4 (4.7)
	2 (50)	11 (279)	12 1/4 (311)	3 1/4 (83)	8 (203)	8 1/4 (210)	9.1 (4.1)	13 1/2 (343)	13 1/2 (343)	3 1/4 (83)	8 (203)	8 1/4 (210)	11.2 (5.1)
Grooved Ends (See Fig. 2)	2 (50)	12 3/4 (324)	15 (381)	4 1/4 (108)	8 (203)	13 (330)	10.7 (4.9)	16 3/4 (425)	16 3/4 (425)	4 1/4 (108)	8 (203)	13 (330)	13.3 (6.0)
	2 1/2 (65)	12 3/4 (324)	15 1/2 (394)	4 1/2 (114)	8 1/4 (210)	13 (330)	12.9 (5.9)	16 3/4 (425)	17 1/4 (438)	4 1/2 (114)	8 1/4 (210)	13 (330)	16.7 (7.6)
	3 (80)	12 3/4 (324)	16 (406)	4 3/4 (121)	8 1/2 (216)	13 (330)	17.6 (8.0)	16 3/4 (425)	17 3/4 (451)	4 3/4 (121)	8 1/2 (216)	13 (330)	18.3 (8.3)
	4 (100)	12 1/2 (318)	18 (457)	5 1/4 (133)	9 (229)	13 (330)	21.3 (9.7)	16 3/4 (425)	18 1/2 (470)	6 (152)	9 (229)	13 (330)	26.7 (12)
	6 (150)	12 1/2 (318)	20 (508)	6 1/4 (159)	10 (254)	13 (330)	26.3 (12)	16 3/4 (425)	20 1/2 (521)	7 (178)	10 (254)	13 (330)	31.8 (14.4)
8 (200)	12 1/2 (318)	22 (559)	4 1/4 (184)	11 (280)	13 (330)	31.0 (14.1)	16 3/4 (425)	22 1/2 (572)	8 (203)	11 (280)	13 (330)	36.5 (16.6)	

Table 2		Dimensions & Weights											
		Basic Assembly with Test and Drain Valve						Basic Assembly with Test and Drain Valve & Pressure Relief Kit					
Manifold Pipe Size in (mm)	A	B	C	D	E	Weight lbs (kg)	A	B	C	D	E	Weight lbs (kg)	
	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	in (mm)	
Threaded Ends (See Fig. 1)	1 1/2 (40)	11 (279)	16 (406)	3 (76)	7 3/4 (197)	8 1/4 (210)	10.0 (4.5)	15 (381)	16 (406)	3 (76)	7 3/4 (197)	8 1/4 (210)	10.8 (4.9)
	2 (50)	11 (279)	16 1/2 (419)	3 1/4 (83)	8 (203)	8 1/4 (210)	10.8 (4.9)	15 (381)	16 1/2 (419)	3 1/4 (83)	8 (203)	8 1/4 (210)	11.6 (5.3)
Grooved Ends (See Fig. 2)	2 (50)	12 3/4 (324)	17 1/2 (445)	4 1/4 (108)	8 (203)	13 (330)	10.7 (4.9)	15 1/2 (394)	17 1/2 (445)	4 1/4 (108)	8 (203)	13 (330)	13.3 (6.0)
	2 1/2 (65)	12 3/4 (324)	18 (457)	4 1/2 (114)	8 1/4 (210)	13 (330)	12.9 (5.9)	15 1/2 (394)	18 (457)	4 1/2 (114)	8 1/4 (210)	13 (330)	16.1 (7.3)
	3 (80)	12 3/4 (324)	18 3/4 (476)	4 3/4 (121)	8 1/2 (216)	13 (330)	17.6 (8.0)	15 1/2 (394)	18 3/4 (476)	4 3/4 (121)	8 1/2 (216)	13 (330)	17.0 (7.7)
	4 (100)	14 (356)	22 (559)	5 3/4 (146)	9 (229)	13 (330)	25.8 (11.6)	18 1/2 (470)	22 (559)	5 3/4 (146)	9 (229)	13 (330)	26 (11.8)
	6 (150)	14 (356)	25 1/2 (648)	8 (203)	10 (254)	13 (330)	30 (13.6)	18 1/2 (470)	25 1/2 (648)	8 (203)	10 (254)	13 (330)	31 (14.1)
8 (200)	14 1/4 (362)	27 (686)	9 (229)	11 (280)	13 (330)	35.3 (16)	18 1/2 (470)	27 (686)	9 (229)	11 (280)	13 (330)	36.3 (16.5)	

- **Basic Trim with Test and Drain Valve & Pressure Relief Kit**
Commercial riser manifold assembly includes a cULus Listed pressure gauge, a 1/4" three-way valve, a Test and Drain Valve, and a dedicated waterflow detector containing two sets of SPDT (Form C) contacts, having an electrical rating of 10A @ 125/250 VAC/2.5 A @ 24 VDC. See Table 3 for triggering flow rates. The non-adjustable Pressure Relief Kit will maintain system pressures below 175 psi (12,1 bar). The available test orifice size inside the Test and Drain Valve are

(Choose one):

- 3/8" (K-2.8) ⁽¹⁾
- 7/16" (K-4.2)
- 1/2" (K-5.6)
- 17/32" (K-8.0)
- 5/8" (K-11.2)⁽³⁾
- 3/4" (K-14.0)⁽³⁾
- 15/16" (K-16.8)^{(2) (3)}
- 1 5/64" (K-22.4)^{(2) (3)}
- 1 9/64" (K-25.2)^{(2) (3)}

⁽¹⁾ Not available for 4", 6" and 8" risers.

⁽²⁾ Not available for 1 1/2" to 3" risers.

⁽³⁾ Not available for 1 1/2" to 2" threaded & 2" grooved risers.

Installation

1. Attach the pressure gauge as shown in Figures 1-4.
2. Install the manifold with the flow arrow pointing towards the SYSTEM side using threaded fittings or grooved pipe couplings.
3. Connect the appropriately sized drain line.
4. Ensure that the drain valve is in the CLOSED position.
5. Place the sprinkler system in service.
6. Installation must comply with NFPA 13, Section 8.16.4.2

Caution:

Automatic sprinkler systems having non-fire protection connection (permitting continual water flow) require dielectric fittings, according to NFPA 13 sect. 4-6, when dissimilar metal piping materials are joined.

Note:

Use a non-hardening pipe joint compound, or teflon tape. Follow the manufacturer's instructions when using grooved pipe couplings.

Listings and Approvals

1. Listed by Underwriters' Laboratories Inc. and ULC Listed.
2. Factory Mutual Approved.
3. NYC MEA 258-93-E

Engineering Specification

[Model CR Commercial Riser Assembly] shall be [UL Listed][ULC Listed] [Factory Mutual (FM) Approved] for horizontal or vertical installation as a one-piece, fabricated assembled unit. The [Model CR Commercial Riser Assembly] shall consist of a (choose one):

- 1 1/2" (40 mm) cast, non-welded stainless steel body with threaded end connections
- 2" (50 mm) cast, non-welded, stainless steel body with threaded end connections
- 2" (50 mm) cast, non-welded, ductile iron body with grooved end connections
- 2 1/2" (65 mm) cast, non-welded, ductile iron body with grooved end connections
- 3" (80 mm) cast, non-welded, ductile iron body with grooved end connections
- 4" (100 mm) cast, non-welded, ductile iron body with grooved end connections
- 6" (150 mm) cast, non-welded, ductile iron body with grooved end connections
- 8" (200 mm) cast, non-welded, ductile iron body with grooved end connections

having all brass and galvanized trim. The manifold piping shall clearly identify the manifold's pipe size, flow direction, UL Listing/ ULC Listing/ FM Approval, drain, and gauge outlets. A built-in drain port shall be available to permit hydrostatic testing without draining the system. This drain port shall be sized per the following:

- 1"(25mm) for 1 1/2"(40mm) and 2"(50mm) sizes.
- 1 1/4"(32 mm) for 2 1/2"(65mm), and 3"(80mm) sizes.
- 2"(50mm) for 4"(100mm), 6"(150mm) and 8"(200mm) sizes.

Take-out dimensions shall be the same for the 1 1/2" (40mm) and 2" (50mm) threaded sizes. End-to-end dimensions shall be the same for the 2" (50mm) through 3" (80mm) grooved sizes. Assembly shall have a working pressure rating of [250 psi (17,2 bar) (for 1 1/2" (40mm) and 2" (50mm) threaded manifold assemblies)] [300 psi (20,7 bar) (for 2" through 3" grooved manifold assemblies)].

End-to-end dimensions shall be the same for the 4" (100mm) through 8" (200mm) grooved sizes. Assembly shall have a working pressure rating of [300 psi (20,7 bar) (for 4" (100mm) through 8" (200mm) grooved manifold assemblies)].

Table 3

Manifold Sizes	Triggering Flow Rate - GPM (LPM)
1 1/2"(40mm), 2"(50mm), 2 1/2"(65mm) & 3"(80mm)	4 (15) to 10 (38)
4" (100mm), 6"(150mm), & 8"(200mm)	4 (15) to 10 (38)

Ordering Information:

Model CR Commercial Riser Assembly Part Number Code Key

<p>1.5NT 1.5MT 2NT 2MT 2G 2.5G 3G 4G 6G 8G</p> <p>1.5NT = 1½" (40 mm) NPT Threaded Ends Assembly</p> <p>1.5MT = 1½" (40 mm) Metric Threaded Ends Assembly</p> <p>2NT = 2" (50 mm) NPT Threaded Ends Assembly</p> <p>2MT = 2" (50 mm) Metric Threaded Ends Assembly</p> <p>2G = 2" (50 mm) Grooved Ends Assembly</p> <p>2.5G = 2½" (65 mm) Grooved Ends Assembly</p> <p>3G = 3" (80 mm) Grooved Ends Assembly</p> <p>4G = 4" (100 mm) Grooved Ends Assembly</p> <p>6G = 6" (150mm) Grooved Ends Assembly</p> <p>8G = 8" (200 mm) Grooved Ends Assembly</p>	<p style="text-align: center;">B</p> <p>T28 (K-2.8)⁽¹⁾ T42 (K-4.2) T56 (K-5.6) T80 (K-8.0) T112 (K-11.2)⁽³⁾ T140 (K-14.0)⁽³⁾ T168 (K-16.8)^{(2) (3)} T224 (K-22.4)^{(2) (3)} T252 (K-25.2)^{(2) (3)}</p> <p>B = Basic Assembly</p> <p>T28 = W / K-2.8 Test & Drain Valve T42 = W / K-4.2 Test & Drain Valve T56 = W / K-5.6 Test & Drain Valve T80 = W / K-8.0 Test & Drain Valve T112 = W / K-11.2 Test & Drain Valve⁽³⁾ T140 = W / K-14.0 Test & Drain Valve⁽³⁾ T168 = W / K-16.8 Test & Drain Valve^{(2) (3)} T224 = W / K-22.4 Test & Drain Valve^{(2) (3)} T252 = W / K-25.2 Test & Drain Valve^{(2) (3)}</p> <p>⁽¹⁾ Not available for 4", 6" and 8" risers. ⁽²⁾ Not available for 1½" to 3" risers. ⁽³⁾ Not available for 1½" to 2" threaded & 2" grooved risers.</p> <p>For Grooved end Test and Drain valves (See note 3)</p>	<p style="text-align: center;">0 1 2 3</p> <p>0 = Assembly without Pressure Relief Kit Water Detector - UL & FM</p> <p>1 = Assembly with Pressure Relief Kit Water Detector - UL & FM</p> <p>2 = Assembly without Pressure Relief Kit Water Detector - ULC</p> <p>3 = Assembly with Pressure Relief Kit Water Detector - ULC</p>
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Example #1: 1.5NT – B – 1

(1½" (40mm) Model CR Commercial Riser Assembly with NPT female inlet and outlet threads, basic trim with installed Pressure Relief Kit).

Example #2: 3G – T56 – 0

(3"(80mm) Model CR Commercial Riser Assembly with grooved ends, basic trim with Test and Drain Valve having a 5.6 K factor, without a Pressure Relief Kit)

Example #3: 6G – T80 – 0

(6"(150mm) Model CR Commercial Riser Assembly with grooved ends, basic trim with Test and Drain Valve having a 8.0 K factor, without a Pressure Relief Kit)

Notes:

1. All Model CR Commercial Riser Assemblies come with a 300 psi (20,7 bar) UL Listed and FM Approved pressure gauge for 175 psi (12,1 bar) applications. If the Model CR Commercial Riser Assembly is to be installed in a 300 psi (20,7 bar) application, please purchase a 600 psi (41,4 bar) (P/N 98248005) pressure gauge. This gauge may or may not be UL Listed and/or FM Approved at the time of purchase.
2. If required, Pressure Relief Kits may also be installed in the field. Please contact Reliable's Customer Service Department for details.
3. 1¼" and 2" Grooved end Test and Drain valves are available in various orifice size K factor as MTO. Please contact Reliable Service Department for details.

The equipment presented in this bulletin is to be installed in accordance with the latest published 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 90 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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Revision lines indicate updated or new data.