



FIRE SPRINKLER EQUIPMENT SUBMITTAL

FOR

PRO-VAC

**2511 INTER AVE
PUYALLUP, WA**

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SECTION A

Pipe & Fittings

APPROVALS AND SPECIFICATIONS

- ASTM A135, Grade A
- ASTM A795, Type E, Grade A
- Pressure rated to 300 psi
- Underwriters Laboratories—United States of America
- Underwriters Laboratories—Canada
- Factory Mutual
- NFPA-13
- NFPA-13R
- NFPA-14
- CIVIL DEFENSE APPROVAL—United Arab Emirates
- Made in the United States of America
- UL, ULC & FM listed for roll-groove, plain-end and welded joints for wet, dry, preaction and deluge sprinkler systems.
- LEED v4 Certified

FINISHES AND COATINGS

- Schedule 10 & 40 Sprinkler Pipe receives an OD mill coating of water-based paint which has corrosion protection expected with a painted carbon steel product, i.e. it would be expected to resist corrosion for an extended and indefinite period in a clean and dry environment and, as environmental conditions deteriorate, the corrosion protection would also diminish.
- Schedule 10 & 40 Sprinkler Pipe (black) receives an ID mill coating of Eddy Guard II MIC preventative coating. EG2 has been tested at independent laboratories to resist bacterial growth and maintain minimal bacterial count after multiple flushes (25) of the pipe.
- Schedule 10 & 40 Sprinkler Pipe when Hot Dip Galvanized by ASTM A123 and supplied by Bull Moose Tube is UL listed and FM approved.

PRODUCT IDENTIFICATION

- Every length of Bull Moose fire sprinkler pipe features large, easy-to-read, continuous stenciling, clearly identifying the manufacturer, type of pipe, size, and length.

Nominal Pipe Size (inches)		1	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"	8"
Schedule 10	O.D. (in)	1.315	1.660	1.900	2.375	2.875	3.500	4.500	6.625	8.625
	I.D. (in)	1.097	1.442	1.682	2.157	2.635	3.260	4.260	6.357	8.249
	Empty Weight (lb/ft)	1.410	1.810	2.090	2.640	3.530	4.340	5.620	9.290	16.940
	Water Filled Weight (lb/ft)	1.800	2.518	3.053	4.223	5.893	7.957	11.796	23.038	40.086
	C.R.R.*	15.27	9.91	7.76	6.27	4.92	3.54	2.50	1.158	1.805
	Pieces per Lift	91	61	61	37	30	19	19	10	7
Schedule 40	O.D. (in)	1.315	1.660	1.900	2.375	2.875	3.500	4.500		
	I.D. (in)	1.049	1.380	1.610	2.067	2.469	3.068	4.026		
	Empty Weight (lb/ft)	1.680	2.270	2.720	3.660	5.800	7.580	10.800		
	Water Filled Weight (lb/ft)	2.055	2.918	3.602	5.114	7.875	10.783	16.316		
	C.R.R.*	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
	Pieces per Lift	70	51	44	30	30	19	19		

*Calculated using Standard UL CRR formula, UL Fire Protection Directory, Category VIZY



SUBMITTAL INFORMATION

Project

Contractor

Engineer

Specification Reference

Date System Type

Locations

Comments

☐ Schedule 10 - Black
 ☐ Schedule 10 - Hot Dip Galvanized
 ☐ Schedule 40 - Black
 ☐ Schedule 40 - Hot Dip Galvanized

Victaulic® FireLock™ Installation-Ready™ Rigid Couplings

Style 009N and Style 109



Patented



Patented

1.0 PRODUCT DESCRIPTION

Available Sizes

- Style 009N: 1 ¼ – 12"/DN32 – DN300
- Style 109: 1 ¼ – 2 ½"/DN32 – 73.0 mm

Pipe Material

- Schedule 10, Schedule 40 or specialty carbon steel pipe listed in Section 5. For use with alternative materials and wall thicknesses please contact Victaulic.

Maximum Working Pressure

- Up to 365 psi/2517 kPa.

Function

- Joins carbon steel pipe with grooved ends conforming to [publication 25.01](#).
- Provides a rigid pipe joint designed to restrict axial or angular movement.

2.0 CERTIFICATION/LISTINGS



C104-1a/36

EN 10311
Regulation (EU)
No. 305/2011

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

System No.		Location	
Submitted By		Date	

Spec Section		Paragraph	
Approved		Date	



3.0 SPECIFICATIONS – MATERIAL

Housing: Ductile iron conforming to ASTM A 536, Grade 65-45-12. Ductile iron conforming to ASTM A 395, Grade 65-45-15, is available upon special request.

Housing Coating: (specify choice)

- Orange enamel (North America, Asia Pacific)
- Red enamel (Europe)
- Optional for Style 009N: Hot dipped galvanized

Gasket: (specify choice)

Grade “E” EPDM (Type A) Vic-Plus™ Pre-lubricated Gasket

EPDM (Violet Color Code). Applicable for wet and dry (oil-free air) fire protection systems only. Listed/Approved for continuous use in wet and dry systems. Listed/Approved for dry systems at -40°F/-40°C and above. Not compatible for use with hot water services or steam services.

NOTES

- Reference should always be made to [publication I-100](#), Victaulic Field Installation Handbook for gasket lubrication instructions.
- Services listed are General Service Guidelines only. It should be noted that there are services for which these gaskets are not compatible. Reference should always be made to [publication 05.01](#), Victaulic Gasket Selection Guide for specific gasket service guidelines and for a listing of services which are not compatible.

Bolts/Nuts: (specify choice)

Standard: Carbon steel oval neck track bolts meeting the mechanical property requirements of ASTM A449 (imperial) and ISO 898-1 Class 9.8 (M10-M16) Class 8.8 (M20 and greater). Carbon steel hex nuts meeting the mechanical property requirements of ASTM A563 Grade B (imperial) and ASTM A563M Class 9 (metric). Track bolts and hex nuts are zinc electroplated per ASTM B633 Fe/Zn 5, finish Type III (imperial) or Type II (metric).

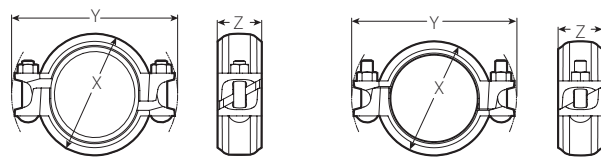
Optional for Style 009N: Stainless steel oval neck track bolts meeting the requirements of ASTM F593, Group 2 (316 stainless steel), condition CW. Stainless steel Heavy Hex nuts meeting the requirements of ASTM F594, Group 2 (316 stainless steel), condition CW, with galling-resistant coating.¹

¹ Optional bolts/nuts are available in imperial size only.

Coupling Linkage: High Strength Steel with comparable physical properties to that of the Track Bolt (ASTM A449). Linkage is zinc electroplated per ASTM B633 Fe/Zn 5, Type III Finish.

4.0 DIMENSIONS

Style 009N Two-Bolt Installation-Ready Coupling



Style 009N Pre-Assembled

Style 009N Joint Assembled

Size		Maximum Working Pressure ²	Maximum End Load ²	Allow. Pipe End Separation ³	Bolt/Nut		Dimensions					Weight
Nominal	Actual Outside Diameter				Qty.	Size	Pre-assembled		Joint Assembled		Z	Approx. (Each)
							X	Y	X	Y		
inches DN	inches mm	psi kPa	lb N	inches mm		inches mm	inches mm	inches mm	inches mm	inches mm	lb kg	
1 ¼ DN32	1.660 42.4	365 2517	790 3514	0.10 2.54	2	⅜ × 2 M10 x 51	3.13 79	5.00 127	2.75 70	5.00 127	2.00 51	1.4 0.6
1 ½ DN40	1.900 48.3	365 2517	1035 4604	0.10 2.54	2	⅜ × 2 M10 x 51	3.38 86	5.13 130	3.00 76	5.13 130	2.00 51	1.5 0.7
2 DN50	2.375 60.3	365 2517	1617 7193	0.12 3.05	2	⅜ × 2 ½ M10 x 63	4.00 102	5.63 143	3.50 89	5.63 143	2.00 51	1.9 0.9
2 ½	2.875 73.0	365 2517	2370 10542	0.12 3.05	2	⅜ × 2 ½ M10 x 63	4.50 114	6.13 156	4.00 102	6.13 156	2.00 51	2.1 1.0
DN65	3.000 76.1	365 2517	2580 11476	0.12 3.05	2	⅜ × 2 ½ M10 x 63	4.63 118	6.00 152	4.13 105	6.13 156	2.00 51	2.1 1.0
3 DN80	3.500 88.9	365 2517	3512 15622	0.12 3.05	2	⅜ × 2 ½ M10 x 63	5.13 130	6.75 171	4.63 117	6.75 171	2.00 51	2.3 1.0
4 DN100	4.500 114.3	365 2517	5805 25822	0.17 4.32	2	⅜ × 2 ½ M10 x 63	6.00 152	7.88 200	5.63 143	7.50 191	2.13 54	2.9 1.3
	4.250 108.0	365 2517	5178 23020	0.17 4.32	2	⅜ × 2 ½ M10 x 63	5.63 152	7.38 187	5.38 137	7.38 187	2.13 54	3.1 1.4
5	5.563 141.3	365 2517	8872 39456	0.17 4.32	2	½ × 3 M12 x 76	7.25 184	9.25 235	6.75 171	9.13 232	2.25 57	5.0 2.3
	5.250 133.0	365 2517	7901 35106	0.17 4.32	2	½ × 3 M12 x 76	6.63 168	9.00 229	6.38 162	9.00 229	2.25 57	4.8 2.2
DN125	5.500 139.7	365 2517	8672 38529	0.17 4.32	2	½ × 3 M12 x 76	6.88 175	9.25 235	6.75 171	9.13 232	2.25 57	4.9 2.2
	6 DN150	6.625 168.3	365 2517	12582 44469	0.17 4.32	2	½ × 3 ¼ M12 x 83	8.38 213	10.38 264	7.88 200	10.13 257	2.25 57
	6.250 159.0	365 2517	11198 49753	0.17 4.32	2	½ × 3 ¼ M12 x 83	7.88 200	10.00 254	7.38 187	9.88 251	2.25 57	5.6 2.5
		6.500 165.1	365 2517	12112 53813	0.17 4.32	2	½ × 3 ¼ M12 x 83	8.00 203	10.25 260	7.75 197	10.13 257	2.25 57
8 DN200	8.625 219.1	365 2517	21326 94863	0.17 4.32	2	⅝ × 4 M16 x 101	10.88 276	13.38 340	10.25 260	13.13 333	2.50 64	11.4 5.2
		8.500 216.0	365 2517	20712 55968	0.17 4.32	2	⅝ × 4 M16 x 101	10.63 270	13.25 337	10.25 260	10.13 257	2.63 67
10 DN250	10.750 273.0	300 2068	27229 121121	0.25 6.4	2	⅞ × 6 ½ M22 x 165	13.75 349	17.00 432	13.25 337	17.13 435	2.75 70	22.6 10.3
	12 DN300	12.750 323.9	300 2068	38303 170380	0.25 6.4	2	⅞ × 6 ½ M22 x 165	16.00 406	19.00 483	15.50 394	19.13 486	2.75 70

² Working Pressure and End Load are total, from all internal and external loads, based on standard weight (ANSI) steel pipe, standard roll or cut grooved in accordance with Victaulic specifications. See the Listings/Approvals section of this publication for ratings on other pipe.

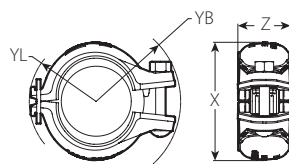
³ The allowable pipe separation dimension shown is for system layout purposes only. Style 009N couplings are considered rigid connections and will not accommodate expansion or contraction of the piping system.

NOTES

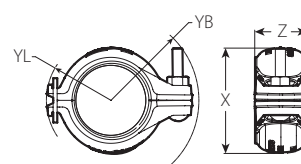
- When assembling Style 009N or Style 109 couplings onto end caps, take additional care to make certain the end cap is fully seated against the gasket end stop. For Style 009N or Style 109 couplings, use FireLock No. 006 end caps containing the "EZ" marking on the inside face or No. 60 end caps containing the "QV EZ" marking on the inside face. Non-Victaulic end cap products shall not be used with Style 009N or Style 109 couplings. IMPORTANT: Gaskets intended for the Style 009 or Style 009V couplings cannot be used with the Style 009N or Style 109 coupling. There is no interchanging of gaskets or housings between coupling styles.
- Use Of FlushSeal Gaskets For Dry Pipe Systems** Style 009N or Style 109 couplings are supplied with Grade "E" Type A gaskets. These gaskets include an integral pipe stop, that once installed provides the similar benefits as a FlushSeal gasket for dry pipe systems. It should be noted that standard Victaulic FlushSeal gaskets cannot be used with the Style 009N or Style 109 couplings.

4.1 DIMENSIONS

Style 109 One-Bolt *Installation-Ready* Coupling



Style 109 Pre-Assembled



Style 109 Joint Assembled

Size		Maximum Working Pressure ⁴	Maximum End Load ⁴	Pipe End Separation Allowable ⁵	Bolt/Nut		Dimensions								Weight
Nominal	Actual Outside Diameter				Qty.	Size	Pre-assembled				Joint Assembled				Approx. (Each)
							YL	YB	X	Z	YL	YB	X	Z	
inches mm	inches mm	psi kPa	lb N	inches mm		inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	lb kg
1 ¼ DN32	1.660 42.4	365 2517	790 3514	0.10 2.54	1	¾ x 2 ¼ M10 x 57	1.88 48	2.50 64	3.13 79	1.88 48	1.88 48	2.63 67	2.75 70	1.88 48	1.4 0.6
1 ½ DN40	1.900 48.3	365 2517	1035 4604	0.10 2.54	1	¾ x 2 ¼ M10 x 57	2.00 51	2.63 67	3.25 83	1.88 48	2.00 51	2.75 70	3.00 76	1.88 48	1.5 0.7
2 DN50	2.375 60.3	365 2517	1616 7193	0.12 3.05	1	¾ x 2 ½ M10 x 63	2.25 57	2.88 73	3.88 98	2.00 51	2.25 57	3.13 79	3.50 89	2.00 51	1.8 0.8
2 ½	2.875 73.0	365 2517	2370 10542	0.12 3.05	1	¾ x 2 ½ M10 x 63	2.50 64	3.13 79	4.38 111	2.00 51	2.50 64	3.38 86	3.88 98	2.00 51	2.1 0.9

⁴ Working Pressure and End Load are total, from all internal and external loads, based on standard weight (ANSI) steel pipe, standard roll or cut grooved in accordance with Victaulic specifications. See the Listings/Approvals section of this publication for ratings on other pipe.

⁵ The allowable pipe separation dimension shown is for system layout purposes only. Style 109 couplings are considered rigid connections and will not accommodate expansion or contraction of the piping system.

NOTES

- When assembling Style 009N or Style 109 couplings onto end caps, take additional care to make certain the end cap is fully seated against the gasket end stop. For Style 009N or Style 109 couplings, use FireLock No. 006 end caps containing the "EZ" marking on the inside face or No. 60 end caps containing the "QV EZ" marking on the inside face. Non-Victaulic end cap products shall not be used with Style 009N or Style 109 couplings. IMPORTANT: Gaskets intended for the Style 009 or Style 009V couplings cannot be used with the Style 009N or Style 109 coupling. There is no interchanging of gaskets or housings between coupling styles.
- Use Of FlushSeal Gaskets For Dry Pipe Systems** Style 009N or Style 109 couplings are supplied with Grade "E" Type A gaskets. These gaskets include an integral pipe stop, that once installed provides the similar benefits as a FlushSeal gasket for dry pipe systems. It should be noted that standard Victaulic FlushSeal gaskets and cannot be used with the Style 009N or Style 109 couplings.

5.0 PERFORMANCE

Style 009N Two-Bolt *Installation-Ready Coupling Listings/Approvals*⁶

The information provided below is based on the latest listing and approval data at the time of publication. Listings/Approvals are subject to change and/or additions by the approval agencies. Contact Victaulic for performance on other pipe and the latest listings and approvals.

Size		cULus ¹¹		FM ¹¹		VdS	LPCB
Nominal inches DN	Actual Outside Diameter inches mm	Sch. 10 psi kPa bar	Sch. 40 psi kPa bar	Sch. 10 psi kPa bar	Sch. 40 psi kPa bar	psi kPa bar	psi kPa bar
1 ¼ DN32	1.660 42.4	365 2517 25	365 2517 25	363 2503 25	363 2503 25	363 2500 25	363 2500 25
1 ½ DN40	1.900 48.3	365 2517 25	365 2517 25	363 2503 25	363 2503 25	363 2500 25	363 2500 25
2 DN50	2.375 60.3	365 2517 25	365 2517 25	363 2503 25	363 2500 25	363 2500 25	363 2500 25
2 ½	2.875 73.0	365 2517 25	365 2517 25	363 2503 25	363 2500 25	363 2500 25	363 2500 25
DN65	3.000 76.1	365 ⁷ 2517 ⁷ 25 ⁷	N/A	363 ⁸ 2503 ⁸ 25 ⁸	N/A	363 2500 25	363 2500 25
3 DN80	3.500 88.9	365 2517 25	365 2517 25	363 2503 25	363 2503 25	363 2500 25	363 2500 25
4 DN100	4.500 114.3	365 2517 25	365 2517 25	363 2503 25	363 2503 25	363 2500 25	363 2500 25
	4.250 108.0	N/A	N/A	363 2503 25	363 2503 25	N/A	N/A
5	5.563 141.3	290 2000 20	365 2517 25	363 2503 25	363 2503 25	232 1600 16	363 2500 25
	5.250 133.0	N/A	N/A	363 ⁸ 2503 ⁸ 25	N/A	N/A	N/A
DN125	5.500 139.7	290 ⁹ 2000 ⁹ 20 ⁹	N/A	363 ⁸ 2503 ⁸ 25 ⁸	N/A	232 1600 25	363 2500 25
6 DN150	6.625 168.3	300 2068 20	365 2517 25	363 2503 25 ⁷	363 2503 25	232 1600 16	363 2500 25
	6.250 159.0	N/A	N/A	363 ⁸ 2503 ⁸ 25	N/A	N/A	N/A
	6.500 165.1	290 ¹⁰ 2000 ¹⁰ 20	N/A	363 ⁸ 2503 ⁸ 25 ⁸	N/A	N/A	363 2500 25

⁶ Listed/Approved for continuous use in wet and dry systems. Listed/Approved for dry systems -40° F/C and above. Please see the Victaulic [Installation Manual I-009N](#) for details concerning when supplemental lubrication is required.

⁷ cULus listed for DIN 2458 (EN 10220) 2.6 mm pipe wall.

⁸ FM approved for BS 1387 (EN 10255) Medium 3.6 mm pipe wall.

⁹ cULus listed for EN 10220 4.0 mm pipe wall.

¹⁰ cULus listed for EN 10255 4.5 mm pipe wall.

¹¹ With optional stainless steel fasteners, cULus Listed to 175psi/1207 kPa/12 bar and FM Approved to the FM ratings shown in the above table. The stainless steel fasteners have a marking designation of "316" on the end face of the bolt.

¹² cUL listed to 250 psi/1720 kPa /17 bar.

5.0 PERFORMANCE (CONTINUED)

Style 009N Two-Bolt *Installation-Ready Coupling Listings/Approvals*⁶

The information provided below is based on the latest listing and approval data at the time of publication. Listings/Approvals are subject to change and/or additions by the approval agencies. Contact Victaulic for performance on other pipe and the latest listings and approvals.

Size		cULus ¹¹		FM ¹¹		VdS	LPCB
Nominal inches DN	Actual Outside Diameter inches mm	Sch. 10 psi kPa bar	Sch. 40 psi kPa bar	Sch. 10 psi kPa bar	Sch. 40 psi kPa bar	psi kPa bar	psi kPa bar
8 DN200	8.625 219.1	300 2068 20	365 2517 25	363 2503 25	363 2503 25	232 1600 16	363 2500 25
	8.500 216.0	290 2000 20	N/A	363 ⁸ 2503 ⁸ 25 ⁷	N/A	N/A	N/A
10 DN250	10.750 273.0	300 2068 20	300 2068 20	300 2068 20	300 2068 20	N/A	N/A
12 DN300	12.750 323.9	300 ¹² 2068 ¹² 20 ¹²	300 2068 25	250 1720 17	300 2068 20	N/A	N/A

⁶ Listed/Approved for continuous use in wet and dry systems. Listed/Approved for dry systems -40° F/C and above. Please see the Victaulic [Installation Manual I-009N](#) for details concerning when supplemental lubrication is required.

⁷ cULus listed for DIN 2458 (EN 10220) 2.6 mm pipe wall.

⁸ FM approved for BS 1387 (EN 10255) Medium 3.6 mm pipe wall.

⁹ cULus listed for EN 10220 4.0 mm pipe wall.

¹⁰ cULus listed for EN 10255 4.5 mm pipe wall.

¹¹ With optional stainless steel fasteners, cULus Listed to 175psi/1207 kPa/12 bar and FM Approved to the FM ratings shown in the above table. The stainless steel fasteners have a marking designation of "316" on the end face of the bolt.

¹² cUL listed to 250 psi/1720 kPa /17 bar.

5.1 PERFORMANCE

Style 109 One-Bolt *Installation-Ready Coupling Listings/Approvals*¹³

The information provided below is based on the latest listing and approval data at the time of publication. Listings/Approvals are subject to change and/or additions by the approvals agencies. Contact Victaulic for performance on other pipe and the latest listings and approvals.

Size		cULus		FM	
Nominal inches DN	Actual Outside Diameter inches mm	Sch. 10 psi kPa bar	Sch. 40 psi kPa bar	Sch. 10 psi kPa bar	Sch. 40 psi kPa bar
1 ¼ DN32	1.660 42.4	365 2517 25	365 2517 25	365 2517 25	365 2517 25
1 ½ DN40	1.900 48.3	365 2517 25	365 2517 25	365 2517 25	365 2517 25
2 DN50	2.375 60.3	365 2517 25	365 2517 25	365 2517 25	365 2517 25
2 ½	2.875 73.0	365 2517 25	365 2517 25	365 2517 25	365 2517 25

¹³ Listed/Approved for continuous use in wet and dry systems. Listed/Approved for dry systems -40° F/C and above. Please see the Victaulic [Installation Manual I-109](#) for details concerning when supplemental lubrication is required.

5.2 PERFORMANCE

Specialty Pipe

Style 009N Two-Bolt *Installation-Ready* Coupling Listings/Approvals

Pipe Type	Size	Pressure Rating	
	inches DN	cULus psi kPa bar	FM psi kPa bar
EF	1 ¼ – 4 DN32 – DN100	300 2068 20	N/A
EL	1 ¼ – 2 DN32 – DN50	300 2068 20	300 2068 20
ET40	1 ¼ – 2 DN32 – DN50	300 2068 20	N/A
EZF	3 – 4 DN80 – DN100	300 2068 20	N/A
EZT	1 ¼ – 2 DN32 – DN50	300 2068 20	300 2068 20
FF	1 ½ – 4 DN40 – DN100	300 2068 20	N/A
GL	1 ¼ – 2 DN32 – DN50	300 2068 20	300 2068 20
MF	1 ¼ – 4 DN32 – DN100	300 2068 20	300 2068 20
	6 DN150	175 1205 12	175 1205 12
MT	1 ¼ – 2 DN32 – DN50	300 2068 20	300 2068 20
MLT	1 ¼ – 2 DN32 – DN50	N/A	300 2068 20
TF	2 ½ – 4 73.0 mm – DN100	N/A	300 2068 20
WG5, WG5E, WF5, WG7, WG7E, WL7	1 ¼ – 4 DN32 – DN100	175 1205 12	300 2068 20
WLS	1 ¼ – 2 DN32 – DN50	300 2068 20	300 2068 20

NOTES

- EF = EDDY FLOW steel pipe manufactured by Bull Moose Tube Co.
- EL = EDDYLITE steel pipe manufactured by Bull Moose Tube Co.
- ET40 = Eddythread 40 steel pipe manufactured by Bull Moose Tube Co.
- EZF = EZ-Flow steel pipe manufactured by Northwest Pipe Co.
- EZT = EZ-Thread steel pipe manufactured by Youngstown Tube Co.
- FF = Fire-Flo steel pipe manufactured by Youngstown Tube Co.
- GL = GL steel pipe manufactured by Wheatland Tube Co.
- MF = Mega-Flow steel pipe manufactured by Wheatland Tube Co.
- MT = Mega-Thread steel pipe manufactured by Wheatland Tube Co.
- MLT = MLT steel pipe manufactured by Wheatland Tube Co.
- TF = Tex-Flow steel pipe manufactured by Tex-Tube Co.
- WG5, WG5E, WF5 = WGalweld 5, WGalweld 5E, WFlow 5 steel pipe manufactured by Wuppermann Stahl GmbH.
- WG7, WG7E, WL7 = WGalweld 7, Wgalweld 7E, WLight 7 steel pipe manufactured by Wuppermann Stahl GmbH
- WLS = WLS steel pipe manufactured by Wheatland Tube Co.

5.3 PERFORMANCE

Specialty Pipe

Style 109 One-Bolt *Installation-Ready* Coupling Listings/Approvals

Pipe Type	Size	Pressure Rating	
	inches	cULus psi kPa bar	FM psi kPa bar
	DN		
EF	1 ¼ – 2 ½ DN32 – 73.0 mm	N/A	300 2068 20
	1 ½ – 2 ½ DN40 – 73.0 mm	300 2068 20	N/A
Easy-Flow	1 ¼ – 2 DN32 – DN50	N/A	300 2068 20
EL	1 ¼ – 2 DN32 – DN50	N/A	300 2068 20
ET40	1 ¼ – 2 DN32 – DN50	300 2068 20	300 2068 20
EZT	1 ¼ – 2 DN32 – DN50	N/A	300 2068 20
	1 ½ – 2 DN40 – DN50	300 2068 20	N/A
FF	1 ½ – 2 ½ DN40 – 73.0 mm	300 2068 20	300 2068 20
GL	1 ¼ – 2 DN32 – DN50	N/A	300 2068
MF	1 ¼ – 2 ½ DN32 – 73.0 mm	300 2068 20	300 2068 20
MT	1 ¼ – 2 DN32 – DN50	300 2068 20	300 2068 20
MLT	1 ¼ – 2 DN32 – DN50	300 2068 20	300 2068 20
TF	2 ½ 73.0 mm	N/A	300 2068 20
WG7, WG7E	1 ¼ – 2 DN32 – DN50	N/A	300 2068 20
WLS	1 ¼ – 2 DN32 – DN50	N/A	300 2068 20

NOTES

- EF = EDDY FLOW steel pipe manufactured by Bull Moose Tube Co.
- Easy-Flow = Easy-Flow steel pipe manufactured by Borusan Mannesmann Boru.
- EL = EDDYLITE steel pipe manufactured by Bull Moose Tube Co.
- ET40 = Eddythread 40 steel pipe manufactured by Bull Moose Tube Co.
- EZT = EZ-Thread steel pipe manufactured by Youngstown Tube Co.
- FF = Fire-Flo steel pipe manufactured by Youngstown Tube Co.
- GL = GL steel pipe manufactured by Wheatland Tube Co.
- MF = Mega-Flow steel pipe manufactured by Wheatland Tube Co.
- MT = Mega-Thread steel pipe manufactured by Wheatland Tube Co.
- MLT = MLT steel pipe manufactured by Wheatland Tube Co.
- TF = Tex-Flow steel pipe manufactured by Tex-Tube Co.
- WG7, WG7E = WGalweld 7 and WGalweld 7E steel pipe manufactured by Wuppermann Stahl GmbH.
- WLS = WLS steel pipe manufactured by Wheatland Tube Co.

6.0 NOTIFICATIONS

WARNING



- Read and understand all instructions before attempting to install any Victaulic products.
- Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.
- Wear safety glasses, hardhat, and foot protection.

Failure to follow these instructions could result in death or serious personal injury and property damage.

- These products shall be used only in fire protection systems that are designed and installed in accordance with current, applicable National Fire Protection Association (NFPA 13, 13D, 13R, etc.) standards, or equivalent standards, and in accordance with applicable building and fire codes. These standards and codes contain important information regarding protection of systems from freezing temperatures, corrosion, mechanical damage, etc.
- The installer shall understand the use of this product and why it was specified for the particular application.
- The installer shall understand common industry safety standards and potential consequences of improper product installation.
- It is the system designer's responsibility to verify suitability of materials for use with the intended fluid media within the piping system and external environment.
- The material specifier shall evaluate the effect of chemical composition, pH level, operating temperature, chloride level, oxygen level, and flow rate on materials to confirm system life will be acceptable for the intended service.

Failure to follow installation requirements and local and national codes and standards could compromise system integrity or cause system failure, resulting in death or serious personal injury and property damage.

7.0 REFERENCE MATERIALS

[05.01: Seal Selection Guide](#)

[25.01: Original Groove System \(OGS\) Groove Specifications](#)

[I-009N: Installation Instructions FireLock EZ™ Rigid Coupling Style 009N](#)

[I-100: Victaulic Field Installation Handbook](#)

[I-109: Installation Instructions FireLock™ One-Bolt Rigid Coupling Style 109](#)

[I-ENDCAP: Victaulic End Caps Installation Instructions](#)

User Responsibility for Product Selection and Suitability

Each user bears final responsibility for making a determination as to the suitability of Victaulic products for a particular end-use application, in accordance with industry standards and project specifications, and the applicable building codes and related regulations as well as Victaulic performance, maintenance, safety, and warning instructions. Nothing in this or any other document, nor any verbal recommendation, advice, or opinion from any Victaulic employee, shall be deemed to alter, vary, supersede, or waive any provision of Victaulic Company's standard conditions of sale, installation guide, or this disclaimer.

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Note

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Installation

Reference should always be made to the Victaulic installation handbook or installation instructions of the product you are installing. Handbooks are included with each shipment of Victaulic products, providing complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

Warranty

Refer to the Warranty section of the current Price List or contact Victaulic for details.

Trademarks

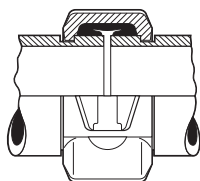
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Victaulic® Flexible Coupling

Style 75



1 – 8"/DN25 – DN200



Exaggerated for clarity

1.0 PRODUCT DESCRIPTION

Available Sizes

- 1 – 8"/DN25 – DN200

Pipe Material

- Carbon steel
- Stainless steel

Maximum Working Pressure

- Accommodates pressures ranging from full vacuum (29.9 in Hg/760 mm Hg) up to 500 psi/3447 kPa/34 bar
- Working pressure dependent on material, wall thickness and size of pipe

Application

- Joins standard roll grooved and cut grooved pipe, as well as grooved fittings, valves and accessories
- Provides a flexible pipe joint which allows for expansion, contraction and deflection
- Up to 50% lighter in weight than standard Victaulic Style 77 or Style 177N flexible couplings

2.0 CERTIFICATION/LISTINGS



NOTES

- Download [publication 10.01](#) for Fire Protection Certifications/Listings Reference Guide.
- See [publication 02.06](#): Victaulic Potable Water Approvals ANSI/NSF for potable water approvals if applicable.

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

System No.		Location	
Submitted By		Date	

Spec Section		Paragraph	
Approved		Date	

3.0 SPECIFICATIONS – MATERIAL

Housing: Ductile iron conforming to ASTM A536, Grade 65-45-12. Ductile iron conforming to ASTM A395, Grade 65-45-15, is available upon special request.

Housing Coating: (specify choice)

Standard: Orange enamel

Optional: Hot dipped galvanized

Optional: Contact Victaulic with your requirements for other coatings.

Gasket: (specify choice¹)

Grade “E” EPDM

EPDM (Green stripe color code). Temperature range –30°F to +230°F/–34°C to +110°C. May be specified for hot water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. UL Classified in accordance with ANSI/NSF 61 for cold +73°F/+23°C and hot +180°F/+82°C potable water service and ANSI/NSF 372. **NOT COMPATIBLE FOR USE WITH PETROLEUM SERVICES OR STEAM SERVICES.**

Grade “T” Nitrile

Nitrile (Orange stripe color code). Temperature range –20°F to +180°F/–29°C to +82°C. May be specified for petroleum products, air with oil vapors, vegetable and mineral oils within the specified temperature range; not compatible for hot dry air over +140°F/+60°C and water over +150°F/+66°C. **NOT COMPATIBLE FOR USE WITH HOT WATER.**

Others

For alternate gasket selection, reference [publication 05.01](#): Victaulic Seal Selection Guide - Elastomeric Seal Construction.

¹ Services listed are General Service Guidelines only. It should be noted that there are services for which these gaskets are not compatible. Reference should always be made to the latest [Victaulic Seal Selection Guide](#) for specific gasket service guidelines and for a listing of services which are not compatible.

Bolts/Nuts: (specify choice²)

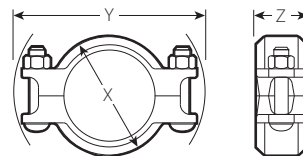
Standard: Carbon steel oval neck track bolts meeting the mechanical property requirements of ASTM A449 (imperial) and ISO 898-1 Class 9.8 (metric). Carbon steel hex nuts meeting the mechanical property requirements of ASTM A563 Grade B (imperial - heavy hex nuts) and ASTM A563M Class 9 (metric - hex nuts). Track bolts and hex nuts are zinc electroplated per ASTM B633 ZN/FE5, finish Type III (imperial) or Type II (metric).

Optional (imperial): Stainless steel oval neck track bolts meeting the mechanical property requirements of ASTM F593, Group 2 (316 stainless steel), condition CW. Stainless steel heavy nuts meeting the mechanical property requirements of ASTM F594, Group 2 (316 stainless steel), condition CW, with galling reducing coating.

² Optional bolts/nuts are available in imperial sizes only.

4.0 DIMENSIONS

Style 75



Size		Pipe End Separation ³	Deflection from Centerline ³		Bolt/Nut		Dimensions			Weight
Nominal inches DN	Actual Outside Diameter inches mm	Allowable inches mm	Per Cplg. Degrees	Pipe inches/ft. mm/m	Qty.	Size imperial metric	X inches mm	Y inches mm	Z inches mm	Approx. (Each) lb kg
1 DN25	1.315 33.7	0-0.06 0-1.6	2°-43'	0.57 48	2	3/8 x 2 M10 x 51	2.38 61	4.27 108	1.77 45	1.3 0.6
1 1/4 DN32	1.660 42.4	0-0.06 0-1.6	2°-10'	0.45 38	2	3/8 x 2 M10 x 51	2.68 68	4.61 117	1.77 45	1.4 0.6
1 1/2 DN40	1.900 48.3	0-0.06 0-1.6	1°-56'	0.40 33	2	3/8 x 2 M10 x 51	2.91 74	4.82 122	1.77 45	1.5 0.6
2 DN50	2.375 60.3	0-0.06 0-1.6	1°-31'	0.32 26	2	3/8 x 2 M10 x 51	3.43 87	5.22 133	1.88 48	1.7 0.8
2 1/2	2.875 73.0	0-0.06 0-1.6	1°-15'	0.26 22	2	3/8 x 2 M10 x 51	3.88 98	5.68 144	1.88 48	1.9 0.9
DN65	3.000 76.1	0-0.06 0-1.6	1°-12'	0.26 22	2	3/8 x 2 M10 x 51	4.00 102	5.90 150	1.88 48	1.9 0.9
3 DN80	3.500 88.9	0-0.06 0-1.6	1°-2'	0.22 18	2	1/2 x 2 3/4 M12 x 70	4.50 114	7.00 178	1.88 48	2.9 1.3
3 1/2 DN90	4.000 101.6	0-0.06 0-1.6	0°-54'	0.19 16	2	1/2 x 2 3/4 M12 x 70	5.00 127	7.50 191	1.88 48	2.9 1.3
4 DN100	4.500 114.3	0-0.13 0-3.2	1°-36'	0.34 28	2	1/2 x 2 3/4 M12 x 70	5.80 147	8.03 204	2.13 54	4.1 1.9
	4.250 108.0	0-0.13 0-3.2	1°-41'	0.35 29	2	1/2 x 2 3/4 M12 x 70	5.55 141	7.79 198	2.13 54	3.7 1.7
	5.000 127.0	0-0.13 0-3.2	1°-26'	0.25 21	2	5/8 x 3 1/4 M16 x 83	6.13 156	9.43 240	2.13 54	5.5 2.5
5	5.563 141.3	0-0.13 0-3.2	1°-18'	0.27 23	2	5/8 x 3 1/4 M16 x 83	6.88 175	10.07 256	2.13 54	5.8 2.6
	5.250 133.0	0-0.13 0-3.2	1°-21'	0.28 24	2	5/8 x 3 1/4 M16 x 83	6.55 166	9.37 238	2.13 54	6.0 2.7
DN125	5.500 139.7	0-0.13 0-3.2	1°-18'	0.28 24	2	5/8 x 3 1/4 M16 x 83	6.80 173	9.59 244	2.13 54	6.3 2.9
	6.000 152.4	0-0.13 0-3.2	1°-12'	0.21 18	2	5/8 x 3 1/4 M16 x 83	7.38 187	10.48 266	1.88 48	6.2 2.8
6 DN150	6.625 168.3	0-0.13 0-3.2	1°-5'	0.23 18	2	5/8 x 3 1/4 M16 x 83	8.00 203	11.07 281	2.13 54	7.0 3.2
	6.250 159.0	0-0.13 0-3.2	1°-9'	0.24 20	2	5/8 x 3 1/4 M16 x 83	7.63 194	10.49 266	2.13 54	6.8 3.1
	6.500 165.1	0-0.13 0-3.2	1°-7'	0.23 58	2	5/8 x 3 1/4 M16 x 83	7.84 199	10.66 271	2.08 53	6.6 3.0
	8.515 216.3	0-0.13 0-3.2	0°-51'	0.18 46	2	3/4 x 4 1/4 M20 x 108	10.19 259	13.75 350	2.32 59	13.2 6.0
8 DN200	8.625 219.1	0-0.13 0-3.2	0°-50'	0.18 14	2	3/4 x 4 1/4 M20 x 108	10.34 263	13.97 355	2.13 59	12.4 5.6

³ Allowable Pipe End Separation and Deflection figures show the maximum nominal range of movement available at each joint for standard **roll** grooved pipe. Figures for standard **cut** grooved pipe may be doubled. These figures are maximums; for design and installation purposes these figures should be reduced by: 50% for 3/4 - 3 1/2"/DN20 - DN90; 25% for 4"/DN100 and larger.

NOTE

- Metric thread size bolts are available (color coded gold) for all coupling sizes upon request. Contact Victaulic for details.

5.0 PERFORMANCE

Style 75

Size		Maximum Working Pressure ⁴	Maximum End Load ⁴
Nominal inches DN	Actual Outside Diameter inches mm		
1 DN25	1.315 33.7	500 3447	680 3,025
1 ¼ DN32	1.660 42.4	500 3447	1080 4,805
1 ½ DN40	1.900 48.3	500 3447	1420 6,320
2 DN50	2.375 60.3	500 3447	2215 9,860
2 ½	2.875 73.0	500 3447	3245 14,440
DN65	3.000 76.1	500 3447	3535 15,730
3 DN80	3.500 88.9	500 3447	4800 21,360
3 ½ DN90	4.000 101.6	500 3447	6300 28,035
4 DN100	4.500 114.3	500 3447	7950 35,380
	4.250 108.0	450 3103	6380 28,395
	5.000 127.0	450 3103	8820 39,250
5	5.563 141.3	450 3103	10935 48,660
	5.250 133.0	450 3103	9735 43,325
DN125	5.500 139.7	450 3103	10665 47,460
	6.000 152.4	450 3103	12735 56,670
6 DN150	6.625 168.3	450 3103	15525 69,085
	6.250 159.0	450 3103	13800 61,405
	6.500 165.1	450 3103	14930 66,412
	8.515 216.3	450 3103	25625 113,986
8 DN200	8.625 219.1	450 3103	26280 116,945

⁴ Working Pressure and End Load are total, from all internal and external loads, based on ANSI B36.10 sized carbon steel pipe, grooved in accordance with Victaulic specifications. Contact Victaulic for performance on other pipe.

NOTE

- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1½ times the figures shown.

6.0 NOTIFICATIONS

WARNING

- Victaulic RX roll sets must be used when grooving light-wall/thin-wall stainless steel pipe for use with Victaulic Couplings.

Failure to use Victaulic RX roll sets when grooving light-wall/thin-wall stainless steel pipe may cause joint failure, resulting in serious personal injury and/or property damage.

NOTICE

- Victaulic RX grooving rolls must be ordered separately. They are identified by a silver color and the designation RX on the front of the roll sets.

7.0 REFERENCE MATERIALS

[02.06: Victaulic® Potable Water Approvals ANSI/NSF](#)

[05.01: Victaulic® Seal Selection Guide - Elastomeric Seal Construction](#)

[06.15: Victaulic® Pressure Ratings and End Loads for Victaulic Couplings on Steel Pipe](#)

[10.01: Victaulic® Products for Fire Protection Pipings Systems - Regulatory Approval Reference Guide](#)

[17.01: Victaulic® Pipe Preparation for Use on Stainless Steel Pipe With Victaulic Products](#)

[17.09: Victaulic® Ductile Iron Grooved Couplings Performance Data for Stainless Steel Pipe](#)

[25.01: Victaulic® Standard Groove Specifications](#)

[26.01: Victaulic® Design Data](#)

[29.01: Victaulic® Terms and Conditions of Sale](#)

[I-100: Victaulic® Field Installation Handbook](#)

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Warranty

Refer to the Warranty section of the current Price List or contact Victaulic for details.

Trademarks

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Victaulic FireLock™ Innovative Groove System | IGS™ for 1"/DN25 Sprinkler Pipe



No. 142
Welded Outlet



Style 922
Outlet-T



Style 920N
Mechanical-T Outlet



No. 101
Installation-Ready™
90° Elbow



No. 102
Installation-Ready™
Tee



Style 108
Installation-Ready™
Rigid Coupling



Style 115
OGS x IGS
Reducing Coupling



No. 65 OGS x IGS
Grooved End of
Run Fitting



No. 111 IGS
Grooved End Elbow



No. 113
OGS x IGS x IGS
Reduce on the Run
and Outlet Tee



No. 114
IGS x IGS x IGS
Grooved Tee



No. 117
IGS 45° Elbow



No. 143
Close Nipple



No. 144
OGS x IGS Grooved
Concentric
Reducer



No. 145 Female
NPT or BSPT
Threaded x Groove
90° Elbow



No. 147
Back-To-Back
sprinkler tee



No. 148 Sprinkler
Reducer, NPT or
BSPT sprinkler outlet



No. 140
Male NPT or BSPT
Threaded x Groove
Adapter



No. 141
Female NPT or
BSPT Threaded x
Groove Adapter



No. 116 CPVC
Female Socket x
Brass IGS Groove
Adapter
(Refer to
[publication 10.85](#)
and [10.95](#))



No. 146 Cap



WB-1
IGS Weld
Plunger Cone



NAP-1
IGS Weld
Plunger Cone



RG2100 Roll Grooving
Tool



RG1 Manual Roll
Grooving Tool (Refer to
[publication 24.01](#))



VicFlex™ Series
AH2-CC Braided
Flexible Hose
with Captured
Coupling (Refer to
[publication 10.85](#))



VicFlex™ Series
AH1-CC Braided
Flexible Hose
with Captured
Coupling (Refer to
[publication 10.95](#))

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

1.0 PRODUCT DESCRIPTION

Pipe Material

- Carbon steel, Sch. 40, Sch. 10, light-wall/specialty pipe. For use with alternative materials please contact Victaulic.
- Stainless Steel
- For exceptions reference section 6.0 Notifications

Maximum Working Pressure

- Up to 365 psi/2517 kPa/25 bar

Pipe Preparation

- Cut (Sch. 40) or roll (Sch. 40, Sch. 10, light-wall) grooved in accordance with publication 25.14: Victaulic *IGS* Groove Specifications

RG2100 Grooving Capability

- 1"/DN25
- Workstation designed to cut, ream and form a roll groove on carbon steel, Sch 40, Sch 10, and light-wall pipe
- This tool has a minimum pipe length requirement of 4 ½"/114 mm

2.0 CERTIFICATION/LISTINGS



LPS 1219: Issue 3.1



Cert/LPCB Ref. 104-1a/39, 104-1a/41, 104-1a/42, 104-1b/03, 104-1b/04, 104-1b/05, 104-1b/06, 104-1b/07, 104-1b/08, 104-1b/09, 104-1b/10, 104-1b/11

NOTES

- Approvals listed above do not apply to the RG2100 Roll Grooving Tool.

3.0 SPECIFICATIONS – MATERIAL

Housing: Ductile iron conforming to ASTM A536, Grade 65-45-12

Housing Coating:

- Orange enamel
- Red enamel (Europe)
- Optional: Hot dipped galvanized

Gasket:

Grade “E” EPDM (Type A) Vic-Plus™ Pre-lubricated Gasket

EPDM (Violet Color Code). Applicable for wet and dry (oil-free air) fire protection systems only. Listed/Approved for continuous use in wet and dry systems. Listed/Approved for dry systems at -40°F/-40°C and above. NOT COMPATIBLE FOR USE WITH HOT WATER SERVICES OR STEAM SERVICES.

NOTES:

- Reference should always be made to [publication I-100](#), Victaulic Field Installation Handbook for gasket lubrication instructions.
- Services listed are General Service Guidelines only. It should be noted that there are services for which these gaskets are not compatible. Reference should always be made to [publication 05.01](#), Victaulic Gasket Selection Guide for specific gasket service guidelines and for a listing of services which are not compatible.

Bolts/Nuts:

Carbon steel oval neck track bolts meeting the mechanical property requirements of ASTM A449 (imperial) and ISO 898-1 Class 9.8 (M10-M16) Class 8.8 (M20 and greater). Carbon steel hex nuts meeting the mechanical property requirements of ASTM A563 Grade B (imperial - heavy hex nuts) and ASTM A563M Class 9 (metric - hex nuts). Track bolts and hex nuts are zinc electroplated per ASTM B633 Fe/Zn 5, finish Type III (imperial) or Type II (metric).

3.0 SPECIFICATIONS – MATERIAL (CONTINUED)

Coupling Linkage: High Strength Steel with comparable physical properties to that of the Track Bolt (ASTM A449).
Linkage is zinc electroplated per ASTM B633 Fe/Zn 5, Type III Finish

No. 140, 141, 142, 143, 144, 148: Carbon steel meeting the chemical and mechanical property requirements of ASTM A53 Grade A, Type E or S

No. 65, 111, 113, 114, 117, 145, 146, 147: Ductile iron conforming to ASTM A536, Grade 65-45-12

No. WB-1: Steel Alloy

No. NAP-1: Aluminum Alloy

RG2100 Roll Grooving Tool:

Required Power Supply: Power Drive with Foot Switch (½ HP, Universal reversible motor, single-phase, 25-60 HZ)

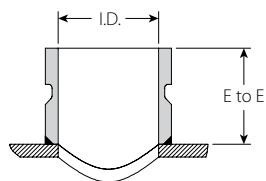
Accessories/Components:

Tool head assembly

Carriage assembly - accepts RG2100 tool head assembly, Standard Cutter, Standard Reamer and Standard Lever

4.0 DIMENSIONS

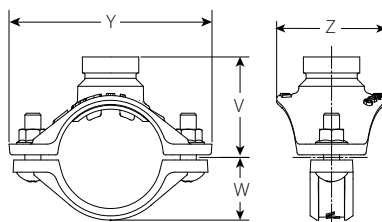
No. 142 Welded Outlet



Nominal	Actual Outside Diameter	Inside Diameter		Weight
inches DN	inches mm	I.D. inches mm	E to E inches mm	Approximate (Each) lb kg
Run x Branch	Run x Branch			
1 ¼ – 1 ½ DN32 – DN40	1.660 – 1.900 42.4 – 48.3	1.049 26.6	1.00 25.4	0.2 0.1
1 ½ – 2 DN40 – DN50	1.900 – 2.375 48.3 – 60.3	1.049 26.6	1.00 25.4	0.2 0.1
2 – 2 ½ DN50 – DN65	2.375 – 3.000 60.3 – 76.1	1.049 26.6	1.00 25.4	0.2 0.1
2 ½ – 3 DN65 – DN80	2.875 – 3.500 73.0 – 88.9	1.049 26.6	1.00 25.4	0.2 0.1
3 – 4 DN80 – DN100	3.500 – 4.500 88.9 – 114.3	1.049 26.6	1.00 25.4	0.2 0.1

4.1 DIMENSIONS

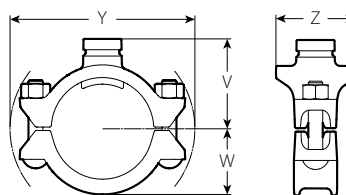
Style 922 Outlet-T



Size	Bolt/Nut	Dimensions								Weight
Nominal inches DN	Actual Outside Diameter inches mm		Size inches mm	Minimum Hole Diameter/Hole Saw Size inches mm	Maximum Hole Diameter/ Hole Saw Size inches mm	Y inches mm	V inches mm	W inches mm	Z inches mm	Approximate (Each) lb kg
Run x Branch	Run x Branch	Qty.								
1 ¼ DN32	1.660 42.4	2	¾ x 1 ¾	1 ¾ 30.0	1 ¼ 32.0	4.13 105.0	1.98 50.3	1.10 27.9	2.70 68.6	1.1 0.5
1 ½ DN40	1.900 48.3	2	¾ x 1 ¾	1 ¾ 30.0	1 ¼ 32.0	4.25 108.0	2.11 53.6	1.22 31.0	2.70 68.7	1.2 0.5
2 DN50	2.375 60.3	2	¾ x 1 ¾	1 ¾ 30.0	1 ¼ 32.0	4.75 120.6	2.34 59.4	1.46 37.1	2.56 65.1	1.2 0.5
2 ½ DN65	2.875 73.0	2	¾ x 1 ¾	1 ¾ 30.0	1 ¼ 32.0	5.50 139.7	2.67 67.8	1.71 43.4	2.56 65.1	1.6 0.7
	3.000 76.1	2	¾ x 1 ¾	1 ¾ 30.0	1 ¼ 32.0	5.52 140.3	2.75 69.8	1.71 43.4	2.56 65.1	1.7 0.8

4.2 DIMENSIONS

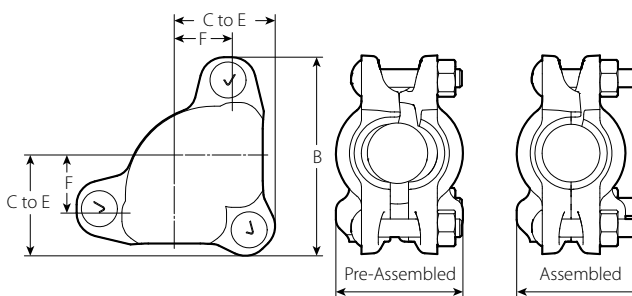
Style 920N Mechanical-T Outlet



Size				Bolt/Nut		Dimensions						Weight
Nominal inches DN		Actual Outside Diameter inches mm				Minimum Hole Diameter/Hole Saw Size inches mm	Maximium Hole Diameter/ Hole Saw Size inches mm	Y inches mm	V inches mm	W inches mm	Z inches mm	Approximate (Each) lb kg
Run x Branch		Run x Branch		Qty.	Size inches mm							
3 DN80	1 DN25	3.500 88.9	1.315 33.7	2	½ x 2 ¾	1 ½ 38.1	1 ⅝ 41.0	6.42 163.0	3.12 79.2	2.28 57.9	2.75 69.9	2.7 1.2
4 DN100		4.500 114.3		2	½ x 2 ¾	1 ½ 38.1	1 ⅝ 41.0	186.6 7.35	3.62 91.9	2.69 68.3	2.75 69.10	3.0 1.4

4.3 DIMENSIONS

No. 101 Installation-Ready 90° Elbow



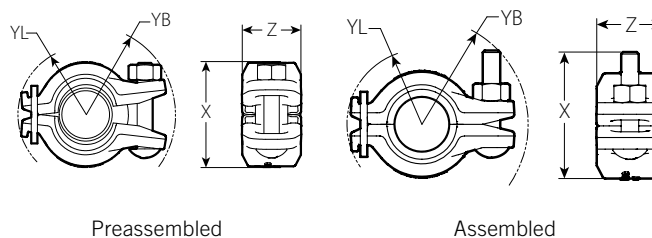
Size		Bolt/Nut		Dimensions					Weight
Nominal inches DN	Actual Outside Diameter inches mm	Qty.	Size inches mm	F Take Out inches mm	C to E inches mm	B inches mm	Pre-Assembled inches mm	Assembled inches mm	Approximate (Each) lb kg
1 DN25	1.315 33.7	3	3/8 x 2 M10 x 50	1.25 32	2.13 54	4.25 108	2.75 70	2.75 70	2.2 1.0

NOTES

- Not for use with grooved sprinklers, for grooved sprinkler connections please refer to [publication 10.65](#) for the Style V9 sprinkler coupling.
- Contact Victaulic for torsional resistance information.

4.4 DIMENSIONS

Style 108 Installation-Ready Rigid Coupling



Size		Pipe End Separation ¹	Bolt/Nut		Dimensions								Weight
Nominal inches DN	Actual Outside Diameter inches mm	Allowable inches mm	Qty.	Size inches mm	Pre-Assembled				Assembled				Approx (Each) lb kg
					YL inches mm	YB inches mm	X inches mm	Z inches mm	YL inches mm	YB inches mm	X inches mm	Z inches mm	
1	1.315	0.14	1	$\frac{3}{8} \times 2$	1.66	2.17	2.58	1.43	1.61	2.29	2.27	1.43	1.5
DN25	33.7	3.6		M10 x 50	42.2	55.2	65.5	36.3	41.0	58.2	57.5	36.3	0.7

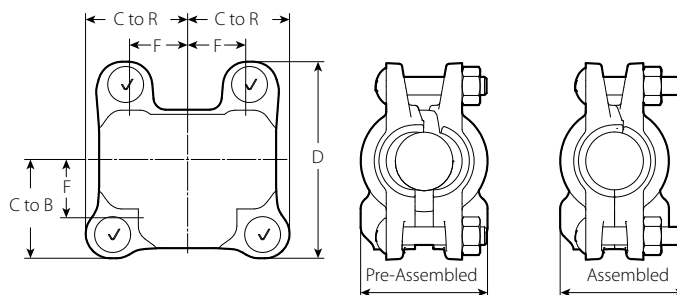
¹ The allowable pipe end separation dimension shown is for system layout purposes only. FireLock™ Style 108 rigid couplings are considered rigid connections and will not accommodate expansion or contraction of the piping system.

NOTES

- Not for use with grooved sprinklers, for grooved sprinkler connections please refer to [publication 10.65](#) for the Style V9 sprinkler coupling.
- Contact Victaulic for torsional resistance information.

4.5 DIMENSIONS

No. 102 Installation-Ready Tee



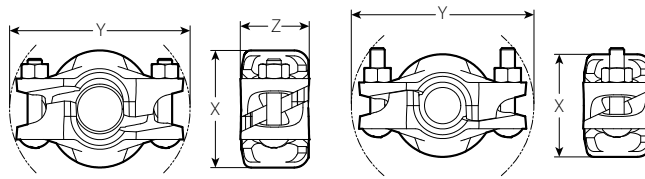
Size		Bolt/Nut		Dimensions						Weight
Nominal inches DN	Actual Outside Diameter inches mm	Qty.	Size inches mm	F Take Out inches mm	C to B inches mm	C to R inches mm	D inches mm	Pre-Assembled inches mm	Assembled inches mm	Approximate (Each) lb kg
1	1.315	4	$\frac{3}{8} \times 2$	1.25	2.13	2.13	4.13	2.75	2.75	3.0
DN25	33.7		M10 x 50	32	54	54	105	70	70	1.4

NOTES

- Not for use with grooved sprinklers, for grooved sprinkler connections please refer to [publication 10.65](#) for the Style V9 sprinkler coupling.
- Contact Victaulic for torsional resistance information.

4.6 DIMENSIONS

Style 115 OGS x /GS Reducing Coupling



Pre-Assembled

Assembled

Size				Pipe End Separation ²	Bolt/Nut		Dimensions						Weight
							Pre-Assembled			Assembled			
Nominal inches DN		Actual Outside Diameter inches mm		Allowable inches mm	Qty.	Size inches mm	X inches mm	Y inches mm	Z inches mm	X inches mm	Y inches mm	Z inches mm	Approximate (Each) lb kg
1 ¼ DN32	x DN25	1.660 42.4	x 1.315 33.7	0.14 3.6	2	¾ x 2 M10 x 50	3.13 79	4.75 121	1.75 44	2.63 67	4.75 121	1.75 44	1.9 0.9
1 ½ DN40		1.900 48.3		0.14 3.6		¾ x 2 M10 x 50	3.25 83	4.88 124	1.75 44	2.88 73	4.88 124	1.75 44	2.1 0.9

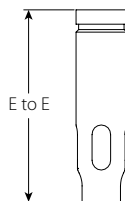
² The allowable pipe end separation dimension shown is for system layout purposes only. FireLock™ Style 115 rigid couplings are considered rigid connections and will not accommodate expansion or contraction of the piping system.

NOTES

- Not for use with grooved sprinklers, for grooved sprinkler connections please refer to [publication 10.65](#) for the Style V9 sprinkler coupling.
- Contact Victaulic for torsional resistance information.

4.7 DIMENSIONS

No. 148 Sprinkler Reducer

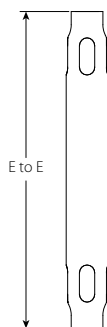


Length	Size		Threaded Outlet Size		Weight
E to E inches mm	Nominal inches DN	Actual Outside Diameter inches mm	inches DN	inches DN	Approximate (Each) lb kg
3 76	1 DN25	1.315 33.7	½ DN15	¾ DN20	0.4 0.2
3.5 89	1 DN25	1.315 33.7	½ DN15	¾ DN20	0.5 0.2
4 102	1 DN25	1.315 33.7	½ DN15	¾ DN20	0.6 0.3
4.5 114	1 DN25	1.315 33.7	½ DN15	¾ DN20	0.6 0.3
5 127	1 DN25	1.315 33.7	½ DN15	¾ DN20	0.7 0.3
5.5 140	1 DN25	1.315 33.7	½ DN15	¾ DN20	0.8 0.3
6 152	1 DN25	1.315 33.7	½ DN15	¾ DN20	0.8 0.4
12 305	1 DN25	1.315 33.7	½ DN15	¾ DN20	1.7 0.8
18 457	1 DN25	1.315 33.7	½ DN15	¾ DN20	2.5 1.1
24 610	1 DN25	1.315 33.7	½ DN15	¾ DN20	3.4 1.5
30 762	1 DN25	1.315 33.7	½ DN15	¾ DN20	4.2 1.9

NOTES

- NPT or BSPT available
- It is acceptable to cut and groove any No. 148 longer than 6"/152mm. The minimum allowable cut length is 6"/152mm for a No. 148.

No. 148 Double Ended Sprinkler Reducer



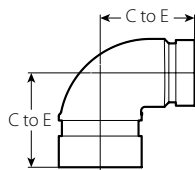
Length	Size		Threaded Outlet Size		Weight
E to E inches mm	Nominal inches DN	Actual Outside Diameter inches mm	inches DN	inches DN	Approximate (Each) lb kg
36 914	1 DN25	1.315 33.7	½ DN15	¾ DN20	5.0 2.3

NOTE

- 36"/914mm size features sprinkler outlet on both ends for field fabrication.

4.8 DIMENSIONS

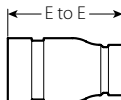
No. 65 OGS x IGS Grooved End of Run Fitting



Size		Dimensions		Weight
Nominal inches DN	Actual Outside Diameter inches mm	C to E inches mm	Approximate (Each) lb kg	
1 ¼ DN32	1.660 42.4	1.88 48	0.7 0.3	
1 ½ DN40	1.900 48.3	2.00 51	0.8 0.4	
2 DN50	2.375 60.3	2.25 57	1.2 0.5	
2 ½ DN65	2.875 73.0	2.50 64	1.6 0.7	
3 DN80	3.000 76.1	2.50 64	1.7 0.8	
	3.500 88.9	2.75 70	2.6 1.2	

4.9 DIMENSIONS

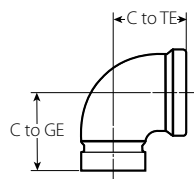
No. 144 OGS x IGS Grooved Concentric Reducer



Size		Dimensions		Weight
Nominal inches DN	Actual Outside Diameter inches mm	E to E inches mm	Approximate (Each) lb kg	
1 ¼ DN32	1.660 42.4	3.00 76	0.5 0.2	
1 ½ DN40	1.900 48.3	3.00 76	0.6 0.2	

4.10 DIMENSIONS

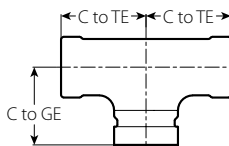
No. 145 Female Threaded x Groove 90° Elbow



Size				Dimensions		Weight
Nominal inches DN		Actual Outside Diameter inches mm		C-TE inches mm	C-GE inches mm	Approximate (Each) lb kg
Threaded Outlet	Grooved Outlet	Threaded Outlet	Grooved Outlet			
1/2 DN15		0.840 21.3		1.45 36.8	1.60 40.6	0.5 0.2
3/4 DN20	x 1 DN25	1.050 26.9	x 1.315 33.7	1.45 36.8	1.60 40.6	0.5 0.2
1 DN25		1.315 33.7		1.50 38.1	1.60 40.6	0.5 0.2

4.11 DIMENSIONS

No. 147 Back-To-Back Sprinkler Tee



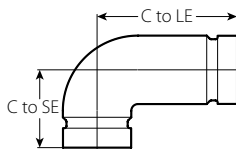
Size						Dimensions		Weight
Nominal inches DN			Actual Outside Diameter inches mm			C-TE inches mm	C-GE inches mm	Approximate (Each) lb kg
Threaded Outlet	Threaded Outlet	Grooved Outlet	Threaded Outlet	Threaded Outlet	Grooved Outlet			
1/2 DN15	x 1/2 DN15	x 1 DN25	0.840 21.3	x 0.840 21.3	x 1.315 33.7	1.75 44.5	1.60 40.6	0.7 0.3

NOTE:

- Approved for use with one or two 1/2" NPT Sprinklers threaded directly into outlet connection(s).

4.12 DIMENSIONS

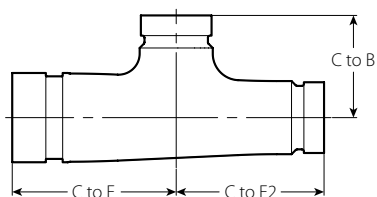
No. 111 /GS Grooved End Elbow



Size		Dimensions		Weight
Nominal inches DN	Actual Outside Diameter inches mm	C to LE inches mm	C to SE inches mm	Approximate (Each) lb kg
1 DN25	1.315 33.7	2.70 69	1.50 38	0.6 0.3

4.13 DIMENSIONS

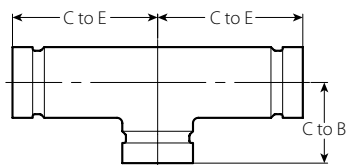
No. 113 OGS x IGS x IGS Reduce on the Run and Outlet Tee



Size					Dimensions			Weight
Nominal inches DN					C to E inches mm	C to E2 inches mm	C to B inches mm	Approx. (Each) Lbs. kg
1 ¼ DN32	x	1 DN25	x	1 DN25	3.05 77	2.75 70	1.90 48	1.3 0.6
1 ½ DN40	x	1 DN25	x	1 DN25	3.05 77	2.75 70	2.03 52	1.3 0.6

4.14 DIMENSIONS

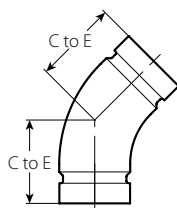
No. 114 IGS x IGS x IGS Grooved Tee



Size		Dimensions		Weight
Nominal inches DN	Actual Outside Diameter inches mm	C to E inches mm	C to B inches mm	Approx. (Each) lb kg
1 DN25	1.315 33.7	2.70 69	1.50 38	0.92 0.4

4.15 DIMENSIONS

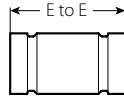
No. 117 IGS 45° Elbow



Size		Dimensions	Weight
Nominal inches DN	Actual Outside Diameter inches mm	C to E inches mm	Approx. (Each) lb kg
1 DN25	1.315 33.7	1.55 39	0.45 0.2

4.16 DIMENSIONS

No. 143 Close Nipple

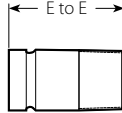


Size		Dimensions	Weight
Nominal inches DN	Actual Outside Diameter inches mm	E to E inches mm	Approximate (Each) lb kg
1 DN25	1.315 33.7	1.5 ³	0.2
		38	0.1
		2	0.3
		51	0.1
		2.5	0.4
		64	0.2
		3	0.4
		76	0.2
		3.5	0.5
		89	0.2
		4	0.6
		102	0.3
		4.5	0.6
		114	0.3
		5	0.7
		127	0.3

³ Bolt pad interferences may occur in some installation configurations.

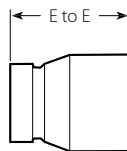
4.17 DIMENSIONS

No. 140 Male Threaded x Groove Adapter



Size		Dimensions	Weight
Nominal inches DN	Actual Outside Diameter inches mm	E-E inches mm	Approximate (Each) lb kg
1 DN25	1.315 33.7	2.50 63.5	0.3 0.1

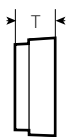
No. 141 Female Threaded x Groove Adapter



Size		Dimensions	Weight
Nominal inches DN	Actual Outside Diameter inches mm	E-E inches mm	Approximate (Each) lb kg
1 DN25	1.315 33.7	2.00 50.8	0.5 0.2

4.18 DIMENSIONS

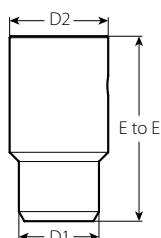
No. 146 Cap



Size		Dimensions	Weight
Nominal inches DN	Actual Outside Diameter inches mm	T inches mm	Approximate (Each) lb kg
1 DN25	1.315 33.7	0.55 14.0	0.2 0.1

4.19 DIMENSIONS

WB-1 Weld Plunger Cone

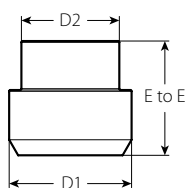


Dimensions			Weight
E to E inches mm	D1 inches mm	D2 inches mm	Approximate (Each) lb kg
3.75 95.3	1.63 41.3	2.00 50.8	2.2 51.0

NOTE

- WB-1 Weld Plunger Cones are for use with the No. 142 weld outlets and protect the groove during weld process.

NAP-1 Weld Plunger Cone



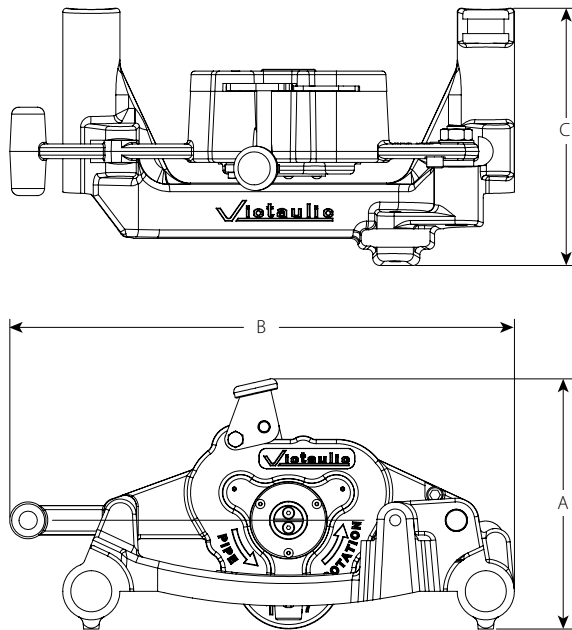
Dimensions			Weight
E to E inches mm	D1 inches mm	D2 inches mm	Approximate (Each) lb kg
1.75 44.5	1.88 47.6	1.50 38.0	0.3 0.2

NOTE

- NAP-1 Weld Plunger Cones are for use with the No. 142 weld outlets and protect the groove during weld process.

4.20 DIMENSIONS

RG2100 Roll Grooving Tool



A	B	C	Tool Weight
inches	inches	inches	lb
mm	mm	mm	kg
8.5	17.1	8.7	37.5
216	435	222	17.0

5.0 PERFORMANCE

Friction Flow Data

Size		Equivalent Length of 1" Sch. 40 Pipe (C=120)		
Style/No	Nominal inches DN	feet meters	Branch feet meters	Run feet meters
No. 101	1 DN25	2.0 0.61	–	–
No. 102	1 DN25	–	5.0 1.52	2.7 0.82
No. 111	1 DN25	5.0 1.52	–	–
No. 113	1 ¼ x 1 x 1 DN32 x DN25 x DN25	–	5.8 1.8	4.6 1.4
	1 ½ x 1 x 1 DN40 x DN25 x DN25	–	5.3 1.6	4.9 1.5
No. 114	1 DN25	–	6.2 1.9	3.3 1.0
No. 115	1 ¼ x 1 DN32 x DN25	5.7 1.74	–	–
	1 ½ x 1 DN40 x DN25	5.0 1.52	–	–
No. 117	1 DN25	3.5 1.1	–	–
No. 144	1 ¼ x 1 x 1 DN32 x DN25 x DN25	3.9 1.19	–	–
	1 ½ x 1 x 1 DN40 x DN25 x DN25	4.3 1.31	–	–
No. 148		See Note	–	–
Style 920N		See publication 11.02	–	–
Style 922		See publication 10.52	–	–

- In accordance with NFPA 13, friction loss shall be excluded for fittings directly connected to a sprinkler. For hydraulic calculations, Victaulic recommends using the installed length (E-E or cut length) of the No. 148 Sprinkler Reducer as the equivalent length of 1"/DN25 Sch. 40 pipe.

Victaulic No. 148		
Length	½" DN15 outlet	¾" DN20 outlet
E to E inches mm	Equivalent Length of 1" Sched. 40 Pipe (C=120) feet meters	
≤6 152	6.6 2.0	3.8 1.2
6 – 12 152 – 305	5.5 1.7	3.8 1.2
12 – 18 305 – 457	6.2 1.9	4.3 1.3
18 – 24 457 – 610	6.7 2.0	4.7 1.4
24 – 30 610 – 762	7.1 2.2	5.2 1.6
30 – 36 762 – 914	7.4 2.3	5.4 1.6

NOTE

- When installed in pipe to pipe connections or it is required by the authority having jurisdiction, the equivalent length data in the table (left) may apply.

5.0 PERFORMANCE (CONTINUED)

Maximum Working Pressure

Style/No.	cULus psi kPa bar	FM psi kPa bar	LPCB psi kPa bar	VdS psi kPa bar
65	365 2517 25	365 2517 25	365 2517 25	232 1600 16
101 ⁵	365 2517 25	365 2517 25	365 2517 25	232 1600 16
102 ⁵	365 2517 25	365 2517 25	365 2517 25	232 1600 16
108 ⁵	365 2517 25	365 2517 25	365 2517 25	232 1600 16
111	365 2517 25	365 2517 25	N/A	N/A
113	365 2517 25	365 2517 25	N/A	N/A
	365 2517 25	365 2517 25	N/A	N/A
114	365 2517 25	365 2517 25	N/A	N/A
115 ⁴	365 2517 25	365 2517 25	365 2517 25	232 1600 16
117	365 2517 25	365 2517 25	N/A	N/A
140	365 2517 25	365 2517 25	365 2517 25	232 1600 16
141	365 2517 25	365 2517 25	365 2517 25	232 1600 16
142 ⁴	365 2517 25	365 2517 25	365 2517 25	232 1600 16
143	365 2517 25	365 2517 25	365 2517 25	232 1600 16
144	365 2517 25	365 2517 25	365 2517 25	232 1600 16
145	365 2517 25	365 2517 25	365 2517 25	232 1600 16
146	365 2517 25	365 2517 25	365 2517 25	232 1600 16

⁴ Maximum pressure rating is 300 psi/21 bar when installed on light-wall steel pipe, as follows:
Mega-Flow and Mega-Flow-GF steel pipe manufactured by Wheatland Tube Co.
Mega-Thread steel pipe manufactured by Wheatland Tube Co.
MLT steel pipe manufactured by Wheatland Tube Co.
WLS steel pipe manufactured by Wheatland Tube Co.
Eddy Flow steel pipe manufactured by Bull Moose Tube Co.
Eddythread steel pipe manufactured by Bull Moose Tube Co.
EZ-Thread steel pipe manufactured by Youngstown Tube Co.
Fire-Flo steel pipe manufactured by Youngstown Tube Co.
Easy-Flow pipe manufactured by Borusan Mannesmann

⁵ Maximum pressure rating is 300 psi / 21 bar when installed on light-wall steel pipe, as follows:
Mega-Thread steel pipe manufactured by Wheatland Tube Co.
MLT steel pipe manufactured by Wheatland Tube Co.
WLS steel pipe manufactured by Wheatland Tube Co.
Eddythread steel pipe manufactured by Bull Moose Tube Co.
EZ-Thread steel pipe manufactured by Youngstown Tube Co.

5.0 PERFORMANCE (CONTINUED)

Maximum Working Pressure

Style/No.	cULus psi kPa bar	FM psi kPa bar	LPCB psi kPa bar	VdS psi kPa bar
147	365 2517 25	365 2517 25	N/A	N/A
148	365 2517 25	365 2517 25	365 2517 25	232 1600 16
920N ⁴	365 2517 25	300 2100 21	365 2517 25	232 1600 16
922 ⁴	300 2100 21	300 2100 21	365 2517 25	232 1600 16

⁴ Maximum pressure rating is 300 psi/21 bar when installed on light-wall steel pipe, as follows:
Mega-Flow and Mega-Flow-GF steel pipe manufactured by Wheatland Tube Co.
Mega-Thread steel pipe manufactured by Wheatland Tube Co.
MLT steel pipe manufactured by Wheatland Tube Co.
WLS steel pipe manufactured by Wheatland Tube Co.
Eddy Flow steel pipe manufactured by Bull Moose Tube Co.
Eddythread steel pipe manufactured by Bull Moose Tube Co.
EZ-Thread steel pipe manufactured by Youngstown Tube Co.
Fire-Flo steel pipe manufactured by Youngstown Tube Co.
Easy-Flow pipe manufactured by Borusan Mannesmann

⁵ Maximum pressure rating is 300 psi / 21 bar when installed on light-wall steel pipe, as follows:
Mega-Thread steel pipe manufactured by Wheatland Tube Co.
MLT steel pipe manufactured by Wheatland Tube Co.
WLS steel pipe manufactured by Wheatland Tube Co.
Eddythread steel pipe manufactured by Bull Moose Tube Co.
EZ-Thread steel pipe manufactured by Youngstown Tube Co.

6.0 NOTIFICATIONS

⚠ WARNING



- Read and understand all instructions before attempting to install any Victaulic products.
- Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.
- Wear safety glasses, hardhat, and foot protection.

Failure to follow these instructions could result in death or serious personal injury and property damage.

- These products shall be used only in fire protection systems that are designed and installed in accordance with current, applicable National Fire Protection Association (NFPA 13, 13D, 13R, etc.) standards, or equivalent standards, and in accordance with applicable building and fire codes. These standards and codes contain important information regarding protection of systems from freezing temperatures, corrosion, mechanical damage, etc.
- The installer shall understand the use of this product and why it was specified for the particular application.
- The installer shall understand common industry safety standards and potential consequences of improper product installation.
- It is the system designer's responsibility to verify suitability of materials for use with the intended fluid media within the piping system and external environment.
- The material specifier shall evaluate the effect of chemical composition, pH level, operating temperature, chloride level, oxygen level, and flow rate on materials to confirm system life will be acceptable for the intended service.

Failure to follow installation requirements and local and national codes and standards could compromise system integrity or cause system failure, resulting in death or serious personal injury and property damage.

⚠ WARNING



- Failure to follow instructions and warnings could result in serious personal injury, property damage, and/or product damage.
- Before operating or servicing any grooving tools, read all instructions in the manual and all warning labels on the tool.
- Wear safety glasses, hardhat, foot protection, and hearing protection while working around the tool.
- Save the operating and maintenance manual in a place accessible to all operators of the tool

If you need additional copies of any literature, or if you have questions concerning the safe and proper operation of the tool, contact Victaulic, P.O. Box 31, Easton, PA 18044-0031, Phone: 1-800-PICK VIC, E-Mail: pickvic@victaulic.com.

NOTICE

- Victaulic does not recommend the use of any furnace butt-welded pipe with sizes 2"/DN50 and smaller Victaulic gasketed joint products. This includes, but is not limited to, ASTM A53 Type F pipe.

7.0 REFERENCE MATERIALS

[10.06: FireLock Installation-Ready Fittings](#)
[10.52: Style 922 Outlet Tee](#)
[10.85: VicFlex Series AH2 ad AH2-CC Braided Hose](#)
[11.02 Mechanical-T Bolted Branch Outlets](#)
[25.14: Victaulic IGS Groove Specification](#)
[I-101-103: FireLock™ Installation-Ready™ Fittings Installation Instruction](#)
[I-102: FireLock™ Installation-Ready™ Fittings Installation Instruction](#)
[I-108: FireLock™ Installation-Ready™ Coupling](#)
[I-115: FireLock EZ™ Installation-Ready™ Reducing Coupling Installation Instruction](#)
[I-ENDCAP: Victaulic End Cap Installation Safety Instructions](#)
[I-V9: Style V9 Victaulic FireLock™ IGS™ Installation-Ready™ Sprinkler Coupling](#)
[TM-RG2100: Operating and Maintenance Instructions Manual](#)

User Responsibility for Product Selection and Suitability

Each user bears final responsibility for making a determination as to the suitability of Victaulic products for a particular end-use application, in accordance with industry standards and project specifications, and the applicable building codes and related regulations as well as Victaulic performance, maintenance, safety, and warning instructions. Nothing in this or any other document, nor any verbal recommendation, advice, or opinion from any Victaulic employee, shall be deemed to alter, vary, supersede, or waive any provision of Victaulic Company's standard conditions of sale, installation guide, or this disclaimer.

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Note

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

Installation

Reference should always be made to the [Victaulic installation handbook](#) or installation instructions of the product you are installing. Handbooks are included with each shipment of Victaulic products, providing complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

Warranty

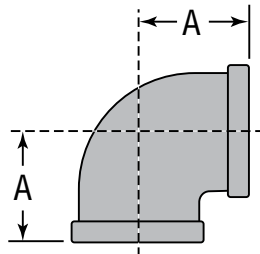
Refer to the Warranty section of the current Price List or contact Victaulic for details.

Trademarks

Victaulic and all other Victaulic marks are the trademarks or registered trademarks of Victaulic Company, and/or its affiliated entities, in the U.S. and/or other countries.

FIG. 3201

90° Elbow



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FIGURE 3201 - 90° ELBOW

Nominal Size	Maximum Working Pressure▲	Dimension A	Approx. Wt. Each
<i>In. (mm)</i>	<i>PSI (kPa)</i>	<i>In. (mm)</i>	<i>Lbs. (kg)</i>
1	500	1.50	0.62
20	3450	38.10	0.28
1¼	500	1.75	0.90
32	3450	44.45	0.41
1½	500	1.94	1.20
40	3450	49.276	0.54
2	500	2.25	1.85
50	3450	57.15	0.84

▲ – Working Pressure Ratings are for reference only and based on Sch. 40 pipe. For the latest UL/ULC, and FM pressure ratings versus pipe schedule, please visit anvilintl.com or contact your local Anvil Representative.

MATERIAL SPECIFICATIONS

Dimensions: ASME B16.3

Material: ASTM A536 Grade 65-45-12

Finish: Black

Threads: NPT per ASME B1.20.1

Agency Approvals: All ductile iron threaded fittings are UL/ULC Listed and FM Approved.

NOTICE: Ductile iron fittings have higher tensile strength than that of steel pipe. Therefore, over tightening can cause damage to pipe threads which may cause leakage. Ductile iron fittings should be tightened approximately three turns beyond hand tight, but no more than four turns.

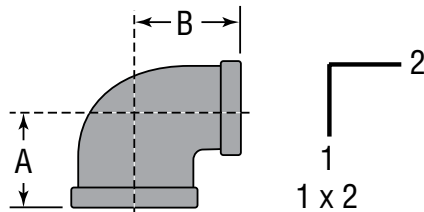
PROJECT INFORMATION

APPROVAL STAMP

Project: FSI Submittal	<input type="checkbox"/> Approved
Address:	<input type="checkbox"/> Approved as noted
Contractor:	<input type="checkbox"/> Not approved
Engineer:	Remarks:
Submittal Date: December 24, 2019	
Notes 1:	
Notes 2:	

FIG. 3201R

Reducing 90° Elbow



For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil® Sales Representative.

FIGURE 3201R - REDUCING 90° ELBOW

Nominal Size	Max. Working Pressure [▲]	Dimensions		Approx. Wt. Each
1 x 2		A	B	
In. (mm)	PSI (kPa)	In. (mm)	In. (mm)	Lbs. (kg)
1 x ½ 25 x 15	500 3450	1.26 32.00	1.36 34.54	0.44 0.20
1 x ¾ 25 x 20	500 3450	1.37 34.79	1.45 36.83	0.52 0.24
1¼ x ½ 32 x 15	500 34550	1.34 34.03	1.53 38.86	0.64 0.29
1¼ x ¾ 32 x 20	500 3450	1.45 36.83	1.62 41.14	0.72 0.33
1¼ x 1 32 x 25	500 3450	1.58 40.13	1.67 42.41	0.75 0.34
1½ x 1 40 x 25	500 3450	1.65 41.91	1.80 45.72	0.92 0.42
1½ x 1¼ 40 x 32	500 3450	1.82 46.22	1.88 47.75	1.08 0.49
2 x ½ 50 x 15	500 3450	1.49 37.84	1.88 47.75	1.08 0.49
2 x ¾ 50 x 20	500 3450	1.60 40.64	1.97 50.03	1.24 0.56
2 x 1 50 x 25	500 3450	1.73 43.94	2.02 51.30	1.40 0.64
2 x 1¼ 50 x 32	500 3450	1.90 48.26	2.10 53.34	1.52 0.70
2 x 1½ 50 x 40	500 3450	2.02 51.30	2.16 54.86	1.65 0.75

▲ – Working Pressure Ratings are for reference only and based on Sch. 40 pipe. For the latest UL/ULC, and FM pressure ratings versus pipe schedule, please visit anvilintl.com or contact your local Anvil Representative.

MATERIAL SPECIFICATIONS

Dimensions: ASME B16.3

Material: ASTM A536 Grade 65-45-12

Finish: Black

Threads: NPT per ASME B1.20.1

Agency Approvals: All ductile iron threaded fittings are UL/ULC Listed and FM Approved.

NOTICE: Ductile iron fittings have higher tensile strength than that of steel pipe. Therefore, over tightening can cause damage to pipe threads which may cause leakage. Ductile iron fittings should be tightened approximately three turns beyond hand tight, but no more than four turns.

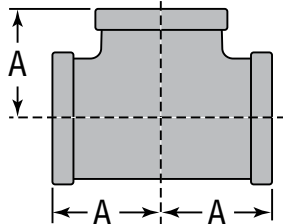
PROJECT INFORMATION

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Address:	<input type="checkbox"/> Approved as noted
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Notes 1:	
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FIG. 3205

Straight Tee



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FIGURE 3205 - STRAIGHT TEE

Nominal Size	Maximum Working Pressure [▲]	Dimension A	Approx. Wt. Each
<i>In. (mm)</i>	<i>PSI (kPa)</i>	<i>In. (mm)</i>	<i>Lbs. (kg)</i>
1 25	500 3450	1.50 38.10	0.85 0.39
1¼ 32	500 3450	1.75 44.45	1.22 0.55
1½ 40	500 3450	1.94 49.27	1.55 0.70
2 50	500 3450	2.25 57.15	2.45 1.11

▲ – Working Pressure Ratings are for reference only and based on Sch. 40 pipe. For the latest UL/ULC, and FM pressure ratings versus pipe schedule, please visit anvilintl.com or contact your local Anvil Representative.

MATERIAL SPECIFICATIONS

Dimensions: ASME B16.3

Material: ASTM A536 Grade 65-45-12

Finish: Black

Threads: NPT per ASME B1.20.1

Agency Approvals: All ductile iron threaded fittings are UL/ULC Listed and FM Approved.

NOTICE: Ductile iron fittings have higher tensile strength than that of steel pipe. Therefore, over tightening can cause damage to pipe threads which may cause leakage. Ductile iron fittings should be tightened approximately three turns beyond hand tight, but no more than four turns.

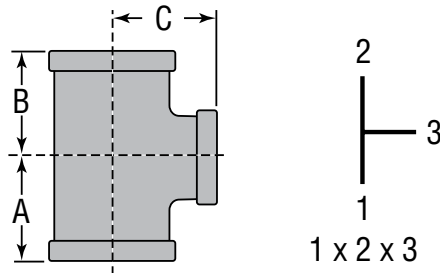
PROJECT INFORMATION

APPROVAL STAMP

Project: FSI Submittal	<input type="checkbox"/> Approved
Address:	<input type="checkbox"/> Approved as noted
Contractor:	<input type="checkbox"/> Not approved
Engineer:	Remarks:
Submittal Date: December 24, 2019	
Notes 1:	
Notes 2:	

FIG. 3205R

Reducing Tee



For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil® Sales Representative.

FIGURE 3205R - REDUCING TEE

Nominal Size	Max. Working Pressure▲	Dimensions			Approx. Wt. Each
1 x 2 x 3		A	B	C	
In. (mm)	PSI (kPa)	In. (mm)	In. (mm)	In. (mm)	Lbs. (kg)
1 x 1/2 x 1 25 x 15 x 25	500 3450	1.50 38.10	1.36 34.54	1.50 38.10	0.64 0.29
1 x 3/4 x 1 25 x 20 x 25	500 3450	1.50 38.10	1.45 36.83	1.50 38.10	0.73 0.33
1 x 1 x 1/2 25 x 25 x 15	500 3450	1.26 32.00	1.26 32.00	1.36 34.54	0.71 0.32
1 x 1 x 3/4 25 x 25 x 20	500 3450	1.37 34.80	1.37 34.80	1.45 36.83	0.76 0.34
1 x 1 x 1 1/4* 25 x 25 x 32	500 3450	1.67 42.41	1.67 42.41	1.58 40.13	0.98 0.44
1 x 1 x 1 1/2* 25 x 25 x 40	500 3450	1.80 45.72	1.80 45.72	1.65 41.91	1.16 0.53
1 1/4 x 1 x 1/2* 32 x 25 x 15	500 3450	1.34 34.04	1.26 32.00	1.53 38.86	0.82 0.37
1 1/4 x 1 x 3/4 32 x 25 x 20	500 3450	1.45 36.83	1.37 34.80	1.62 41.15	0.90 0.41
1 1/4 x 1 x 1 32 x 25 x 25	500 3450	1.58 40.13	1.50 38.10	1.67 42.42	1.00 0.45
1 1/4 x 1 x 1 1/4 32 x 25 x 32	500 3450	1.75 44.45	1.67 42.42	1.75 44.45	1.08 0.49
1 1/4 x 1 x 1 1/2 32 x 25 x 40	500 3450	1.88 47.75	1.80 45.72	1.82 46.22	1.42 0.64
1 1/4 x 1 1/4 x 1/2 32 x 32 x 15	500 3450	1.34 34.04	1.34 34.04	1.53 38.86	0.86 0.39

▲ Working Pressure Ratings are for reference only and based on Sch. 40 pipe. For the latest UL/ULC, and FM pressure ratings versus pipe schedule, please visit anvilintl.com or contact your local Anvil Representative.

* Part supplied as "Bull Head Tee".

MATERIAL SPECIFICATIONS

Dimensions: ASME B16.3

Material: ASTM A536 Grade 65-45-12

Finish: Black

Threads: NPT per ASME B1.20.1

Agency Approvals: All ductile iron threaded fittings are UL/ULC Listed and FM Approved.

NOTICE: Ductile iron fittings have higher tensile strength than that of steel pipe. Therefore, over tightening can cause damage to pipe threads which may cause leakage. Ductile iron fittings should be tightened approximately three turns beyond hand tight, but no more than four turns.

FIGURE 3205R - REDUCING TEE

Nominal Size	Max. Working Pressure▲	Dimensions			Approx. Wt. Each
1 x 2 x 3		A	B	C	
In. (mm)	PSI (kPa)	In. (mm)	In. (mm)	In. (mm)	Lbs. (kg)
1 1/4 x 1 1/4 x 3/4 32 x 32 x 20	500 3450	1.45 36.83	1.45 36.83	1.62 41.15	0.92 0.42
1 1/4 x 1 1/4 x 1 32 x 32 x 25	500 3450	1.58 40.13	1.58 40.13	1.67 42.42	0.95 0.43
1 1/4 x 1 1/4 x 1 1/2* 32 x 32 x 40	500 3450	1.88 47.75	1.88 47.75	1.82 46.22	1.45 0.66

PROJECT INFORMATION

APPROVAL STAMP

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Address:	<input type="checkbox"/> Approved as noted
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Engineer:	Remarks:
Submittal Date: December 24, 2019	
Notes 1:	
Notes 2:	

FIG. 3205R

Reducing Tee

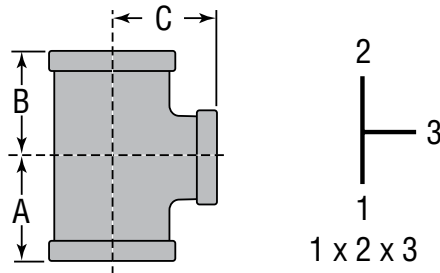


FIGURE 3205R - REDUCING TEE					
Nominal Size	Max. Working Pressure▲	Dimensions			Approx. Wt. Each
1 x 2 x 3		A	B	C	
In. (mm)	PSI (kPa)	In. (mm)	In. (mm)	In. (mm)	Lbs. (kg)
1¼ x 1¼ x 2*	500 3450	2.10 53.34	2.10 53.34	1.90 48.26	1.75 0.79
1½ x 1 x ½	500 3450	1.41 35.81	1.34 34.04	1.66 42.16	0.95 0.43
1½ x 1 x ¾	500 3450	1.52 38.61	1.37 34.80	1.75 44.45	1.14 0.52
1½ x 1 x 1	500 3450	1.65 41.91	1.50 38.10	1.80 45.72	1.17 0.53
1½ x 1 x 1¼	500 3450	1.82 46.23	1.67 42.42	1.88 47.75	1.34 0.61
1½ x 1 x 1½	500 3450	1.94 49.28	1.80 45.72	1.94 49.28	1.45 0.66
1½ x 1¼ x ½	500 3450	1.41 35.81	1.34 34.04	1.66 42.16	1.05 0.48
1½ x 1¼ x ¾	500 3450	1.52 38.61	1.45 36.83	1.75 44.45	1.15 0.5
1½ x 1¼ x 1	500 3450	1.65 41.91	1.58 40.13	1.80 45.72	1.25 0.57
1½ x 1¼ x 2*	500 3450	2.16 54.86	2.10 53.34	2.02 51.30	1.90 0.86
1½ x 1½ x ½	500 3450	1.41 35.81	1.41 35.81	1.16 29.46	1.15 0.52
1½ x 1½ x ¾	500 3450	1.52 38.61	1.52 38.61	1.75 44.45	1.24 0.56
1½ x 1½ x 1	500 3450	1.65 41.91	1.65 41.91	1.80 45.72	1.30 0.59
1½ x 1½ x 1¼	500 3450	1.82 46.23	1.82 46.23	1.88 47.75	1.48 0.67

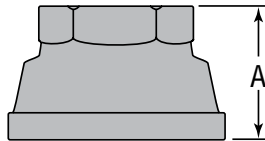
FIGURE 3205R - REDUCING TEE					
Nominal Size	Max. Working Pressure▲	Dimensions			Approx. Wt. Each
1 x 2 x 3		A	B	C	
In. (mm)	PSI (kPa)	In. (mm)	In. (mm)	In. (mm)	Lbs. (kg)
1½ x 1½ x 2*	500 3450	2.16 54.86	2.16 54.86	2.02 51.30	1.98 0.90
2 x 1 x 2	500 3450	2.25 57.15	2.02 51.31	2.25 57.15	2.15 0.98
2 x 1¼ x 2	500 3450	2.25 57.15	2.10 53.34	2.25 57.15	2.30 1.04
2 x 1½ x ½	500 3450	1.49 37.85	1.41 35.81	1.88 47.75	1.50 0.68
2 x 1½ x ¾	500 3450	1.60 40.64	1.52 38.61	1.97 50.04	1.62 0.73
2 x 1½ x 1	500 3450	1.73 43.94	1.65 41.91	2.02 51.31	1.64 0.74
2 x 1½ x 1¼	500 3450	1.90 48.26	1.82 46.23	2.10 53.34	1.80 0.82
2 x 1½ x 1½	500 3450	2.02 51.31	1.94 49.28	2.16 54.86	2.00 0.91
2 x 1½ x 2	500 3450	2.25 57.15	2.16 54.86	2.25 57.15	2.35 1.07
2 x 2 x ½	500 3450	1.49 37.85	1.49 37.85	1.88 47.75	1.60 0.73
2 x 2 x ¾	500 3450	1.60 40.64	1.60 40.64	1.97 50.04	1.68 0.76
2 x 2 x 1	500 3450	1.73 43.94	1.73 43.94	2.02 51.31	1.85 0.84
2 x 2 x 1¼	500 3450	1.90 48.26	1.90 48.26	2.10 53.34	2.04 0.93
2 x 2 x 1½	500 3450	2.02 51.31	2.02 51.31	2.16 54.86	2.18 0.99

▲ Working Pressure Ratings are for reference only and based on Sch. 40 pipe. For the latest UL/ULC, and FM pressure ratings versus pipe schedule, please visit anvilintl.com or contact your local Anvil Representative.

* Part supplied as "Bull Head Tee".

FIG. 3221R

Reducing Coupling



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FIGURE 3221R - REDUCING COUPLING

Nominal Size	Maximum Working Pressure▲	Dimension A	Approx. Wt. Each
<i>In. (mm)</i>	<i>PSI (kPa)</i>	<i>In. (mm)</i>	<i>Lbs. (kg)</i>
1 x 1/2 25 x 15	500 3450	1.69 42.92	0.39 0.18
1 x 3/4 25 x 20	500 3450	1.69 42.92	0.53 0.24
1 1/4 x 3/4 32 x 20	500 3450	2.06 52.32	0.64 0.29

▲ – Working Pressure Ratings are for reference only and based on Sch. 40 pipe. For the latest UL/ULC, and FM pressure ratings versus pipe schedule, please visit anvilintl.com or contact your local Anvil Representative.

MATERIAL SPECIFICATIONS

Dimensions: ASME B16.3

Material: ASTM A536 Grade 65-45-12

Finish: Black

Threads: NPT per ASME B1.20.1

Agency Approvals: All ductile iron threaded fittings are UL/ULC Listed and FM Approved.

NOTICE: Ductile iron fittings have higher tensile strength than that of steel pipe. Therefore, over tightening can cause damage to pipe threads which may cause leakage. Ductile iron fittings should be tightened approximately three turns beyond hand tight, but no more than four turns.

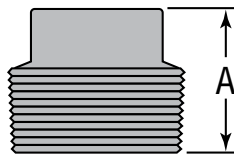
PROJECT INFORMATION

APPROVAL STAMP

Project: FSI Submittal	<input type="checkbox"/> Approved
Address:	<input type="checkbox"/> Approved as noted
Contractor:	<input type="checkbox"/> Not approved
Engineer:	Remarks:
Submittal Date: December 24, 2019	
Notes 1:	
Notes 2:	

FIG. 3388

Cored Plug



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FIGURE 3388 - CORED PLUG

Nominal Size	Maximum Working Pressure▲	Dimension A	Approx. Wt. Each
<i>In. (mm)</i>	<i>PSI (kPa)</i>	<i>In. (mm)</i>	<i>Lbs. (kg)</i>
½*	500	0.94	0.10
15	3450	23.87	0.05
¾	500	1.07	0.17
20	3450	27.17	0.08
1	500	1.25	0.28
25	3450	31.75	0.13
1¼	500	1.36	0.44
32	3450	34.54	0.20
1½	500	1.45	0.62
40	3450	36.83	0.28
2	500	1.56	0.91
50	3450	39.62	0.41

▲ – Working Pressure Ratings are for reference only and based on Sch. 40 pipe. For the latest UL/ULC, and FM pressure ratings versus pipe schedule, please visit anvilintl.com or contact your local Anvil Representative.

* Part supplied as Solid Plug.

MATERIAL SPECIFICATIONS

Dimensions: ASME B16.14

Material: ASTM A536 Grade 65-45-12

Finish: Black

Threads: NPT per ASME B1.20.1

Agency Approvals: All ductile iron threaded fittings are UL/ULC Listed and FM Approved.

▲ Pressure - Temperature Ratings in accordance with ASME B16.3 Class 150

NOTICE: Ductile iron fittings have higher tensile strength than that of steel pipe. Therefore, over tightening can cause damage to pipe threads which may cause leakage. Ductile iron fittings should be tightened approximately three turns beyond hand tight, but no more than four turns.

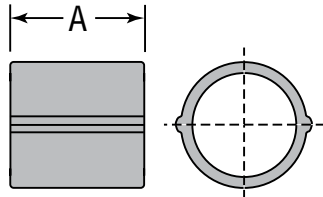
PROJECT INFORMATION

APPROVAL STAMP

Project: FSI Submittal	<input type="checkbox"/> Approved
Address:	<input type="checkbox"/> Approved as noted
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Notes 1:	
Notes 2:	

FIG. 3221

Coupling



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FIGURE 3221 - COUPLING

Nominal Size	Maximum Working Pressure▲	Dimension A	Approx. Wt. Each
<i>In. (mm)</i>	<i>PSI (kPa)</i>	<i>In. (mm)</i>	<i>Lbs. (kg)</i>
1	500	1.67	0.40
25	3450	42.42	0.18
1¼	500	1.93	0.57
32	3450	49.02	0.26
1½	500	2.15	0.75
40	3450	54.61	0.34
2	500	2.53	1.15
50	3450	64.26	0.52

▲ – Working Pressure Ratings are for reference only and based on Sch. 40 pipe. For the latest UL/ULC, and FM pressure ratings versus pipe schedule, please visit anvilintl.com or contact your local Anvil Representative.

MATERIAL SPECIFICATIONS

Dimensions: ASME B16.3

Material: ASTM A536 Grade 65-45-12

Finish: Black

Threads: NPT per ASME B1.20.1

Agency Approvals: All ductile iron threaded fittings are UL/ULC Listed and FM Approved.

NOTICE: Ductile iron fittings have higher tensile strength than that of steel pipe. Therefore, over tightening can cause damage to pipe threads which may cause leakage. Ductile iron fittings should be tightened approximately three turns beyond hand tight, but no more than four turns.

PROJECT INFORMATION

APPROVAL STAMP

Project: FSI Submittal

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Contractor:

Engineer:

Submittal Date: December 24, 2019

Notes 1:

Notes 2:

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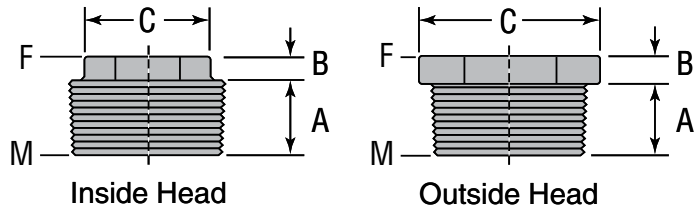
☐ Approved as noted

☐ Not approved

Remarks:

FIG. 3283

Bushings



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FIGURE 3283 - BUSHINGS

Nominal Size Male (M) x Female (F)	Max. Working Pressure▲	Dimensions			Style	Approx. Wt. Each
In. (mm)	PSI (kPa)	A In. (mm)	B In. (mm)	C In. (mm)		Lbs. (kg)
1 x 1/2 25 x 15	500 3450	0.75 19.05	0.25 6.35	1.42 36.06	Outside	0.22 0.10
1 x 3/4 25 x 20	500 3450	0.75 19.05	0.25 6.35	1.42 36.06	Outside	0.17 0.08
1 1/4 x 1 32 x 25	500 3450	0.80 20.32	0.28 7.11	1.76 44.70	Outside	0.28 0.13
1 1/2 x 1 40 x 25	500 3450	0.83 21.08	0.31 7.874	2.00 50.80	Outside	0.45 0.20
1 1/2 x 1 1/4 40 x 32	500 3450	0.83 21.08	0.31 7.874	2.00 50.80	Outside	0.30 0.14
2 x 1 50 x 25	500 3450	0.88 22.35	0.41 10.414	1.95 49.53	Inside	0.67 0.30
2 x 1 1/4 50 x 32	500 3450	0.88 22.35	0.34 8.636	2.48 62.99	Outside	0.73 0.33
2 x 1 1/2 50 x 40	500 3450	0.88 22.35	0.34 8.636	2.48 62.99	Outside	0.61 0.28

▲ – Working Pressure Ratings are for reference only and based on Sch. 40 pipe. For the latest UL/ULC, and FM pressure ratings versus pipe schedule, please visit anvilintl.com or contact your local Anvil Representative.

MATERIAL SPECIFICATIONS

Dimensions: ASME B16.14

Material: ASTM A536 Grade 65-45-12

Finish: Black

Threads: NPT per ASME B1.20.1

Agency Approvals: All ductile iron threaded fittings are UL/ULC Listed and FM Approved.

NOTICE: Ductile iron fittings have higher tensile strength than that of steel pipe. Therefore, over tightening can cause damage to pipe threads which may cause leakage. Ductile iron fittings should be tightened approximately three turns beyond hand tight, but no more than four turns.

PROJECT INFORMATION

APPROVAL STAMP

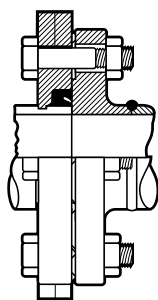
Project: FSI Submittal	<input type="checkbox"/> Approved
Address:	<input type="checkbox"/> Approved as noted
Contractor:	<input type="checkbox"/> Not approved
Engineer:	Remarks:
Submittal Date: December 24, 2019	
Notes 1:	
Notes 2:	

Victaulic® Vic-Flange Adapters

Styles 741 and 743



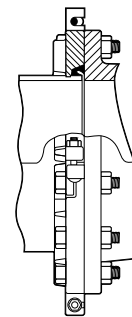
Style 741
2 – 12"/DN50 – DN300



Exaggerated for clarity



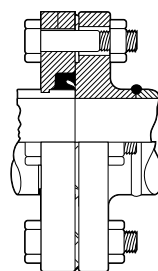
Style 741
14 – 24"/DN350 – DN600



Exaggerated for clarity



Style 743
2 – 12"/DN50 – DN300



Exaggerated for clarity

1.0 PRODUCT DESCRIPTION

Available Sizes

- **Style 741:** 2 – 24"/DN50 – DN600
- **Style 743:** 2 – 12"/DN50 – DN300

Pipe Material

- Carbon steel
- For use with stainless steel pipe, refer to Victaulic [publication 17.09](#) for pressure ratings and end loads.
- For use with PVC pipe, refer to Victaulic [publication 32.01](#) for pressure ratings.
- For use with aluminum pipe, refer to Victaulic [publication 21.04](#) for pressure ratings and end loads.
- For exceptions reference section 6.0 Notifications.

Maximum Working Pressure

- **Style 741:** Accommodates pressure ranging from full vacuum (29.9 in-Hg/760 mm-Hg) up to 300 psi/2068 kPa/21 bar
- **Style 743:** Accommodates pressure ranging from full vacuum (29.9 in-Hg/760 mm-Hg) up to 720 psi/4964 kPa/50 bar

Application

- Designed to transition from flanged to grooved piping systems

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

2.0 CERTIFICATION/LISTINGS



NOTE

- See Victaulic [publication 02.06](#): Victaulic Potable Water Approvals ANSI/NSF for potable water approvals if applicable.

3.0 SPECIFICATIONS – MATERIAL

Housing: Ductile iron conforming to ASTM A536, Grade 65-45-12. Ductile iron conforming to ASTM A395, Grade 65-45-15, is available upon special request.

Housing Coating: (specify choice)

Standard: Black enamel.

Optional: Hot dipped galvanized per ASTM A123.

Optional: Contact Victaulic with your requirements for other coatings.

Gasket: (specify choice¹)

Victaulic Grade “E” EPDM

EPDM (Green stripe color code). Temperature range –30°F to +230°F/–34°C to +110°C. May be specified for hot water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. UL Classified in accordance with ANSI/NSF 61 for cold +73°F/+23°C and hot +180°F/+82°C potable water service and ANSI/NSF 372. NOT COMPATIBLE FOR USE WITH PETROLEUM SERVICES OR STEAM SERVICES.

Victaulic Grade “T” Nitrile

Nitrile (Orange stripe color code). Temperature range 20°F to +180°F/29°C to +82°C. May be specified for oil related services, including air with oil vapor, this gasket may be specified for temperatures rated up to +180°F/+82°C. For water related services, this gasket may be specified for temperatures rated up to +150°F/+66°C. For oil free, dry air services, this gasket may be specified for temperatures rated up to +140°F/+60°C. NOT COMPATIBLE FOR USE WITH HOT WATER SERVICES OR STEAM SERVICES.

Others

For alternate gasket selection, reference [publication 05.01](#): Victaulic Seal Selection Guide.

¹ Services listed are General Service Guidelines only. It should be noted that there are services for which these gaskets are not compatible. Reference should always be made to the latest [Victaulic Seal Selection Guide](#) for specific gasket service guidelines and for a listing of services which are not compatible.

Draw Bolts/Nuts (14 – 24”/DN350 – DN600 only):

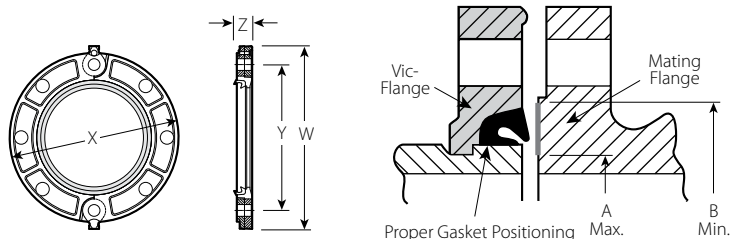
Carbon steel oval neck track bolts meeting the mechanical property requirements of ASTM A449 (imperial) and ISO 898-1 Class 9.8 (metric). Carbon steel hex flange nuts meeting the mechanical property requirements of ASTM A563 Grade B (imperial - heavy hex nuts) and ASTM A563M Class 9 (metric - hex nuts). Track bolts and hex flange nuts are zinc electroplated per ASTM B633 FE/ZN5, finish Type III (imperial) or Type II (metric).

4.0 DIMENSIONS

Style 741 Vic-Flange Adapter

2 – 12"/DN50 – DN300

ANSI Class 125 and 150 Flanges



Exaggerated for clarity

Size		Assembly Bolt/Nut ²		Sealing Surface		Dimensions				Weight
Nominal inches DN	Actual Outside Diameter inches mm	Qty.	Size inches	"A" Max. inches mm	"B" Min. inches mm	W inches mm	X inches mm	Y inches mm	Z inches mm	Approximate (Each) lb kg
2 DN50	2.375 60.3	4	$\frac{5}{8} \times 2 \frac{3}{4}$	2.38 60	3.41 87	6.75 172	6.00 152	4.75 121	0.75 19	3.1 1.4
2 ½	2.875 73.0	4	$\frac{5}{8} \times 3$	2.88 73	3.91 99	7.88 200	7.00 178	5.50 140	0.88 22	4.8 2.1
3 DN80	3.500 88.9	4	$\frac{5}{8} \times 3$	3.50 89	4.53 115	8.50 216	7.50 191	6.00 152	1.00 25	5.3 2.4
4 DN100	4.500 114.3	8	$\frac{5}{8} \times 3$	4.50 114	5.53 141	10.00 254	9.00 229	7.50 191	1.00 25	7.4 3.4
5	5.563 141.3	8	$\frac{3}{4} \times 3 \frac{1}{2}$	5.56 141	6.71 171	11.00 279	10.00 254	8.50 216	1.00 25	8.6 3.9
6 DN150	6.625 168.3	8	$\frac{3}{4} \times 3 \frac{1}{2}$	6.63 168	7.78 198	12.00 305	11.00 279	9.50 241	1.00 25	9.9 4.5
8 DN200	8.625 219.1	8	$\frac{3}{4} \times 3 \frac{1}{2}$	8.63 219	9.94 252	14.75 375	13.50 343	11.75 298	1.13 29	16.6 7.5
10 DN250	10.750 273.0	12	$\frac{7}{8} \times 4$	10.75 273	12.31 313	17.25 438	16.00 406	14.25 362	1.25 32	24.2 11.0
12 DN300	12.750 323.9	12	$\frac{7}{8} \times 4$	12.75 324	14.31 364	20.25 514	19.00 483	17.00 432	1.25 32	46.8 21.2

² Total assembly bolts required to be supplied by installer.

NOTE

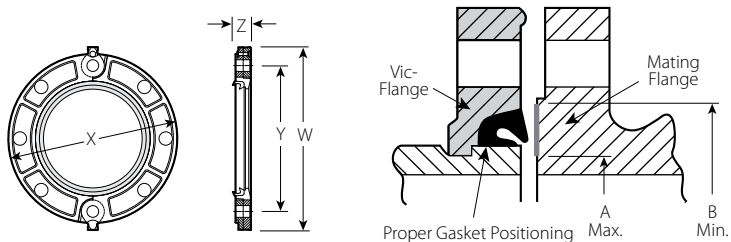
- IMPORTANT: Style 741 Vic-Flange adapters provide rigid joints when used on pipe with standard cut or roll groove dimensions and consequently allow no linear or angular movement at the joint. When used with Victaulic Series 700 butterfly valves, plastic pipe or light wall metallic pipe, small teeth in I.D. of key section should be removed and may be used on one side of the valve. Reference the [I-100](#): Victaulic Field Installation Handbook for details. Contact Victaulic for information on ISO 2084 (PN10); DIN 2532 (PN10) and JIS B-2210 (10K) flanges.

4.1 DIMENSIONS

Style 741 Vic-Flange Adapter

DN50 – DN300/2 – 12"

PN10 and PN16 Flanges



Exaggerated for clarity

Size		PN10 Flanges		PN16 Flanges		Sealing Surface		Dimensions				Weight
Nominal DN inches	Actual Outside Diameter mm inches	Assembly Bolt/Nut ^{2,3}		Assembly Bolt/Nut ^{2,3}		"A" Max. mm inches	"B" Min. mm inches	W mm inches	X mm inches	Y mm inches	Z mm inches	Approximate (Each) kg lb
		Qty.	Size mm	Qty.	Size mm							
DN50 2	60.3 2.375	4	M16 x 70	4	M16 x 70	60 2.38	87 3.41	178 7.00	165 6.50	127 5.00	22 0.88	1.4 3.1
DN65	76.1 3.000	4	M16 x 70	4	M16 x 70	76 3.00	103 4.05	210 8.25	187 7.38	146 5.75	22 0.88	2.1 4.7
DN80 3	88.9 3.500	8	M16 x 70	8	M16 x 70	89 3.50	115 4.53	219 8.63	200 7.88	162 6.38	22 0.88	2.4 5.4
DN100 4	114.3 4.500	8	M16 x 76	8	M16 x 76	114 4.50	141 5.55	251 9.88	229 9.00	181 7.13	25 1.00	3.5 7.7
DN125	139.7 5.500	8	M16 x 76	8	M16 x 76	141 5.55	171 6.73	276 10.88	251 9.88	213 8.38	29 1.13	4.2 9.3
	159.0 6.250	8	M20 x 89	8	M20 x 89	159 6.25	187 7.36	314 12.38	289 11.38	241 9.50	29 1.13	4.5 10.0
	165.1 6.500	8	¾ x 3 ½	8	¾ x 3 ½	165 6.50	192 7.56	305 12.00	279 11.00	241 9.50	25 1.00	5.0 11.0
DN150 6	168.3 6.625	8	M20 x 89	8	M20 x 89	168 6.63	198 7.78	302 11.88	279 11.00	241 9.50	25 1.00	4.5 10.0
DN200 8	219.1 8.625	8	M20 x 89	12	M20 x 89	219 8.63	252 9.94	368 ⁴ 14.50	343 ⁴ 13.50	295 ⁴ 11.63	29 ⁴ 1.13	7.5 16.6
DN250 10	273.0 10.750	12	M20 x 89	12	M24 x 90	273 10.75	313 12.31	438 ⁵ 17.25	397 ⁵ 15.63	352 ⁵ 13.88	29 ⁵ 1.13	11.0 24.2
DN300 12	323.9 12.750	12	M20 x 89	12	M24 x 90	324 12.75	365 14.31	479 ⁶ 18.88	460 ⁶ 18.13	400 ⁶ 15.75	32 ⁶ 1.25	17.4 38.4

² Total assembly bolts required to be supplied by installer.

³ Longer bolts required when the Vic-Flange is utilized with wafer-type valves.

⁴ PN16 dimensions (mm/inches): W = 360/14.17; X = 340/13.38; Y = 295/11.63; Z = 32/1.25.

⁵ PN16 dimensions (mm/inches): W = 438/17.24; X = 406/16.00; Y = 356/14.00; Z = 32/1.25.

⁶ PN16 dimensions (mm/inches): W = 478/18.82; X = 445/17.50; Y = 410/16.13; Z = 32/1.25.

NOTE

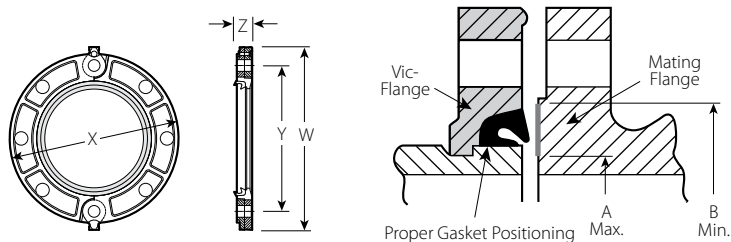
- IMPORTANT: Style 741 Vic-Flange adapters provide rigid joints when used on pipe with standard cut or roll groove dimensions and consequently allow no linear or angular movement at the joint. When used with Victaulic Series 700 butterfly valves, plastic pipe or light wall metallic pipe, small teeth in I.D. of key section should be removed and may be used on one side of the valve. Reference the [I-100](#): Victaulic Field Installation Handbook for details. Contact Victaulic for information on ISO 2084 (PN10); DIN 2532 (PN10) and JIS B-2210 (10K) flanges.

4.2 DIMENSIONS

Style 741 Vic-Flange Adapter

DN50 – DN200/2 – 8"

Australian Standard Table "E" Flanges



Exaggerated for clarity

Size		Assembly Bolt/Nut ²		Sealing Surface		Dimensions				Weight
Nominal DN inches	Actual Outside Diameter mm inches	Qty.	Size inches	"A" Max. mm inches	"B" Min. mm inches	W mm inches	X mm inches	Y mm inches	Z mm inches	Approximate (Each) kg lb
DN50 2	60.3 2.375	4	5/8 x 2 3/4	60 2.38	84 3.31	165 6.50	152 6.00	114 4.50	19 0.75	1.9 4.1
DN80 3	88.9 3.500	4	5/8 x 3	89 3.50	113 4.44	200 7.88	191 7.50	146 5.75	25 1.00	2.4 5.4
DN100 4	114.3 4.500	8	5/8 x 3	114 4.50	131 5.16	251 9.88	229 9.00	178 7.00	25 1.00	3.3 7.2
DN150 6	168.3 6.625	8	3/4 x 3 1/2	168 6.63	192 7.56	286 11.25	279 11.00	235 9.25	25 1.00	4.5 9.9
DN200 8	219.1 8.625	8	3/4 x 3 1/2	219 8.63	247 9.72	368 14.50	343 13.50	292 11.50	29 1.13	5.7 12.5

² Total assembly bolts required to be supplied by installer.

NOTE

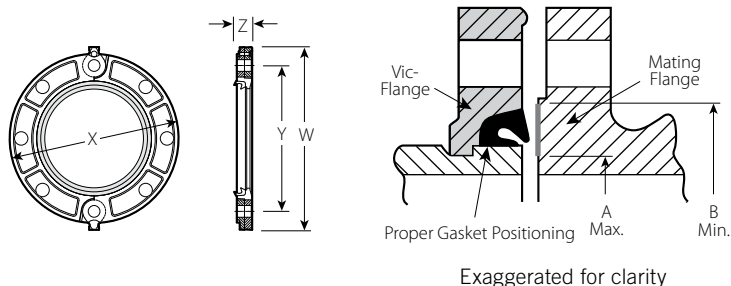
- IMPORTANT: Style 741 Vic-Flange adapters provide rigid joints when used on pipe with standard cut or roll groove dimensions and consequently allow no linear or angular movement at the joint. When used with Victaulic Series 700 butterfly valves, plastic pipe or light wall metallic pipe, small teeth in I.D. of key section should be removed and may be used on one side of the valve. Reference the [I-100](#): Victaulic Field Installation Handbook for details. Contact Victaulic for information on ISO 2084 (PN10); DIN 2532 (PN10) and JIS B-2210 (10K) flanges.

4.3 DIMENSIONS

Style 741 Vic-Flange Adapter

DN50 – DN200/2 – 8"

Chinese Standard Table "E" Flanges



Size		Assembly Bolt/Nut ²		Sealing Surface		Dimensions				Weight
Nominal DN inches	Actual Outside Diameter mm inches	Qty.	Size mm	"A" Max. mm inches	"B" Min. mm inches	W mm inches	X mm inches	Y mm inches	Z mm inches	Approximate (Each) kg lb
DN50 2	60.3 2.375	4	M16 X 70	60 2.38	87 3.41	172 6.75	152 6.00	121 4.75	19 0.75	1.4 3.1
DN65	76.1 3.000	4	M16 X 70	78 3.07	94 3.68	210 8.25	187 7.38	146 5.75	22 0.88	2.1 4.7
DN80 3	88.9 3.500	8	M16 X 76	89 3.50	115 4.53	213 8.38	191 7.50	152.4 6.00	25 1.00	2.4 5.4
	108.0 4.250	8	M16 X 76	110 4.33	126 4.97	248 9.75	222 8.75	181 7.13	25 1.00	3.5 7.7
DN100 4	114.3 4.500	8	M16 X 76	114 4.50	141 5.55	251 9.88	229 9.00	191 7.50	25 1.00	3.5 7.7
	133.0 5.250	8	M16 X 76	135 5.33	153 6.02	276 10.88	251 9.88	213 8.38	29 1.13	3.9 8.6
DN125	139.7 5.500	8	M16 X 76	142 5.59	160 6.28	276 10.88	251 9.88	213 8.38	29 1.13	3.9 8.6
	159.0 6.250	8	M20 X 89	159 6.25	187 7.36	314 12.38	289 11.38	241 9.50	29 1.13	4.5 10.0
	165.1 6.500	8	M20 X 89	165 6.50	195 7.68	305 12.00	280 11.00	241 9.50	29 1.13	4.5 10.0
DN200 8	219.1 8.625	12	M20 X 89	219 8.63	252 9.94	368 14.50	343 13.50	298 11.75	29 1.13	7.5 16.6

² Total assembly bolts required to be supplied by installer.

NOTE

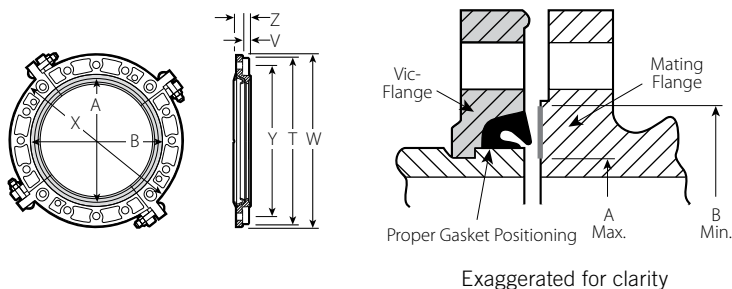
- IMPORTANT: Style 741 Vic-Flange adapters provide rigid joints when used on pipe with standard cut or roll groove dimensions and consequently allow no linear or angular movement at the joint. When used with Victaulic Series 700 butterfly valves, plastic pipe or light wall metallic pipe, small teeth in I.D. of key section should be removed and may be used on one side of the valve. Reference the [I-100](#): Victaulic Field Installation Handbook for details. Contact Victaulic for information on ISO 2084 (PN10); DIN 2532 (PN10) and JIS B-2210 (10K) flanges.

4.4 DIMENSIONS

Style 741 Vic-Flange Adapter

14 – 24"/DN350 – DN600⁷

ANSI Class 125 and 150 Flanges



Size		Bolt/Nut				Sealing Surface		Dimensions						Weight
Nominal inches DN	Actual Outside Diameter inches mm	Assembly ²		Draw ⁸		"A" Max. inches mm	"B" Min. inches mm	T inches mm	V inches mm	W inches mm	X inches mm	Y inches mm	Z inches mm	Approximate (Each) lb kg
		Qty.	Size inches	Qty.	Size inches									
14 DN350	14.000 355.6	12	1 x 4½	4	⅝ x 3½	14.00 356	16.39 416	19.38 492	1.00 25	24.50 622	21.00 533	18.75 476	2.50 64	62.0 28.1
16 DN400	16.000 406.4	16	1 x 4½	4	⅝ x 3½	16.00 406	18.39 467	21.50 546	1.00 25	27.13 689	23.50 597	21.25 540	2.50 64	79.0 35.8
18 DN450	18.000 457.0	16	1 ⅛ x 4¾	4	¾ x 4¼	18.00 457	20.00 508	22.25 565	1.00 25	29.00 737	25.50 648	22.75 578	2.75 70	82.3 37.3
20 DN500	20.000 508.0	20	1 ⅛ x 5¼	4	¾ x 4¼	20.00 508	22.50 572	25.00 635	1.00 25	31.50 800	27.50 699	25.00 635	2.75 70	103.3 46.9
24 DN600	24.000 610.0	20	1 ¼ x 5¾	4	¾ x 4¼	24.00 610	27.75 705	29.00 737	1.00 25	36.00 914	32.00 813	29.50 749	3.00 76	142.0 64.4

² Total assembly bolts required to be supplied by installer.

⁷ For cut groove systems only. For 14 – 24"/DN350 – DN600 roll groove systems, AGS (Advanced Groove System) products are used. The Style 741 Vic-Flange adapter is not compatible with the AGS system.

⁸ Draw bolts supplied with 14 – 24"/DN350 – DN600 Vic-Flange adapters.

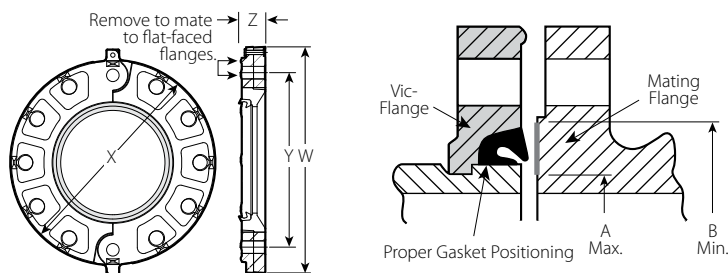
NOTE

- IMPORTANT: Style 741 Vic-Flange adapters provide rigid joints when used on pipe with standard cut or roll groove dimensions and consequently allow no linear or angular movement at the joint. When used with Victaulic Series 700 butterfly valves, plastic pipe or light wall metallic pipe, small teeth in I.D. of key section should be removed and may be used on one side of the valve. Reference the [I-100](#): Victaulic Field Installation Handbook for details. Contact Victaulic for information on ISO 2084 (PN10); DIN 2532 (PN10) and JIS B-2210 (10K) flanges.

4.5 DIMENSIONS

Style 743 Vic-Flange Adapter

ANSI Class 250 and 300 Flanges



Exaggerated for clarity

Size		Assembly Bolt/Nut ²		Sealing Surface		Dimensions				Weight
Nominal inches DN	Actual Outside Diameter inches mm	Qty.	Size inches	"A" Max. inches mm	"B" Min. inches mm	W inches mm	X inches mm	Y inches mm	Z inches mm	Approximate (Each) lb kg
2 DN50	2.375 60.3	8	5/8 x 3	2.38 60	3.41 87	7.75 197	6.50 165	5.00 127	1.00 25	4.8 2.2
2½	2.875 73.0	8	¾ x 3¼	2.88 73	3.91 99	8.63 219	7.50 191	5.88 149	1.13 29	7.4 3.4
3 DN80	3.500 88.9	8	¾ x 3½	3.50 89	4.53 115	9.50 241	8.25 210	6.63 168	1.25 32	9.1 4.1
4 DN100	4.500 114.3	8	¾ x 3¾	4.50 114	5.53 141	11.38 289	10.00 254	7.88 200	1.38 35	15.3 6.9
5	5.563 141.3	8	¾ x 4	5.56 141	6.72 171	12.38 314	11.00 279	9.25 235	1.50 38	17.7 8.0
6 DN150	6.625 168.3	12	¾ x 4½	6.63 168	7.78 198	13.88 352	12.50 318	10.63 270	1.50 38	23.4 10.6
8 DN200	8.625 219.1	12	7/8 x 4¾	8.63 219	9.94 252	16.75 425	15.00 381	13.00 330	1.75 44	34.3 15.6
10 DN250	10.750 273.0	16	1 x 5¼	10.75 273	12.31 313	19.25 489	17.50 445	15.25 387	2.00 51	48.3 21.9
12 DN300	12.750 323.9	16	1 1/8 x 5¾	12.75 324	14.31 363	22.25 565	20.50 521	17.75 451	2.13 54	70.5 32.0

² Total assembly bolts required to be supplied by installer.

5.0 PERFORMANCE

Style 741 Vic-Flange Adapter

2 – 12"/DN50 – DN300

ANSI Class 125 and 150 Flanges

Size		Maximum Working Pressure ⁹ psi kPa	Maximum End Load ⁹ lb N
Nominal inches DN	Actual Outside Diameter inches mm		
2 DN50	2.375 60.3	300 2068	1330 5920
2 ½	2.875 73.0	300 2068	1950 8680
3 DN80	3.500 88.9	300 2068	2885 12840
4 DN100	4.500 114.3	300 2068	4770 21225
5	5.563 141.3	300 2068	7290 32440
6 DN150	6.625 168.3	300 2068	10350 46060
8 DN200	8.625 219.1	300 2068	17500 77875
10 DN250	10.750 273.0	300 2068	27215 121110
12 DN300	12.750 323.9	300 2068	38285 170270

⁹ Working Pressure and End Load are total, from all internal and external loads, based on standard weight (ANSI) steel pipe, standard roll or cut grooved in accordance with Victaulic specifications. Contact Victaulic for performance on other pipe.

NOTE

- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1½ times the figures shown.

5.1 PERFORMANCE

Style 741 Vic-Flange Adapter

DN50 – DN300/2 – 12"

PN10 and PN16 Flanges

Size		PN10 Flanges		PN16 Flanges	
Nominal DN inches	Actual Outside Diameter mm inches	Maximum Working Pressure ⁹ bar psi	Maximum End Load ⁹ N lb	Maximum Working Pressure ⁹ bar psi	Maximum End Load ⁹ N lb
DN50 2	60.3 2.375	10 145	2850 640	16 230	4561 1025
DN65	76.1 3.000	10 145	4540 1020	16 230	7275 1635
DN80 3	88.9 3.500	10 145	6210 1395	16 230	9925 2230
DN100 4	114.3 4.500	10 145	10260 2305	16 230	16420 3690
DN125	139.7 5.500	10 145	15330 3446	16 230	24520 5512
	159.0 6.250	10 145	19800 4450	16 230	31400 7056
DN150 6	168.3 6.625	10 145	22250 5000	16 230	35600 8000
DN200 8	219.1 8.625	10 145	37690 8470	16 230	60320 13555
DN250 10	273.0 10.750	10 145	58560 13160	16 230	93695 21055
DN300 12	323.9 12.750	10 145	82370 18510	16 230	131810 29620

⁹ Working Pressure and End Load are total, from all internal and external loads, based on standard weight (ANSI) steel pipe, standard roll or cut grooved in accordance with Victaulic specifications. Contact Victaulic for performance on other pipe.

NOTE

- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1½ times the figures shown.

5.2 PERFORMANCE

Style 741 Vic-Flange Adapter

DN50 – DN200/2 – 8"

Australian Standard Table "E" Flanges

Size		Maximum Working Pressure ⁹	Maximum End Load ⁹
Nominal DN inches	Actual Outside Diameter mm inches		
DN50 ¹⁰ 2	60.3 2.375	1400 203	3996 900
DN80 3	88.9 3.500	1400 203	8700 1955
DN100 4	114.3 4.500	1400 203	14374 3220
DN150 6	168.3 6.625	1400 203	31150 7000
DN200 8	219.1 8.625	1400 203	52777 11860

⁹ Working Pressure and End Load are total, from all internal and external loads, based on standard weight (ANSI) steel pipe, standard roll or cut grooved in accordance with Victaulic specifications. Contact Victaulic for performance on other pipe.

NOTE

- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1½ times the figures shown.

5.3 PERFORMANCE

Style 741 Vic-Flange Adapter

DN50 – DN200/2 – 8"

Chinese Standard Table "E" Flanges

Size		Maximum Working Pressure ⁹	Maximum End Load ⁹
Nominal DN inches	Actual Outside Diameter mm inches		
DN50 2	60.3 2.375	1400 203	3996 900
DN65	76.1 3.000	1400 203	6365 1431
DN80 3	88.9 3.500	1400 203	8700 1955
	108.0 4.250	1400 203	12819 2882
DN100 4	114.3 4.500	1400 203	14374 3220
	133.0 5.250	1400 203	19440 4370
DN125	139.7 5.500	1400 203	21448 4822
	159.0 6.250	1400 203	27784 6246
	165.1 6.500	1400 203	29920 6726
DN200 8	219.1 8.625	1400 203	52777 11860

⁹ Working Pressure and End Load are total, from all internal and external loads, based on standard weight (ANSI) steel pipe, standard roll or cut grooved in accordance with Victaulic specifications. Contact Victaulic for performance on other pipe.

NOTE

- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1½ times the figures shown.

5.4 PERFORMANCE

Style 741 Vic-Flange Adapter

14 – 24"/DN350 – DN600

ANSI Class 125 and 150 Flanges

Size		Maximum Working Pressure ⁹	Maximum End Load ⁹
Nominal inches DN	Actual Outside Diameter inches mm		
14 DN350	14.000 355.6	300 2068	46180 205500
16 DN400	16.000 406.4	300 2068	60300 268335
18 DN450	18.000 457.0	300 2068	76340 339700
20 DN500	20.000 508.0	300 2068	94250 419400
24 DN600	24.000 610.0	300 2068	135700 603865

⁹ Working Pressure and End Load are total, from all internal and external loads, based on standard weight (ANSI) steel pipe, standard roll or cut grooved in accordance with Victaulic specifications. Contact Victaulic for performance on other pipe.

NOTE

- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1½ times the figures shown.

5.5 PERFORMANCE

Style 743 Vic-Flange Adapter

ANSI Class 250 and 300 Flanges

Size		Maximum Working Pressure ⁹	Maximum End Load ⁹
Nominal inches DN	Actual Outside Diameter inches mm		
2 DN50	2.375 60.3	720 4964	3190 14200
2½	2.875 73.0	720 4964	4670 20780
3 DN80	3.500 88.9	720 4964	6925 30815
4 DN100	4.500 114.3	720 4964	11445 50930
5	5.563 141.3	720 4964	17500 77875
6 DN150	6.625 168.3	720 4964	24805 110380
8 DN200	8.625 219.1	720 4964	42045 187100
10 DN250	10.750 273.0	720 4964	65315 290650
12 DN300	12.750 323.9	720 4964	91880 408870

⁹ Working Pressure and End Load are total, from all internal and external loads, based on standard weight (ANSI) steel pipe, standard roll or cut grooved in accordance with Victaulic specifications. Contact Victaulic for performance on other pipe.

NOTE

- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1½ times the figures shown.

6.0 NOTIFICATIONS

- The Style 741 (2 – 12"/DN50 – DN300) design incorporates small teeth inside the key shoulder I.D. to prevent rotation. These teeth should be removed when *Vic-Flange* adapter is utilized with a Victaulic Series 700 grooved-end butterfly valve, Schedule 5 pipe or plastic pipe. *Vic-Flange* adapter Style 741 may only be used on one side of Victaulic Series 700 butterfly valve, sizes 2 – 4"/DN50 – DN100 fitted with standard or latch-lock handles.
- *Vic-Flange* adapter must be assembled so it does not interfere with handle operation. Because of the outside flange dimension, *Vic-Flange* adapter should not be used within 90° of one another on a standard fitting. When wafer or lug-type valves are used adjoining a Victaulic fitting, check disc dimensions to assure proper clearance.
- *Vic-Flange* adapters should not be used as anchor points for tie-rods across nonrestrained joints. Mating rubber faced flanges, valves, etc. requires the use of a *Vic-Flange* washer.
- Area A-B noted in the drawings in sections 4.0 through 4.5 must be free from gouges, undulations or deformities of any type for effective sealing.
- *Vic-Flange* adapter gaskets must always be assembled with the color coded lip on the pipe and the other lip facing the mating flange.
- *Vic-Flange* hinge points must be oriented approximately 90° to each other when mated.
- Flange Washers: *Vic-Flange* adapters require a smooth hard surface at the mating flange face for effective sealing. Some applications for which the *Vic-Flange* adapter is otherwise well suited do not provide an adequate mating surface. In such cases, it is recommended that a metal (Type F phenolic for Style 641 with copper systems) Flange Washer be inserted between the *Vic-Flange* adapter and the mating flange to provide the necessary sealing surface.
- Typical applications where a Flange Washer should be used are:
 - A. When mating to a serrated flange: a flange gasket should be used adjacent to the serrated flange and then the Flange Washer is inserted between the *Vic-Flange* adapter and the flange gasket.
 - B. When mating to a wafer valve: where typical valves are rubber lined and partially rubber faced (smooth or not), the Flange Washer is placed between the valve and the *Vic-Flange* adapter.
 - C. When mating a rubber faced flange: the Flange Washer is placed between the *Vic-flanges* and the rubber faced flange.
 - D. When mating AWWA cast flanges to IPS flanges: the Flange Washer or Transition Ring is placed between two *Vic-Flange* adapters with the hinge points oriented 90° to each other. If one flange is not a *Vic-Flange* adapter (e.g., flanged valve), then a flange gasket must be placed adjacent to that flange and the Flange Washer inserted between the flange gasket and the *Vic-Flange* adapter. Transition rings rather than Flange Washers must be used when mating Style 741 to Style 341 Flange Adapters in sizes 14 – 24"/DN350 – DN600.
 - E. When mating to components (valves, strainers, etc.) where the component flange face has an insert: follow the same arrangement as in Application 1.
 - F. Additional information regarding the use of a Flange Washer can be found in the [I-100](#): Victaulic Field Installation Handbook.
- When ordering Flange Washers, always specify product style (Style 741 or Style 743) and size to assure proper Flange Washer is supplied.

NOTE

- Style 741 is compatible with ANSI CL 125 or CL150, PN10/16 and Australian Standard Table E bolt hole patterns.

6.0 NOTIFICATIONS (Continued)

WARNING

- Victaulic RX roll sets must be used when grooving light-wall/thin-wall stainless steel pipe for use with Victaulic Couplings.

Failure to use Victaulic RX roll sets when grooving light-wall/thin-wall stainless steel pipe may cause joint failure, resulting in serious personal injury and/or property damage.

NOTICE

- Victaulic RX grooving rolls must be ordered separately. They are identified by a silver color and the designation RX on the front of the roll sets.

NOTICE

- Victaulic does not recommend the use of any furnace butt-welded pipe with sizes NPS 2"/DN50 and smaller Victaulic gasketed joint products. This includes, but is not limited to, ASTM A53 Type F pipe.

7.0 REFERENCE MATERIALS

[02.06: Victaulic Potable Water Approvals](#)

[05.01: Victaulic Seal Selection Guide](#)

[10.01: Victaulic Regulatory Approval Reference Guide](#)

[17.01: Victaulic Pipe Preparation for Use on Stainless Steel Pipe With Victaulic Products](#)

[17.09: Victaulic Pressure Ratings and End Loads for Victaulic Ductile Iron Grooved Couplings on Stainless Steel Pipe](#)

[29.01: Victaulic Terms and Conditions/Warranty](#)

[1-100: Victaulic Field Installation Handbook](#)

User Responsibility for Product Selection and Suitability

Each user bears final responsibility for making a determination as to the suitability of Victaulic products for a particular end-use application, in accordance with industry standards and project specifications, as well as Victaulic performance, maintenance, safety, and warning instructions. Nothing in this or any other document, nor any verbal recommendation, advice, or opinion from any Victaulic employee, shall be deemed to alter, vary, supersede, or waive any provision of Victaulic Company's standard conditions of sale, installation guide, or this disclaimer.

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Note

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

Installation

Reference should always be made to the Victaulic installation handbook or installation instructions of the product you are installing. Handbooks are included with each shipment of Victaulic products, providing complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

Warranty

Refer to the Warranty section of the current Price List or contact Victaulic for details.

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SECTION B

Hangers and Sway Bracing



- **Fig. 200 - "Trimline" Adjustable Band Hanger (B-Line Fig. B3170NF)**
~~**Fig. 200F - "Trimline" Adjustable Band Hanger with Felt Lining (B-Line Fig. B3170NFF)**~~
~~**Fig. 200C - "Trimline" Adjustable Band Hanger with Plastic Coated (B-Line Fig. B3170NFC)**~~
~~**Fig. 200S - "Trimline" Adjustable Band Hanger with Non-Captured Nut**~~

Size Range:

Fig. 200 - 1/2" (15mm) thru 8" (200mm) pipe

Material: Steel, Pre-Galvanized to G90 specifications

Function: For fire sprinkler and other general piping purposes. Knurled swivel nut design permits hanger adjustment after installation.

Features:

- (1/2" (15mm) thru 2" (50mm)) Flared edges ease installation for all pipe types and protect CPVC plastic pipe from abrasion. Captured design keeps adjusting nut from separating with hanger. Hanger is easily installed around pipe.
- For hanger with non-captured nut order Fig. 200S.
- (2 1/2" (65mm) thru 8" (200mm)) Spring tension on nut holds it securely in hanger before installation. Adjusting nut is easily removed.

Approvals: Underwriters Laboratories listed (1/2" (15mm) thru 8" (200mm)) in the USA (**UL**) and Canada (**cUL**) for steel and CPVC plastic pipe and Factory Mutual Engineering Approved (**FM**) (3/4" (20mm) thru 8" (200mm)). Conforms to Federal Specifications WW-H-171E & A-A-1192A, Type 10 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 10.

Maximum Temperature: 650°F (343°C)

Finish: Pre-Galvanized. Stainless Steel materials will be supplied with (2) hex nuts in place of a knurl nut.

Order By: Figure number and pipe size

Designed to meet or exceed requirements of FM DS 2-0.

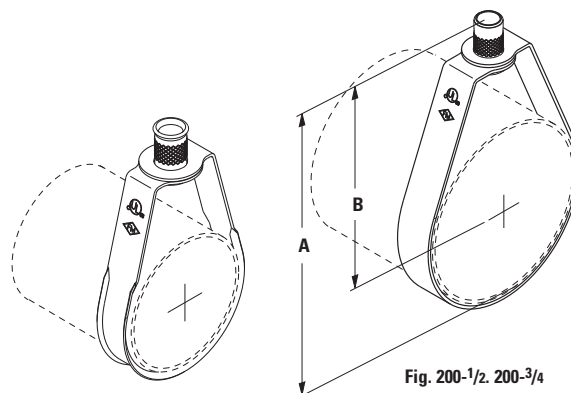


Fig. 200-1 to 200-2

Fig. 200-1/2, 200-3/4

Fig. 200-2 1/2 to 200-8



Fig. 200C



Fig. 200F



Fig. 200



Fig. 200S

Part No.	Pipe Size in. (mm)	Rod Size	A in. (mm)	B in. (mm)	Approx. Wt./100 lbs. (kg)
200-1/2	1/2" (15)	3/8"-16	3 1/8" (79.4)	2 5/8" (66.7)	11 (5.0)
200-3/4	3/4" (20)	3/8"-16	3 1/8" (79.4)	2 1/2" (63.5)	11 (5.0)
200-1	1" (25)	3/8"-16	3 3/8" (85.7)	2 5/8" (66.7)	12 (5.5)
200-1 1/4	1 1/4" (32)	3/8"-16	3 3/4" (94.0)	2 7/8" (73.0)	13 (5.9)
200-1 1/2	1 1/2" (40)	3/8"-16	3 7/8" (98.4)	2 7/8" (73.0)	14 (6.4)
200-2	2" (50)	3/8"-16	4 1/2" (114.3)	3" (76.3)	15 (6.9)
200-2 1/2	2 1/2" (65)	3/8"-16	5 5/8" (142.9)	4 1/8" (104.7)	27 (12.3)
200-3	3" (75)	3/8"-16	5 7/8" (149.1)	4" (101.6)	29 (13.3)
200-3 1/2	3 1/2" (90)	3/8"-16	7 3/8" (187.3)	5 1/4" (133.3)	34 (15.6)
200-4	4" (100)	3/8"-16	7 3/8" (187.3)	5" (127.0)	35 (16.0)
200-5	5" (125)	1/2"-13	9 1/8" (231.8)	6 1/4" (158.7)	66 (30.2)
200-6	6" (150)	1/2"-13	10 1/8" (257.2)	6 3/4" (171.4)	73 (33.4)
200-8	8" (200)	1/2"-13	13 1/8" (333.4)	8 3/4" (222.2)	136 (62.3)

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Seismic Bracing

TOLCO™ Fig. 1001 - Sway Brace Attachment

Size Range: Pipe size to be braced: 1" (25mm) thru 8" (200mm) IPS.

* Pipe size used for bracing: 1" (25mm) and 1 1/4" (32mm) Schedule 40 IPS.

Material: Steel

Function: For bracing pipe against sway and seismic disturbance.

The pipe attachment component of a sway brace system:

Fig. 1001 is used in conjunction with a Fig. 900 Series fitting and joined together with bracing pipe per NFPA 13, forming a complete sway brace assembly.

Features: Can be used to brace schedules 7 through 40 IPS. Field adjustable, making critical pre-engineering of bracing pipe length unnecessary. Unique design requires no threading of bracing pipe. Can be used as a component of a four-way riser brace. Comes assembled and ready for installation. Fig. 1001 has built-in visual verification of correct installation. See installation note below.

Installation Note: Position Fig. 1001 over the pipe to be braced and tighten two hex head cone point set screws until heads bottom out. A minimum of 1" (25mm) pipe extension is recommended. Brace pipe can be installed on top or bottom of pipe to be braced.

Approvals: Underwriters Laboratories Listed in the USA and Canada (cULus). Approved by Factory Mutual Engineering (FM). Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development (OSHPD). For additional load, spacing and placement information relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines, OPA-0300-10.

Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

Order By: Indicate pipe size to be braced followed by pipe size used for bracing, figure number and finish.

Important Note: Fig. 1001 is precision manufactured to perform its function as a critical component of a complete bracing assembly. To ensure performance, the UL Listing requires that Fig. 1001 must be used only with other TOLCO bracing products.

Component of State of
California OSHPD Approved
Seismic Restraints System



Pipe Size		Max. Horizontal Design Load (UL) - Lbs.		
		For Brace Pipe Size 1" / 1 1/4"		
in.	(mm)	Sch. 7 1" / 1 1/4"	Sch. 10 1" / 1 1/4"	Sch. 40 1" / 1 1/4"
1"	(25)	-- / --	1000 / 1000	1000 / 1000
1 1/4"	(32)	1000 / 1000	1000 / 1000	1000 / 1000
1 1/2"	(40)	1000 / 1000	1500 / 1500	1500 / 1500
2"	(50)	1000 / 1000	2015 / 2015	2015 / 2015
2 1/2"	(65)	1600 / 1600	2015 / 2765	2015 / 2765
3"	(80)	1600 / 1600	2015 / 2765	2015 / 2765
4"	(100)	1600 / 1600	2015 / 2765	2015 / 2765
6"	(150)	1600 / 1600	2015 / 2765	2015 / 2765
8"	(200)	1600 / 1600	2015 / 2765	2015 / 2765

Part Number & Approx. Wt./100					Max. Horizontal Design Load (FM)			
Pipe Size in. (mm)	1" (24mm) Brace Pipe		1 1/4" (32mm) Brace Pipe		For Sch. 7, Sch. 10, & Sch. 40 Pipe ^{1,2,3}			
		Lbs. (kg)		Lbs. (kg)	30°-44° Lbs. (kN)	45°-59° Lbs. (kN)	60°-74° Lbs. (kN)	75°-90° Lbs. (kN)
1" (25)	1001-1 X 1	100.0 (45.3)	1001-1 X 1 1/4	118.0 (53.5)	1800 (8.00)	2550 (11.34)	3120 (13.88)	3490 (25.52)
1 1/4" (32)	1001-1 1/4 X 1	100.0 (45.3)	1001-1 1/4 X 1 1/4	114.0 (51.7)	1230 (5.47)	1740 (7.74)	2140 (9.52)	2380 (10.58)
1 1/2" (40)	1001-1 1/2 X 1	100.0 (45.3)	1001-1 1/2 X 1 1/4	115.0 (52.1)	1230 (5.47)	1740 (7.74)	2140 (9.52)	2380 (10.58)
2" (50)	1001-2 X 1	108.0 (49.0)	1001-2 X 1 1/4	121.0 (54.9)	1230 (5.47)	1740 (7.74)	2140 (9.52)	2380 (10.58)
2 1/2" (65)	1001-2 1/2 X 1	138.6 (62.8)	1001-2 1/2 X 1 1/4	160.4 (72.7)	800 (3.56)	1130 (5.02)	1380 (6.14)	1540 (6.85)
3" (80)	1001-3 X 1	147.2 (66.7)	1001-3 X 1 1/4	168.7 (76.5)	850 (3.78)	1200 (5.34)	1470 (6.54)	1640 (7.29)
4" (100)	1001-4 X 1	160.9 (73.0)	1001-4 X 1 1/4	182.4 (82.7)	850 (3.78)	1200 (5.34)	1470 (6.54)	1640 (7.29)
6" (150)	1001-6 X 1	190.0 (86.2)	1001-6 X 1 1/4	211.4 (95.9)	510 (2.27)	730 (3.25)	890 (3.96)	990 (4.40)
8" (200)	1001-8 X 1	217.4 (98.6)	1001-8 X 1 1/4	238.8 (108.3)	510 (2.27)	730 (3.25)	890 (3.96)	990 (4.40)

¹ FM Approved when used with 1 or 1 1/4 inch NPS Schedule 40 GB/T 3091, EN 10255H, or JIS G3451 steel pipe as the brace member.

² Load rating for LWV above refers to FM Approved Lightwall Pipe commonly referred to as "Schedule 7". These ratings may also be applied when EN 10220 and GB/T 8163 steel pipe.

³ Load rating for Schedule 10 above may be applied to GB/T 3092, EN 10255M and H, or JIS G3454, FM Approved Thinwall, or Schedule 40 steel pipes.

Note: See UL load ratings in UL Listed Design Load chart shown under drawing.



All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 2002 - Sway Brace Attachment

Size Range: Pipe size to be braced: 2½" (65mm) thru 8" (200mm) all steel schedules, copper, plastic, FRP, cast iron and ductile iron. Consult factory when bracing other than steel. The Fig. 2002 accepts brace pipes sizes 1½" (40mm) and 2" (50mm) steel schedule 10 through schedule 40.

Material: Steel

Function: For bracing pipe against sway and seismic disturbance. The pipe attachment component of a sway brace system: Fig. 2002 is used in conjunction with a TOLCO 900 Series sway brace attachments and joined together with bracing pipe. Install per NFPA 13 and/or TOLCO State of California OSHPD Approved Seismic Restrain Manual.

Features: Unique design will not damage thin wall, plastic, copper or ductile iron pipe. Easy verification of proper installation by tightening bolts until ears touch.

Installation: Place Fig. 2002 over pipe to be braced. Slide bracing pipe through attachment and tighten hex nuts until ears touch.

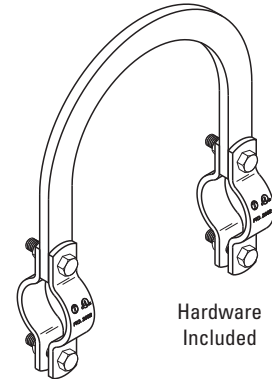
Approvals: Underwriters Laboratories Listed in the USA (UL) and Canada (cUL). Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development (OSHPD). For additional load, spacing and placement information relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines.

Finish: Plain. Contact customer service for alternative finishes and materials.

Order By: Figure number, pipe size to be braced, pipe size used for bracing (1½" (40mm) or 2" (50mm)) and finish.

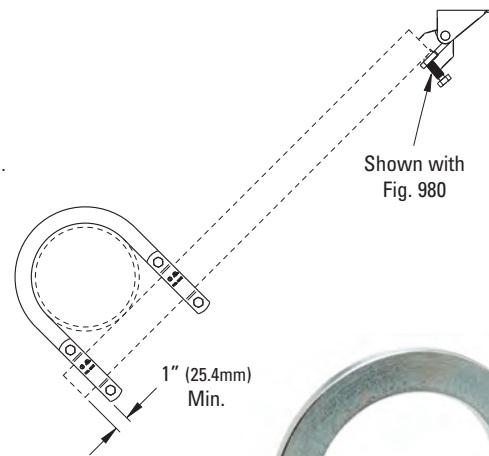
Important Note: Fig. 2002 is precision manufactured to perform its function as a critical component of a complete bracing assembly. To ensure performance, the UL Listing requires that the Fig. 2002 must be used only with other TOLCO bracing products.

Component of State of California OSHPD Approved Seismic Restraints System



Hardware Included

UL Listed Design Load
2015 lbs. (8.96kN)

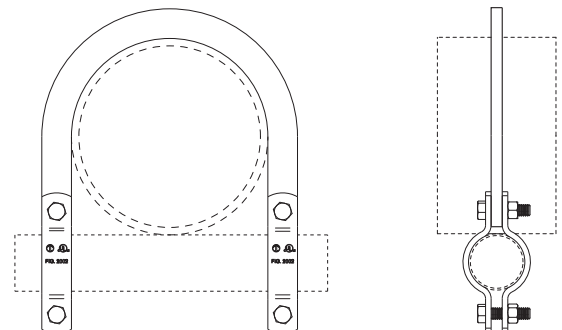


Shown with Fig. 980



Pipe Size in. (mm)	Part Number & Approx. Wt./100				Max. Horizontal Design Load (UL) Lbs. (kg)
	1½" (32mm) Brace Pipe		2" (50mm) Brace Pipe		
	Lbs.	(kg)	Lbs.	(kg)	
2½" (65)	2002-2½ X 1½	224.9 (102.0)	2002-2½ X 2	283.3 (128.6)	2015 (8.96)
3" (80)	2002-3 X 1½	241.0 (109.3)	2002-3 X 2	299.4 (135.8)	2015 (8.96)
4" (100)	2002-4 X 1½	268.4 (121.7)	2002-4 X 2	326.8 (148.2)	2015 (8.96)
6" (150)	2002-6 X 1½	326.6 (148.1)	2002-6 X 2	385.0 (174.6)	2015 (8.96)
8" (200)	2002-8 X 1½	381.3 (172.9)	2002-8 X 2	439.7 (199.4)	2015 (8.96)

** See load ratings in UL Listed Design Load chart.



All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 4L - Longitudinal "In-Line" Sway Brace Attachment

Size Range: 2" (50mm) through 8" (200mm) IPS.

Material: Steel

Function: For bracing pipe against sway and seismic disturbance.

Approvals: Underwriters Laboratories Listed in the USA (UL) and Canada (cUL) 2 1/2" (65mm) through 8" (200mm) pipe. Approved by Factory Mutual Engineering (FM), 2 1/2" (65mm) through 8" (200mm) pipe.

Installation Instructions: Fig. 4L is the "braced pipe" attachment component of a longitudinal sway brace assembly. It is intended to be combined with the "bracing pipe" and TOLCO structural attachment component to form a complete bracing assembly. NFPA 13 and/or OSHPD guidelines should be followed.

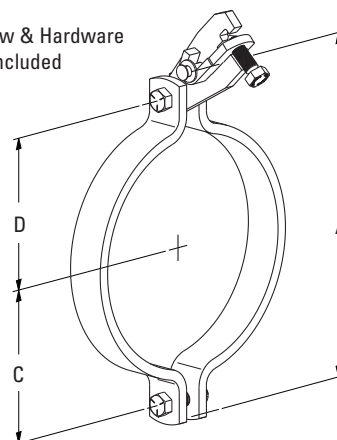
To Install: Place the Fig. 4L over the pipe to be braced and tighten bolts. Then engage "bracing pipe" into jaw opening and tighten set screw until head snaps off. Jaw attachment can pivot for adjustment to proper brace angle.

Finish: Plain. Contact customer service for alternative finishes and materials.

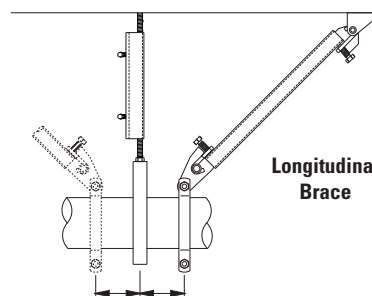
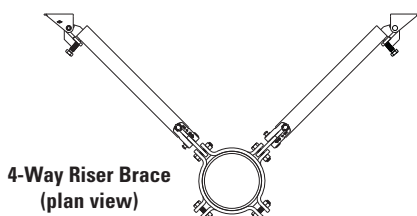
Order By: Figure number, pipe size and finish.



Set Screw & Hardware Included



Seismic Bracing



Part No.	Pipe Size in. (mm)	A in. (mm)	C in. (mm)	D in. (mm)	Bolt Size	Max. Horizontal Design Load (cULuc) lbs. (kN)	Approx. Wt./100 lbs. (kg)
4L-2 1/2	2 1/2" (65)	6 7/16" (163.5)	2 1/2" (63.5)	2 3/4" (69.8)	1/2"-13	2015 (8.96)	253 (114.7)
4L-3	3" (80)	7" (177.8)	2 3/4" (69.8)	3 1/16" (77.8)	1/2"-13	2015 (8.96)	268 (121.5)
4L-4	4" (100)	8 1/2" (215.9)	3 3/8" (85.7)	3 11/16" (93.7)	1/2"-13	2015 (8.96)	348 (157.8)
4L-5	5" (125)	9 3/4" (247.6)	3 7/8" (98.4)	4 3/8" (111.1)	1/2"-13	2015 (8.96)	380 (172.3)
4L-6	6" (150)	11 1/2" (292.1)	5" (127.0)	5 1/8" (130.2)	1/2"-13	2015 (8.96)	640 (290.3)
4L-8	8" (200)	13 1/4" (336.5)	5 5/8" (142.8)	5 5/8" (142.8)	1/2"-13	2015 (8.96)	728 (330.2)

Part No.	Pipe Size in. (mm)	Max. Horizontal Design Load (cULuc) lbs./ (kN)	Max. Horizontal Design Load (FM)			
			30-44° lbs./ (kN)	45-59° lbs./ (kN)	60°-74° lbs./ (kN)	75°-90° lbs./ (kN)
4L-2 1/2	2 1/2" (65)	2015 (8.96)	1030 (4.58)	1180 (5.24)	1420 (6.31)	1590 (7.07)
4L-3	3" (80)	2015 (8.96)	1030 (4.58)	1180 (5.24)	1420 (6.31)	1590 (7.07)
4L-4	4" (100)	2015 (8.96)	530 (2.36)	730 (3.25)	890 (3.96)	990 (4.40)
4L-5	5" (125)	2015 (8.96)	530 (2.36)	730 (3.25)	890 (3.96)	990 (4.40)
4L-6	6" (150)	2015 (8.96)	530 (2.36)	730 (3.25)	890 (3.96)	990 (4.40)
4L-8	8" (200)	2015 (8.96)	490 (2.18)	680 (3.02)	830 (3.69)	930 (4.13)

* The loads listed are axial loads on the brace. The horizontal load capacity, H, of the brace is: $H = F \times \sin \theta$, where θ the installation angle measured from the vertical. FM approved when used with 1", 1 1/4", 1 1/2" or 2" Sch. 40 brace pipe.

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO™ Fig. 980 - Universal Swivel Sway Brace Attachment - 3/8"-16 to 3/4"-10 rods

TOLCO™ Fig. 980H - Universal Swivel Sway Brace Attachment - 7/8"-9 to 1 1/4"-7 rods

Size Range: One size fits bracing pipe 1" (25mm) thru 2" (50mm), 12 gauge (2.6mm) channel, and all structural steel up to 1/4" (31.7mm) thick.

Material: Steel. Stainless Steel Type 316 (SS6) optional.

Function: Multi-functional attachment to structure or braced pipe fitting.

Features: This product's design incorporates a concentric attachment opening which is critical to the performance of structural seismic connections. NFPA 13 (2010) 9.3.5.8.4 indicates clearly that fastener table load values are based only on concentric loading. Mounts to any surface angle. Break off bolt head assures verification of proper installation.

Installation: Fig.980 is the structural or transitional attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with the "bracing pipe" and TOLCO "braced pipe" attachment, Fig. 1000, 1001, 2002, 4L, 4A or 4B to form a complete bracing assembly. NFPA 13 and/or OSHPD guidelines should be followed.

To Install: Place the Fig. 980 onto the "bracing pipe". Tighten the set screw until the head breaks off. Attachment can pivot for adjustment to proper brace angle.

Approvals: —Underwriters Laboratories Listed in the USA (UL) and Canada (cUL). Approved by Factory Mutual Engineering (FM). Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development (OSHPD). For additional load, spacing and placement information relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines.

Note: Fig. 980 Swivel Attachment and Fig. 1001, Fig. 1000, Fig. 2002, Fig. 4A, Fig. 4B or Fig. 4L pipe clamps make up a sway brace system of UL Listed attachments and bracing materials which satisfies the requirements of Underwriters Laboratories and the National Fire Protection Association (NFPA)

Finish: Plain, Electro-Galvanized or Stainless Steel. Contact customer service for alternative finishes.

Order By: Figure number and finish.

US Patent Numbers

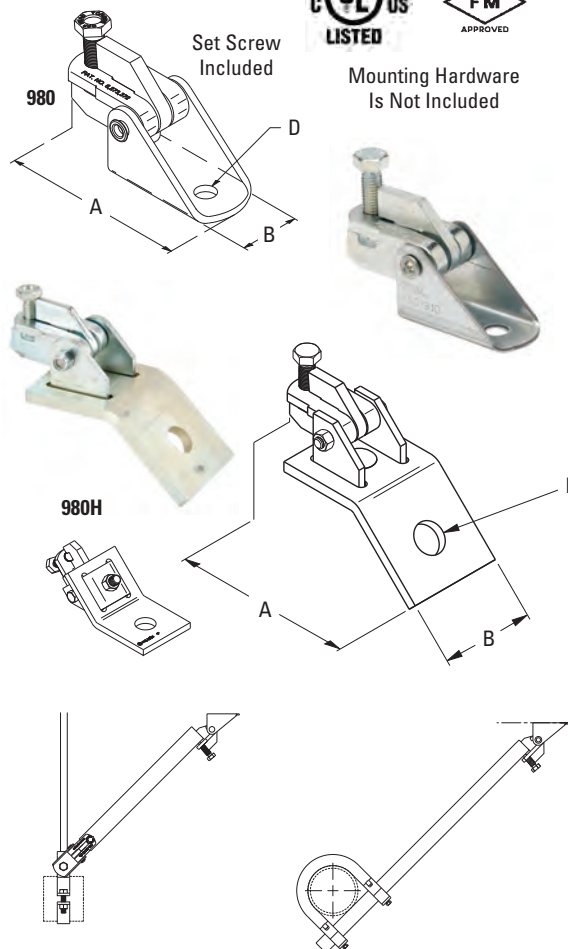
Pat. #6,273,372, Pat. #6,517,030, Pat. #6,953,174,

Pat. #6,708,930, Pat. #7,191,987, Pat. #7,441,730, Pat. #7,669,806

Component of State of California OSHPD Approved Seismic Restraints System



Mounting Hardware Is Not Included



Part Number	A		B		D*		Max. Horizontal Design Load (cULus) lbs./ (kN)	Max. Horizontal Design Load** (FM)				Approx. Wt./100 lbs. (kg)
	in.	(mm)	in.	(mm)	in.	(mm)		30°-44° lbs./ (kN)	45°-59° lbs./ (kN)	60°-74° lbs./ (kN)	75°-90° lbs./ (kN)	
980-3/8	5 1/4"	(133.3)	1 7/8"	(47.6)	13/32"	(10.3)	2015 (8.96)	1320 (5.87)	1970 (8.76)	2310 (10.27)	2550 (11.34)	149 (67.6)
980-1/2	5 1/4"	(133.3)	1 7/8"	(47.6)	17/32"	(13.5)						148 (67.1)
980-5/8	5 1/4"	(133.3)	1 7/8"	(47.6)	11/16"	(17.5)						147 (66.7)
980-3/4	5 1/4"	(133.3)	1 7/8"	(47.6)	13/16"	(20.5)						146 (66.2)
980H-7/8	6 3/4"	(171.4)	3 1/2"	(88.9)	15/16"	(23.8)						402 (182.3)
980H-1	6 3/4"	(171.4)	3 1/2"	(88.9)	1 1/16"	(27.0)						400 (181.4)
980H-1 1/8	6 3/4"	(171.4)	3 1/2"	(88.9)	1 3/16"	(30.2)						397 (180.1)
980H-1 1/4	6 3/4"	(171.4)	3 1/2"	(88.9)	1 5/16"	(33.3)						390 (176.9)

* Mounting attachment hole size.

** Installed with 1" or 1 1/4" Schedule 40 brace pipe.

Important! - For load information when using Fig. 980 with pre-installed or post-installed concrete anchors in compliance with NFPA 13 (2016) or ASCE 7-10, including prying factors, see load tables on pages AL1 thru AL21.

Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

TOLCO Fig. 828 - universal sway brace attachment to steel (UL listed)

Size Range: One size accommodates all Fig. 900 Series sway brace attachments. Fits from $\frac{3}{8}$ " (9.4mm) to $\frac{7}{8}$ " (22.2mm) thick steel structure. For thicknesses less than $\frac{3}{8}$ " (9.4mm) refer to Fig. 825 and Fig. 825A.

Material: Steel

Function: To attach sway bracing and/or hangers to various types of steel structural members.

Features: Permits secure non-friction connection without drilling or welding. Unique design allows offset placement on wide flange beam, C-channel, open web, welded steel trusses, etc. Secures brace to structure either across or along the beam. Break-off set bolts allow for visual verification of proper installation torque.

Approvals: Underwriters Laboratories Listed in the USA and Canada (cULus). Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development (OSHPD). For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13. For FM Approval information refer to FM Approved page 53.

Installation Instructions: The Fig. 828 is the structural attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with a TOLCO transitional attachment, "bracing pipe" and a TOLCO "braced pipe" attachment to form a complete bracing assembly. NFPA 13 guidelines should be followed.

To Install: Slide the Fig. 828 on the flange of the beam, truss, or girder. Be sure the attachment is fully engaged to the rear of the opening. Tighten the cone point set screws until the heads break off. Remove the flange nut from the carriage bolt. Install a TOLCO swivel fitting (Fig. 909, 910, 980, *986). Use flange nut to secure the swivel fitting.

*Not UL listed when used in combination with Fig. 986

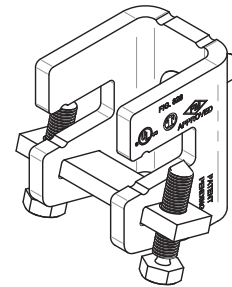
Finish: Plain or Electro-Galvanized

Approx. Weight/100: 341 Lbs. (154.7 kg)

Order By: Figure number and finish

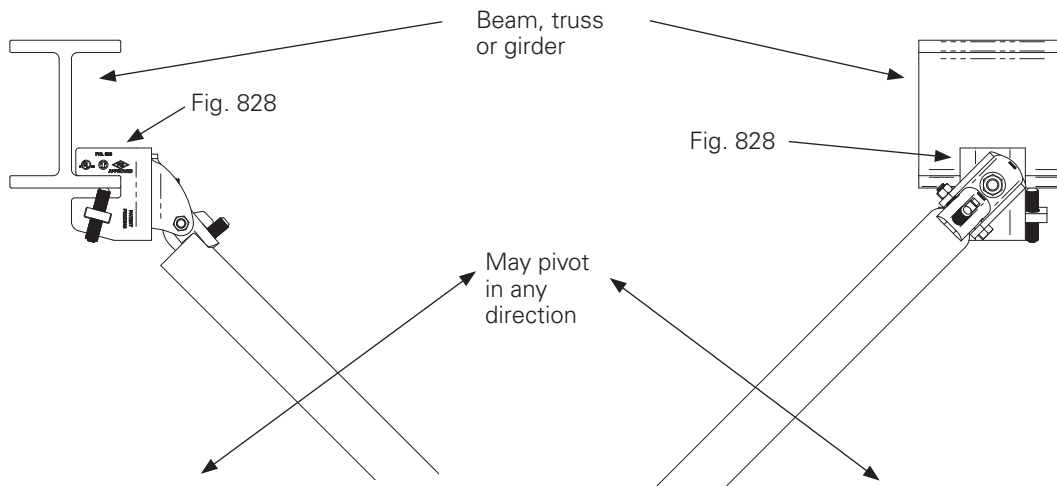
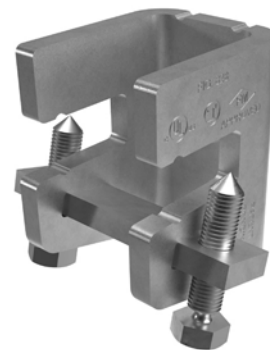
Patent Pending

Note: Retaining strap not required.



Set Screws and $\frac{1}{2}$ " Attachment Bolt and Nut Included

Flange thickness	Maximum UL Rated load
.375" – .499"	1090 lbs. (4.84kN)
.500" – .875"	1370 lbs. (6.09kN)



Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

TOLCO Fig. 828 - Universal sway brace attachment to steel (FM approved)

Size Range: One size accommodates all Fig. 900 Series sway brace attachments. Fits from $\frac{3}{8}$ " (9.4mm) to $\frac{7}{8}$ " (22.2mm) thick steel structure. For thicknesses less than $\frac{3}{8}$ " (9.4mm) refer to Fig. 825.

Material: Steel

Function: To attach sway bracing and/or hangers to various types of steel structural members.

Features: Permits secure non-friction connection without drilling or welding. Unique design allows offset placement on wide flange beam, C-channel, open web, welded steel trusses, etc. Secures brace to structure either across or along the beam. Break-off set bolts allow for visual verification of proper installation torque.

Approvals: Factory Mutual Approved (FM). Included in our Seismic Engineering Guidelines approved by the State of California Office of Statewide Health Planning and Development (OSHPD). For additional load, spacing and placement information relating to OSHPD projects, please refer to our Seismic Engineering Guidelines, OPM-0052-13. For UL Listed information refer to UL Listed page 52.

Installation Instructions: The Fig. 828 is the structural attachment component of a longitudinal or lateral sway brace assembly. It is intended to be combined with a TOLCO™ transitional attachment, "bracing pipe" and a TOLCO "braced pipe" attachment to form a complete bracing assembly. NFPA 13 or FM guidelines should be followed.

To Install: Slide the Fig. 828 on the flange of the beam, truss, or girder. Be sure the attachment is fully engaged to the rear of the opening. Tighten the cone point set screws until the heads break off. Remove the flange nut from the carriage bolt. Install a TOLCO swivel fitting (Fig. 909, 910, 980, *986). Use flange nut to secure the swivel fitting.

*Not UL listed when used in combination with Fig. 986

Finish: Plain or Electro-Galvanized

Approx. Weight/100: 341 Lbs. (154.7kg)

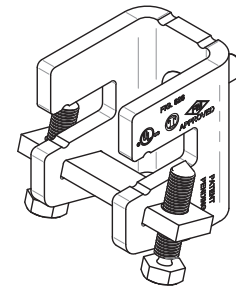
Order By: Figure number and finish

Patent Pending

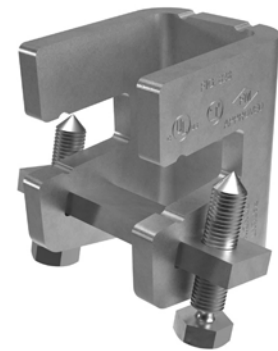
Designed to meet or exceed requirements of FM DS 2-8.

Note: Retaining strap not required.

OPM



Set Screws and 1/2" Attachment Bolt and Nut Included



Seismic Bracing

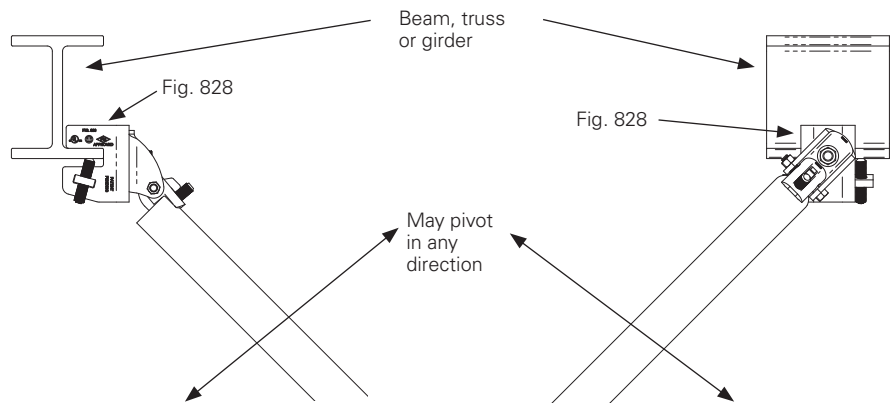
FM Approved Allowable Horizontal Load With Brace Perpendicular To Beam

Brace Angle (degrees from vertical)			
30°-44°	45°-59°	60°-74°	75°-90°
980	2220	3340	4040
(4.350kN)	(9.780kN)	(14.850kN)	(17.970kN)

FM Approved Allowable Horizontal Load With Brace Parallel To Beam

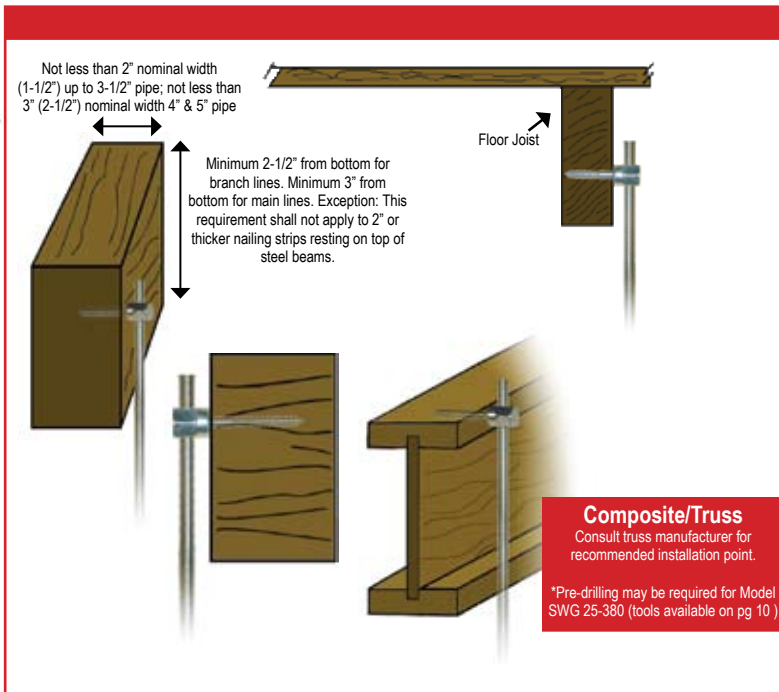
Brace Angle (degrees from vertical)			
30°-44°	45°-59°	60°-74°	75°-90°
820	1270	1490	1650
(3.640kN)	(5.640kN)	(6.620kN)	(7.330kN)

FM Approved design loads are based on ASD design method.



Eaton's B-Line series seismic bracing components are designed to be compatible only with other B-Line series bracing components, resulting in a listed seismic bracing assembly. Eaton B-Line Division warranty for seismic bracing components will be the warranty provided in Eaton B-Line Division standard terms and conditions of sale made available by Eaton, except that, in addition to the other exclusions from Eaton B-Line Division warranty, Eaton makes no warranty relating to B-Line series seismic bracing components that are combined with products not provided by Eaton.

SIDEWINDERS® for Wood *Installs HORIZONTALLY into the side of wood structures easily and quickly!*



Product Features

- No pre-drilling required.
- Quick to install using the Sammy Nut Driver with an 18V cordless drill/driver.
- Saves time from traditional methods.
- Reduces installation cost.
- Made in the U.S.A.




Composite/Truss

Consult truss manufacturer for recommended installation point.

*Pre-drilling may be required for Model SWG 25-380 (tools available on pg 10)



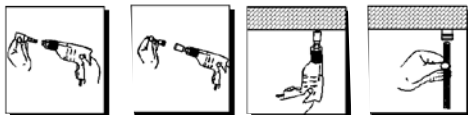
#14 SW Red
Nut Driver
Part # 8114910

Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)	UL Test Load (lbs)	Box Qty	Case Qty
	1/4"	8018957	SWG 100	1/4 x 1"	622 (Fir)		25	125
	1/4"	8019957	SWG 200	1/4 x 2"	1725 (Fir)		25	125
	3/8"	8020957	SWG 10	1/4 x 1"	622 (Fir)	300	25	125
	3/8"	8021957	SWG 20	1/4 x 2"	1725 (Fir)	1050	25	125
	3/8"	8073925	SWG 20-SS	1/4 x 2"	1725 (Fir)	850	25	125
	3/8"	8022925	SWG 25-380	3/8 x 2-1/2"	2249 (Fir)	1500	25	125
	3/8"	8023925	SWG 30	1/4 x 3"	1884 (Fir)		25	125

INSTALLATION STEPS - VERTICAL INTO WOOD & STEEL:

1. Insert the appropriate nut driver into a 3/8" or 1/2" portable drill.
2. Insert the SAMMYS into the #14 (black) nut driver (p/n 8113910). Drill should be in a vertical position.
3. Push the face of the nut driver tight to the member. When the nut driver spins freely on the SAMMYS, stop drill and remove.
4. The SAMMYS is now ready to receive 1/4", 3/8", 1/2" or metric all thread rod, bolt stock. (The 1/2" requires the #14SW red nut driver)

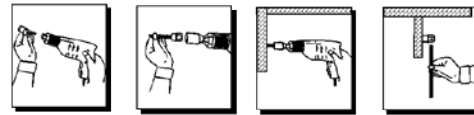
Note: When installing DSTR, follow the above instructions, then add retainer nut and torque to 20 foot lbs. for maximum pullout in purlin steel.



INSTALLATION STEPS - HORIZONTAL INTO WOOD & STEEL:

1. Insert the appropriate nut driver into a 3/8" or 1/2" portable drill.
2. Insert the SAMMYS into the #14SW (red) nut driver (p/n 8114910). With drill unit in a horizontal position and at a right angle to the structural member, begin installation.
3. When the nut driver spins free on the SAMMYS, stop the drill and remove.
4. The unit is now ready to receive 1/4", 3/8" or metric all thread rod or bolt stock.

Note: When installing SWDR, follow the above instructions, then add retainer nut and torque to 20 foot lbs. for maximum pullout in purlin steel.



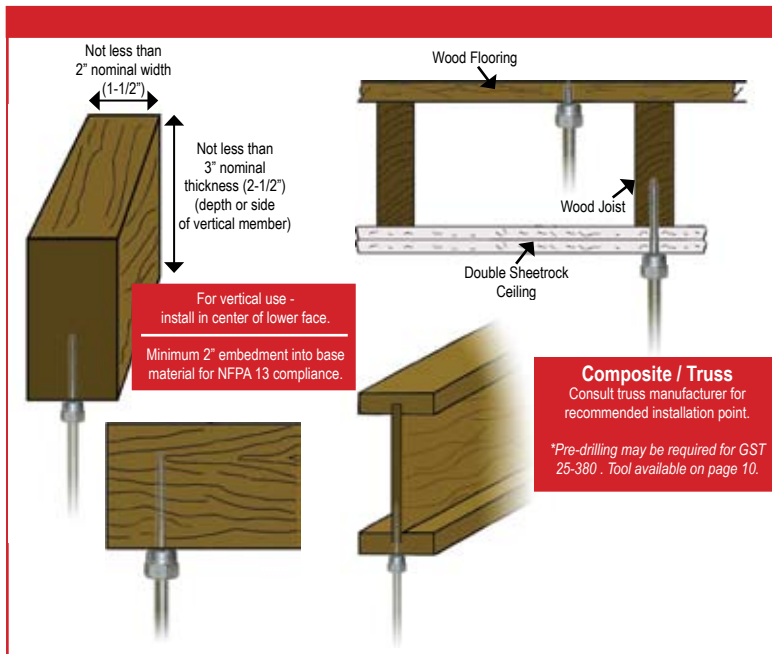
SPECIAL NUT DRIVER SYSTEM: The nut drivers were designed with a unique spin-off feature which provides a fast and safe installation each time. When the face of the driver comes into contact with the material you are installing into, continue drilling until nut driver spins free. Installation is then complete. Warranty requires the use of the appropriate nut driver for installations.

VERTICAL MOUNT

SAMMYS®

SAMMYS® for Wood

Installs VERTICALLY into the bottom of wood structures easily and quickly!



Product Features

- No pre-drilling required.
- Quick to install using the Sammy Nut Driver with an 18V cordless drill/driver.
- Saves time from traditional methods.
- Reduces installation cost.
- Made in the U.S.A.

Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)	UL Test Load (lbs)	FM Test Load (lbs)	Box Qty	Case Qty
	1/4"	8002957	GST 100	1/4 x 1"	210 (7/16" OSB) 670 (3/4" Ply)			25	125
	1/4"	8003957	GST 200	1/4 x 2"	1760 (Fir)			25	125
	1/4"	8004957	GST 300	1/4 x 3"	2060 (Fir)			25	125
	3/8"	8006957	GST .75	1/4 x 3/4"	564 (3/4" Ply)			25	125
UL LISTED	3/8"	8007957	GST 10	1/4 x 1"	210 (7/16" OSB) 670 (3/4" Ply)	300		25	125
UL LISTED FM APPROVED	3/8"	8008957	GST 20	1/4 x 2"	1760 (Fir)	850	1475	25	125
UL LISTED FM APPROVED	3/8"	8068925	GST 20-SS	1/4 x 2"	1760 (Fir)	850		25	125
UL LISTED FM APPROVED	3/8"	8009925	GST 25-380	3/8 x 2-1/2"	2113 (Fir)	1500		25	125
UL LISTED FM APPROVED	3/8"	8010957	GST 30	1/4 x 3"	2060 (Fir)	1500	1475	25	125
	3/8"	8069925	GST 30-SS	1/4 x 3"	2060 (Fir)			25	125
	3/8"	8011925	GST 40	1/4 x 4"	2180 (Fir)			25	125
	3/8"	8012925	GST 60	1/4 x 6"	2230 (Fir)			25	125
	1/2"	8013925	GST 2	1/4 x 2"	1760 (Fir)			25	125
	1/2"	8014925	GST 2.5-380	3/8 x 2-1/2"	2113 (Fir)			25	125
	1/2"	8015925	GST 3	1/4 x 3"	2275 (Fir)			25	125
	1/2"	8016925	GST 4	1/4 x 4"	2180 (Fir)			25	125
	1/2"	8017925	GST 6	1/4 x 6"	2230 (Fir)			25	125

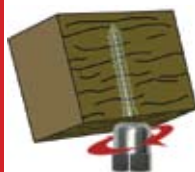


SAMMY Swivel Head® for Wood

Installs VERTICALLY and swivels up to 17° in wood structure

Product Features

- Eliminates distortion of threaded rod.
- Accommodates up to 3 1/2" x 12 pitch roof.
- Allows 17° deflection from vertical.
- Saves time from traditional methods.
- Reduces installation cost.
- Made in the U.S.A.



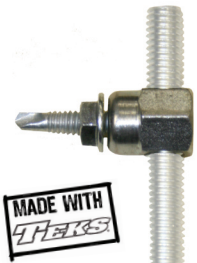
Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)	UL Test Load (lbs)	FM Test Load (lbs)	Min Thickness	Box Qty	Case Qty
UL LISTED FM APPROVED	3/8"	8139957	SH-GST 20	1/4 x 2"	1257 (Fir)	1050	1475	25	125	125
UL LISTED FM APPROVED	3/8"	8141957	SH-GST 30	1/4 x 3"	1720 (Fir)	1500	1475	25	125	



SPECIAL NUT DRIVER SYSTEM: The nut drivers were designed with a unique spin-off feature which provides a fast and safe installation each time. When the face of the driver comes into contact with the material you are installing into, continue drilling until nut driver spins free. Installation is then complete. Warranty requires the use of the appropriate nut driver for installations.



SIDEWINDER® FOR STEEL - Horizontal Application



Application	Product Features
	<ul style="list-style-type: none"> Made with Tek® self-drilling fasteners - no pre-drilling required. Installs into steel range from 20 gauge – 1/2" thicknesses. A standard screwgun with a depth sensitive nosepiece should be used to install Tek®. For optimal fastener performance, the screwgun should be a minimum of 6 amps and have an RPM range of 0-2500. Saves time from traditional methods. Reduces installation costs. Quick to install using the Sammys Nut Driver with an 18V cordless drill/driver. Made in the U.S.A.



Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)	UL Test Load (lbs)	FM Test Load (lbs)	Min Thickness	Max Thickness	Box Qty	Case Qty
HORIZONTAL MOUNT											
	1/4"	8047957	SWD 100	1/4-14 x 1" TEKS 3	1477 (16 ga.)			.060"-16 ga	3/16"	25	125
	1/4"	8049957	SWDR 100 *	1/4-20 x 1" TEKS 3	1900 (20 ga.)			.036"-20 ga	3/16"	25	125
	3/8"	8050957	SWD 10	1/4-14 x 1" TEKS 3	1477 (16 ga.)			.060"-16 ga	3/16"	25	125
	3/8"	8080925	SWD 10-SS	1/4-14 x 1" TEKS 3	1477 (16 ga.)			.060"-16 ga	3/16"	25	125
	3/8"	8051957	SWD 15	1/4-14 x 1-1/2" TEKS 3	1477 (16 ga.)			.060"-16 ga	3/16"	25	125
	3/8"	8052957	SWD 20	1/4-14 x 2" TEKS 3	1477 (16 ga.)			.060"-16 ga	3/16"	25	125
	3/8"	8053957	SWD 516	5/16-18 x 1-1/4" TEKS 3	2480 (20 ga.)			.036"-20 ga	3/16"	25	125
UL	3/8"	8055957	SWDR 1 *	1/4-20 x 1" TEKS 3	1900 (20 ga.)	1500	1475	.036"-20 ga	3/16"	25	125
UL	3/8"	8054957	SWDR 1-1/2 *	12-24 x 1-1/2" TEKS 5	2375 (3/16")	1500	1475	.188"-3/16"	1/2"	25	125
UL	3/8"	8056957	SWDR 516 *	5/16-18 x 1-1/4" TEKS 3	2480 (20 ga.)	1500	1475	.036"-20 ga	3/16"	25	125
	3/8"	8057957	SWT 15	12-24 x 1-1/2" TEKS 5	2375 (3/16")			.188"-3/16"	1/2"	25	125

*Includes retaining nut

SAMMYS SWIVEL HEAD™ FOR STEEL - Swivel Application



Application	Product Features
	<ul style="list-style-type: none"> Eliminates distortion of threaded rod in sloped roof applications. Accommodates 3-1/2 x 12 pitch. Installs into angled z-purlin; allows threaded rod to hang plumb. Allows 17° deflection from vertical. Made in the U.S.A.



Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)	UL Test Load (lbs)	FM Test Load (lbs)	Min Thick	Max Thick	Box Qty	Case Qty
SWIVEL MOUNT											
UL	3/8"	8137957	SH-DSTR 1*	1/4-20 X 1" TEKS 3	3220 (3/16")	1500	1475	.035"	3/16"	25	125
UL	3/8"	8268957	SH-TEK 50	12-24 x 1-3/4" TEKS 5	2368 (1/2" steel Vertical) 1306 (45° off Vertical) 2281 (3/16" HSS) 1585 (3/16" HSS 45° off Vertical)	1500 (Vertical) 850 (45° off Vertical)	4" 2-1/2"	3/16"	1/2"	25	125
	1/2"	8270957	SH-TEK 5.0	12-24 x 1-3/4" TEKS 5	2368 (1/2" steel Vertical) 1306 (45° off Vertical) 2281 (3/16" HSS) 1585 (3/16" HSS 45° off Vertical)			3/16"	1/2"	25	125



*Does not comply with ROHS requirements / Includes retaining nut

SECTION C

Valves

Job Name _____

Contractor _____

Job Location _____

Approval _____

Engineer _____

Contractor's P.O. No. _____

Approval _____

Representative _____

LEAD FREE*

Deringer™ 30

Double Check Detector Assembly

Sizes: 2"* – 8"**

The Deringer™ 30 Double Check Detector Assembly (DCDA-II) prevents non-health hazard pollutants from entering a potable water supply system when backpressure and/or backsiphonage conditions occur. Used primarily on fire sprinkler systems when monitoring of unauthorized water use is required.

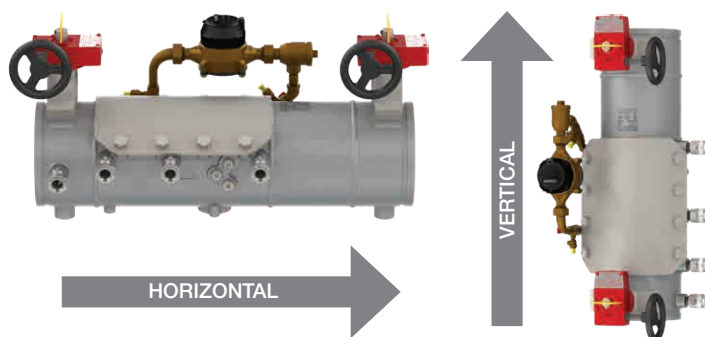
Features

- Integral shutoff valves indoor/outdoor application
- 100% stainless steel housing
- Tamper-resistant test cocks
- Patented Dual-action™ check modules
 - Poppet action at low flow
 - Swing action at high flow
- Lead Free* Bronze bypass components
- CuFt or gallons bypass meter
- DCDA-II single check bypass
- Silicone elastomer check discs
- Prewired supervisory switches
- Flange adapters available
- IPS grooved ends

Specifications

The Deringer 30 Double Check Detector Assembly shall utilize two independent Dual-action check modules and two integral resiliently seated shut-off valves all of which shall be contained within a single rigid valve housing constructed entirely of 304 stainless steel. Both integral shutoff valves shall include pre-wired supervisory tamper switches contained within a weatherproof actuator housing approved for both indoor and outdoor use. Dual-action check modules shall operate as a "poppet style" check under low flow conditions, operate as a "swing style" check under high flow conditions and utilize replaceable silicone elastomer sealing discs. Assembly test cocks shall be handle-less and operate via a tamper resistant actuator. Assembly shall have a single full access service port and cover with an "inline" replaceable elastomer seal. The bypass assembly shall include a meter registering either gallons or cubic feet, a single check valve and required test cocks. Assembly shall be serviceable without special tools and approved for both horizontal and vertical applications.

Ames Fire & Waterworks product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Ames Fire & Waterworks Technical Service. Ames Fire & Waterworks reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Ames Fire & Waterworks products previously or subsequently sold.



Approved for Fire Protection, Waterworks, Plumbing, and Irrigation Applications.

Materials

Valve Housing:	304 Stainless Steel
Valve Cover:	304 Stainless Steel
SOV Disks:	EPDM/304SS
SOV Shafts:	304 Stainless Steel
Bypass Spring	302 Stainless Steel
SOV Bearings:	Teflon® fluoropolymer/Bronze
Non-wetted Bolts:	Grade 8 Zinc Plated
Check Disks:	Silicone (NSF)
Wetted Fasteners:	18-8 Stainless Steel
Bypass Components:	Lead Free Bronze
Check Springs:	17-7 Stainless Steel
Check Pins:	17-7/18-8 Stainless Steel
Check Seats:	Noryl® Polymer (NSF)
O-rings:	Buna-N (NSF)
Bypass Internals:	ABS Polymer (NSF)

Pressure — Temperature

Temperature Range: 33°F – 140°F

Working Pressure: 10 – 175psi

***The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.**

Teflon® is a registered trademark of The Chemours Company.

Noryl® is a registered trademark of SABIC Global Technologies B.V.

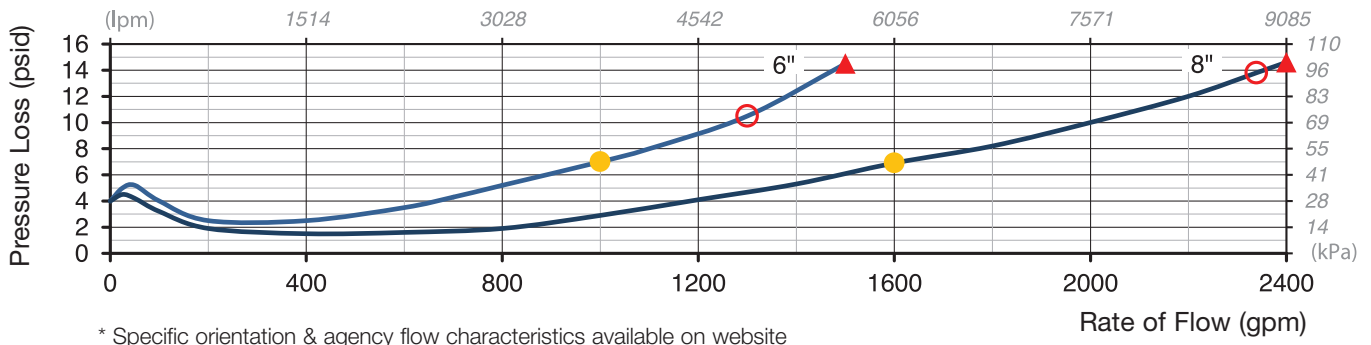
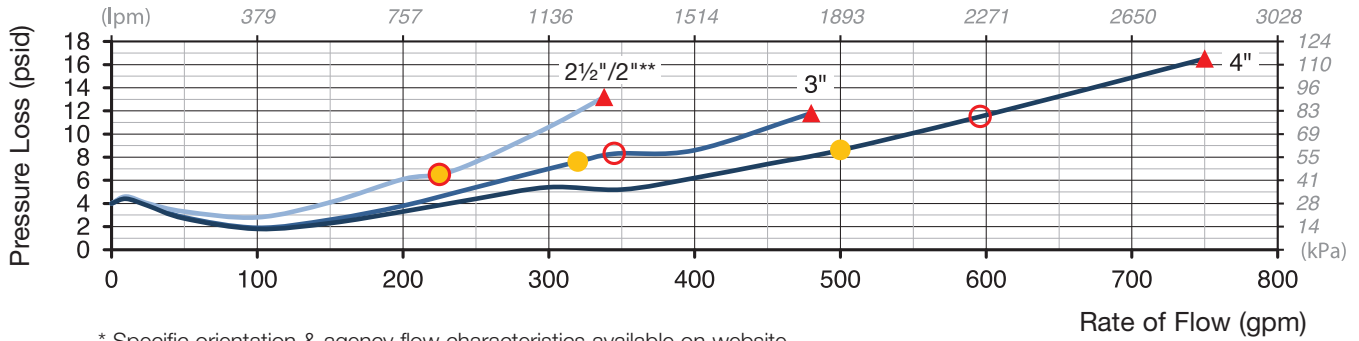
NOTICE

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.



● = Rated Flow ▲ = UL Tested ○ = 15 fps

Flow Performance



Standards

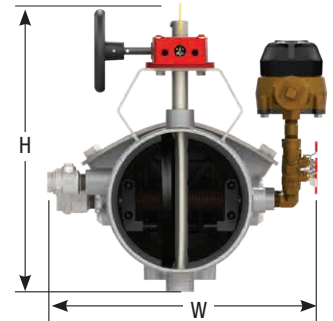
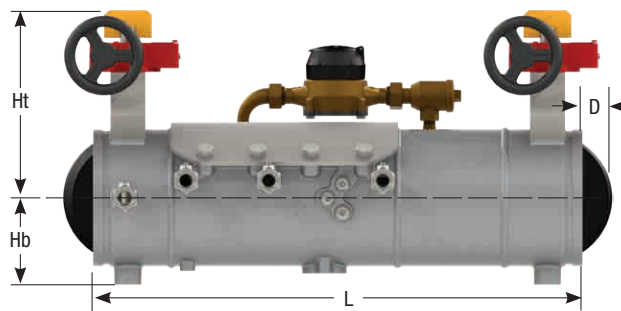
AWWA C510-07 Compliant
NSF/ANSI 372, UL CERTIFIED
LEAD FREE

End Connections

- IPS Groove for Steel Pipe:
AWWA C606
- Flange Adapters:
ANSI B16.1 Class 125



Dimensions — Weights



Size	Model	Ht		Hb		L		D		H		W		Weight	
in.		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs	kg
2 (2 1/2)**	30	7.1	180	2.9	74	22.3	566	0.0	0	10.0	254	11.0	279	52	24
2 1/2	30	7.1	180	2.9	74	18.7	475	0.0	0	10.0	254	11.0	279	47	21
3	30	7.4	188	2.9	74	18.7	475	0.0	0	10.3	262	11.0	279	49	22
4	30	7.9	201	3.1	79	18.7	475	0.2	5	11.0	279	11.0	279	51	23
6	30	10.1	257	4.5	114	25	726	1.0	25	14.6	370	16.9	429	99	45
8	30	10.4	264	5.4	137	31.0	787	1.8	46	15.8	401	13.8	351	150	68

**2" size utilizes a 2 1/2" assembly with 2 1/2" groove to 2" female NPT adapter and couplings. Adapter and couplings ship unassembled.



A WATTS Brand

USA: Backflow T: (978) 689-6066 • F: (978) 975-8350 • AmesFireWater.com
USA: Control Valves T: (713) 943-0688 • F: (713) 944-9445 • AmesFireWater.com
Canada: T: (905) 332-4090 • F: (905) 332-7068 • AmesFireWater.ca
Latin America: T: (52) 55-4122-0138 • AmesFireWater.com

Victaulic® Series UM Universal Manifold Assembly



1.0 PRODUCT DESCRIPTION

Available Sizes

- 1 ¼ – 8"/DN32 – DN200

Maximum Working Pressure

- Up to 300 psi/2068 kPa/21 Bar

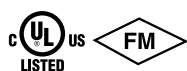
Application

- Fire protection system control module includes test and drain valve, waterflow detector, pressure gauge, flexible drain connection and adjustable pressure relief valve (175 – 310 psi/1206 – 2137 kPa adjustable set pressure).

Configurations

- Optional control valve: Series 705 Butterfly Valve or Series 728 Ball Valve

2.0 CERTIFICATION/LISTINGS



3.0 SPECIFICATIONS – MATERIAL

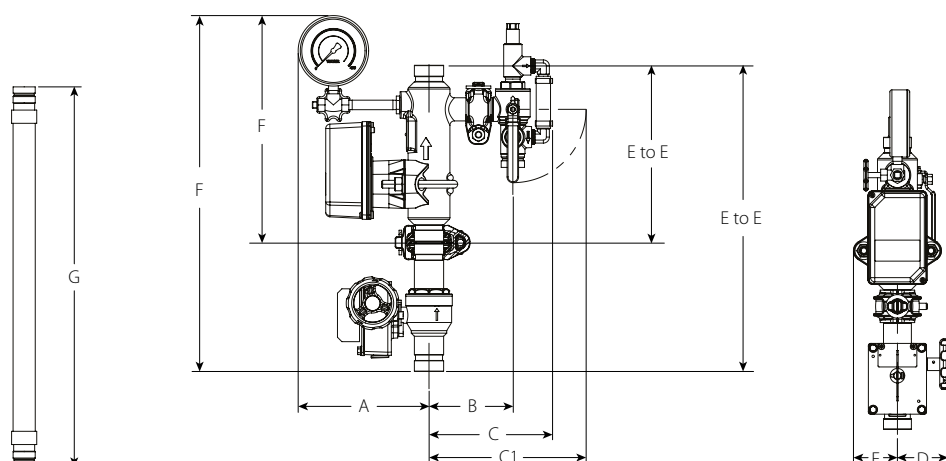
Valve body: Cast ductile iron conforming to ASTM A536, Grade 65-45-12.

Waterflow Detector: Vane type waterflow detector with sealed retard, and mechanical delay adjustment. Cover includes tamper resistant security screws and tool.

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.



4.0 DIMENSIONS

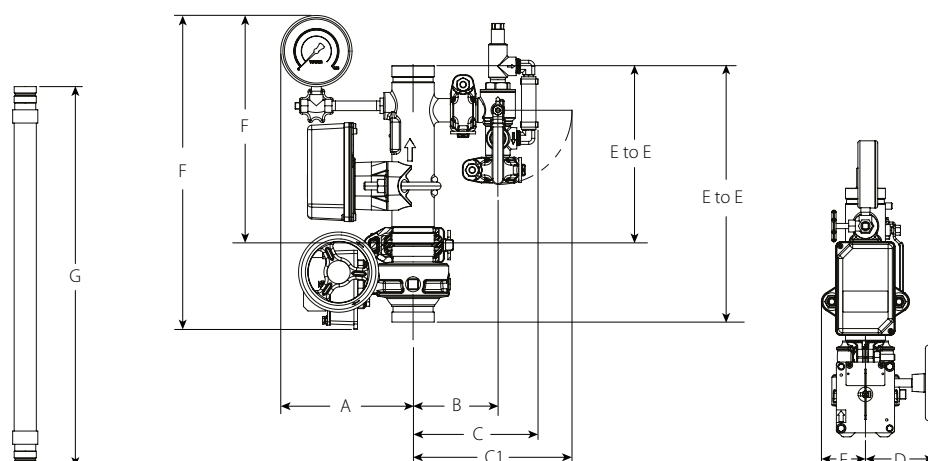


Size		Dimensions													Weight Approx. (Each)	
Nominal	Actual Outside Diameter	E to E with control valve	E to E without control valve	A	B	C	C1	D	E	F with control valve	F without control valve	G	Series UTD Valve Size (Nominal)	Series UTD Test Orifice	with control valve	without control valve
inches DN	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches DN	K-Factor S.I.	lb kg	lb kg
1 ¼ DN32	1.660 42.4	17.38 441	10.00 254	7.38 187	4.75 121	7.00 178	8.88 225	3.00 76	2.63 67	20.25 514	12.88 327	24.00 610	1.00 25	2.8 4.0	22 9.98	13 5.90
1 ½ DN40	1.900 48.3	17.38 441	10.00 254	7.38 187	4.75 121	7.00 178	8.88 225	3.00 76	2.63 67	20.25 514	12.88 327	24.00 610	1.00 25	2.8 4.0	22 9.98	13 5.90

NOTE

- When Series UTD Valve Size (Nominal) is 1"/25 mm, flexible drain hose connection utilizes FireLock IGS™ groove profile.

4.0 DIMENSIONS (CONTINUED)

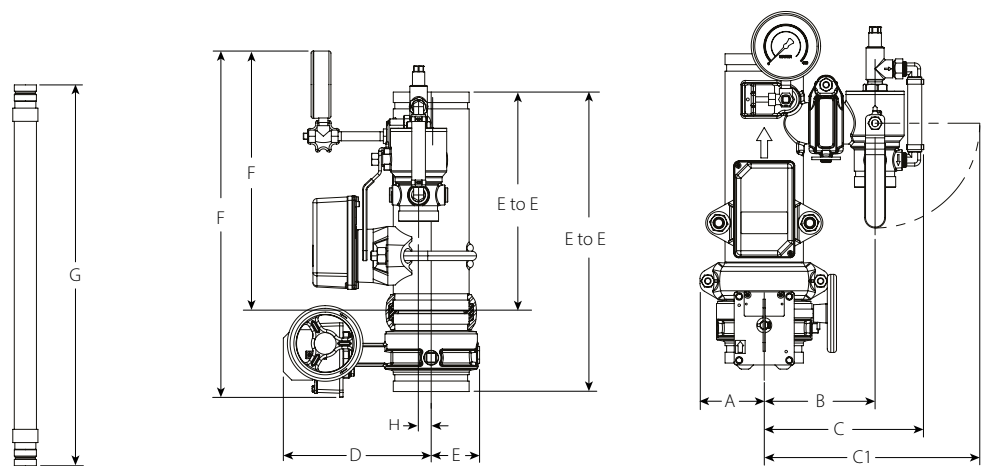


Size		Dimensions														Weight Approx. (Each)	
		E to E with control valve	E to E without control valve	A	B	C	C1	D	E	F with control valve	F without control valve	G	Series UTD Valve Size (Nominal)	Series UTD Test Orifice	with control valve	without control valve	
Nominal	Actual Outside Diameter																
inches DN	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches DN	K-Factor S.I.	lb kg	lb kg	
2	2.375	14.38	10.00	7.38	4.75	7.00	8.88	4.13	2.63	17.63	12.88	24.00	1.00	4.2	24	13	
DN50	60.3	365	254	187	121	178	225	105	67	448	327	610	25	6.1	10.89	5.90	
2½	2.875	13.88	10.00	7.63	5.88	8.38	10.75	4.13	2.63	17.50	12.88	24.00	1.25	4.2	29	17	
	73.0	352	254	194	149	213	273	105	67	445	327	610	32	6.1	13.15	7.71	
DN65	3.000	13.88	10.00	7.63	5.88	8.38	10.75	4.13	2.63	17.50	12.88	24.00	1.25	4.2	29	17	
	76.1	352	254	194	149	213	273	105	67	445	327	610	32	6.1	13.15	7.71	
3	3.500	14.88	11.00	8.00	6.13	8.63	11.00	4.13	2.88	18.50	13.88	24.00	1.25	4.2	33	20	
	DN80	88.9	378	279	203	156	219	279	105	73	470	352	610	32	6.1	14.97	9.07

NOTE

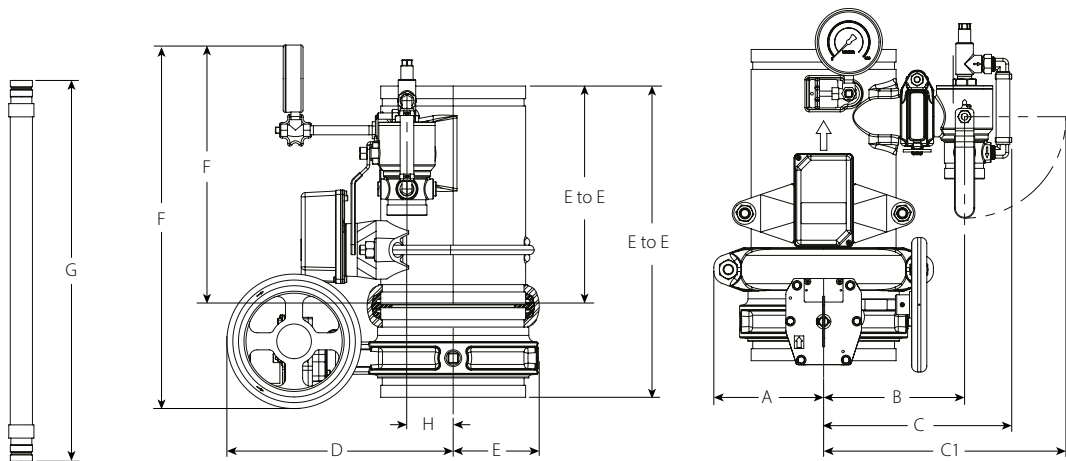
- When Series UTD Valve Size (Nominal) is 1/25 mm, flexible drain hose connection utilizes FireLock IGS™ groove profile.

4.0 DIMENSIONS (CONTINUED)



Size		Dimensions														Weight Approx. (Each)	
Nominal inches DN	Actual Outside Dia. inches mm	E to E with control valve inches mm	E to E without control valve inches mm	A inches mm	B inches mm	C inches mm	C1 inches mm	D inches mm	E inches mm	F with control valve inches mm	F without control valve inches mm	G inches mm	H inches mm	Series UTD Valve Size (Nominal) inches DN	Series UTD Test Orifice K-Factor S.I.	with control valve lb kg	without control valve lb kg
4 DN100	4.500	17.88	13.00	3.75	6.38	9.25	12.38	8.75	2.88	20.63	15.50	36.00	0.75	2.00	5.6	44	17
	114.3	454	330	95	162	235	314	222	73	524	394	914	19	51	8.1	19.96	7.71
6 DN150	6.500	19.00	13.00	5.13	7.38	10.25	13.38	11.38	4.25	21.50	15.50	36.00	1.50	2.00	5.6	66	34
	165.1	483	330	130	187	260	340	289	108	546	394	914	38	51	8.1	29.94	15.42
6 DN150	6.625	19.00	13.00	5.13	7.38	10.25	13.38	11.38	4.25	21.50	15.50	36.00	1.50	2.00	5.6	66	34
	168.3	483	330	130	187	260	340	289	108	546	394	914	38	51	8.1	29.94	15.42

4.0 DIMENSIONS (CONTINUED)



Size		Dimensions														Weight Approx. (Each)	
Nominal	Actual Outside Dia.	E to E with control valve	E to E without control valve	A	B	C	C1	D	E	F with control valve	F without control valve	G	H	Series UTD Valve Size (Nominal)	Series UTD Test Orifice	with control valve	without control valve
inches DN	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches DN	K-Factor S.I.	lb kg	lb kg
8 DN200	8.625 219.1	18.50 470	13.00 330	6.50 165	8.38 213	11.25 286	14.38 365	13.50 343	5.13 130	21.63 549	15.50 394	36.00 914	2.75 70	2.00 51	5.6 8.1	91 41.28	54 24.49

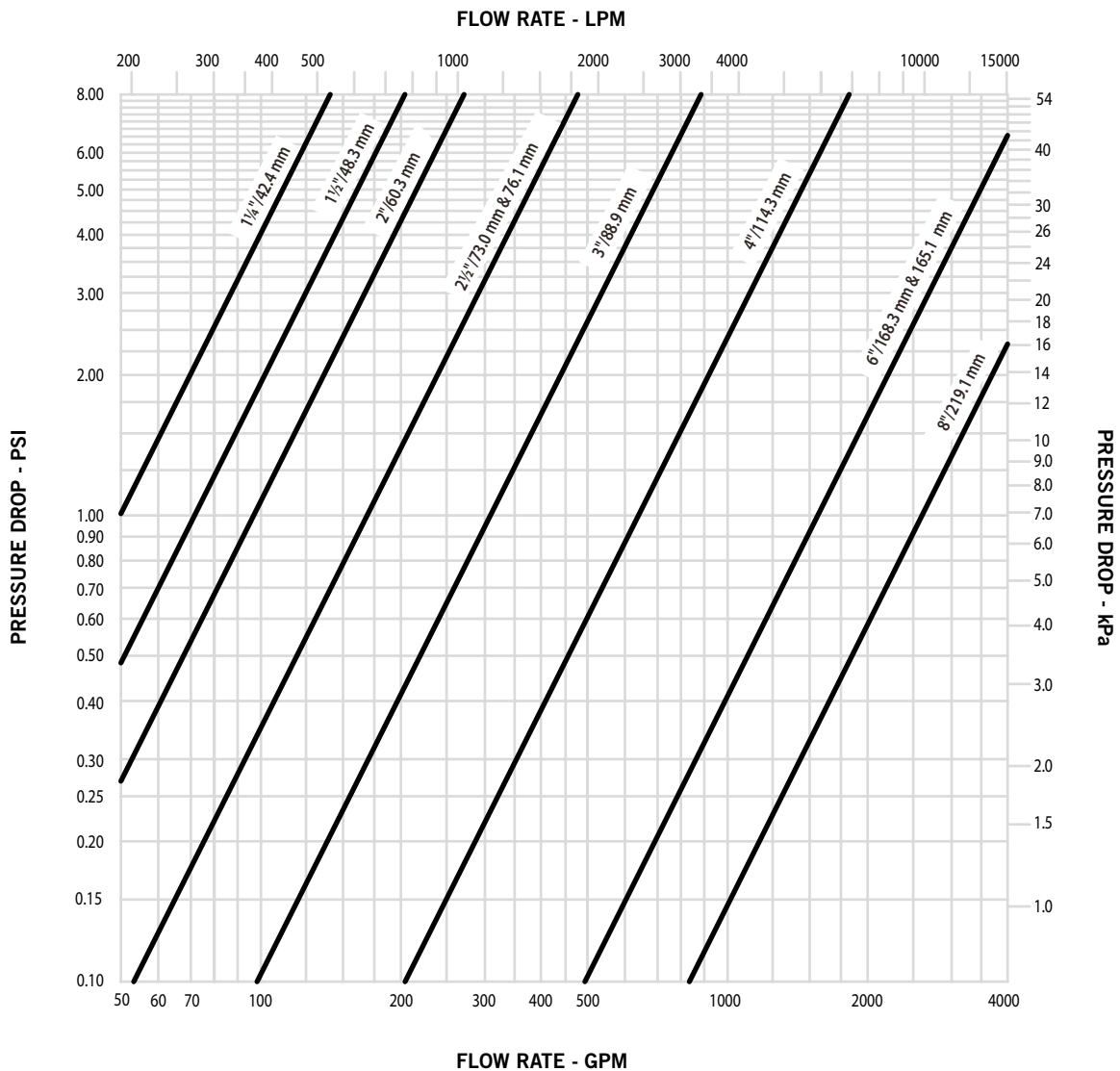
5.0 PERFORMANCE

Size		Equivalent Length of Sch. 40 Pipe ¹		Flow Characteristics		Performance
Nominal inches DN	Actual Outside Diameter inches mm	with control valve feet meters	without control valve feet meters	Cv/Kv Values with control valve Full Open	Cv/Kv Values without control valve Full Open	Maximum Working Pressure psi kPa
1 ¼ DN32	1.660 42.4	5.75 1.8	5.25 1.6	47.65 41	49.33 43	300 2068
1 ½ DN40	1.900 48.3	6 1.8	5.875 1.8	70.66 61	72.53 63	300 2068
2 DN50	2.375 60.3	12.25 3.7	6.625 2.0	95.39 83	130.61 113	300 2068
2 ½	2.875 73.0	9.875 3.0	5.25 1.6	149.98 130	218.87 189	300 2068
DN65	3.000 76.1	9.875 3.0	5.25 1.6	149.98 130	218.87 189	300 2068
3 DN80	3.500 88.9	9 2.7	4.125 1.3	298 258	433.2 375	300 2068
4 DN100	4.500 114.3	8.5 2.6	3 0.9	594.94 515	964.95 835	300 2068
	6.500 165.1	12 3.7	4.5 1.4	1472.2 1273	2256.53 1952	300 2068
6 DN150	6.625 168.3	12 3.7	4.5 1.4	1472.2 1273	2256.53 1952	300 2068
8 DN200	8.625 219.1	17.5 5.3	4.125 1.3	2500.92 2163	5035.24 4355	300 2068

¹ Equivalent length of Sch. 40 pipe calculated using the hazen-williams formula with a roughness constant of c=120.

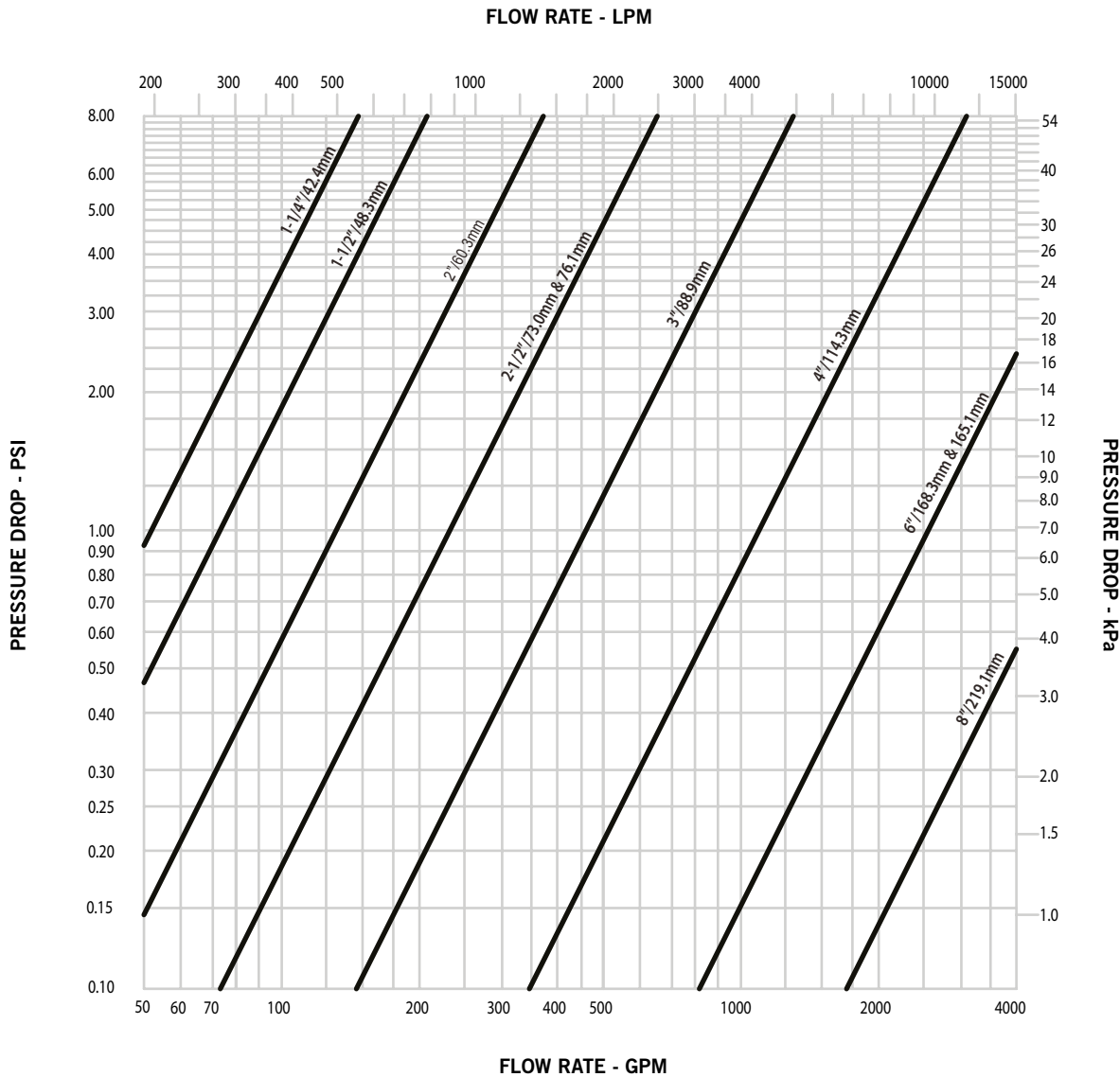
5.0 PERFORMANCE

Series UM Friction Loss with Control Valve (including water flow switch)



5.0 PERFORMANCE (CONTINUED)

Series UM Friction Loss with Control Valve (including water flow switch)



6.0 NOTIFICATIONS

! WARNING



- Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping products.
- Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.
- Wear safety glasses, hardhat, and foot protection.

Failure to follow these instructions could result in death or serious personal injury and property damage.

7.0 REFERENCE MATERIALS

[10.17: Series 728 FireLock™ Ball Valve](#)

[10.54: FireLock™ Innovative Groove System I IGS™](#)

[10.64: FireLock™ Installation-Ready™ Rigid Couplings Style 009N and Style 109](#)

[10.80: Series 765 FireLock™ High Pressure Butterfly Valve](#)

[10.81: Series 705 FireLock™ Butterfly Valve](#)

[30.73: Series UTD Universal Test and Drain](#)

[30.74: Series ARV Adjustable Relief Valve](#)

[30.75: Series FTV Flow Test Valve](#)

[I-UM: Series UM Universal Manifold Assembly Installation Manual](#)

User Responsibility for Product Selection and Suitability

Each user bears final responsibility for making a determination as to the suitability of Victaulic products for a particular end-use application, in accordance with industry standards and project specifications, as well as Victaulic performance, maintenance, safety, and warning instructions. Nothing in this or any other document, nor any verbal recommendation, advice, or opinion from any Victaulic employee, shall be deemed to alter, vary, supersede, or waive any provision of Victaulic Company's standard conditions of sale, installation guide, or this disclaimer.

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Note

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

Installation

Reference should always be made to the Victaulic installation handbook or installation instructions of the product you are installing. Handbooks are included with each shipment of Victaulic products, providing complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

Warranty

Refer to the Warranty section of the current Price List or contact Victaulic for details.

Trademarks

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FireLock® Butterfly Valve

Series 705 with Weatherproof Actuator



1.0 PRODUCT DESCRIPTION

- Available Sizes: 2 – 12"/50 – 300 mm
- cULus Listed, LPCB Listed, FM and VdS Approved for service up to 300 psi/2068 kPa /20 bar.
- Designed for fire protection services only.
- Features a weatherproof actuator housing Approved for indoor and outdoor use.
- Actuation options: Hand wheel (2 – 12"/50 – 300 mm)
- Exclusively for use with pipe and Victaulic products which feature ends formed with the Victaulic Original Groove System (OGS) groove profile (see section 7.0 for Reference Materials).

2.0 CERTIFICATION/LISTINGS



NOTES

- Refer to Victaulic [submittal publication 10.01](#) for details

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

System No.		Location	
Submitted By		Date	

Spec Section		Paragraph	
Approved		Date	

2.1 CERTIFICATION/LISTINGS

Size	Approval/Listing Service Pressures			
	Series 705 Butterfly Valve			
	cULus	FM	Vds	LPCB
2 50	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa	up to 300psi/2068kPa
2½ 65	up to 300psi/2068kPa	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa
76.1 mm	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
3 80	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
4 100	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
5 125	up to 300psi/2068kPa	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa
139.7 mm	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
6 150	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
165.1 mm	up to 300psi/2068kPa	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa
8 200	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa	up to 300psi/2068kPa
10 250	up to 300psi/2068kPa	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa
12 300	up to 300psi/2068kPa	up to 300psi/2068kPa	n/a	up to 300psi/2068kPa

3.0 SPECIFICATIONS – MATERIAL

Body: Ductile Iron conforming to ASTM A-536, Grade 65-45-12

End Face, 2 – 6"/50 – 150 mm: Ductile Iron conforming to ASTM A-536, Grade 65-45-12

Seal Retainer, 8 – 12"/200 – 300 mm: Ductile Iron conforming to ASTM A-536, Grade 65-45-12

Body Coating: Black alkyd enamel

Disc: Ductile Iron conforming to ASTM A-536, Grade 65-45-12, with electroless nickel coating conforming to ASTM B-733

Seat: Grade "E" EPDM

Stems: 416 stainless steel conforming to ASTM A-582

Stem Seal Cartridge: C36000 brass

Bearings: Stainless steel with TFE lining

Stem Seals: EPDM

Stem Retaining Ring: Carbon steel

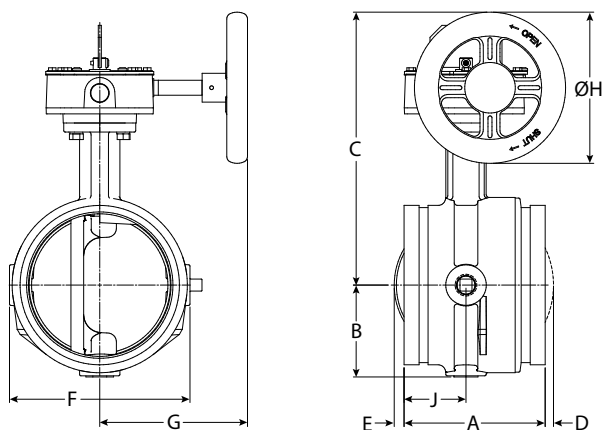
Actuator:

2 – 8"/50 – 200 mm: Brass or bronze traveling nut on a steel lead screw, in a ductile iron housing

10 – 12"/250 – 300 mm: Steel worm and cast iron quadrant gear, in a cast iron housing

4.0 DIMENSIONS

Series 705



Size		Dimensions								
Nominal inches mm	Actual Outside Diameter inches mm	E to E A inches mm	B inches mm	C inches mm	D inches mm	E inches mm	F inches mm	G inches mm	DIA H inches mm	J inches mm
2 60.3	2.375 60.3	4.25 108.0	2.28 57.9	6.41 162.8	–	–	4.00 101.6	4.22 107.2	4.50 114.3	2.12 53.8
2½ 73	2.875 73.0	3.77 95.8	2.28 57.9	7.54 191.5	–	–	4.00 101.6	4.22 107.2	4.50 114.3	1.77 45.0
76.1 mm	3.000 76.1	3.77 95.8	2.28 57.9	7.54 191.5	–	–	4.00 101.6	4.22 107.2	4.50 114.3	1.77 45.0
3 88.9	3.500 88.9	3.77 95.8	2.53 64.3	7.79 197.9	–	–	4.50 114.3	4.22 107.2	4.50 114.3	1.77 45.0
108 mm	4.250 108.0	4.63 117.6	2.88 73.2	8.81 223.8	–	–	5.50 139.7	4.22 107.2	4.50 114.3	2.20 55.9
4 114.3	4.500 114.3	4.63 117.6	2.88 73.2	8.81 223.8	–	–	5.50 139.7	4.22 107.2	4.50 114.3	2.20 55.9
133 mm	5.250 133.0	5.88 149.4	3.35 85.1	10.88 276.4	–	–	6.56 166.6	6.19 157.2	6.30 160.0	2.58 65.5
139.7 mm	5.500 139.7	5.88 149.4	3.35 85.1	10.88 276.4	–	–	6.56 166.6	6.19 157.2	6.30 160.0	2.58 65.6
5 141.3	5.563 141.3	5.88 149.4	3.35 85.1	10.88 276.4	–	–	6.56 166.6	6.19 157.2	6.30 160.0	2.58 65.5
159 mm	6.250 159.0	5.88 149.4	3.84 97.5	11.38 289.1	–	0.41 10.4	7.52 191.0	6.19 157.2	6.30 160.0	2.58 65.5
165.1 mm	6.500 165.1	5.88 149.4	3.84 97.5	11.38 289.1	–	0.41 10.4	7.52 191.0	6.19 157.2	6.30 160.0	2.58 65.5
6 168.3	6.625 168.3	5.88 149.4	3.84 97.5	11.38 289.1	–	0.41 10.4	7.52 191.0	6.19 157.2	6.30 160.0	1.90 48.3
8 219.1	8.625 219.1	5.33 135.4	5.07 128.8	13.53 343.6	0.80 20.3	1.47 37.3	10.00 254.0	6.19 157.2	8.10 205.7	2.33 59.2
10 273	10.750 273.0	6.40 162.6	6.37 161.8	15.64 397.3	1.41 35.8	1.81 46.0	12.25 311.2	8.10 205.7	9.00 228.6	–
12 323.9	12.750 323.9	6.50 165.1	7.36 186.9	16.64 422.7	2.30 58.4	2.80 71.1	14.25 362.0	8.10 205.7	9.00 228.6	–

NOTE

- Optional ½"/15 mm tap available. Contact Victaulic for details.

5.0 PERFORMANCE

Series 705

The chart expresses the frictional resistance of Victaulic Series 705 Butterfly Valve in equivalent feet/meters of straight pipe.

Nominal Size mm inches	Outside Diameter mm inches	Equivalent Feet/m of pipe
2 50	2.375 60.3	6 1.8
2½ 65	2.875 73.0	6 1.8
76.1 mm	3.000 76.1	6 1.8
3 80	3.500 88.9	7 2.1
4 100	4.500 114.3	8 2.4
108 mm	108 mm	8 2.4
5 125	5.563 141.3	12 3.7
133 mm	133 mm	12 3.7
139.7 mm	5.500 139.7	12 3.7
6 150	6.625 168.3	14 4.2
159 mm	159 mm	14 4.3
165.1 mm	6.500 165.1	14 4.2
8 200	8.625 219.1	16 4.9
10 250	10.750 273.0	18 5.5
12 300	12.750 323.9	19 5.8

5.1 PERFORMANCE

Series 705

C_v values for flow of water at +60°F/+16°C through a fully open valve are shown in the table below.
For additional details, contact Victaulic.

Formulas for C_v values

$$\Delta P = \frac{Q^2}{C_v^2}$$

$$Q = C_v \times \sqrt{\Delta P}$$

Where:

Q = Flow (GPM)
 ΔP = Pressure Drop (psi)
 C_v = Flow Coefficient

Formulas for K_v values

$$\Delta P = \frac{Q^2}{K_v^2}$$

$$Q = K_v \times \sqrt{\Delta P}$$

Where:

Q = Flow (m³/hr)
 ΔP = Pressure Drop (Bar)
 K_v = Flow Coefficient

Valve Size		Full Open
Nominal Size inches mm	Actual Outside Diameter inches mm	Flow Coefficient C_v
2 50	2.375 60.3	170
2½ 65	2.875 73.0	260
76.1 mm	3.000 76.1	260
3 80	3.500 88.9	440
4 100	4.500 114.3	820
108 mm	108 mm	820
5 125	5.563 141.3	1200
133 mm	133 mm	1200
139.7 mm	5.500 139.7	1200
6 150	6.625 168.3	1800
159 mm	159 mm	1800
165.1 mm	6.500 165.1	1800
8 200	8.625 219.1	3400
10 250	10.750 273.0	5800
12 300	12.750 323.9	9000

Valve Size		Full Open
Nominal Size inches mm	Actual Outside Diameter inches mm	Flow Coefficient K_v
2 50	2.375 60.3	147
2½ 65	2.875 73.0	225
76.1 mm	3.000 76.1	225
3 80	3.500 88.9	380
4 100	4.500 114.3	710
108 mm	108 mm	710
5 125	5.563 141.3	1040
133 mm	133 mm	1040
139.7 mm	5.500 139.7	1040
6 150	6.625 168.3	1560
159 mm	159 mm	1560
165.1 mm	6.500 165.1	1560
8 200	8.625 219.1	2940
10 250	10.750 273.0	5020
12 300	12.750 323.9	7790

6.0 NOTIFICATIONS

WARNING



- Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping products.
- Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.
- Wear safety glasses, hardhat, and foot protection.

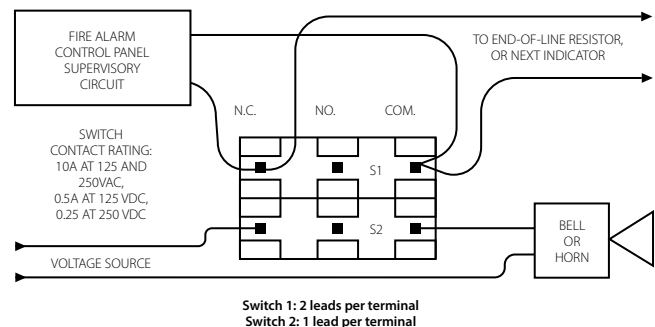
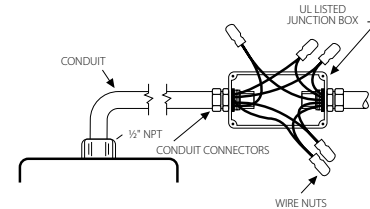
Failure to follow these instructions could result in death or serious personal injury and property damage.

7.0 REFERENCE MATERIALS

Switch and Wiring

- The supervisory switch contains two single pole, double throw, pre-wired switches.
- Switches are rated:
10 amps @ 125 or 250 VAC/60 Hz
0.50 amps @ 125 VDC
0.25 amps @ 250 VDC
- Switches supervise the valve in the "OPEN" position.
- One switch has two #18 insulated wires per terminal, which permit complete supervision of leads (refer to diagrams and notes below). The second switch has one #18 insulated wire per terminal. This double circuit provides flexibility to operate two electrical devices at separate locations, such as an indicating light and an audible alarm, in the area that the valve is installed.
- A #14 insulated ground lead (green) is provided.
Switch #1 = S1
For connection to the supervisory circuit of a UL Listed alarm control panel
Switch #2 = S2
Auxiliary switch that may be connected to auxiliary devices, per the authority having jurisdiction

- S1 { Normally Closed: (2) Blue
Common: (2) Yellow
- S2 { Normally Closed: Blue with Orange Stripe
Normally Open: Brown with Orange Stripe
Common: Yellow with Orange Stripe



NOTES

- The above diagram shows a connection between the common terminal (yellow – S1 and yellow-with-orange stripe – S2) and the normally closed terminal (blue – S1 and blue-with-orange stripe – S2). In this example, the indicator light and alarm will stay on until the valve is fully open. When the valve is fully open, the indicator light and alarm will go out. Cap off any unused wires (e.g. brown with orange stripe).
- Only S1 (two leads per terminal) may be connected to the fire alarm control panel.
- The connection of the alarm switch wiring shall be in accordance with NFPA 72 and the auxiliary switch per NFPA 70 (NEC).

7.1 REFERENCE MATERIALS

[10.01: Regulatory Approval Reference Guide](#)

[29.01: Terms and Conditions/Warranty](#)

[I-100: Field Installation Handbook](#)

User Responsibility for Product Selection and Suitability

Each user bears final responsibility for making a determination as to the suitability of Victaulic products for a particular end-use application, in accordance with industry standards and project specifications, and the applicable building codes and related regulations as well as Victaulic performance, maintenance, safety, and warning instructions. Nothing in this or any other document, nor any verbal recommendation, advice, or opinion from any Victaulic employee, shall be deemed to alter, vary, supersede, or waive any provision of Victaulic Company's standard conditions of sale, installation guide, or this disclaimer.

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Note

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

Installation

Reference should always be made to the Victaulic installation handbook or installation instructions of the product you are installing. Handbooks are included with each shipment of Victaulic products, providing complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

Warranty

Refer to the Warranty section of the current Price List or contact Victaulic for details.

Trademarks

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Fire Department Connection

INSIST ON
F P P I®

Straight Pattern

Description

The Straight Pattern Fire Department Connection is Underwriters' Laboratories listed and Factory Mutual Approved. Manufactured from solid brass* components to increase service life. The single clapper design features brass clapper and brass seats within a cast brass* body. The 2½" swivels are pin lug design for ease of use and compatibility with local fire service districts. Swivel gaskets are included. Breakable caps or plugs should be installed to protect swivels and prevent debris from being accidentally introduced into the water way.



Installation

Installation of the Fire Department Connection is achieved with readily available jobsite tools. Prior to installation make sure the proper identification sign has been installed on the nipple. Coat male threads of 4" IPS nipple liberally with a suitable pipe thread sealant such as Pipefit®. Tighten FDC one full turn past hand tight. Make sure FDC is aligned according to requirements.

DO NOT OVER TIGHTEN. OVERTIGHTENING MAY CAUSE SEVERE STRETCHING AND POSSIBLE CRACKING OF THE OF THE FDC BODY.

Specifications

Size:

4" IPS Outlet
(2) 2½" Swivel Inlets

Type:

Straight Pattern

Material:

B16 Brass*

Swivels*:

NST	3.0686 x 7½ T
BCT	3.0000 x 8 TP
CF	2.9900 x 7½ T
CIN-new	3.0580 x 6 TP
CIN-old	3.0930 x 6 TP
CLV	3.0780 x 8 TP
Dayton	3.2340 x 6 TP
DET	3.1250 x 7½ T
NovaSco	3.2300 x 5 TP
NYFD	3.0300 x 8 TP
ONT	3.1250 x 5 TP
PHX	3.0620 x 6 TP
QST	3.0310 x 7 TP
Raleigh	3.3400 x 6 TP
Richmon	3.3120 x 8 TP
TEM	3.0750 x 6 TP

Approvals:

UL Listed 300psi
FM Approved 300psi

*Contains lead. Not for use in water systems intended for human consumption.



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WWW.FPPI.COM

FireLock® Check Valves

Series 717 Check Valve

~~Series 717H High Pressure Check Valve~~



10.08



Series 717
(2½ – 3"/65 – 80 mm)



Series 717
(4 – 12"/100 – 300 mm)



~~Series 717H~~
~~High Pressure Check Valve~~
~~(2 – 3"/50 – 80 mm)~~

1.0 PRODUCT DESCRIPTION

Available Sizes

- 2 – 3"/DN50 – DN80 (Series 717H)
- 2½ – 12"/DN50 – DN300 (Series 717)

Pressure Class

- Up to 365 psi/2517 kPa/25 bar
- Working pressure dependent on size of pipe, valve size and approval requirements.

Application

- Designed for use in Fire Protection systems.
- Prevents back flow.
- Single-disc mechanism incorporates a spring-assisted feature for non-slamming operation.
- Can be installed either vertically (flow upwards only) or horizontally.
- Valve body cast with arrow indicator to assist with proper valve orientation.
- Optional upstream and downstream pressure taps included on select sizes. See Section 3.0.
- Provided with grooved ends.
- Rated for ambient temperature use in fire protection systems.

2.0 CERTIFICATION/LISTINGS



NOTE

- Refer to Victaulic [submittal publication 10.01](#) for details

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

System No.		Location	
Submitted By		Date	

Spec Section		Paragraph	
Approved		Date	



2.0 CERTIFICATION/LISTINGS (Continued)

Approvals/Listings

Size	Approval/Listing Service Pressures			
	Series 717H			
	cULus	FM	LPCB	Vds
2"/50 mm	365 psi/2517 kPa	365 psi/2517 kPa	365 psi/2517 kPa	365 psi/2517 kPa
2 1/2"/65 mm	365 psi/2517 kPa	365 psi/2517 kPa	365 psi/2517 kPa	365 psi/2517 kPa
76.1 mm	365 psi/2517 kPa	365 psi/2517 kPa	365 psi/2517 kPa	365 psi/2517 kPa
3"/80 mm	365 psi/2517 kPa	365 psi/2517 kPa	365 psi/2517 kPa	365 psi/2517 kPa

Size	Approval/Listing Service Pressures			
	Series 717			
	cULus	FM	LPCB	Vds
2 1/2"/65 mm	250 psi/1725 kPa	n/a	365 psi/2517 kPa	n/a
76.1 mm	250 psi/1725 kPa	n/a	365 psi/2517 kPa	16bar/232 psi
3"/80 mm	250 psi/1725 kPa	n/a	365 psi/2517 kPa	16bar/232 psi
4"/100 mm	365 psi/2517 kPa	365 psi/2517 kPa	365 psi/2517 kPa	16bar/232 psi
5"/125 mm	365 psi/2517 kPa	365 psi/2517 kPa	365 psi/2517 kPa	n/a
139.7 mm	365 psi/2517 kPa	365 psi/2517 kPa	365 psi/2517 kPa	16bar/232 psi
6"/150 mm	365 psi/2517 kPa	365 psi/2517 kPa	365 psi/2517 kPa	16bar/232 psi
165.1 mm	365 psi/2517 kPa	365 psi/2517 kPa	365 psi/2517 kPa	n/a
8"/200 mm	365 psi/2517 kPa	365 psi/2517 kPa	348 psi/2400 kPa	16bar/232 psi
10"/250 mm	250 psi/1725 kPa	250 psi/1725 kPa	1725 kPa/250 psi	n/a
12"/300 mm	250 psi/1725 kPa	250 psi/1725 kPa	1725 kPa/250 psi	n/a

3.0 SPECIFICATIONS – MATERIAL

Body:

Ductile Iron conforming to ASTM A-536, Grade 65-45-12.

Body Coating:

Series 717H Body: Black Paint

Series 717H Endface: Electroless Nickel conforming to ASTM B-733

Series 717 (2 ½ – 3"/DN65 – DN80): PPS Coating

Series 717 (4 – 12"/DN100 – DN300): Black Paint

Body Seat:

Series 717H: Nitrile O-ring installed into an Electroless Nickel plating conforming to ASTM B-733

Series 717 (2 ½ – 3"/DN65 – DN80): PPS Coated Ductile Iron

Series 717 (4 – 12"/DN100 – DN300): Ductile Iron with Electroless Nickel plating conforming to ASTM B-733

Disc Seal or Coating: (specify choice¹)

Nitrile (Series 717H only)

EPDM

NOT COMPATIBLE FOR PETROLEUM SERVICES.

Discs:

Series 717H: CF8M Cast Stainless Steel

Series 717 (2 ½ – 3"/DN65 – DN80): Aluminum bronze with elastomer seal

Series 717 (4 – 12"/DN100 – DN300): Elastomer encapsulated disc.

Shaft:

Series 717H: Brass

Series 717 (2 ½ – 3"/DN65 – DN80): Type 416 Stainless Steel

Series 717 (4 – 12"/DN100 – DN300): Type 316 Stainless Steel

Spring:

Type 302/304 Stainless Steel

Shaft Plug:

Series 717H: Carbon Steel Zinc Plated

Series 717: Carbon Steel Zinc Plated

Pipe Plug:

Series 717H: Carbon Steel Zinc Plated

Series 717: Carbon Steel Zinc Plated

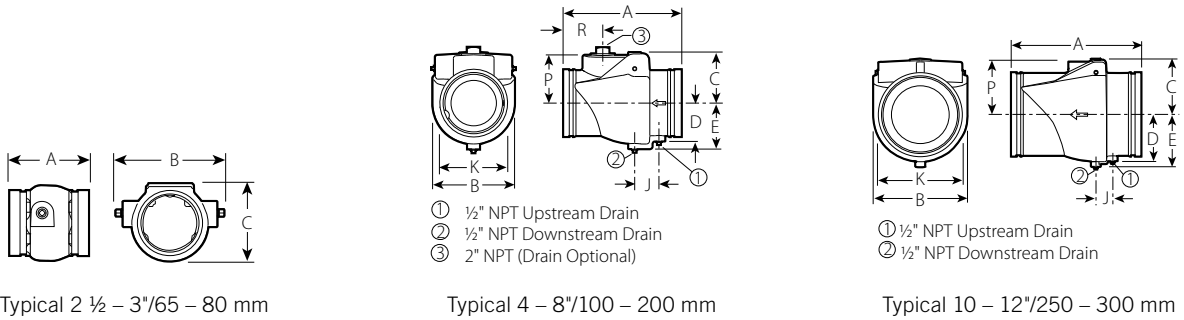
Optional Pressure Taps:

Series 717H: Available on all sizes

Series 717: Available on sizes 4 – 12"/DN100 – DN300

4.0 DIMENSIONS

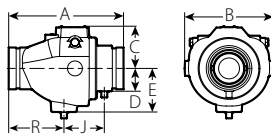
Series 717



Size		Dimensions									Weight
Nominal inches mm	Actual Outside Diameter inches mm	E to E A inches mm	B inches mm	C inches mm	D inches mm	E inches mm	J inches mm	K inches mm	P inches mm	R inches mm	Approximate (Each) lb kg
2½ 65	2.875 73.0	3.88 99	4.26 108	3.57 91	–	–	–	–	–	–	3.6 1.6
76.1 mm	3.000 76.1	3.88 99	4.26 108	3.57 91	–	–	–	–	–	–	3.6 1.6
3 80	3.500 88.9	4.25 108	5.06 129	4.17 106	–	–	–	–	–	–	4.5 2.0
4 100	4.500 114.3	9.63 245	6.00 152	3.88 99	2.75 70	3.50 89	2.00 51	4.50 114	3.50 89	3.35 85	20.0 9.1
5 125	5.563 141.3	10.50 267	6.80 173	4.50 114	–	4.17 106	2.15 55	5.88 149	4.08 104	3.98 101	27.0 12.3
139.7 mm	5.500 139.7	10.50 267	6.80 173	4.50 114	–	4.17 106	2.15 55	5.88 149	4.08 104	3.98 101	27.0 12.3
6 150	6.625 168.3	11.50 292	8.00 203	5.00 127	–	4.50 114	2.38 61	6.67 169	4.73 120	3.89 99	38.0 17.2
165.1 mm	6.500 165.1	11.50 292	8.00 203	5.00 127	–	4.50 114	2.38 61	6.67 169	4.73 120	3.89 99	38.0 17.2
8 200	8.625 219.1	14.00 356	9.88 251	6.06 154	5.05 128	5.65 144	2.15 55	8.85 225	5.65 144	5.75 146	64.0 29.0
10 250	10.750 273.0	17.00 432	12.00 305	7.09 180	5.96 151	6.69 170	2.15 55	10.92 277	6.73 171	–	100.0 45.4
12 300	12.750 323.9	19.50 495	14.00 356	8.06 205	6.91 176	7.64 194	2.51 64	12.81 925	7.73 196	–	140.0 63.5

4.1 DIMENSIONS

Series 717H



Typical 2"/50 mm – 3"/80 mm

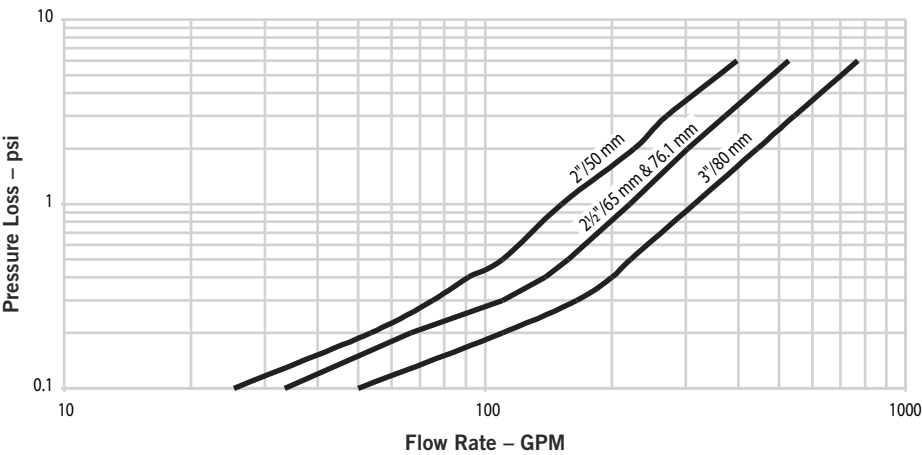
Size	Dimensions									Weight
Nominal inches mm	E to E A inches mm	B inches mm	C inches mm	D inches mm	E inches mm	J inches mm	K inches mm	P inches mm	R inches mm	Approximate (Each) lb kg
2 50	8.66 219.8	6.46 164.1	3.23 82.1	1.48 37.5	3.02 76.7	2.80 71.0	–	–	4.25 108.0	10.7 4.9
2½ 65	9.37 238.0	6.94 176.3	3.31 84.1	1.66 42.2	3.40 86.4	3.38 85.9	–	–	4.38 111.3	13.8 6.3
76.1 mm	9.37 238.0	6.94 176.3	3.31 84.1	1.66 42.2	3.40 86.4	3.38 85.9	–	–	4.38 111.3	13.8 6.3
3 80	9.62 244.3	7.44 189.0	3.53 89.7	1.91 48.5	3.65 92.7	3.38 85.9	–	–	4.63 117.6	20.0 9.1

5.0 PERFORMANCE

Flow Characteristics

The charts below express the flow of water at 60°F/16°C through valve.

S717H / 717HR



S717H / 717HR

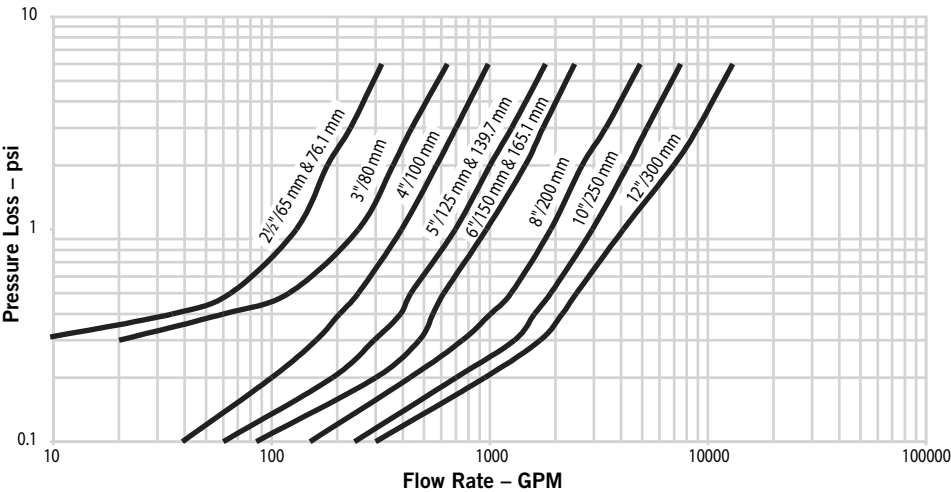


5.1 PERFORMANCE

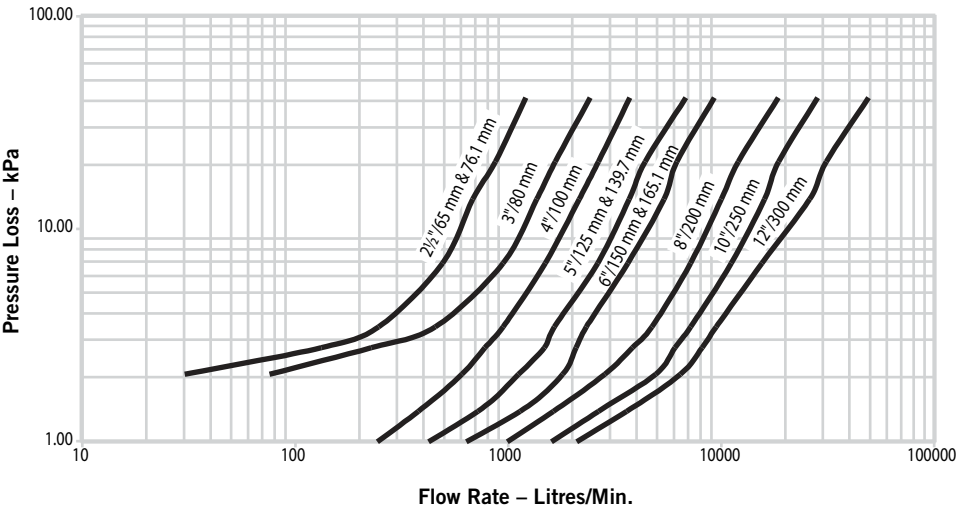
Flow Characteristics

The charts below express the flow of water at 60°F/16°C through valve.

S717 / 717R



S717 / 717R



6.0 NOTIFICATIONS



WARNING



- Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.

7.0 REFERENCE MATERIALS

[05.01: Seal Selection Guide](#)

[10.01: Regulatory Approval Reference Guide](#)

[29.01: Terms and Conditions/Warranty](#)

[I-100: Field Installation Handbook](#)

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Warranty

Refer to the Warranty section of the current Price List or contact Victaulic for details.

Trademarks

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SECTION D

Fire Sprinklers



TECHNICAL DATA

VK3501 QUICK RESPONSE UPRIGHT SPRINKLER (K8.0)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page www.vikinggroupinc.com

1. DESCRIPTION

The Viking VK3501 Quick Response Upright Sprinkler is a small thermosensitive glass bulb spray sprinkler available with various finishes and temperature ratings to meet design requirements. The special Polyester and Electroless Nickel PTFE (ENT) coatings can be used in decorative applications where colors are desired. In addition, these coatings have been investigated for installation in corrosive environments and are Listed and Approved as indicated in the Approval Chart.

2. LISTINGS AND APPROVALS



UL Listed: Category VNIV



FM Approved: Classes 2001, 2043

Also approved for use in FM Approved vacuum dry sprinkler systems with a maximum supervisory vacuum pressure of -3 PSI (-207 mbar).



CE: Standard EN12259-1, DOP_XT1A_1-3-21

Refer to the Approval Chart and Design Criteria for requirements that must be followed.

3. TECHNICAL DATA

Minimum Operating Pressure: 7 PSI (0.5 bar)

Rated to: 175 PSI (12 bar) water working pressure.

Factory tested hydrostatically to 500 PSI (34.5 bar)

Thread size: 3/4" NPT or 20 mm BSPT

Nominal K-factor: 8.0 U.S. (115 metric*)

Glass-bulb fluid temperature rated to -65 °F (-55 °C)

Metric K-factor measurement shown is in bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

Material Standards:

Sprinkler Body: Brass CW602N, UNS-C84400 or QM Brass

Deflector: Stainless Steel UNS S30400

Pip Cap Shell - Stainless Steel UNS-S44400

Pip Cap Disc - Stainless Steel UNS-S30100

Belleville Spring - Nickel Alloy

Pip Cap Seal - Polytetrafluoroethylene (PTFE)

Compression Screw: Brass CW612N, CW508L, UNS-C36000 or UNS-C26000

Shipping Cap: Polyethylene

Bulb: Glass, nominal 3 mm diameter

Ordering Information: (Refer to Table 1 and the current Viking List Price Book.)

4. INSTALLATION

Refer to appropriate NFPA, FM Global, and/or any other applicable installation standards. Refer to Figure 3

NOTICE Risk of permanent damage.

Over-tightening the sprinkler can cause permanent damage.

> Tighten the sprinkler to a **MAXIMUM** torque of 20 ft-lbs (27.1 N-m).

5. OPERATION

During fire conditions, when the temperature around the sprinkler reaches its operating temperature, the heat-sensitive liquid in the glass bulb expands, causing the bulb to shatter, releasing the pip cap assembly. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

6. INSPECTIONS, TESTS AND MAINTENANCE

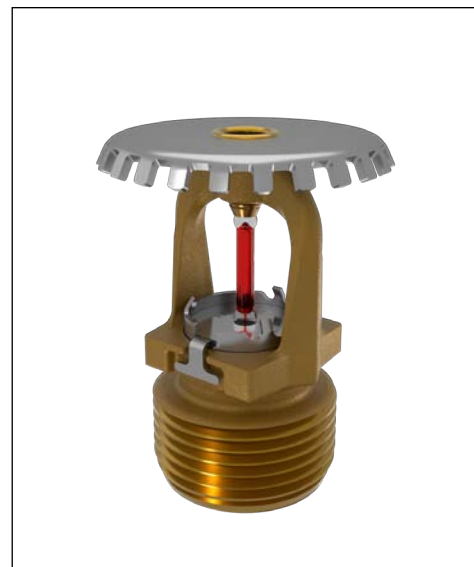
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

Viking Sprinklers are available through a network of domestic and international distributors. See the website for the closest distributor or contact Viking.

8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.



WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov



TECHNICAL DATA

VK3501 QUICK RESPONSE UPRIGHT SPRINKLER (K8.0)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page www.vikinggroupinc.com

TABLE 1: ORDERING INFORMATION

Instructions: Using the sprinkler base part number,

(1) add the suffix for the desired Finish

(2) add the suffix for the desired Temperature Rating.

Sprinkler Base Part Number	Size		1: Finishes		2: Temperature Ratings			
	NPT Inch	BSPT mm	Description	Suffix ¹	Nominal Rating	Bulb Color	Max. Ambient Ceiling Temperature ²	Suffix
23877	3/4	--	Brass	A	135 °F (57 °C)	Orange	100 °F (38 °C)	A
23889	--	20	Chrome	F	155 °F (68 °C)	Red	100 °F (38 °C)	B
			White Polyester ^{3,5}	M-/W	175 °F (79 °C)	Yellow	150 °F (65 °C)	D
			Black Polyester ^{3,5}	M-/B	200 °F (93 °C)	Green	150 °F (65 °C)	E
			ENT ^{3,4,5}	JN	286 °F (141 °C)	Blue	225 °F (107 °C)	G
					Open	--	--	Z

Example: 23877MB/W = VK3501 with white polyester finish and 155 °F (68 °C) nominal temperature rating. This sprinkler is to be installed into an area with a maximum ambient temperature of 100 °F (38 °C) meaning if the area will experience temperatures above the maximum ambient rating, you shall use a higher temperature-rated sprinkler.

Accessories

Sprinkler Wrenches (see Figure 1):

Standard (straight) Wrench: Part number 23559MB.

Sprinkler Cabinet:

A. Up to 6 sprinklers: Part number 01724A (available since 1971).

B. 6-12 sprinklers: Part number 01725A (available since 1971).

Footnotes

- Where a dash (-) is shown in the Finish suffix designation, insert the desired Temperature Rating suffix. See example above.
- Based on NFPA 13, NFPA 13R, and NFPA 13D. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.
- UL Listed as corrosion resistant.
- FM Approved as corrosion resistant.
- The corrosion resistant and corrosion proofing coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Chart. These tests cannot and do not represent all possible corrosive environments. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. For automatic sprinklers, the ENT coating is applied to all exposed exterior surfaces, including the waterway.



Figure 1: Sprinkler Wrench

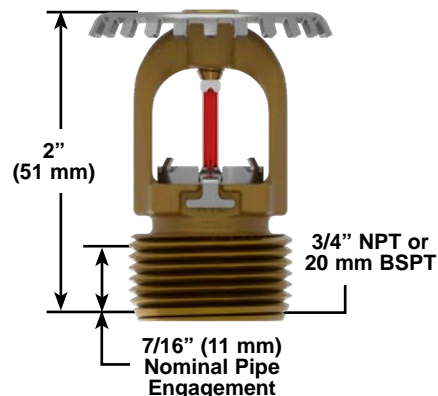


Figure 2: Sprinkler Dimensions



TECHNICAL DATA

VK3501 QUICK RESPONSE UPRIGHT SPRINKLER (K8.0)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
 Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com
 Visit the Viking website for the latest edition of this technical data page www.vikinggroupinc.com

APPROVAL CHART Viking Quick Response Upright Sprinkler VK3501 K8.0 (115 metric) Maximum 175 PSI (12 bar) WWP					
			<div> <div>Finish(es) →</div> <div>Temperature(s) →</div> <div>Escutcheon(s), If applicable →</div> </div> <div> <div>A 1 X</div> <div>KEY</div> </div>		
Sprinkler Base Part Number ¹	Thread Size		Listings and Approvals ²		
	NPT	BSPT	UL	FM	CE ⁶
	Inch	mm	Approval Listing	Approval Listing	Approval Listing
23877	3/4"	--	A1	A1	B1
23889	--	20	A1	A1	B1
Approved Temperature Rating Code: A = 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C) B = 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C) and 286 °F (141 °C)					
Approved Finish Code: 1 = Brass, Chrome, White Polyester ^{3,4} , Black Polyester ^{3,4} , and ENT ^{4,5}					
Footnotes ¹ Base Part number is shown. For complete part number, refer to Viking's current price schedule. ² This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals. ³ Other colors are available upon request with the same Listings and Approvals as the standard colors. ⁴ cULus Listed as corrosion resistant. ⁵ FM Approved as corrosion resistant. ⁶ CE: Standard EN12259-1, Declaration of Performance DOP_XT1A_1-3-21.					

DESIGN CRITERIA - UL

cULus Listing Requirements:

The Viking VK3501 Quick Response Upright Sprinkler is cULus Listed as indicated in Approval Chart for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers.

- Designed for use in Light and Ordinary Hazard occupancies.
- The sprinkler installation rules contained in NFPA 13 for standard spray upright sprinklers shall be followed.

DESIGN CRITERIA - FM

FM Approval Requirements:

The Viking VK3501 Quick Response Upright Sprinkler is FM Approved as quick response Non-Storage upright sprinkler as indicated in the FM Approval Guide. For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including Data Sheet 2-0). FM Global Loss Prevention Data Sheets contain guidelines relating to, but not limited to: minimum water supply requirements, hydraulic design, ceiling slope and obstructions, minimum and maximum allowable spacing, and deflector distance below the ceiling.

NOTE: The FM Installation guidelines may differ from UL and/or NFPA criteria.

IMPORTANT: Always refer to Form Number F_091699 - Care and Handling of Sprinklers. Also refer to Form Number F_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking Technical Data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.

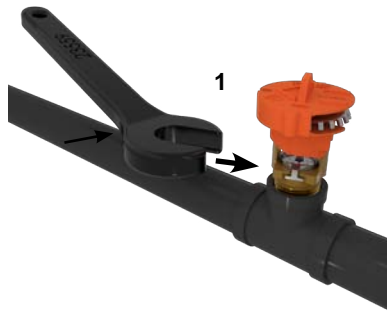
**TECHNICAL DATA****VK3501 QUICK RESPONSE
UPRIGHT SPRINKLER (K8.0)**

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page www.vikinggroupinc.com

1. Carefully slide the wrench onto the wrench flats.



2. Install the sprinkler into the pipe fitting.
NOTE: The sprinkler frame arms shall be parallel to the pipe.

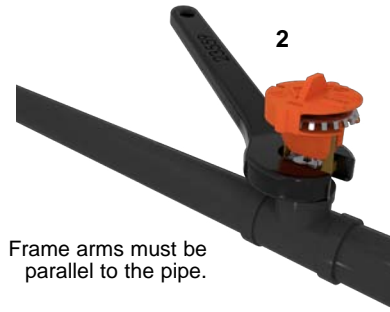


Figure 3: Installation



BULLETIN

CARE AND HANDLING
OF SPRINKLERS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
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SPRINKLERS ARE FRAGILE - HANDLE WITH CARE!**General Handling and Storage:**

- Store sprinklers in a cool, dry place.
- Protect sprinklers during storage, transport, handling, and after installation.
- Use the original shipping containers. DO NOT place sprinklers loose in boxes, bins, or buckets.
- Keep sprinklers separated at all times. DO NOT allow metal parts to contact sprinkler operating elements.

For Pre-Assembled Drops:

- Protect sprinklers during handling and after installation.
- For recessed assemblies, use the protective sprinkler cap (Viking Part Number 10364).

Sprinklers with Protective Shields or Caps:

- DO NOT remove shields or caps until after sprinkler installation and there no longer is potential for mechanical damage to the sprinkler operating elements.
- **Sprinkler shields or caps MUST be removed BEFORE placing the system in service!**
- Remove the sprinkler shield by carefully pulling it apart where it is snapped together.
- Remove the cap by turning it slightly and pulling it off the sprinkler.

Sprinkler Installation:

- DO NOT use the sprinkler deflector or operating element to start or thread the sprinkler into a fitting.
- **Use only the designated sprinkler head wrench!** Refer to the current sprinkler technical data page to determine the correct wrench for the model of sprinkler used.
- DO NOT install sprinklers onto piping at the floor level.
- Install sprinklers after the piping is in place to prevent mechanical damage.
- DO NOT allow impacts such as hammer blows directly to sprinklers or to fittings, pipe, or couplings in close proximity to sprinklers. Sprinklers can be damaged from direct or indirect impacts.
- DO NOT attempt to remove drywall, paint, etc., from sprinklers.
- **Take care not to over-tighten the sprinkler and/or damage its operating parts!**

Maximum Torque:

1/2" NPT: 14 ft-lbs. (19.0 N-m)

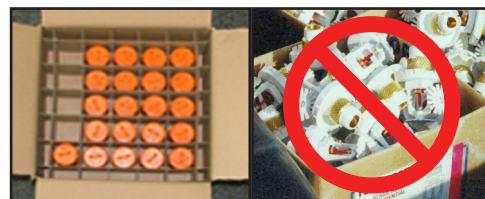
3/4" NPT: 20 ft-lbs. (27.1 N-m)

1" NPT: 30 ft-lbs. (40.7 N-m)



CORRECT
(Original container used)

INCORRECT
(Placed loose in box)



CORRECT
(Protected with caps)

INCORRECT
(Protective caps not used)



CORRECT
(Piping is in place at the ceiling)

INCORRECT
(Sprinkler at floor level)



CORRECT
(Special installation wrenches)

INCORRECT
(Designated wrench not used)



WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov

! WARNING

Any sprinkler with a loss of liquid from the glass bulb or damage to the fusible element should be destroyed. Never install sprinklers that have been dropped, damaged, or exposed to temperatures exceeding the maximum ambient temperature allowed. Sprinklers that have been painted in the field must be replaced per NFPA 13. Protect sprinklers from paint and paint overspray in accordance with the installation standards. Do not clean sprinklers with soap and water, ammonia, or any other cleaning fluid. Do not use adhesives or solvents on sprinklers or their operating elements.

Refer to the appropriate technical data page and NFPA standards for complete care, handling, installation, and maintenance instructions. For additional product and system information Viking data pages and installation instructions are available on the Viking Web site at www.vikinggroupinc.com.



BULLETIN

CARE AND HANDLING
OF SPRINKLERS

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PROTECTIVE SPRINKLER SHIELDS AND CAPS

General Handling and Storage:

Many Viking sprinklers are available with a plastic protective cap or shield temporarily covering the operating elements. The snap-on shields and caps are factory installed and are intended to help protect the operating elements from mechanical damage during shipping, storage, and installation. NOTE: It is still necessary to follow the care and handling instructions on the appropriate sprinkler technical data sheets* when installing sprinklers with bulb shields or caps.

WHEN TO REMOVE THE SHIELDS AND CAPS:

NOTE: SHIELDS AND CAPS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!

Remove the shield or cap from the sprinkler only after checking all of the following:

- The sprinkler has been installed*.
- The wall or ceiling finish work is completed where the sprinkler is installed and there no longer is a potential for mechanical damage to the sprinkler operating elements.

SHIELDS AND CAPS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!

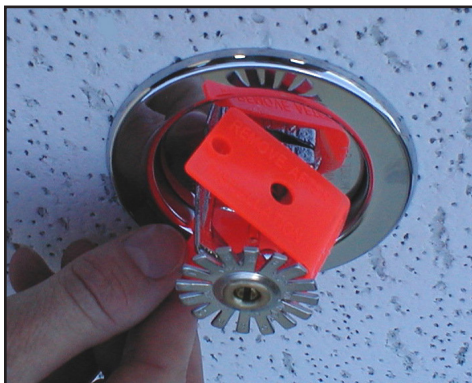


Figure 1: Sprinkler shield being removed from a pendent sprinkler.



Figure 2: Sprinkler cap being removed from a pendent sprinkler.



Figure 3: Sprinkler cap being removed from an upright sprinkler.

HOW TO REMOVE SHIELDS AND CAPS:

No tools are necessary to remove the shields or caps from sprinklers. DO NOT use any sharp objects to remove them! **Take care not to cause mechanical damage to sprinklers when removing the shields or caps.** When removing caps from fusible element sprinklers, use care to prevent dislodging ejector springs or damaging fusible elements. NOTE: Squeezing the sprinkler cap excessively could damage sprinkler fusible elements.

- To remove the shield, simply pull the ends of the shield apart where it is snapped together. Refer to Figure 1.
- To remove the cap, turn it slightly and pull it off the sprinkler. Refer to Figures 2 and 3.

NOTICE

Refer to the current sprinkler technical data page to determine the correct sprinkler wrench for the model of sprinkler used.



Never install sprinklers that have been dropped, damaged, or exposed to temperatures in excess of the maximum ambient temperature allowed.

* Refer to the appropriate current technical data pages for complete care, handling, and installation instructions. Data pages are included with each shipment from Viking or Viking distributors. They can also be found on the Web site at www.vikinggroupinc.com.



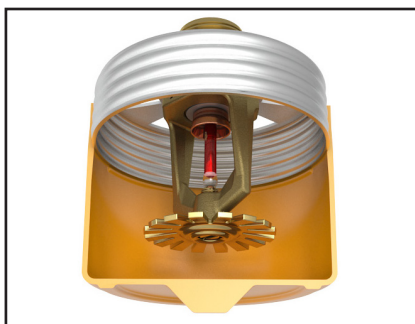
BULLETIN

CARE AND HANDLING
OF SPRINKLERS

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CONCEALED COVER ASSEMBLIES ARE FRAGILE!
TO ASSURE SATISFACTORY PERFORMANCE OF THE PRODUCT, HANDLE WITH CARE.



Concealed Sprinkler and Adapter
 Assembly with Protective Cap



Concealed Sprinkler and Adapter
 Assembly (Protective Cap Removed)

Cover Plate Assembly
 (Pendent Cover 12381 shown)



GENERAL HANDLING AND STORAGE INSTRUCTIONS:

- Do not store in temperatures exceeding 100 °F (38 °C). Avoid direct sunlight and confined areas subject to heat.
- Protect sprinklers and cover assemblies during storage, transport, handling, and after installation.
 - Use original shipping containers.
 - Do not place sprinklers or cover assemblies loose in boxes, bins, or buckets.
- Keep the sprinkler bodies covered with the protective sprinkler cap any time the sprinklers are shipped or handled, during testing of the system, and while ceiling finish work is being completed.
- Use only the designated Viking recessed sprinkler wrench (refer to the appropriate sprinkler data page) to install these sprinklers. **NOTE:** The protective cap is temporarily removed during installation and then placed back on the sprinkler for protection until finish work is completed.
- Do not over-tighten the sprinklers into fittings during installation.
- Do not use the sprinkler deflector to start or thread the sprinklers into fittings during installation.
- Do not attempt to remove drywall, paint, etc., from the sprinklers.
- Remove the plastic protective cap from the sprinkler before attaching the cover plate assembly. **PROTECTIVE CAPS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!**

Refer to the appropriate current technical data pages for complete care, handling, and installation instructions. Data pages are included with each shipment from Viking or Viking distributors. They can also be found on the Web site at www.vikinggroupinc.com.



BULLETIN

CARE AND HANDLING
OF SPRINKLERS

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USE THE FOLLOWING PRECAUTIONS WHEN HANDLING WAX-COATED SPRINKLERS

Many of Viking's sprinklers are available with factory-applied wax coating for corrosion resistance. These sprinklers **MUST** receive appropriate care and handling to avoid damaging the wax coating and to assure satisfactory performance of the product.

General Handling and Storage of Wax-Coated Sprinklers:

- Store the sprinklers in a cool, dry place (in temperatures below the maximum ambient temperature allowed for the sprinkler temperature rating. Refer to Table 1 below.)
- Store containers of wax-coated sprinklers separate from other sprinklers.
- Protect the sprinklers during storage, transport, handling, and after installation.
- Use original shipping containers.
- Do not place sprinklers in loose boxes, bins, or buckets.

Installation of Wax-Coated Sprinklers:

Use only the special sprinkler head wrench designed for installing wax-coated Viking sprinklers (any other wrench may damage the unit).

- Take care not to crack the wax coating on the units.
- For touching up the wax coating after installation, wax is available from Viking in bar form. Refer to Table 1 below. The coating **MUST** be repaired after sprinkler installation to protect the corrosion-resistant properties of the sprinkler.
- Use care when locating sprinklers near fixtures that can generate heat. Do not install sprinklers where they would be exposed to temperatures exceeding the maximum recommended ambient temperature for the temperature rating used.
- Inspect the coated sprinklers frequently soon after installation to verify the integrity of the corrosion resistant coating. Thereafter, inspect representative samples of the coated sprinklers in accordance with NFPA 25. Close up visual inspections are necessary to determine whether the sprinklers are being affected by corrosive conditions.

TABLE 1

Sprinkler Temperature Rating (Fusing Point)	Wax Part Number	Wax Melting Point	Maximum Ambient Ceiling Temperature ¹	Wax Color
155 °F (68 °C) / 165 °F (74 °C)	02568A	148 °F (64 °C)	100 °F (38 °C)	Light Brown
175 °F (79 °C)	04146A	161 °F (71 °C)	150 °F (65 °C)	Brown
200 °F (93 °C)	04146A	161 °F (71 °C)	150 °F (65 °C)	Brown
220 °F (104 °C)	02569A	170 °F (76 °C)	150 °F (65 °C)	Dark Brown
286 °F (141 °C)	02569A	170 °F (76 °C)	150 °F (65 °C)	Dark Brown

¹ Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.



WARNING Never install sprinklers that have been dropped, damaged, or exposed to temperatures in excess of the maximum ambient temperature allowed.

Refer to the appropriate current technical data pages for complete care, handling, and installation instructions. Data pages are included with each shipment from Viking or Viking distributors. They can also be found on the Web site at www.vikinggroupinc.com.



TECHNICAL DATA

SPRINKLER OVERVIEW

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

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1. DESCRIPTION

Viking fire sprinklers consist of a threaded frame with a specific waterway or orifice size and a deflector for distributing water in a specified pattern. A closed or sealed sprinkler refers to a complete assembly, including the thermosensitive operating element. An open sprinkler does not use an operating element and is open at all times. The distribution of water is intended to extinguish a fire or to control its spread.

Viking sprinklers are available in several models and styles. Refer to specific sprinkler technical data pages for available styles, finishes, temperature ratings, thread sizes, and nominal K-Factors for the particular model selected.

2. LISTINGS AND APPROVALS

Refer to the Approval Charts on the appropriate sprinkler technical data page(s) and/or approval agency listings.



WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov

3. TECHNICAL DATA

Pressure Ratings:

Maximum allowable water working pressure is 175 psig (12 Bar) unless rated and specified for high water working pressure [250 psig (17.2 bar)].

Sprinkler Identification:

Viking sprinklers are identified and marked with the word "Viking", the sprinkler identification number (SIN) consisting of "VK" plus a three digit number*, the model letter, and the year of manufacture.

Available Finishes:

Viking sprinklers are available in several decorative finishes. Some models are available with corrosion-resistant coatings or are fabricated from non-corrosive material. Refer to the sprinkler technical data page for additional information.

Available Temperature Ratings:

Viking sprinklers are available in several temperature ratings that relate to a specific temperature classification. Applicable installation rules mandate the use and limitations of each temperature classification. In selecting the appropriate temperature classification, the maximum expected ceiling temperature must be known. When there is doubt as to the maximum temperature at the sprinkler location, a maximum-reading thermometer should be used to determine the temperature under conditions that would show the highest readings to be expected. In addition, recognized installation rules may require a higher temperature classification, depending upon sprinkler location, occupancy classification, commodity classification, storage height, and other hazards. In all cases, the maximum expected ceiling temperature dictates the lowest allowable temperature classification. Sprinklers located immediately adjacent to a heat source may require a higher temperature rating.

K-Factors:

Viking sprinklers are available in several orifice sizes with related K-Factors. The orifice is a tapered waterway and, therefore, the K-Factor given is nominal. Nominal U.S. K-Factors are provided in accordance with the 1999 edition of NFPA 13, Section 3-2.3. Refer to the specific data page for appropriate K-Factor information.

Available Styles:

Viking sprinklers are available for installation in several positions as indicated by a stamping on the deflector. The deflector style dictates the appropriate installation position of the sprinkler; it breaks the solid stream of water issuing from the sprinkler orifice to form a specific spray pattern. The following list indicates the various styles and identification of Viking sprinklers.

UPRIGHT SPRINKLER: A sprinkler intended to be installed with the deflector above the frame so water flows upward through the orifice, striking the deflector and forming an umbrella-shaped spray pattern downward. Marked "SSU" (Standard Sprinkler Upright) or "UPRIGHT" on the deflector.

PENDENT SPRINKLER: A sprinkler intended to be oriented with the deflector below the frame so water flows downward through the orifice, striking the deflector and forming an umbrella-shaped spray pattern downward. Marked "SSP" (Standard Sprinkler Pendent) or "PENDENT" on the deflector.

CONVENTIONAL SPRINKLER: An "old style" sprinkler intended to be installed with the deflector in either the upright or pendent position. The deflector provides a spherical type pattern with 40 to 60 percent of the water initially directed downward and a proportion directed upward. Must be installed in accordance with installation rules for conventional or old style sprinklers. DO NOT USE AS A REPLACEMENT FOR STANDARD SPRAY SPRINKLERS. Marked "C U/P" (Conventional Upright/Pendent) on the deflector.

Viking Technical Data may be found on
The Viking Corporation's Web site at
<http://www.vikinggroupinc.com>.
The Web site may include a more recent
edition of this Technical Data Page.



TECHNICAL DATA

SPRINKLER OVERVIEW

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VERTICAL SIDEWALL (VSW) SPRINKLER: A sprinkler intended for installation near the wall and ceiling. The deflector provides a water spray pattern outward in a quarter-spherical pattern and can be installed in the upright or pendent position with the flow arrow in the direction of discharge. Marked "SIDEWALL" on the deflector with an arrow and the word "FLOW". (Note: Some vertical sidewall sprinklers can only be installed in the upright or pendent position—in this case, the sprinkler will also be marked "UPRIGHT" or "PENDENT".)

HORIZONTAL SIDEWALL (HSW) SPRINKLER: A sprinkler intended for installation near the wall and ceiling. The special deflector provides a water spray pattern outward in a quarter-spherical pattern. Most of the water is directed away from the nearby wall with a small portion directed at the wall behind the sprinkler. The top of the deflector is oriented parallel with the ceiling or roof. The flow arrows point in the direction of discharge. Marked "SIDEWALL" and "TOP" with an arrow and the word "FLOW".

EXTENDED COVERAGE (EC) SPRINKLER: A spray sprinkler designed to discharge water over an area having the maximum dimensions indicated in the individual listings. Maximum area of coverage, minimum flow rate, orifice size, and nominal K-Factor are specified in the individual listings. EC sprinklers are intended for Light-Hazard occupancies with smooth, flat, horizontal ceilings unless otherwise specified. In addition to the above markings, the sprinkler is marked "EC".

QUICK RESPONSE (QR) SPRINKLER: A spray sprinkler with a fast-actuating operating element. The use of quick response sprinklers may be limited due to occupancy and hazard. Refer to the Authority Having Jurisdiction (AHJ) prior to installing.

QUICK RESPONSE EXTENDED COVERAGE (QREC) SPRINKLER: A spray sprinkler designed to discharge water over an area having the maximum dimensions indicated in the individual listing. This is a sprinkler with an operating element that meets the criteria for quick response. QREC sprinklers are only intended for Light Hazard occupancies. The sprinkler is marked "QREC".

FLUSH SPRINKLER: A decorative spray sprinkler intended for installation with a concealed piping system. The unit is mounted flush with the ceiling or wall, with the fusible link exposed. Upon actuation, the deflector extends beyond the ceiling or wall to distribute water discharge. The sprinkler is marked "SSP", "PEND", or "SIDEWALL" and "TOP".

CONCEALED SPRINKLER: A decorative spray sprinkler intended for installation with a concealed piping system. The sprinkler is hidden from view by a cover plate installed flush with the ceiling or wall. During fire conditions, the cover plate detaches, and upon sprinkler actuation, the deflector extends beyond the ceiling or wall to distribute water discharge. The sprinkler is marked "SSP", "PEND", or "SIDEWALL" and "TOP".

RECESSED SPRINKLER: A spray sprinkler assembly intended for installation with a concealed piping system. The assembly consists of a sprinkler installed in a decorative adjustable recessed escutcheon that minimizes the protrusion of the sprinkler beyond the ceiling or wall without adversely affecting the sprinkler distribution or sensitivity. Refer to the appropriate technical data page for allowable sprinkler models, temperature ratings, and occupancy classifications. DO NOT RECESS ANY SPRINKLER NOT LISTED FOR USE WITH THE ESCUTCHEON.

CORROSION-RESISTANT SPRINKLER: A special service sprinkler with non-corrosive protective coatings, or that is fabricated from non-corrosive material, for use in atmospheres that would normally corrode sprinklers.

DRY SPRINKLER: A special-service sprinkler intended for installation on dry pipe systems or wet pipe systems where the sprinkler is subject to freezing temperatures. The unit consists of a sprinkler permanently secured to an extension nipple with a sealed inlet end to prevent water from entering the nipple until the sprinkler operates. The unit MUST be installed in a tee fitting. Dry upright sprinklers are marked with the "B" dimension [distance from the face of the fitting (tee) to the top of the deflector]. Dry pendent and sidewall sprinklers are marked with the "A" dimension [the distance from the face of fitting (tee) to the finished surface of the ceiling or wall].

LARGE DROP SPRINKLER: A type of special application sprinkler used to provide fire control of specific high-challenge fire hazards. Large drop sprinklers are designed to produce an umbrella-shaped spray pattern downward with a higher percentage of "large" water droplets than standard spray sprinklers. The sprinkler has an extra-large orifice with a nominal K-Factor of 11.2. Marked "HIGH CHALLENGE" and "UPRIGHT".

EARLY SUPPRESSION FAST-RESPONSE (ESFR) SPRINKLER: A sprinkler intended to provide fire suppression of specific high-challenge fire hazards through the use of a fast response fusible link, 14.0, 16.8, or 25.2 nominal K-Factor, and special deflector. ESFR sprinklers are designed to produce high-momentum water droplets in a hemispherical pattern below the deflector. This permits penetration of the fire plume and direct wetting of the burning fuel surface while cooling the atmosphere early in the development of a high-challenge fire. Marked "ESFR" and "UPRIGHT" or "PEND".

INTERMEDIATE LEVEL/RACK STORAGE SPRINKLER: A standard spray sprinkler assembly designed to protect its operating element from the spray of sprinklers installed at higher elevations. The assembly consists of a standard or large orifice upright or pendent sprinkler with an integral upright or pendent water shield and guard assembly. Use only those sprinklers that have been tested and listed for use with the assembly. Refer to the technical data page for allowable sprinkler models.

RESIDENTIAL SPRINKLER: A sprinkler intended for use in the following occupancies: one- and two-family dwellings with the fire protection sprinkler system installed in accordance with NFPA 13D; residential occupancies up to four stories in height with the fire protection system installed in accordance with NFPA 13R; and where allowed by the Authority Having Jurisdiction in residential portions of any occupancy with the fire protection system installed in accordance with NFPA 13.



TECHNICAL DATA

SPRINKLER OVERVIEW

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Residential sprinklers have a unique distribution pattern and utilize a “fast response” heat sensitive operating element. They enhance survivability in the room of fire origin and are designed to provide a life safety environment for a minimum of ten minutes. For this reason, residential sprinklers must not be used to replace standard sprinklers unless tested for and approved by the Authority Having Jurisdiction. In addition to standard markings, the unit is identified as “RESIDENTIAL SPRINKLER” or “RES”.

4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

5. OPERATION

Refer to the appropriate sprinkler technical data page(s).

6. INSPECTIONS, TESTS AND MAINTENANCE

Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

Viking sprinklers are available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers and the appropriate sprinkler general care, installation, and maintenance guide. Vikings sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable. The sprinkler technical data page may contain installation requirements specific for the sprinkler model selected. The use of certain types of sprinklers may be limited due to occupancy and hazard. Refer to the Authority Having Jurisdiction prior to installation.



TECHNICAL DATA

SPRINKLER GENERAL CARE, INSTALLATION, AND MAINTENANCE GUIDE

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page.

1. DESCRIPTION - STANDARD RESPONSE, QUICK RESPONSE, EXTENDED COVERAGE, AND DRY SPRINKLERS

Viking thermosensitive spray sprinklers consist of a small frame and either a glass bulb or a fusible operating element. Available styles include pendent, flush pendent, concealed pendent, upright, horizontal sidewall, vertical sidewall, or conventional, depending on the particular sprinkler model selected.

Viking sprinklers are available with various finishes, temperature ratings, responses, and K-Factors to meet design requirements†. Used in conjunction with one of the corrosion-resistant coatings (for frame style sprinklers), the units provide protection against many corrosive environments. In addition, the special Polyester or Teflon® coatings can be used in decorative applications where colors are desired.

† Refer to the sprinkler technical data page for available styles, finishes, temperature ratings, responses, and nominal K-Factors for specific sprinkler models.

2. LISTINGS AND APPROVALS

Refer to the Approval Charts on the appropriate sprinkler technical data page(s) and/or approval agency listings.

3. TECHNICAL DATA

Specifications:

Refer to the appropriate sprinkler technical data sheet.

Material Standards:

Refer to the appropriate sprinkler technical data sheet.



WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov

4. INSTALLATION

NOTE: Take care not to over-tighten the sprinkler and/or damage its operating parts!

Maximum Torque:

1/2" NPT: 14 ft-lbs. (19.0 N-m)

3/4" NPT: 20 ft-lbs. (27.1 N-m)

1" NPT: 30 ft-lbs. (40.7 N-m)

A. Care and Handling (also refer to Bulletin - Care and Handling of Sprinklers, Form No. F_091699.)

Sprinklers must be handled with care. They must be stored in a cool, dry place in their original shipping container. Never install sprinklers that have been dropped, damaged, or exposed to temperatures exceeding the maximum ambient temperature allowed (refer to the temperature chart on the sprinkler technical data page). Never install any glass-bulb sprinkler if the bulb is cracked or if there is a loss of liquid from the bulb. A small air bubble should be present in the glass bulb. Any sprinkler with a loss of liquid from the glass bulb or damage to the fusible element should be destroyed immediately. (Note: Installing glass bulb sprinklers in direct sunlight (ultraviolet light) may affect the color of the dye used to color code the bulb. This color change does not affect the integrity of the bulb.)

Sprinklers must be protected from mechanical damage during storage, transport, handling, and after installation. Sprinklers subject to mechanical damage must be protected with an approved sprinkler guard.

Use only sprinklers listed as corrosion resistant when subject to corrosive environments. When installing corrosion-resistant sprinklers, take care not to damage the corrosion-resistant coating. Use only the special wrench designed for installing coated or recessed Viking sprinklers (any other wrench may damage the unit).

Concealed sprinklers must be installed in neutral or negative pressure plenums only!

Use care when locating sprinklers near fixtures that can generate heat. Do not install sprinklers where they could be exposed to temperatures exceeding the maximum recommended ambient temperature for the temperature rating used.

Wet pipe systems must be provided with adequate heat. Sprinklers supplied from dry systems in areas subject to freezing must be listed dry sprinklers, upright, or horizontal sidewall sprinklers installed so that water is not trapped. For dry systems, pendent sprinklers and sidewall sprinklers installed on return bends are permitted, where the sprinklers, return bend, and branch line piping are in an area maintained at or above 40 °F (4 °C).

B. Installation Instructions - Standard Spray Sprinklers

Viking sprinklers are manufactured and tested to meet the rigid requirements of approving agencies. They are designed to be installed in accordance with recognized installation standards. Deviation from the standards or any alteration to sprinklers or cover plate assemblies after they leave the factory including, but not limited to: painting, plating, coating, or modification, may render them inoperative and will automatically nullify the approvals and any guarantee made by The Viking Corporation.



TECHNICAL DATA

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Before installation, be sure to have the appropriate sprinkler model and style, with the correct K-Factor, temperature rating, and response characteristics. Sprinklers must be installed after the piping is in place to prevent mechanical damage. Keep sprinklers with protective caps or bulb shields contained within the caps or shields during installation and testing, and any time the sprinkler is shipped or handled.

- 1a. For frame-style sprinklers, install escutcheon (if used), which is designed to thread onto the external threads of the sprinkler. Refer to the appropriate sprinkler data page to determine approved escutcheons for use with specific sprinkler models.
- 1b. For flush and concealed style sprinklers: Cut the sprinkler nipple so that the ½" or 3/4" (15 mm or 20 mm)* NPT outlet of the reducing coupling is at the desired location, and centered in the opening* in the ceiling or wall.

*Size depends on the sprinkler model used. Refer to the sprinkler technical data page.

2. Apply a small amount of pipe-joint compound or tape to the external threads of the sprinkler only, taking care not to allow a build-up of compound in the sprinkler inlet. **NOTE:** Sprinklers with protective caps or bulb shields must have the caps or shields kept on them when applying pipe-joint compound or tape. *Exception: For domed concealed sprinklers, remove the protective cap for installation, and then place it back on the sprinkler temporarily.*
3. Refer to the appropriate sprinkler technical data page to determine the correct sprinkler wrench for the model of sprinkler used. DO NOT use the deflector or fusible element to start or thread the sprinkler into a fitting.
 - a. Install the sprinkler onto the piping using the special sprinkler wrench only, taking care not to over-tighten or damage the sprinkler.
 - b. For flush and concealed style sprinklers: the internal diameter of the special sprinkler installation wrench is designed for use with the sprinkler contained in the protective cap. *Exception: For domed concealed sprinklers, remove the protective cap for installation, and then place it back on the sprinkler temporarily.* Thread the flush or concealed sprinkler into the ½" or 3/4" (15 mm or 20 mm)* NPT outlet of the coupling by turning it clockwise with the special sprinkler wrench. *Thread size depends on the particular sprinkler model used. Refer to the sprinkler technical data page.

C. Installation Instructions - Dry Sprinklers

WARNING: Viking dry sprinklers are to be installed in the 1" outlet (for dry and preaction systems), or run of malleable, ductile iron, or Nibco CPVC* threaded tee fittings (for wet systems) that meet the dimensional requirements of ANSI B16.3 (Class 150), or cast iron threaded tee fittings that meet the dimensional requirements of ANSI B16.4 (Class 125), even at branch line ends. The threaded end of the dry sprinkler is designed to allow the seal to penetrate and extend into the fitting to a predetermined depth. This prevents condensation from accumulating and freezing over the sprinkler seal. ***NOTE: When using CPVC fittings with Viking dry sprinklers, use only new Nibco Model 5012-S-BI. When selecting other CPVC fittings, contact Viking Technical Services.**

1. **DO NOT** install the dry sprinkler into a threaded elbow, coupling, or any other fitting that could interfere with thread penetration. Such installation would damage the brass seal.
2. **DO NOT** install dry sprinklers into couplings or fittings that would allow condensation to accumulate above the seal when the sprinkler is located in an area subject to freezing.
3. **NEVER** try to modify dry sprinklers. They are manufactured for specific "A" or "B" dimensions and cannot be modified.

The dry sprinkler must be installed after the piping is in place to prevent mechanical damage. Before installation, be sure to have the correct sprinkler model and style, with the appropriate "A" or "B" dimension(s), temperature rating, orifice size, and response characteristics. Keep sprinklers with protective caps or bulb shields contained within the caps or shields during installation and testing, and any time the sprinkler is shipped or handled. *Exception: For concealed and adjustable recessed dry sprinklers, the protective caps and shields are removed for installation.*

To install the dry sprinkler, refer to the instructions below and the appropriate sprinkler technical data page for illustrated instructions.

Dry upright sprinklers must be installed above the piping, in the upright position only. When installing dry upright or plain barrel style vertical sidewall sprinklers on piping located close to the ceiling, it may be necessary to lower the sprinkler into the fitting from above the ceiling. When installing dry upright or plain barrel vertical sidewall sprinklers from below the ceiling, verify that the opening in the ceiling is a minimum 1-1/2" (38.1 mm) in diameter.

For dry upright or plain barrel vertical sidewall sprinklers in the upright position: First, install the escutcheon (if used) over the threaded end of the sprinkler barrel. Slide the escutcheon past the external threads. NOTE: When installing the dry upright or plain barrel vertical sidewall sprinkler from above the ceiling, it will be necessary to install the escutcheon after lowering the threaded end of the sprinkler through the ceiling penetration.

- A. **For all dry sprinklers:** Apply a small amount of pipe-joint compound or tape to the external threads of the sprinkler barrel only, taking care not to allow a build-up of compound or tape over the brass inlet and seal. **NOTE:** Sprinklers with protective caps or bulb shields must be contained within the caps or shields before applying pipe-joint compound or tape.



TECHNICAL DATA

SPRINKLER GENERAL CARE, INSTALLATION, AND MAINTENANCE GUIDE

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- B. Refer to the appropriate sprinkler technical data page to determine the correct sprinkler wrench for the model of sprinkler used.
- C. Install the dry sprinkler on the piping using the special dry sprinkler wrench only, while taking care not to damage the sprinkler.
NOTE: Thread the sprinkler into the fitting hand tight, plus 1/2 turn with the dry sprinkler wrench.
- D. *For adjustable standard and adjustable recessed dry pendent and sidewall sprinklers: Escutcheons can be installed after the sprinklers have been installed onto the piping. Refer to the appropriate sprinkler technical data page for escutcheon installation instructions and illustrations.*

D. Installation Instructions - Testing

- 4. After installation, the entire sprinkler system must be tested. The test must be conducted to comply with the installation standards. Viking *high pressure* sprinklers may be hydrostatically tested at a maximum of 300 psi (20.7 bar) for limited periods of time (two hours), for the purpose of acceptance by the Authority Having Jurisdiction.
 - a. Make sure the sprinkler is properly tightened. If a thread leak occurs, normally the sprinkler must be removed, new pipe-joint compound or tape applied, and then reinstalled. This is due to the fact that when the joint seal is damaged, the sealing compound or tape is washed out of the joint. Air testing [do not exceed 40 psi (2.76 bar)] the sprinkler piping prior to testing with water may be considered in areas where leakage during testing must be prevented. Refer to the Installation Standards and the Authority Having Jurisdiction.
 - b. **Remove plastic protective sprinkler caps or bulb shields AFTER the wall or ceiling finish work is completed where the sprinkler is installed and there no longer is a potential for mechanical damage to the sprinkler operating elements.** To remove the bulb shields, simply pull the ends of the shields apart where they are snapped together. To remove caps from frame style sprinklers, turn the caps slightly and pull them off the sprinklers. **SPRINKLER CAPS OR BULB SHIELDS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!** Retain a protective cap or shield in the spare sprinkler cabinet.
- 5. For flush style sprinklers: the ceiling ring can now be installed onto the sprinkler body. Align the ceiling ring with the sprinkler body and thread or push it on (depends on sprinkler model) until the outer flange touches the surface of the ceiling. Note the maximum adjustment is 1/4" (6.35 mm). DO NOT MODIFY THE UNIT. If necessary, re-cut the sprinkler drop nipple as required.
- 6. For concealed sprinklers: the cover assembly can now be attached.
 - a. Remove the cover from the protective box, taking care not to damage the cover plate assembly.
 - b. Gently place the base of the cover plate assembly over the sprinkler protruding through the opening in the ceiling.
 - c. Push the cover plate assembly onto the sprinkler until the unfinished brass flange of the cover plate base (or the cover adapter, if used) touches the surface of the ceiling.
 - d. Refer to the applicable technical data sheet to determine the maximum adjustment available for concealed sprinklers. DO NOT MODIFY THE UNIT. If necessary, re-cut the sprinkler drop nipple.

NOTE: If it is necessary to remove the entire sprinkler unit, the system must be taken out of service. See section 6. INSPECTIONS, TESTS AND MAINTENANCE and follow all warnings and instructions.

5. OPERATION

Refer to the appropriate sprinkler technical data page(s). During fire conditions, the operating element fuses or shatters (depending on the type of sprinkler), releasing the pip cap and sealing assembly. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable. The sprinkler technical data page may contain installation requirements specific for the sprinkler model selected. The use of certain types of sprinklers may be limited due to occupancy and hazard. Refer to the Authority Having Jurisdiction prior to installation.



TECHNICAL DATA

SPRINKLER GENERAL CARE, INSTALLATION, AND MAINTENANCE GUIDE

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6. INSPECTIONS, TESTS AND MAINTENANCE

NOTICE: Refer to NFPA 25 for Inspection, Testing and Maintenance requirements. **NOTICE:** The owner is responsible for having the fire-protection system and devices inspected, tested, and maintained in proper operating condition in accordance with this guide, and applicable NFPA standards. In addition, the Authority Having Jurisdiction may have additional maintenance, testing, and inspection requirements that must be followed.

- A. Sprinklers must be inspected on a regular basis for corrosion, mechanical damage, obstructions, paint, etc. Frequency of inspections may vary due to corrosive atmospheres, water supplies, and activity around the sprinkler unit.
- B. Sprinklers or cover plate assemblies that have been field painted, caulked, or mechanically damaged must be replaced immediately. Sprinklers showing signs of corrosion shall be tested and/or replaced immediately as required. Installation standards require sprinklers to be tested and, if necessary, replaced after a specified term of service. Refer to NFPA 25 and the Authority Having Jurisdiction for the specified period of time after which testing and/or replacement is required. Never attempt to repair or reassemble a sprinkler. Sprinklers and cover assemblies that have operated cannot be reassembled or re-used, but must be replaced. When replacement is necessary, use only new sprinklers and cover assemblies with identical performance characteristics.
- C. The sprinkler discharge pattern is critical for proper fire protection. Therefore, nothing should be hung from, attached to, or otherwise obstruct the discharge pattern. All obstructions must be immediately removed or, if necessary, additional sprinklers installed.
- D. When replacing existing sprinklers, the system must be removed from service. Refer to the appropriate system description and/or valve instructions. Prior to removing the system from service, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected area.
 1. Remove the system from service, drain all water, and relieve all pressure on the piping.
 - 2a. For frame-style sprinklers, use the special sprinkler wrench to remove the old sprinkler by turning it counterclockwise to unthread it from the piping.
 - 2b. For flush and concealed style sprinklers: Remove the ceiling ring or cover plate assembly before unthreading the sprinkler body from the piping. Ceiling rings and cover plates can be removed either by gently unthreading them or pulling them off the sprinkler body (depends on the sprinkler model used). After the ceiling ring or cover plate assembly has been removed from the sprinkler body, place the plastic protective cap (from the spare sprinkler cabinet) over the sprinkler to be removed and then fit the sprinkler wrench over the cap. Then use the wrench to unthread the sprinkler from the piping. *Exception: Domed concealed sprinklers are removed without the plastic cap.*
 3. Install the new sprinkler unit by following the instructions in section 4. INSTALLATION. Care must be taken to ensure that the replacement sprinkler is the proper model and style, with the correct K-Factor, temperature rating, and response characteristics. A fully stocked spare sprinkler cabinet should be provided for this purpose. For flush or concealed sprinklers: stock of spare ceiling rings or cover plates should also be available in the spare sprinkler cabinet.
- E. Place the system back in service and secure all valves. Check for and repair all leaks. Sprinkler systems that have been subjected to a fire must be returned to service as soon as possible. The entire system must be inspected for damage, and repaired or replaced as necessary. Sprinklers that have been exposed to corrosive products of combustion or high ambient temperatures, but have not operated, should be replaced. Refer to the Authority Having Jurisdiction for minimum replacement requirements.

7. AVAILABILITY

Viking sprinklers are available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

**BULLETIN****REGULATORY AND HEALTH
WARNINGS**

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page www.vikinggroupinc.com

1. DESCRIPTION

Regulatory and Health Warnings applying to materials used in the manufacture and construction of fire protection products are provided herein as they relate to legally mandated jurisdictional regions.

⚠ WARNING**STATE OF CALIFORNIA, USA**

Installing or servicing fire protection products such as sprinklers, valves, piping etc. can expose you to chemicals including, but not limited to, lead, nickel, butadiene, titanium dioxide, chromium, carbon black, and acrylonitrile which are known to the State of California to cause cancer or birth defects or other reproductive harm.

For more information, go to www.P65Warnings.ca.gov

2. WARRANTY TERMS AND CONDITIONS

For details of warranty, refer to Viking's current list price schedule at www.vikinggroupinc.com or contact Viking directly.



TECHNICAL DATA

MICROFAST® QUICK RESPONSE HORIZONTAL SIDEWALL SPRINKLER VK305 (K5.6)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
 Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com
 Visit the Viking website for the latest edition of this technical data page: www.vikinggroupinc.com

1. DESCRIPTION

The Viking Microfast® Quick Response Horizontal Sidewall Sprinkler VK305 is a small thermosensitive glass bulb spray sprinkler available with various finishes and temperature ratings to meet design requirements. The special Polyester and Electroless Nickel PTFE (ENT) coatings can be used in decorative applications where colors are desired. In addition, these coatings have been investigated for installation in corrosive atmospheres and are listed/approved as corrosion resistant as indicated in Approval Charts.

2. LISTINGS AND APPROVALS



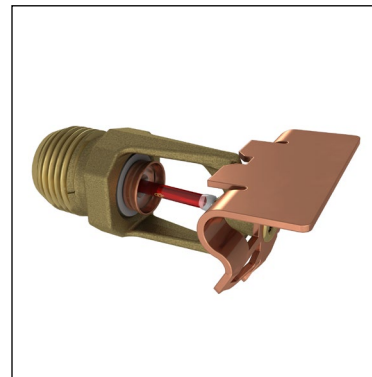
cULus Listed: Category VNIV



FM Approved: Class 2020

China Approval: Approved according to China GB Standard

Refer to Approval Charts and Design Criteria for listing and approval requirements that must be followed.



WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov

3. TECHNICAL DATA

Specifications:

Minimum Operating Pressure: 7 psi (0.5 bar)
 Rated to 175 psi (12 bar) water working pressure
 Factory tested hydrostatically to 500 psi (34.5 bar)
 Nominal K-Factor: 5.6 U.S. (80.6 metric*)

* Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

Overall Length: 2-3/4" (68 mm)

Material Standards:

Frame Casting: Brass UNS-C84400 or QM Brass
 Deflector: Copper UNS-C19500
 Bulb: Glass, nominal 3 mm diameter
 Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with PTFE Tape
 Screw: Brass UNS-C36000
 Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400
For Polyester Coated Sprinklers: Belleville Spring-Exposed
For ENT Coated Sprinklers: Belleville Spring - Exposed, Screw and Pip cap - ENT plated.

Ordering Information: (Also refer to the current Viking price list.)

Order Viking Microfast® Quick Response Horizontal Sidewall Sprinkler VK305 by first adding the appropriate suffix for the sprinkler finish and then the appropriate suffix for the temperature rating to the sprinkler base part number.

Finish Suffix: Brass = A, Chrome = F, White Polyester = M-/W, Black Polyester = M-/B, and ENT = JN

Temperature Suffix: 135 °F / 57 °C = A, 155 °F / 68 °C = B, 175 °F / 79 °C = D, 200 °F / 93 °C = E, and 286 °F / 141 °C = G

For example, sprinkler 12997 with a Brass finish and a 155 °F / 68 °C temperature rating = Part No. 12997AB

Available Finishes And Temperature Ratings: Refer to Table 1.

Accessories: (Also refer to the Viking website.)

Sprinkler Wrenches:

A. Standard Wrench: Part No. 21475M/B (available since 2017).

B. Wrench for recessed and/or wax coated sprinklers: Part No. 13655W/B** (available since 2006)

**A 1/2" ratchet is required (not available from Viking).



TECHNICAL DATA

QUICK RESPONSE ORDINARY HAZARD DRY HSW SPRINKLERS (8.0K) (VK2753, VK2773, & VK2793)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

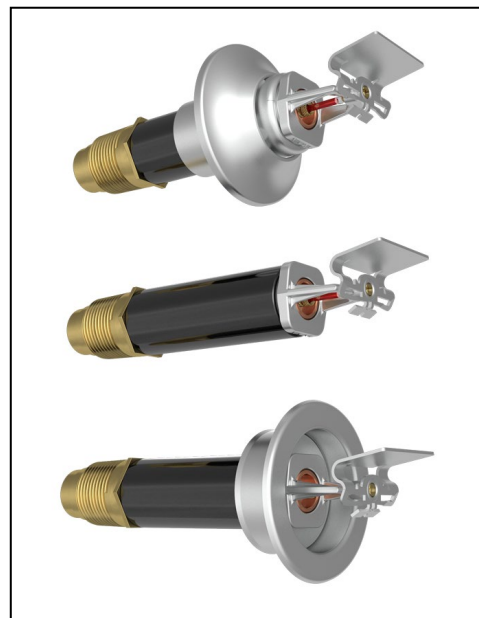
Visit the Viking website for the latest edition of this technical data page www.vikinggroupinc.com.

1. DESCRIPTION

Viking Quick Response Ordinary Hazard Dry Horizontal Sidewall Sprinklers are thermosensitive spray sprinklers suitable for use in areas subject to freezing. The sprinklers are designed for dry systems and preaction systems where it is necessary to prevent water or condensation from entering the drop nipple before sprinkler operation. They may also be installed in spaces subject to freezing and supplied from a wet system in an adjacent heated area. The large orifice dry sidewall sprinkler allows greater flows at lower pressures than standard orifice sprinklers. The sprinklers carry an expanded approval for installation from 4" to 12" below the ceiling.

Viking Quick Response Ordinary Hazard Dry Horizontal Sidewall Sprinklers are available in various finishes and temperature ratings to meet design requirements. The special Polyester and Electroless Nickel PTFE (ENT) coatings have been investigated for installation in corrosive atmospheres and are cULus listed as corrosion resistant as indicated in the Approval Chart.

NOTE: When installed in some corrosive environments, the Polyester finish may change color. This natural discoloration over time is not in itself an indication of corrosion and should not be treated as such. All sprinklers installed in corrosive environments should be replaced or tested as described in NFPA 25 on a more frequent basis.



WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov

2. LISTINGS AND APPROVALS



cULus Listed: Category VNIV

NYC Approved: MEA 89-92-E, Volume 37

Refer to the Approval Chart on page 3 and Design Criteria on page 4 for cULus Listing requirements that must be followed.

3. TECHNICAL DATA

Specifications:

Available since 2005.

Minimum Operating Pressure: 7 PSI (0.5 bar)

Maximum Working Pressure: 175 PSI (12 bar).

Factory tested hydrostatically to 500 psi (34.5 bar)

Thread size: 1" NPT or 25 mm BSPT

Nominal K-Factor: 8.0 U.S. (115.2 metric*) for lengths up to 48".

* Metric K-factor measurement shown is when pressure is measured in bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

Glass-bulb fluid temperature rated to -65 °F (-55 °C)

Covered by U.S. Patent numbers: 8,636,075 and 8,376,060 and 10,220,231

Material Standards:

Frame Casting: Brass UNS-C84400

Deflector: Phosphor Bronze UNS-C51000

Bulb: Glass, nominal 3 mm diameter

Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with PTFE Tape

Compression Screw: Brass UNS-C36000

Pip Cap and Adapter: Brass UNS-C36000

Orifice: Copper UNS-C11000 or UNS-C21000

Tube: ERW Hydraulic Steel Tube

Inlet and Barrel End: QM Brass or Brass UNS-C31400 or Brass UNS-C31600

Support (Internal): Brass UNS-C36000 or Brass UNS-C31400 or Brass UNS-C31600

Barrel: Steel Pipe UNS-G10260, Electrodeposited Epoxy Base finish

Sleeve (for Adjustable Standard style only): Brass UNS-C26000 or UNS-C26800



TECHNICAL DATA

QUICK RESPONSE ORDINARY HAZARD DRY HSW SPRINKLERS (8.0K) (VK2753, VK2773, & VK2793)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

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Escutcheon Materials:

Adjustable Standard Dry Escutcheons: Brass UNS-C26000 or UNS-C26800

Recessed Dry Escutcheons: Cold Rolled Steel UNS-G10080

ENT Coated Adjustable and Recessed Escutcheons: Stainless Steel UNS-S30400

Ordering Information: (Also refer to the current Viking price list.)

Order Quick Response Ordinary Hazard Dry Horizontal Sidewall Sprinklers by first adding the appropriate suffix for the sprinkler finish, the appropriate suffix for the temperature rating, and then the suffix for the length ("A" dimension) to sprinkler base part number. Order in a specific length noted as the "A" dimension (see Figures 3, 5, 6, and 7). The "A" dimension is the distance from the face of the fitting (tee) to the desired finished surface of the wall in which it is to be installed. These sprinklers are listed and approved in lengths from 1-1/2" to 45-1/2" (38 mm to 1,156 mm) for the adjustable standard style, 3" to 47" (76 mm to 1,194 mm) for the plain barrel style, and 3-1/4" to 47-1/2" (83 mm to 1,207 mm) for the adjustable recessed style.

Lengths exceeding the standard lengths are available, with no approvals, on a "made-to-order" basis: Recessed Dry Horizontal Sidewall up to 65-1/2" (1,664 mm). Adjustable Standard Dry Horizontal Sidewall up to 63-1/2" (1,613 mm). Plain Barrel Dry Horizontal Sidewall up to 65" (1,651 mm). Contact the manufacturer for more information.

Finish Suffix: Brass = A, Chrome = F, White Polyester = M-/W, and ENT = JN

Temperature Suffix: 155 °F (68 °C) = B, 175 °F (79 °C) = D, 200 °F (93 °C) = E, 286 °F (141 °C) = G

Escutcheon Suffix = Y for the adjustable recessed sprinkler with the Model G-1 Escutcheon (no suffix needed for the Model E-1 Escutcheon).

For example, sprinkler VK2793 with 1" NPT Threads, Chrome finish, 155 °F (68 °C) temperature rating, a Model G-1 Escutcheon, and "A" length of 10" = Part No. 21483UFBY10.

Available Finishes And Temperature Ratings: Refer to Table 1.

Accessories: (Also refer to the Viking website.)

Sprinkler Wrenches:

A. Standard Wrench: Part No. 07297W/B (available since 1991)

B. Wrench for recessed sprinklers: Part No. 07565W/B** (available since 1991)

**A 1/2" ratchet is required (not available from Viking).

Replacement Escutcheons:

A. Adjustable Standard Dry Escutcheon: Base Part No. 08086F

B. Model E-1 Recessed Dry Escutcheon Cup: Base Part No. 05459A

C. Model G-1 Recessed Dry Escutcheon Cup: Base Part No. 20133

D. Seal Part No. 22087M/W

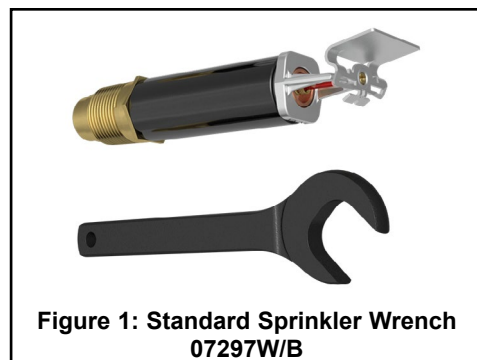


Figure 1: Standard Sprinkler Wrench
07297W/B

4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

5. OPERATION

During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the internal parts to open the waterway. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

6. INSPECTIONS, TESTS AND MAINTENANCE

Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

The Viking Quick Response Ordinary Hazard Dry Horizontal Sidewall Sprinkler is available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.



TECHNICAL DATA

QUICK RESPONSE ORDINARY HAZARD DRY HSW SPRINKLERS (8.0K) (VK2753, VK2773, & VK2793)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page www.vikinggroupinc.com.

TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES

Sprinkler Temperature Classification	Sprinkler Nominal Temp. Rating ¹	Maximum Ambient Ceiling Temperature ²	Bulb Color
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue

Sprinkler Finishes: Brass, Chrome, White Polyester, and ENT

Corrosion-Resistant Coating^{3,4}: White Polyester and ENT in all temperature ratings

Footnotes

¹ The sprinkler temperature rating is stamped on the deflector.

² Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.

³ The corrosion-resistant Polyester and ENT coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Chart. These tests cannot and do not represent all possible corrosive environments. Note: These coatings are NOT corrosion proof. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. Polyester and ENT coatings are applied to the exposed exterior surfaces only. Note that the spring is exposed on sprinklers with Polyester and ENT coatings.

⁴ When installed in some corrosive environments, the Polyester finish may change color. This natural discoloration over time is not in itself an indication of corrosion and should not be treated as such. All sprinklers installed in corrosive environments should be replaced or tested as described in NFPA 25 on a more frequent basis.

Approval Chart

Quick Response Ordinary Hazard Dry
Horizontal Sidewall Sprinklers (8.0K)
Maximum 175 PSI (12 bar) WWP

Temperature	KEY
Finish	
A1X ← Escutcheon (if applicable)	

Sprinkler Base Part Number ¹	SIN	Style	Thread Size		Nominal K-Factor ²	Order Length Increment		Listings and Approvals ⁴						
			NPT	BSPT		Inches	mm	cULus ⁵	FM	NYC ⁶	VdS	LPCB	CE	⚙
21489U	VK2773	Adjustable	1"	--	8.0 U.S. (115.2 metric ³)	1/2"	12.7	A1, A5	--	A1	--	--	--	--
21490U	VK2773	Standard	--	25 mm		1/2"	12.7	A1, A5	--	A1	--	--	--	--
21483U	VK2793	Adjustable	1"	--		1/4"	6.35	B2, B6	--	B2	--	--	--	--
21484U	VK2793	Recessed	--	25 mm		1/4"	6.35	B2, B6	--	B2	--	--	--	--
21495U	VK2753	Plain Barrel	1"	--		1/2"	12.7	A3	--	A4	--	--	--	--
21496U	VK2753		--	25 mm		1/2"	12.7	A3	--	A4	--	--	--	--

Approved Temperature Ratings

A - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)

B - 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)

Approved Finishes and "A" Dimensions

- 1 - Chrome or White Polyester⁷ sprinkler with a Chrome or White Polyester Sleeve and Escutcheon with "A" dimensions 1-1/2" to 45-1/2" (38.1 mm to 1,156 mm)
- 2 - Chrome or White Polyester⁷ with "A" dimensions 3-1/4" to 47-1/2" (82.5 mm to 1,207 mm)
- 3 - Chrome, Brass, White Polyester⁷, or ENT⁷ with "A" dimensions 3" to 47" (76.2 mm to 1,194 mm)
- 4 - Chrome or Brass with "A" dimensions 3" to 47" (76.2 mm to 1,194 mm)
- 5 - ENT⁷ sprinkler with a ENT⁷ Sleeve and Escutcheon with "A" dimensions 1-1/2" to 45-1/2" (38.1 mm to 1,156 mm)
- 6 - ENT⁷ with "A" dimensions 3-1/4" to 47-1/2" (82.5 mm to 1,207 mm)

Footnotes

¹ Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.

² K-Factor applies for standard lengths ("A" Dimensions indicated above).

³ Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

⁴ This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.

⁵ Listed by Underwriter's Laboratories for use in the U.S. and Canada for Light and Ordinary Hazard occupancies.

⁶ Accepted for use, City of New York Department of Buildings, MEA 89-92-E, Vol. 37.

⁷ cULus Listed as corrosion resistant.



TECHNICAL DATA

QUICK RESPONSE ORDINARY HAZARD DRY HSW SPRINKLERS (8.0K) (VK2753, VK2773, & VK2793)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page www.vikinggroupinc.com.

DESIGN CRITERIA

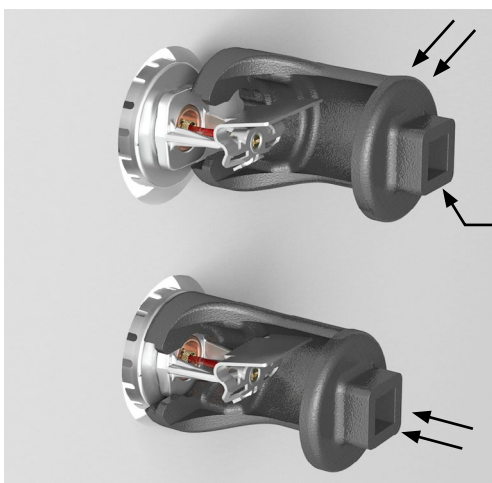
(Also refer to the Approval Chart on page 3.)

cULus Listing Requirements:

Quick Response Ordinary Hazard Dry Horizontal Sidewall Sprinklers are cULus Listed as indicated in the Approval Chart for installation in accordance with the latest edition of NFPA 13 for sidewall standard spray sprinklers.

- Designed for use in Light and Ordinary Hazard occupancies with smooth, flat ceilings only.
- Protection areas and maximum spacing shall be in accordance with the tables provided in NFPA 13.
- Minimum spacing allowed is 6 ft. (1.8 m).
- Deflector must be positioned between 4" and 12" (102 mm and 305 mm) below the ceiling. Keep the leading edge of the deflector and the centerline axis of the sprinkler frame oriented parallel with the ceiling.
- Locate no less than 4" (102 mm) from end walls.
- Maximum distance from end walls shall be no more than one-half of the allowable distance between sprinklers. The distance shall be measured perpendicular to the wall.
- The sprinkler installation and obstruction rules contained in NFPA 13 for sidewall standard spray sprinklers must be followed.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to Form No. F_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.



Step 1:
Carefully slide the wrench sideways around the deflector and protective shield as shown.

Sprinkler Wrench
(Part No. 07565W/B)** for installing recessed dry sprinklers.

Step 2:
Press the wrench onto the sprinkler wrench flats and turn slightly to ensure engagement with the wrench flats.

Figure 2: Wrench 07565W/B for Adjustable Recessed Dry Horizontal Sidewall Sprinklers

** NOTE: A 1/2" ratchet is required and not available from Viking.



TECHNICAL DATA

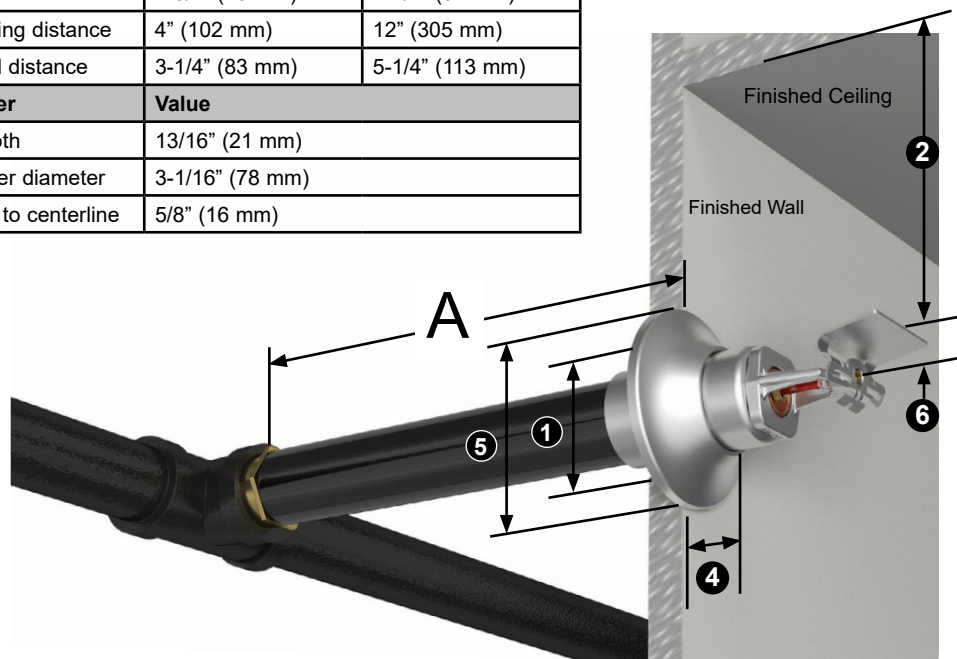
QUICK RESPONSE ORDINARY HAZARD DRY HSW SPRINKLERS (8.0K) (VK2753, VK2773, & VK2793)

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Ref	Variable Parameter	Minimum	Maximum
1	Wall opening	1-3/4" (45 mm)	2-1/4" (57 mm)
2	Deflector to ceiling distance	4" (102 mm)	12" (305 mm)
3	Deflector to wall distance	3-1/4" (83 mm)	5-1/4" (113 mm)
Ref	Fixed Parameter	Value	
4	Escutcheon depth	13/16" (21 mm)	
5	Escutcheon outer diameter	3-1/16" (78 mm)	
6	Top of deflector to centerline	5/8" (16 mm)	

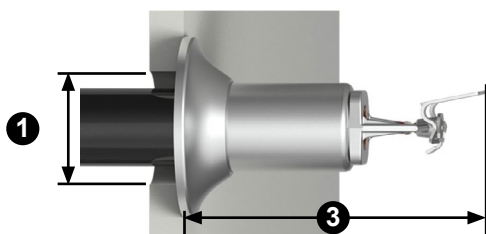


Determining the "A" Dimension: Adjustable Standard HSW Sprinkler

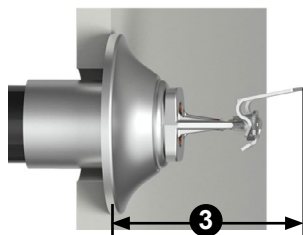
1. Determine the distance from the face of the tee to the finished face of the wall.

2. Round to the nearest 1/2" (13mm) between 1-1/2" (38 MM) and 45-1/2" (1,156 mm).

NOTE: The deflector will extend approximately 4-1/4" (108 mm) from the wall with 2" (+/- 1" (25 mm) horizontal adjustment available.



To locate the deflector at the **maximum** distance from the wall, with no adjustment available, order the standard dry horizontal sidewall sprinkler 1" (25 mm) **longer** than the "A" Dimension.



To locate the deflector at the **minimum** distance from the wall, with no adjustment available, order the standard dry horizontal sidewall sprinkler 1" (25 mm) **shorter** than the "A" Dimension.

Figure 3: Adjustable Standard Ordinary Hazard Dry HSW Sprinkler



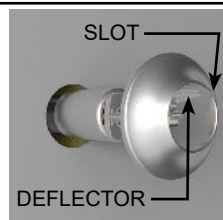
TECHNICAL DATA

QUICK RESPONSE ORDINARY HAZARD DRY HSW SPRINKLERS (8.0K) (VK2753, VK2773, & VK2793)

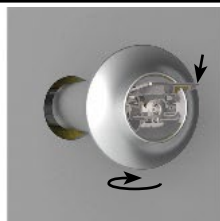
The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

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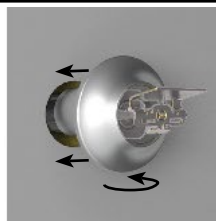
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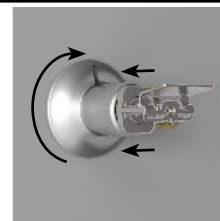
Step 1: Align the slot in the escutcheon with the horizontal surface of the deflector as shown.



Step 2: Push the rounded end of the slot against the near edge of the deflector. Slightly rotate the escutcheon horizontally and push the far side of the escutcheon past the deflector, toward the sleeve.



Step 3: Re-align the escutcheon with the sprinkler barrel and continue pushing it toward the sleeve.



Step 4: Push and rotate the escutcheon onto the sleeve and, if desired, orient the slot toward the top to minimize visibility.

Figure 4: Adjustable Standard Escutcheon Installation

Determining the "A" Dimension: Adjustable Recessed HSW Sprinkler with Model E-1 Escutcheon

1. Determine the distance from the face of the tee to the finished face of the wall.

2. Round to the nearest 1/4" (16 mm) between 3-1/4" (83 mm) and 47-1/2" (1,207 mm).

NOTE: The sprinkler will be recessed approximately 5/16" (8 mm) with 5/8" (16 mm) horizontal adjustment available.

Ref	Variable Parameter	Minimum	Maximum
1	Wall opening	2-1/8" (54 mm)	2-1/2" (64 mm)
2	Deflector to ceiling distance	4" (102 mm)	12" (305 mm)
3	Deflector to wall distance	1-7/8" (48 mm)	2-1/2" (64 mm)
Ref	Fixed Parameter	Value	
4	Escutcheon depth (Model E-1)	1-1/16" (27 mm)	
5	Escutcheon outer diameter	3-1/16" (78 mm)	
6	Top of deflector to centerline	5/8" (16 mm)	

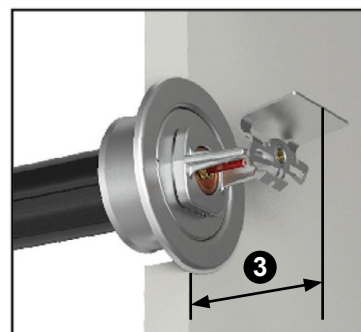
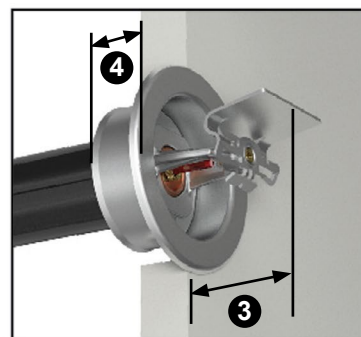
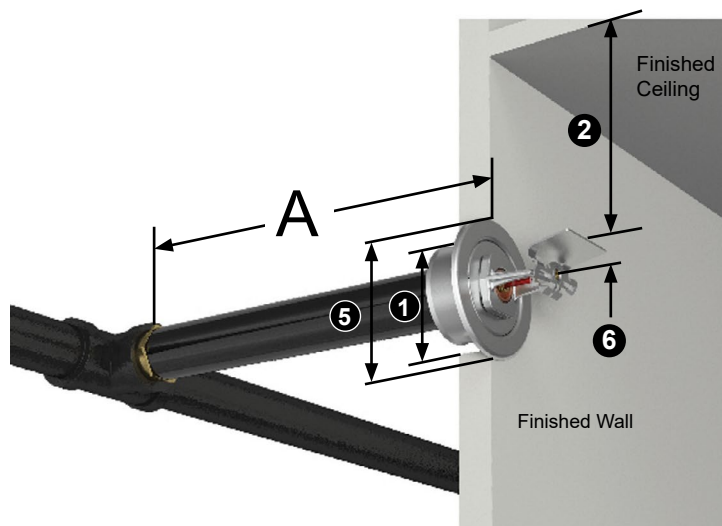


Figure 5: Adjustable Recessed Ordinary Hazard Dry HSW Sprinkler with the Model E-1 Escutcheon



TECHNICAL DATA

QUICK RESPONSE ORDINARY HAZARD DRY HSW SPRINKLERS (8.0K) (VK2753, VK2773, & VK2793)

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Determining the "A" Dimension - Plain Barrel Dry HSW Sprinkler

1. Determine the distance from the face of the tee to the base of the sprinkler.
2. Round to the next higher 1/2" (13 mm) increment, between 3" (76 mm) and 47" (1,194 mm).

Ref	Variable Parameter	Minimum	Maximum
1	Deflector to ceiling distance	4" (102 mm)	12" (305 mm)
2	Deflector to finished wall distance	Do not recess wrench boss	6" (152 mm)
Ref	Fixed Parameter	Value	
3	Sprinkler base to deflector distance	2-1/4" (57 mm)	
4	Top of deflector to centerline	5/8" (16 mm)	
5	Pipe outside diameter (Same as 1" (13 mm) Schedule 40 pipe)	1-5/16" (33 mm)	

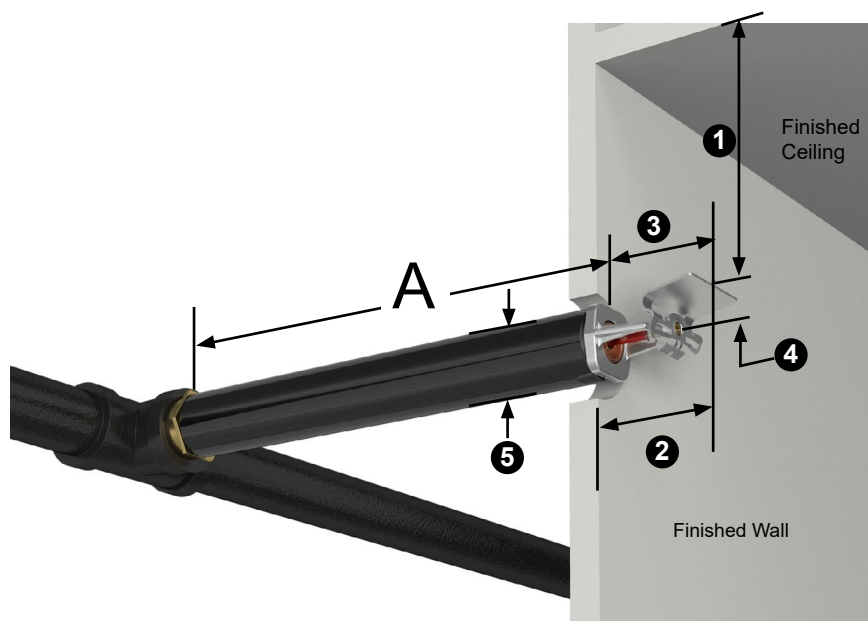


Figure 6: Plain Barrel Dry Horizontal Sidewall Sprinkler VK2753



TECHNICAL DATA

QUICK RESPONSE ORDINARY HAZARD DRY HSW SPRINKLERS (8.0K) (VK2753, VK2773, & VK2793)

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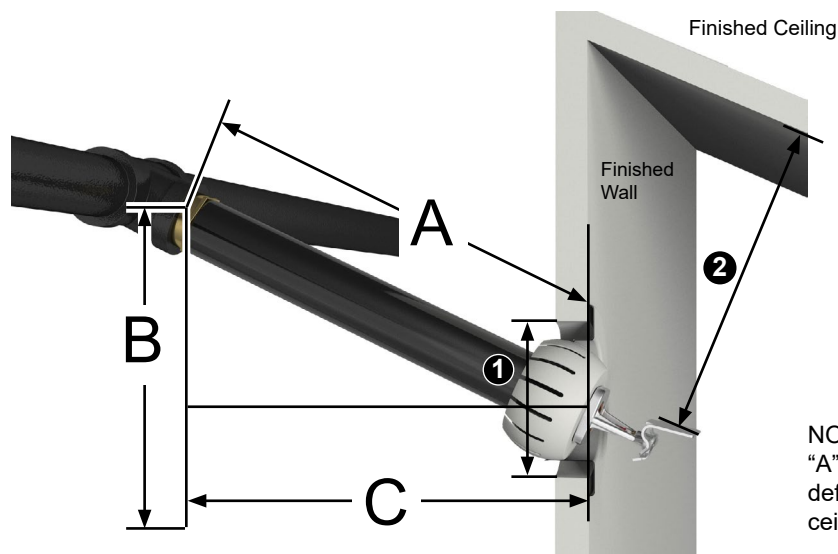
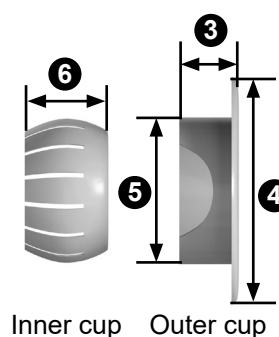
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Determining the "A" Dimension - Adjustable Recessed Dry HSW Sprinkler VK2793 with Model G-1 Escutcheon

1. Measure the "B" Dimension from the centerline of the face of the tee to the horizontal centerline of the wall opening.
2. Measure the "C" Dimension from the centerline of the face of the tee to the finished wall.
3. Calculate the "A" Dimension using this formula: $A = \sqrt{B^2 + C^2}$

NOTE: The "A" Dimension will provide approximately 1/4" (6 mm) of adjustment in either direction.

Ref	Variable Parameter	Minimum	Maximum
1	Wall opening	2-5/8" (66 mm)	3-3/4" (95 mm)
2	Deflector to ceiling distance	4" (102 mm)	12" (305 mm)
Ref	Fixed Parameter	Value	
3	Escutcheon depth (Model G-1 outer cup)	1-1/16" (27 mm)	
4	Escutcheon outer diameter (outer cup)	4" (102 mm)	
5	Escutcheon inner diameter (outer cup)	2-5/8" (66 mm)	
6	Escutcheon depth (inner cup)	1-1/16" (27 mm)	



NOTE: When measuring for the "A" Dimension, the exact deflector distance below the ceiling must be known.

Figure 7: Adjustable Recessed Dry Horizontal Sidewall Sprinkler VK2793 with the Model G-1 Escutcheon



TECHNICAL DATA

QUICK RESPONSE ORDINARY HAZARD DRY HSW SPRINKLERS (8.0K) (VK2753, VK2773, & VK2793)

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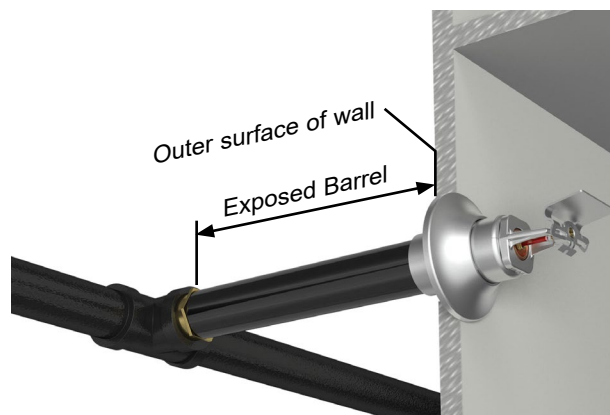
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Ambient Temperature of the Protected Area* at the Discharge End of the Sprinkler	Exposed Barrel Ambient Temperature		
	40 °F (4 °C)	50 °F (10 °C)	60 °F (16 °C)
	Exposed Minimum Barrel Length** Face of the Tee to the Outer Surface of the Wall		
	Inches (mm)	Inches (mm)	Inches (mm)
40 °F (4 °C)	0	0	0
30 °F (-1 °C)	0	0	0
20 °F (-7 °C)	4 (100)	0	0
10 °F (-12 °C)	8 (203)	1 (25)	0
0 °F (-18 °C)	12 (305)	3 (76)	0
-10 °F (-23 °C)	14 (356)	4 (102)	1 (25)
-20 °F (-29 °C)	14 (356)	6 (152)	3 (76)
-30 °F (-34 °C)	16 (406)	8 (203)	4 (102)
-40 °F (-40 °C)	18 (457)	8 (203)	4 (102)
-50 °F (-46 °C)	20 (508)	10 (254)	6 (152)
-60 °F (-51 °C)	20 (508)	10 (254)	6 (152)

* The protected area refers to the area below the ceiling, the ambient temperature is the temperature at the discharge end of the sprinkler. For protected area temperatures that occur between the values listed, use the next cooler temperature.

** The minimum required barrel length is not the same as the "A" dimension. Refer to Figures 3, 5, 6, and 7 for the "A" Dimension. Exposed minimum barrel lengths are inclusive up to 30 mph wind velocities.



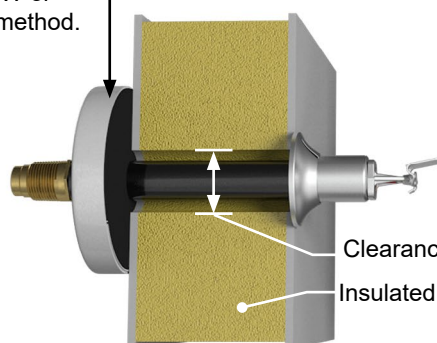
Seal the clearance space around the sprinkler to avoid leakage of air into the protected area and consequent formation of condensate around the sprinkler frame, which could inhibit operation or cause premature operation. Refer to Figure 9.

If humidity and temperature differential causes condensation on the exposed dry sprinkler barrel, consider wrapping the exposed barrel with insulation, foam insulating tape, or equivalent.

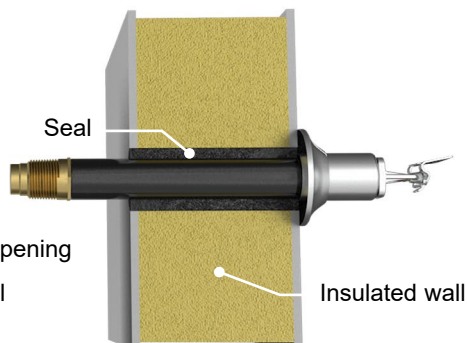
Install the threaded end of the sprinkler into a 1" NPT outlet of a **malleable iron** tee fitting per ANSI B 16.3 (Class 150) or **cast iron** threaded tee fitting per ANSI 16.4 (Class 125) only.

Figure 8: Dry Horizontal Sidewall Sprinkler Minimum Barrel Length Based on Ambient Temperature in the Protected Area (Adjustable Standard Dry HSW Sprinkler is Shown)

Seal Part Number
22087M/W or
equivalent method.



Dry sprinkler seal on the exterior of the wall



Dry sprinkler seal within the wall

Figure 9: Dry Sprinkler Seal (Adjustable Standard Dry HSW Sprinkler is Shown)



BULLETIN

CARE AND HANDLING
OF SPRINKLERS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
 Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

SPRINKLERS ARE FRAGILE - HANDLE WITH CARE!**General Handling and Storage:**

- Store sprinklers in a cool, dry place.
- Protect sprinklers during storage, transport, handling, and after installation.
- Use the original shipping containers. DO NOT place sprinklers loose in boxes, bins, or buckets.
- Keep sprinklers separated at all times. DO NOT allow metal parts to contact sprinkler operating elements.

For Pre-Assembled Drops:

- Protect sprinklers during handling and after installation.
- For recessed assemblies, use the protective sprinkler cap (Viking Part Number 10364).

Sprinklers with Protective Shields or Caps:

- DO NOT remove shields or caps until after sprinkler installation and there no longer is potential for mechanical damage to the sprinkler operating elements.
- **Sprinkler shields or caps MUST be removed BEFORE placing the system in service!**
- Remove the sprinkler shield by carefully pulling it apart where it is snapped together.
- Remove the cap by turning it slightly and pulling it off the sprinkler.

Sprinkler Installation:

- DO NOT use the sprinkler deflector or operating element to start or thread the sprinkler into a fitting.
- **Use only the designated sprinkler head wrench!** Refer to the current sprinkler technical data page to determine the correct wrench for the model of sprinkler used.
- DO NOT install sprinklers onto piping at the floor level.
- Install sprinklers after the piping is in place to prevent mechanical damage.
- DO NOT allow impacts such as hammer blows directly to sprinklers or to fittings, pipe, or couplings in close proximity to sprinklers. Sprinklers can be damaged from direct or indirect impacts.
- DO NOT attempt to remove drywall, paint, etc., from sprinklers.
- **Take care not to over-tighten the sprinkler and/or damage its operating parts!**

Maximum Torque:

1/2" NPT: 14 ft-lbs. (19.0 N-m)

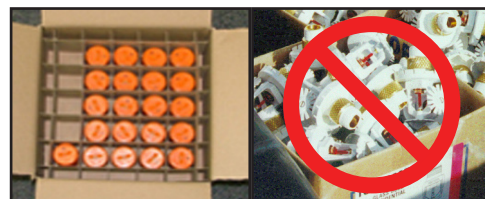
3/4" NPT: 20 ft-lbs. (27.1 N-m)

1" NPT: 30 ft-lbs. (40.7 N-m)



CORRECT
(Original container used)

INCORRECT
(Placed loose in box)



CORRECT
(Protected with caps)

INCORRECT
(Protective caps not used)



CORRECT
(Piping is in place at the ceiling)

INCORRECT
(Sprinkler at floor level)



CORRECT
(Special installation wrenches)

INCORRECT
(Designated wrench not used)



WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov

! WARNING

Any sprinkler with a loss of liquid from the glass bulb or damage to the fusible element should be destroyed. Never install sprinklers that have been dropped, damaged, or exposed to temperatures exceeding the maximum ambient temperature allowed. Sprinklers that have been painted in the field must be replaced per NFPA 13. Protect sprinklers from paint and paint overspray in accordance with the installation standards. Do not clean sprinklers with soap and water, ammonia, or any other cleaning fluid. Do not use adhesives or solvents on sprinklers or their operating elements.

Refer to the appropriate technical data page and NFPA standards for complete care, handling, installation, and maintenance instructions. For additional product and system information Viking data pages and installation instructions are available on the Viking Web site at www.vikinggroupinc.com.



BULLETIN

CARE AND HANDLING
OF SPRINKLERS

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PROTECTIVE SPRINKLER SHIELDS AND CAPS

General Handling and Storage:

Many Viking sprinklers are available with a plastic protective cap or shield temporarily covering the operating elements. The snap-on shields and caps are factory installed and are intended to help protect the operating elements from mechanical damage during shipping, storage, and installation. NOTE: It is still necessary to follow the care and handling instructions on the appropriate sprinkler technical data sheets* when installing sprinklers with bulb shields or caps.

WHEN TO REMOVE THE SHIELDS AND CAPS:

NOTE: SHIELDS AND CAPS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!

Remove the shield or cap from the sprinkler only after checking all of the following:

- The sprinkler has been installed*.
- The wall or ceiling finish work is completed where the sprinkler is installed and there no longer is a potential for mechanical damage to the sprinkler operating elements.

SHIELDS AND CAPS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!

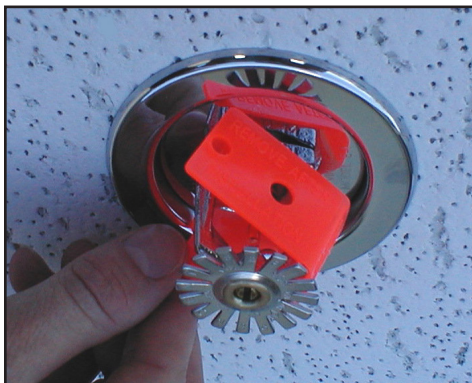


Figure 1: Sprinkler shield being removed from a pendent sprinkler.



Figure 2: Sprinkler cap being removed from a pendent sprinkler.



Figure 3: Sprinkler cap being removed from an upright sprinkler.

HOW TO REMOVE SHIELDS AND CAPS:

No tools are necessary to remove the shields or caps from sprinklers. DO NOT use any sharp objects to remove them! **Take care not to cause mechanical damage to sprinklers when removing the shields or caps.** When removing caps from fusible element sprinklers, use care to prevent dislodging ejector springs or damaging fusible elements. NOTE: Squeezing the sprinkler cap excessively could damage sprinkler fusible elements.

- To remove the shield, simply pull the ends of the shield apart where it is snapped together. Refer to Figure 1.
- To remove the cap, turn it slightly and pull it off the sprinkler. Refer to Figures 2 and 3.

NOTICE

Refer to the current sprinkler technical data page to determine the correct sprinkler wrench for the model of sprinkler used.



Never install sprinklers that have been dropped, damaged, or exposed to temperatures in excess of the maximum ambient temperature allowed.

* Refer to the appropriate current technical data pages for complete care, handling, and installation instructions. Data pages are included with each shipment from Viking or Viking distributors. They can also be found on the Web site at www.vikinggroupinc.com.



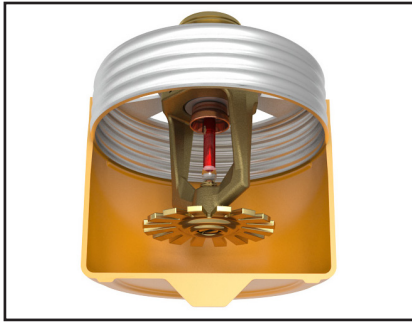
BULLETIN

CARE AND HANDLING
OF SPRINKLERS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
 Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com



CONCEALED COVER ASSEMBLIES ARE FRAGILE!
TO ASSURE SATISFACTORY PERFORMANCE OF THE PRODUCT, HANDLE WITH CARE.



Concealed Sprinkler and Adapter
 Assembly with Protective Cap



Concealed Sprinkler and Adapter
 Assembly (Protective Cap Removed)



Cover Plate Assembly
 (Pendent Cover 12381 shown)

GENERAL HANDLING AND STORAGE INSTRUCTIONS:

- Do not store in temperatures exceeding 100 °F (38 °C). Avoid direct sunlight and confined areas subject to heat.
- Protect sprinklers and cover assemblies during storage, transport, handling, and after installation.
 - Use original shipping containers.
 - Do not place sprinklers or cover assemblies loose in boxes, bins, or buckets.
- Keep the sprinkler bodies covered with the protective sprinkler cap any time the sprinklers are shipped or handled, during testing of the system, and while ceiling finish work is being completed.
- Use only the designated Viking recessed sprinkler wrench (refer to the appropriate sprinkler data page) to install these sprinklers. **NOTE:** The protective cap is temporarily removed during installation and then placed back on the sprinkler for protection until finish work is completed.
- Do not over-tighten the sprinklers into fittings during installation.
- Do not use the sprinkler deflector to start or thread the sprinklers into fittings during installation.
- Do not attempt to remove drywall, paint, etc., from the sprinklers.
- Remove the plastic protective cap from the sprinkler before attaching the cover plate assembly. **PROTECTIVE CAPS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!**

Refer to the appropriate current technical data pages for complete care, handling, and installation instructions. Data pages are included with each shipment from Viking or Viking distributors. They can also be found on the Web site at www.vikinggroupinc.com.



BULLETIN

CARE AND HANDLING
OF SPRINKLERS

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USE THE FOLLOWING PRECAUTIONS WHEN HANDLING WAX-COATED SPRINKLERS

Many of Viking's sprinklers are available with factory-applied wax coating for corrosion resistance. These sprinklers **MUST** receive appropriate care and handling to avoid damaging the wax coating and to assure satisfactory performance of the product.

General Handling and Storage of Wax-Coated Sprinklers:

- Store the sprinklers in a cool, dry place (in temperatures below the maximum ambient temperature allowed for the sprinkler temperature rating. Refer to Table 1 below.)
- Store containers of wax-coated sprinklers separate from other sprinklers.
- Protect the sprinklers during storage, transport, handling, and after installation.
- Use original shipping containers.
- Do not place sprinklers in loose boxes, bins, or buckets.

Installation of Wax-Coated Sprinklers:

Use only the special sprinkler head wrench designed for installing wax-coated Viking sprinklers (any other wrench may damage the unit).

- Take care not to crack the wax coating on the units.
- For touching up the wax coating after installation, wax is available from Viking in bar form. Refer to Table 1 below. The coating **MUST** be repaired after sprinkler installation to protect the corrosion-resistant properties of the sprinkler.
- Use care when locating sprinklers near fixtures that can generate heat. Do not install sprinklers where they would be exposed to temperatures exceeding the maximum recommended ambient temperature for the temperature rating used.
- Inspect the coated sprinklers frequently soon after installation to verify the integrity of the corrosion resistant coating. Thereafter, inspect representative samples of the coated sprinklers in accordance with NFPA 25. Close up visual inspections are necessary to determine whether the sprinklers are being affected by corrosive conditions.

TABLE 1

Sprinkler Temperature Rating (Fusing Point)	Wax Part Number	Wax Melting Point	Maximum Ambient Ceiling Temperature ¹	Wax Color
155 °F (68 °C) / 165 °F (74 °C)	02568A	148 °F (64 °C)	100 °F (38 °C)	Light Brown
175 °F (79 °C)	04146A	161 °F (71 °C)	150 °F (65 °C)	Brown
200 °F (93 °C)	04146A	161 °F (71 °C)	150 °F (65 °C)	Brown
220 °F (104 °C)	02569A	170 °F (76 °C)	150 °F (65 °C)	Dark Brown
286 °F (141 °C)	02569A	170 °F (76 °C)	150 °F (65 °C)	Dark Brown

¹ Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.



WARNING Never install sprinklers that have been dropped, damaged, or exposed to temperatures in excess of the maximum ambient temperature allowed.

Refer to the appropriate current technical data pages for complete care, handling, and installation instructions. Data pages are included with each shipment from Viking or Viking distributors. They can also be found on the Web site at www.vikinggroupinc.com.



TECHNICAL DATA

SPRINKLER OVERVIEW

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

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1. DESCRIPTION

Viking fire sprinklers consist of a threaded frame with a specific waterway or orifice size and a deflector for distributing water in a specified pattern. A closed or sealed sprinkler refers to a complete assembly, including the thermosensitive operating element. An open sprinkler does not use an operating element and is open at all times. The distribution of water is intended to extinguish a fire or to control its spread.

Viking sprinklers are available in several models and styles. Refer to specific sprinkler technical data pages for available styles, finishes, temperature ratings, thread sizes, and nominal K-Factors for the particular model selected.

2. LISTINGS AND APPROVALS

Refer to the Approval Charts on the appropriate sprinkler technical data page(s) and/or approval agency listings.



WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov

3. TECHNICAL DATA

Pressure Ratings:

Maximum allowable water working pressure is 175 psig (12 Bar) unless rated and specified for high water working pressure [250 psig (17.2 bar)].

Sprinkler Identification:

Viking sprinklers are identified and marked with the word "Viking", the sprinkler identification number (SIN) consisting of "VK" plus a three digit number*, the model letter, and the year of manufacture.

Available Finishes:

Viking sprinklers are available in several decorative finishes. Some models are available with corrosion-resistant coatings or are fabricated from non-corrosive material. Refer to the sprinkler technical data page for additional information.

Available Temperature Ratings:

Viking sprinklers are available in several temperature ratings that relate to a specific temperature classification. Applicable installation rules mandate the use and limitations of each temperature classification. In selecting the appropriate temperature classification, the maximum expected ceiling temperature must be known. When there is doubt as to the maximum temperature at the sprinkler location, a maximum-reading thermometer should be used to determine the temperature under conditions that would show the highest readings to be expected. In addition, recognized installation rules may require a higher temperature classification, depending upon sprinkler location, occupancy classification, commodity classification, storage height, and other hazards. In all cases, the maximum expected ceiling temperature dictates the lowest allowable temperature classification. Sprinklers located immediately adjacent to a heat source may require a higher temperature rating.

K-Factors:

Viking sprinklers are available in several orifice sizes with related K-Factors. The orifice is a tapered waterway and, therefore, the K-Factor given is nominal. Nominal U.S. K-Factors are provided in accordance with the 1999 edition of NFPA 13, Section 3-2.3. Refer to the specific data page for appropriate K-Factor information.

Available Styles:

Viking sprinklers are available for installation in several positions as indicated by a stamping on the deflector. The deflector style dictates the appropriate installation position of the sprinkler; it breaks the solid stream of water issuing from the sprinkler orifice to form a specific spray pattern. The following list indicates the various styles and identification of Viking sprinklers.

UPRIGHT SPRINKLER: A sprinkler intended to be installed with the deflector above the frame so water flows upward through the orifice, striking the deflector and forming an umbrella-shaped spray pattern downward. Marked "SSU" (Standard Sprinkler Upright) or "UPRIGHT" on the deflector.

PENDENT SPRINKLER: A sprinkler intended to be oriented with the deflector below the frame so water flows downward through the orifice, striking the deflector and forming an umbrella-shaped spray pattern downward. Marked "SSP" (Standard Sprinkler Pendent) or "PENDENT" on the deflector.

CONVENTIONAL SPRINKLER: An "old style" sprinkler intended to be installed with the deflector in either the upright or pendent position. The deflector provides a spherical type pattern with 40 to 60 percent of the water initially directed downward and a proportion directed upward. Must be installed in accordance with installation rules for conventional or old style sprinklers. DO NOT USE AS A REPLACEMENT FOR STANDARD SPRAY SPRINKLERS. Marked "C U/P" (Conventional Upright/Pendent) on the deflector.

Viking Technical Data may be found on
The Viking Corporation's Web site at
<http://www.vikinggroupinc.com>.
The Web site may include a more recent
edition of this Technical Data Page.



TECHNICAL DATA

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VERTICAL SIDEWALL (VSW) SPRINKLER: A sprinkler intended for installation near the wall and ceiling. The deflector provides a water spray pattern outward in a quarter-spherical pattern and can be installed in the upright or pendent position with the flow arrow in the direction of discharge. Marked "SIDEWALL" on the deflector with an arrow and the word "FLOW". (Note: Some vertical sidewall sprinklers can only be installed in the upright or pendent position—in this case, the sprinkler will also be marked "UPRIGHT" or "PENDENT".)

HORIZONTAL SIDEWALL (HSW) SPRINKLER: A sprinkler intended for installation near the wall and ceiling. The special deflector provides a water spray pattern outward in a quarter-spherical pattern. Most of the water is directed away from the nearby wall with a small portion directed at the wall behind the sprinkler. The top of the deflector is oriented parallel with the ceiling or roof. The flow arrows point in the direction of discharge. Marked "SIDEWALL" and "TOP" with an arrow and the word "FLOW".

EXTENDED COVERAGE (EC) SPRINKLER: A spray sprinkler designed to discharge water over an area having the maximum dimensions indicated in the individual listings. Maximum area of coverage, minimum flow rate, orifice size, and nominal K-Factor are specified in the individual listings. EC sprinklers are intended for Light-Hazard occupancies with smooth, flat, horizontal ceilings unless otherwise specified. In addition to the above markings, the sprinkler is marked "EC".

QUICK RESPONSE (QR) SPRINKLER: A spray sprinkler with a fast-actuating operating element. The use of quick response sprinklers may be limited due to occupancy and hazard. Refer to the Authority Having Jurisdiction (AHJ) prior to installing.

QUICK RESPONSE EXTENDED COVERAGE (QREC) SPRINKLER: A spray sprinkler designed to discharge water over an area having the maximum dimensions indicated in the individual listing. This is a sprinkler with an operating element that meets the criteria for quick response. QREC sprinklers are only intended for Light Hazard occupancies. The sprinkler is marked "QREC".

FLUSH SPRINKLER: A decorative spray sprinkler intended for installation with a concealed piping system. The unit is mounted flush with the ceiling or wall, with the fusible link exposed. Upon actuation, the deflector extends beyond the ceiling or wall to distribute water discharge. The sprinkler is marked "SSP", "PEND", or "SIDEWALL" and "TOP".

CONCEALED SPRINKLER: A decorative spray sprinkler intended for installation with a concealed piping system. The sprinkler is hidden from view by a cover plate installed flush with the ceiling or wall. During fire conditions, the cover plate detaches, and upon sprinkler actuation, the deflector extends beyond the ceiling or wall to distribute water discharge. The sprinkler is marked "SSP", "PEND", or "SIDEWALL" and "TOP".

RECESSED SPRINKLER: A spray sprinkler assembly intended for installation with a concealed piping system. The assembly consists of a sprinkler installed in a decorative adjustable recessed escutcheon that minimizes the protrusion of the sprinkler beyond the ceiling or wall without adversely affecting the sprinkler distribution or sensitivity. Refer to the appropriate technical data page for allowable sprinkler models, temperature ratings, and occupancy classifications. DO NOT RECESS ANY SPRINKLER NOT LISTED FOR USE WITH THE ESCUTCHEON.

CORROSION-RESISTANT SPRINKLER: A special service sprinkler with non-corrosive protective coatings, or that is fabricated from non-corrosive material, for use in atmospheres that would normally corrode sprinklers.

DRY SPRINKLER: A special-service sprinkler intended for installation on dry pipe systems or wet pipe systems where the sprinkler is subject to freezing temperatures. The unit consists of a sprinkler permanently secured to an extension nipple with a sealed inlet end to prevent water from entering the nipple until the sprinkler operates. The unit MUST be installed in a tee fitting. Dry upright sprinklers are marked with the "B" dimension [distance from the face of the fitting (tee) to the top of the deflector]. Dry pendent and sidewall sprinklers are marked with the "A" dimension [the distance from the face of fitting (tee) to the finished surface of the ceiling or wall].

LARGE DROP SPRINKLER: A type of special application sprinkler used to provide fire control of specific high-challenge fire hazards. Large drop sprinklers are designed to produce an umbrella-shaped spray pattern downward with a higher percentage of "large" water droplets than standard spray sprinklers. The sprinkler has an extra-large orifice with a nominal K-Factor of 11.2. Marked "HIGH CHALLENGE" and "UPRIGHT".

EARLY SUPPRESSION FAST-RESPONSE (ESFR) SPRINKLER: A sprinkler intended to provide fire suppression of specific high-challenge fire hazards through the use of a fast response fusible link, 14.0, 16.8, or 25.2 nominal K-Factor, and special deflector. ESFR sprinklers are designed to produce high-momentum water droplets in a hemispherical pattern below the deflector. This permits penetration of the fire plume and direct wetting of the burning fuel surface while cooling the atmosphere early in the development of a high-challenge fire. Marked "ESFR" and "UPRIGHT" or "PEND".

INTERMEDIATE LEVEL/RACK STORAGE SPRINKLER: A standard spray sprinkler assembly designed to protect its operating element from the spray of sprinklers installed at higher elevations. The assembly consists of a standard or large orifice upright or pendent sprinkler with an integral upright or pendent water shield and guard assembly. Use only those sprinklers that have been tested and listed for use with the assembly. Refer to the technical data page for allowable sprinkler models.

RESIDENTIAL SPRINKLER: A sprinkler intended for use in the following occupancies: one- and two-family dwellings with the fire protection sprinkler system installed in accordance with NFPA 13D; residential occupancies up to four stories in height with the fire protection system installed in accordance with NFPA 13R; and where allowed by the Authority Having Jurisdiction in residential portions of any occupancy with the fire protection system installed in accordance with NFPA 13.



TECHNICAL DATA

SPRINKLER OVERVIEW

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Residential sprinklers have a unique distribution pattern and utilize a “fast response” heat sensitive operating element. They enhance survivability in the room of fire origin and are designed to provide a life safety environment for a minimum of ten minutes. For this reason, residential sprinklers must not be used to replace standard sprinklers unless tested for and approved by the Authority Having Jurisdiction. In addition to standard markings, the unit is identified as “RESIDENTIAL SPRINKLER” or “RES”.

4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

5. OPERATION

Refer to the appropriate sprinkler technical data page(s).

6. INSPECTIONS, TESTS AND MAINTENANCE

Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

Viking sprinklers are available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers and the appropriate sprinkler general care, installation, and maintenance guide. Vikings sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable. The sprinkler technical data page may contain installation requirements specific for the sprinkler model selected. The use of certain types of sprinklers may be limited due to occupancy and hazard. Refer to the Authority Having Jurisdiction prior to installation.



TECHNICAL DATA

SPRINKLER GENERAL CARE, INSTALLATION, AND MAINTENANCE GUIDE

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page.

1. DESCRIPTION - STANDARD RESPONSE, QUICK RESPONSE, EXTENDED COVERAGE, AND DRY SPRINKLERS

Viking thermosensitive spray sprinklers consist of a small frame and either a glass bulb or a fusible operating element. Available styles include pendent, flush pendent, concealed pendent, upright, horizontal sidewall, vertical sidewall, or conventional, depending on the particular sprinkler model selected.

Viking sprinklers are available with various finishes, temperature ratings, responses, and K-Factors to meet design requirements†. Used in conjunction with one of the corrosion-resistant coatings (for frame style sprinklers), the units provide protection against many corrosive environments. In addition, the special Polyester or Teflon® coatings can be used in decorative applications where colors are desired.

† Refer to the sprinkler technical data page for available styles, finishes, temperature ratings, responses, and nominal K-Factors for specific sprinkler models.

2. LISTINGS AND APPROVALS

Refer to the Approval Charts on the appropriate sprinkler technical data page(s) and/or approval agency listings.

3. TECHNICAL DATA

Specifications:

Refer to the appropriate sprinkler technical data sheet.

Material Standards:

Refer to the appropriate sprinkler technical data sheet.



WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov

4. INSTALLATION

NOTE: Take care not to over-tighten the sprinkler and/or damage its operating parts!

Maximum Torque:

1/2" NPT: 14 ft-lbs. (19.0 N-m)

3/4" NPT: 20 ft-lbs. (27.1 N-m)

1" NPT: 30 ft-lbs. (40.7 N-m)

A. Care and Handling (also refer to Bulletin - Care and Handling of Sprinklers, Form No. F_091699.)

Sprinklers must be handled with care. They must be stored in a cool, dry place in their original shipping container. Never install sprinklers that have been dropped, damaged, or exposed to temperatures exceeding the maximum ambient temperature allowed (refer to the temperature chart on the sprinkler technical data page). Never install any glass-bulb sprinkler if the bulb is cracked or if there is a loss of liquid from the bulb. A small air bubble should be present in the glass bulb. Any sprinkler with a loss of liquid from the glass bulb or damage to the fusible element should be destroyed immediately. (Note: Installing glass bulb sprinklers in direct sunlight (ultraviolet light) may affect the color of the dye used to color code the bulb. This color change does not affect the integrity of the bulb.)

Sprinklers must be protected from mechanical damage during storage, transport, handling, and after installation. Sprinklers subject to mechanical damage must be protected with an approved sprinkler guard.

Use only sprinklers listed as corrosion resistant when subject to corrosive environments. When installing corrosion-resistant sprinklers, take care not to damage the corrosion-resistant coating. Use only the special wrench designed for installing coated or recessed Viking sprinklers (any other wrench may damage the unit).

Concealed sprinklers must be installed in neutral or negative pressure plenums only!

Use care when locating sprinklers near fixtures that can generate heat. Do not install sprinklers where they could be exposed to temperatures exceeding the maximum recommended ambient temperature for the temperature rating used.

Wet pipe systems must be provided with adequate heat. Sprinklers supplied from dry systems in areas subject to freezing must be listed dry sprinklers, upright, or horizontal sidewall sprinklers installed so that water is not trapped. For dry systems, pendent sprinklers and sidewall sprinklers installed on return bends are permitted, where the sprinklers, return bend, and branch line piping are in an area maintained at or above 40 °F (4 °C).

B. Installation Instructions - Standard Spray Sprinklers

Viking sprinklers are manufactured and tested to meet the rigid requirements of approving agencies. They are designed to be installed in accordance with recognized installation standards. Deviation from the standards or any alteration to sprinklers or cover plate assemblies after they leave the factory including, but not limited to: painting, plating, coating, or modification, may render them inoperative and will automatically nullify the approvals and any guarantee made by The Viking Corporation.



TECHNICAL DATA

SPRINKLER GENERAL CARE, INSTALLATION, AND MAINTENANCE GUIDE

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Before installation, be sure to have the appropriate sprinkler model and style, with the correct K-Factor, temperature rating, and response characteristics. Sprinklers must be installed after the piping is in place to prevent mechanical damage. Keep sprinklers with protective caps or bulb shields contained within the caps or shields during installation and testing, and any time the sprinkler is shipped or handled.

- 1a. For frame-style sprinklers, install escutcheon (if used), which is designed to thread onto the external threads of the sprinkler. Refer to the appropriate sprinkler data page to determine approved escutcheons for use with specific sprinkler models.
- 1b. For flush and concealed style sprinklers: Cut the sprinkler nipple so that the ½" or 3/4" (15 mm or 20 mm)* NPT outlet of the reducing coupling is at the desired location, and centered in the opening* in the ceiling or wall.

*Size depends on the sprinkler model used. Refer to the sprinkler technical data page.

2. Apply a small amount of pipe-joint compound or tape to the external threads of the sprinkler only, taking care not to allow a build-up of compound in the sprinkler inlet. **NOTE:** Sprinklers with protective caps or bulb shields must have the caps or shields kept on them when applying pipe-joint compound or tape. *Exception: For domed concealed sprinklers, remove the protective cap for installation, and then place it back on the sprinkler temporarily.*
3. Refer to the appropriate sprinkler technical data page to determine the correct sprinkler wrench for the model of sprinkler used. DO NOT use the deflector or fusible element to start or thread the sprinkler into a fitting.
 - a. Install the sprinkler onto the piping using the special sprinkler wrench only, taking care not to over-tighten or damage the sprinkler.
 - b. For flush and concealed style sprinklers: the internal diameter of the special sprinkler installation wrench is designed for use with the sprinkler contained in the protective cap. *Exception: For domed concealed sprinklers, remove the protective cap for installation, and then place it back on the sprinkler temporarily.* Thread the flush or concealed sprinkler into the ½" or 3/4" (15 mm or 20 mm)* NPT outlet of the coupling by turning it clockwise with the special sprinkler wrench. *Thread size depends on the particular sprinkler model used. Refer to the sprinkler technical data page.

C. Installation Instructions - Dry Sprinklers

WARNING: Viking dry sprinklers are to be installed in the 1" outlet (for dry and preaction systems), or run of malleable, ductile iron, or Nibco CPVC* threaded tee fittings (for wet systems) that meet the dimensional requirements of ANSI B16.3 (Class 150), or cast iron threaded tee fittings that meet the dimensional requirements of ANSI B16.4 (Class 125), even at branch line ends. The threaded end of the dry sprinkler is designed to allow the seal to penetrate and extend into the fitting to a predetermined depth. This prevents condensation from accumulating and freezing over the sprinkler seal. ***NOTE: When using CPVC fittings with Viking dry sprinklers, use only new Nibco Model 5012-S-BI. When selecting other CPVC fittings, contact Viking Technical Services.**

1. **DO NOT** install the dry sprinkler into a threaded elbow, coupling, or any other fitting that could interfere with thread penetration. Such installation would damage the brass seal.
2. **DO NOT** install dry sprinklers into couplings or fittings that would allow condensation to accumulate above the seal when the sprinkler is located in an area subject to freezing.
3. **NEVER** try to modify dry sprinklers. They are manufactured for specific "A" or "B" dimensions and cannot be modified.

The dry sprinkler must be installed after the piping is in place to prevent mechanical damage. Before installation, be sure to have the correct sprinkler model and style, with the appropriate "A" or "B" dimension(s), temperature rating, orifice size, and response characteristics. Keep sprinklers with protective caps or bulb shields contained within the caps or shields during installation and testing, and any time the sprinkler is shipped or handled. *Exception: For concealed and adjustable recessed dry sprinklers, the protective caps and shields are removed for installation.*

To install the dry sprinkler, refer to the instructions below and the appropriate sprinkler technical data page for illustrated instructions.

Dry upright sprinklers must be installed above the piping, in the upright position only. When installing dry upright or plain barrel style vertical sidewall sprinklers on piping located close to the ceiling, it may be necessary to lower the sprinkler into the fitting from above the ceiling. When installing dry upright or plain barrel vertical sidewall sprinklers from below the ceiling, verify that the opening in the ceiling is a minimum 1-1/2" (38.1 mm) in diameter.

For dry upright or plain barrel vertical sidewall sprinklers in the upright position: First, install the escutcheon (if used) over the threaded end of the sprinkler barrel. Slide the escutcheon past the external threads. NOTE: When installing the dry upright or plain barrel vertical sidewall sprinkler from above the ceiling, it will be necessary to install the escutcheon after lowering the threaded end of the sprinkler through the ceiling penetration.

- A. **For all dry sprinklers:** Apply a small amount of pipe-joint compound or tape to the external threads of the sprinkler barrel only, taking care not to allow a build-up of compound or tape over the brass inlet and seal. **NOTE:** Sprinklers with protective caps or bulb shields must be contained within the caps or shields before applying pipe-joint compound or tape.



TECHNICAL DATA

SPRINKLER GENERAL CARE, INSTALLATION, AND MAINTENANCE GUIDE

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Visit the Viking website for the latest edition of this technical data page.

- B. Refer to the appropriate sprinkler technical data page to determine the correct sprinkler wrench for the model of sprinkler used.
- C. Install the dry sprinkler on the piping using the special dry sprinkler wrench only, while taking care not to damage the sprinkler.
NOTE: Thread the sprinkler into the fitting hand tight, plus 1/2 turn with the dry sprinkler wrench.
- D. *For adjustable standard and adjustable recessed dry pendent and sidewall sprinklers: Escutcheons can be installed after the sprinklers have been installed onto the piping. Refer to the appropriate sprinkler technical data page for escutcheon installation instructions and illustrations.*

D. Installation Instructions - Testing

- 4. After installation, the entire sprinkler system must be tested. The test must be conducted to comply with the installation standards. Viking *high pressure* sprinklers may be hydrostatically tested at a maximum of 300 psi (20.7 bar) for limited periods of time (two hours), for the purpose of acceptance by the Authority Having Jurisdiction.
 - a. Make sure the sprinkler is properly tightened. If a thread leak occurs, normally the sprinkler must be removed, new pipe-joint compound or tape applied, and then reinstalled. This is due to the fact that when the joint seal is damaged, the sealing compound or tape is washed out of the joint. Air testing [do not exceed 40 psi (2.76 bar)] the sprinkler piping prior to testing with water may be considered in areas where leakage during testing must be prevented. Refer to the Installation Standards and the Authority Having Jurisdiction.
 - b. **Remove plastic protective sprinkler caps or bulb shields AFTER the wall or ceiling finish work is completed where the sprinkler is installed and there no longer is a potential for mechanical damage to the sprinkler operating elements.** To remove the bulb shields, simply pull the ends of the shields apart where they are snapped together. To remove caps from frame style sprinklers, turn the caps slightly and pull them off the sprinklers. **SPRINKLER CAPS OR BULB SHIELDS MUST BE REMOVED FROM SPRINKLERS BEFORE PLACING THE SYSTEM IN SERVICE!** Retain a protective cap or shield in the spare sprinkler cabinet.
- 5. For flush style sprinklers: the ceiling ring can now be installed onto the sprinkler body. Align the ceiling ring with the sprinkler body and thread or push it on (depends on sprinkler model) until the outer flange touches the surface of the ceiling. Note the maximum adjustment is 1/4" (6.35 mm). DO NOT MODIFY THE UNIT. If necessary, re-cut the sprinkler drop nipple as required.
- 6. For concealed sprinklers: the cover assembly can now be attached.
 - a. Remove the cover from the protective box, taking care not to damage the cover plate assembly.
 - b. Gently place the base of the cover plate assembly over the sprinkler protruding through the opening in the ceiling.
 - c. Push the cover plate assembly onto the sprinkler until the unfinished brass flange of the cover plate base (or the cover adapter, if used) touches the surface of the ceiling.
 - d. Refer to the applicable technical data sheet to determine the maximum adjustment available for concealed sprinklers. DO NOT MODIFY THE UNIT. If necessary, re-cut the sprinkler drop nipple.

NOTE: If it is necessary to remove the entire sprinkler unit, the system must be taken out of service. See section 6. INSPECTIONS, TESTS AND MAINTENANCE and follow all warnings and instructions.

5. OPERATION

Refer to the appropriate sprinkler technical data page(s). During fire conditions, the operating element fuses or shatters (depending on the type of sprinkler), releasing the pip cap and sealing assembly. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable. The sprinkler technical data page may contain installation requirements specific for the sprinkler model selected. The use of certain types of sprinklers may be limited due to occupancy and hazard. Refer to the Authority Having Jurisdiction prior to installation.



TECHNICAL DATA

SPRINKLER GENERAL CARE, INSTALLATION, AND MAINTENANCE GUIDE

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page.

6. INSPECTIONS, TESTS AND MAINTENANCE

NOTICE: Refer to NFPA 25 for Inspection, Testing and Maintenance requirements. **NOTICE:** The owner is responsible for having the fire-protection system and devices inspected, tested, and maintained in proper operating condition in accordance with this guide, and applicable NFPA standards. In addition, the Authority Having Jurisdiction may have additional maintenance, testing, and inspection requirements that must be followed.

- A. Sprinklers must be inspected on a regular basis for corrosion, mechanical damage, obstructions, paint, etc. Frequency of inspections may vary due to corrosive atmospheres, water supplies, and activity around the sprinkler unit.
- B. Sprinklers or cover plate assemblies that have been field painted, caulked, or mechanically damaged must be replaced immediately. Sprinklers showing signs of corrosion shall be tested and/or replaced immediately as required. Installation standards require sprinklers to be tested and, if necessary, replaced after a specified term of service. Refer to NFPA 25 and the Authority Having Jurisdiction for the specified period of time after which testing and/or replacement is required. Never attempt to repair or reassemble a sprinkler. Sprinklers and cover assemblies that have operated cannot be reassembled or re-used, but must be replaced. When replacement is necessary, use only new sprinklers and cover assemblies with identical performance characteristics.
- C. The sprinkler discharge pattern is critical for proper fire protection. Therefore, nothing should be hung from, attached to, or otherwise obstruct the discharge pattern. All obstructions must be immediately removed or, if necessary, additional sprinklers installed.
- D. When replacing existing sprinklers, the system must be removed from service. Refer to the appropriate system description and/or valve instructions. Prior to removing the system from service, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected area.
 1. Remove the system from service, drain all water, and relieve all pressure on the piping.
 - 2a. For frame-style sprinklers, use the special sprinkler wrench to remove the old sprinkler by turning it counterclockwise to unthread it from the piping.
 - 2b. For flush and concealed style sprinklers: Remove the ceiling ring or cover plate assembly before unthreading the sprinkler body from the piping. Ceiling rings and cover plates can be removed either by gently unthreading them or pulling them off the sprinkler body (depends on the sprinkler model used). After the ceiling ring or cover plate assembly has been removed from the sprinkler body, place the plastic protective cap (from the spare sprinkler cabinet) over the sprinkler to be removed and then fit the sprinkler wrench over the cap. Then use the wrench to unthread the sprinkler from the piping. *Exception: Domed concealed sprinklers are removed without the plastic cap.*
 3. Install the new sprinkler unit by following the instructions in section 4. INSTALLATION. Care must be taken to ensure that the replacement sprinkler is the proper model and style, with the correct K-Factor, temperature rating, and response characteristics. A fully stocked spare sprinkler cabinet should be provided for this purpose. For flush or concealed sprinklers: stock of spare ceiling rings or cover plates should also be available in the spare sprinkler cabinet.
- E. Place the system back in service and secure all valves. Check for and repair all leaks. Sprinkler systems that have been subjected to a fire must be returned to service as soon as possible. The entire system must be inspected for damage, and repaired or replaced as necessary. Sprinklers that have been exposed to corrosive products of combustion or high ambient temperatures, but have not operated, should be replaced. Refer to the Authority Having Jurisdiction for minimum replacement requirements.

7. AVAILABILITY

Viking sprinklers are available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

**BULLETIN****REGULATORY AND HEALTH
WARNINGS**

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page www.vikinggroupinc.com

1. DESCRIPTION

Regulatory and Health Warnings applying to materials used in the manufacture and construction of fire protection products are provided herein as they relate to legally mandated jurisdictional regions.

⚠ WARNING**STATE OF CALIFORNIA, USA**

Installing or servicing fire protection products such as sprinklers, valves, piping etc. can expose you to chemicals including, but not limited to, lead, nickel, butadiene, titanium dioxide, chromium, carbon black, and acrylonitrile which are known to the State of California to cause cancer or birth defects or other reproductive harm.

For more information, go to www.P65Warnings.ca.gov

2. WARRANTY TERMS AND CONDITIONS

For details of warranty, refer to Viking's current list price schedule at www.vikinggroupinc.com or contact Viking directly.



TECHNICAL DATA

MICROFAST® QUICK RESPONSE HORIZONTAL SIDEWALL SPRINKLER VK305 (K5.6)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
 Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com
 Visit the Viking website for the latest edition of this technical data page: www.vikinggroupinc.com

Sprinkler Cabinets:

- A. Six-head capacity: Part No. 01724A (available since 1971)
- B. Twelve-head capacity: Part No. 01725A (available since 1971)

4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

5. OPERATION

During fire conditions, the heat-sensitive fusible link disengages, the pip cap and spring are released, and the waterway is opened. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

6. INSPECTIONS, TESTS AND MAINTENANCE

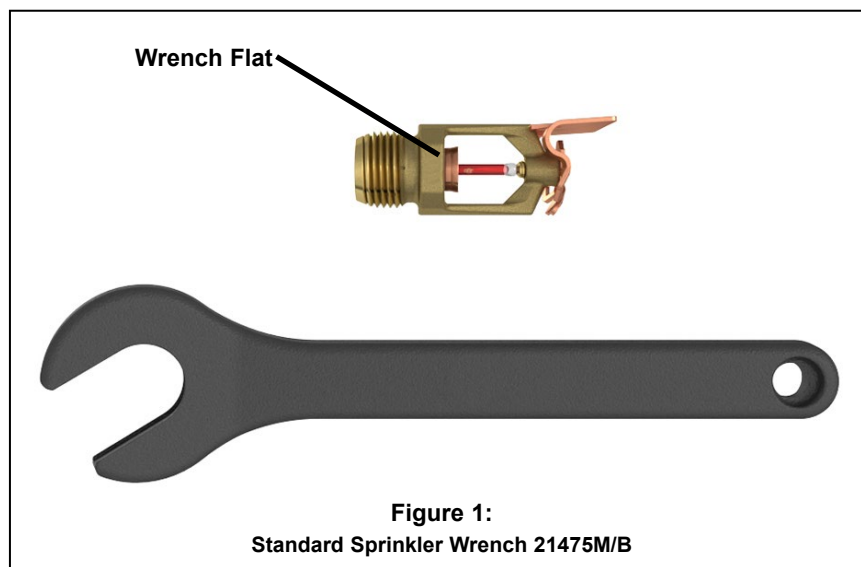
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

Viking Microfast® Quick Response Horizontal Sidewall Sprinkler VK305 is available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.





TECHNICAL DATA

MICROFAST® QUICK RESPONSE HORIZONTAL SIDEWALL SPRINKLER VK305 (K5.6)

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TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES

Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating ¹	Maximum Ambient Ceiling Temperature ²	Bulb Color
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue

Sprinkler Finishes: Brass, Chrome, White Polyester, Black Polyester, and ENT

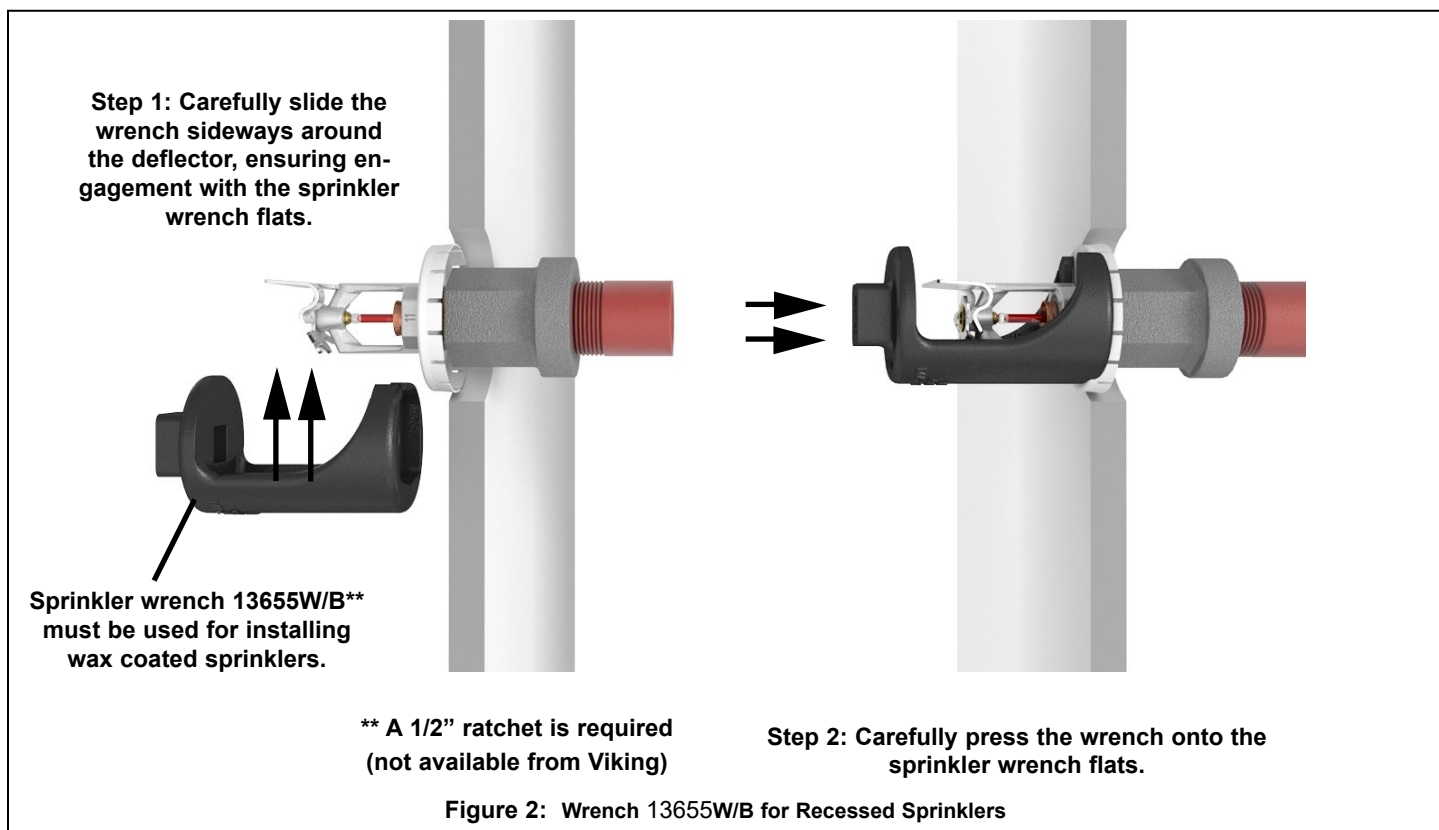
Corrosion-Resistant Coatings³: White Polyester, Black Polyester, and ENT

Footnotes

¹ The sprinkler temperature rating is stamped on the deflector.

² Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.

³ The corrosion-resistant coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Charts. These tests cannot and do not represent all possible corrosive environments. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. For automatic sprinklers, the coatings indicated are applied to the exposed exterior surfaces only. For ENT coated sprinklers, the waterway is coated. Note that the spring is exposed on sprinklers with Polyester, and ENT coatings.





TECHNICAL DATA

MICROFAST® QUICK RESPONSE HORIZONTAL SIDEWALL SPRINKLER VK305 (K5.6)

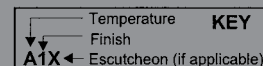
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Approval Chart 1 (UL)

Microfast® Quick Response Horizontal Sidewall Sprinkler VK305
 For Light or Ordinary Hazard Occupancies

Maximum 175 PSI (12 Bar) WWP

Deflector must be located 4" to 12" (102 mm to 305 mm) below the ceiling.



Sprinkler Base Part Number ¹	SIN	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals ³ (Refer also to UL Design Criteria.)	
		NPT	BSPT	U.S.	metric ²	Inches	mm	cULus ⁴	China Approval
12997	VK305	1/2"	15 mm	5.6	80.6	2-11/16	68	A1W, B1X, C2W, D2Z	--
19782 ⁷	VK305	1/2"	--	5.6	80.6	2-11/16	68	E3	E3

NOTICE - Product Below - Limited Availability (Contact Local Viking Office)

12121	VK305	1/2"	15 mm	5.6	80.6	2-11/16	68	A1W, B1X, C2W, D2Z	--
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Approved Temperature Ratings

A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C),
 200 °F (93 °C), and 286 °F (141 °C)
 B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C),
 and 200 °F (93 °C)
 C - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C),
 and 286 °F (141 °C)
 D - 155 °F (68 °C), 175 °F (79 °C), and 200 °F
 (93 °C)
 E - 155 °F (68 °C)

Approved Finishes

- 1 - Brass, Chrome, White Poly-ester^{5,6},
 and Black Polyester^{5,6}
- 2 - ENT⁵
- 3 - Chrome

Approved Escutcheons

W - Installed with standard surface-mounted escutcheons
 X - Installed with standard surface-mounted escutcheons
 or recessed with the Viking Micromatic® Model
 E-1, E-2, or G-1 Recessed Escutcheon
 Z - Installed with standard surface-mounted escutcheons
 or recessed with the Viking Micromatic Model
 E-1

Footnotes

- ¹ Base part number shown. For complete part number, refer to Viking's current price schedule.
² Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
³ This table shows the listings and approvals available at the time of printing. Other approvals may be in process.
⁴ Listed by Underwriters Laboratories Inc. for use in the U.S. and Canada.
⁵ cULus Listed as corrosion-resistant.
⁶ Other colors are available on request with the same Listings and Approvals as the standard colors.
⁷ Approved according to China GB Standard.

DESIGN CRITERIA - UL

(Also refer to Approval Chart 1.)

cULus Listing Requirements:

Quick Response Horizontal Sprinkler VK305 is cULus Listed as indicated in Approval Chart 1 for installation in accordance with the latest edition of NFPA 13 for sidewall standard spray sprinklers.

- Designed for use in Light and Ordinary Hazard occupancies.
- Locate with the deflector 4" to 12" (102 mm to 305 mm) below the ceiling.
- Protection areas and maximum spacing shall be in accordance with the tables provided in NFPA 13.
- Minimum spacing allowed is 6 ft. (1.8 m).
- Align the top of the deflector parallel with the ceiling.
- Locate no less than 4" (102 mm) from end walls.
- Maximum distance from end walls shall be no more than one-half of the allowable distance between sprinklers. The distance shall be measured perpendicular to the wall.
- The sprinkler installation and obstruction rules contained in NFPA 13 for sidewall standard spray sprinklers must be followed.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to Bulletin Form No. F_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.



TECHNICAL DATA

MICROFAST® QUICK RESPONSE HORIZONTAL SIDEWALL SPRINKLER VK305 (K5.6)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
 Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com
 Visit the Viking website for the latest edition of this technical data page: www.vikinggroupinc.com

Approval Chart 1 (FM)

Microfast® Quick Response Sidewall Sprinklers
 Maximum 175 PSI WWP

	Temperature	KEY
↓	Finish	
A1X	Escutcheon (if applicable)	

Sprinkler Base Part Number ¹	SIN	Thread Size		Nominal K-Factor		Overall Length		FM Approvals ^{3,4} (Refer also to Design Criteria below.)	
		NPT	BSPT	U.S.	metric ²	Inches	mm		
12997	VK305	1/2"	15 mm	5.6	80.6	2-11/16	68	A1Y, B1X	
NOTICE - Product Below - Limited Availability (Contact Local Viking Office)									
12121	VK305	1/2"	15 mm	5.6	80.6	2-11/16	68	A1W, B1X, C2W, D2Z	--
Approved Temperature Ratings A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C) B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)				Approved Finishes 1 - Brass			Approved Escutcheons X - Installed with standard surface-mounted escutcheons or recessed with the Viking Micromatic® Model E-1, E-2, E-3, or G-1 Recessed Escutcheon Y - Installed with standard surface-mounted escutcheons		
Footnotes ¹ Base part number shown. For complete part number, refer to Viking's current price schedule. ² Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0. ³ This table shows the FM Approvals available at the time of printing. Other approvals may be in process. ⁴ Viking vertical sidewall sprinklers may be installed pendent or upright. ⁵ Approved according to China GB Standard.									

DESIGN CRITERIA - FM

(Also refer to Approval Chart 2 above.)

FM Approval Requirements:

Horizontal Sidewall Sprinkler VK305 is FM Approved as a quick response **Non-Storage** sidewall sprinkler as indicated in the FM Approval Guide. For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including Data Sheet 2-0). FM Global Loss Prevention Data Sheets contain guidelines relating to, but not limited to: minimum water supply requirements, hydraulic design, ceiling slope and obstructions, minimum and maximum allowable spacing, and deflector distance below the ceiling.

NOTE: The FM installation guidelines may differ from cULus and/or NFPA criteria.

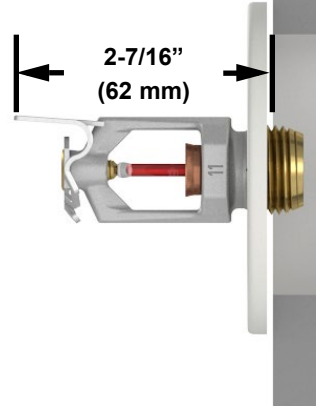
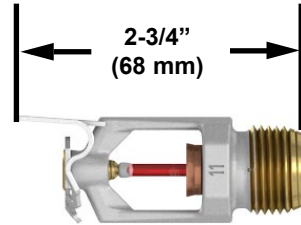
IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to Bulletin Form No. F_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.



TECHNICAL DATA

MICROFAST® QUICK RESPONSE HORIZONTAL SIDEWALL SPRINKLER VK305 (K5.6)

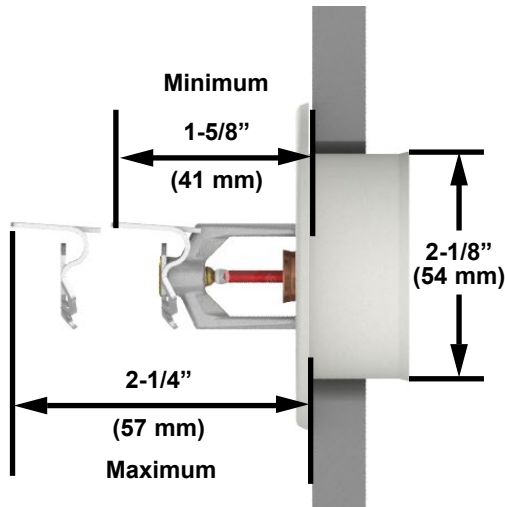
The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
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Wall Opening Size:
2-5/16" (58.7 mm) minimum
2-1/2" (63.5 mm) maximum

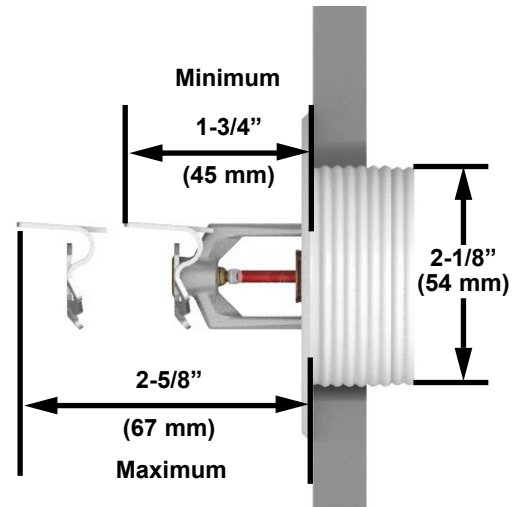
Installed with a Standard
1/8" Surface-Mounted
Escutcheon

Figure 3: Sidewall Sprinkler Dimensions with a Standard Escutcheon



Wall Opening Size:
2-5/16" (58.7 mm) minimum
2-1/2" (63.5 mm) maximum

Installed with the
Micromatic Model E-1
Recessed Escutcheon



Installed with the
Threaded Model E-2
Recessed Escutcheon

Figure 4: Sidewall Sprinkler VK305 Dimensions with the Model E-1 and E-2 Recessed Escutcheons



TECHNICAL DATA

MICROFAST® QUICK RESPONSE PENDENT SPRINKLER VK302 (K5.6)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page: www.vikinggroupinc.com

1. DESCRIPTION

The Viking Microfast® Quick Response Pendent Sprinkler VK302 is a small thermosensitive glass bulb spray sprinkler available with various finishes and temperature ratings to meet design requirements. The special Polyester and Electroless Nickel PTFE (ENT) coatings can be used in decorative applications where colors are desired. In addition, these coatings have been investigated for installation in corrosive environments and are Listed and Approved as indicated in the Approval Charts.

2. LISTINGS AND APPROVALS



cULus Listed: Category VNIV



FM Approved: Class Series 2000



VdS Approved: Certificates G414009, G414010, G4040095, and 4880045



LPCB Approved: Certificate 096e/06



CE Certified: Standard EN 12259-1, certificate of constancy of performance 0832-CPR-S0021

China Approval: Approved according to China GB standard



MED Certified: Standard EN 12259-1, EC-certificate of conformity 0832-MED-1003

Refer to Approval Chart 1 and Design Criteria cULus Listing requirements, and refer to Approval Chart 2 and Design Criteria for FM Approval requirements that must be followed.

3. TECHNICAL DATA

Specifications:

Minimum Operating Pressure: 7 psi (0.5 bar)

Rated to 175 psi (12 bar) water working pressure

Factory tested hydrostatically to 500 psi (34.5 bar)

Thread size: 1/2" NPT, 15 mm BSP

Nominal K-Factor: 5.6 U.S. (80.6 metric**)

Glass-bulb fluid temperature rated to -65 °F (-55 °C)

Overall Length: 2-1/4" (58 mm)

*cULus Listing, FM Approval, and NFPA 13 installs require a minimum of 7 psi (0.5 bar). The minimum operating pressure for LPCB and CE Approvals ONLY is 5 psi (0.35 bar).

Material Standards:

Frame Casting: Brass UNS-C84400 or QM Brass

Deflector: Phosphor Bronze UNS-C51000 or Copper UNS-C19500

Bulb: Glass, nominal 3 mm diameter

Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with PTFE Tape

Screw: Brass UNS-C36000

Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400

For Polyester Coated Sprinklers: Belleville Spring-Exposed

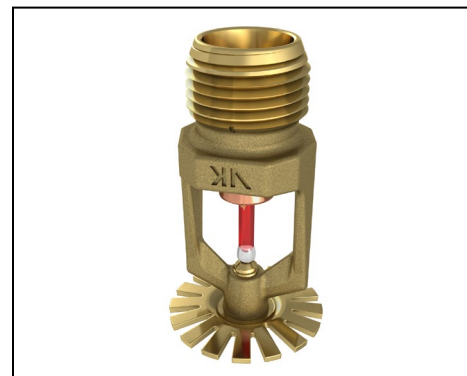
For ENT Coated Sprinklers: Belleville Spring-Exposed, Screw and Pipcap - ENT plated.

Ordering Information: (Also refer to the current Viking price list.)

Order Quick Response Pendent Sprinklers by first adding the appropriate suffix for the sprinkler finish and then the appropriate suffix for the temperature rating to the sprinkler base part number.

Finish Suffix: Brass = A, Chrome = F, White Polyester = M-/W, Black Polyester = M-/B, and ENT = JN

Temperature Suffix: 135 °F (57 °C) = A, 155 °F (68 °C) = B, 175 °F (79 °C) = D, 200 °F (93 °C) = E, 286 °F (141 °C) = G



WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov



TECHNICAL DATA

MICROFAST® QUICK RESPONSE PENDENT SPRINKLER VK302 (K5.6)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

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Visit the Viking website for the latest edition of this technical data page: www.vikinggroupinc.com

For example, sprinkler VK302 with a Brass finish and a 155 °F (68 °C) temperature rating = Part No. 12979AB

Available Finishes And Temperature Ratings: Refer to Table 1.

Accessories: (Also refer to the current Viking price list.)

Sprinkler Wrenches:

A. Standard Wrench: Part No. 21475M/B.

B. Wrench for Recessed Pendent Sprinklers: Part No. 13655W/B** (available since 2006)

C. Optional Protective Sprinkler Cap Remover/Escutcheon Installer Tool*** Part No. 15915 (available since 2010)

**A ½" ratchet is required (not available from Viking).

***Allows use from the floor by attaching a length of 1" diameter CPVC tubing to the tool. Ideal for sprinkler cabinets. Refer to Bulletin F_051808.

Sprinkler Cabinets:

A. Six-head capacity: Part No. 01724A (available since 1971)

B. Twelve-head capacity: Part No. 01725A (available since 1971)

4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

5. OPERATION

During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the pip cap and sealing spring assembly. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

6. INSPECTIONS, TESTS AND MAINTENANCE

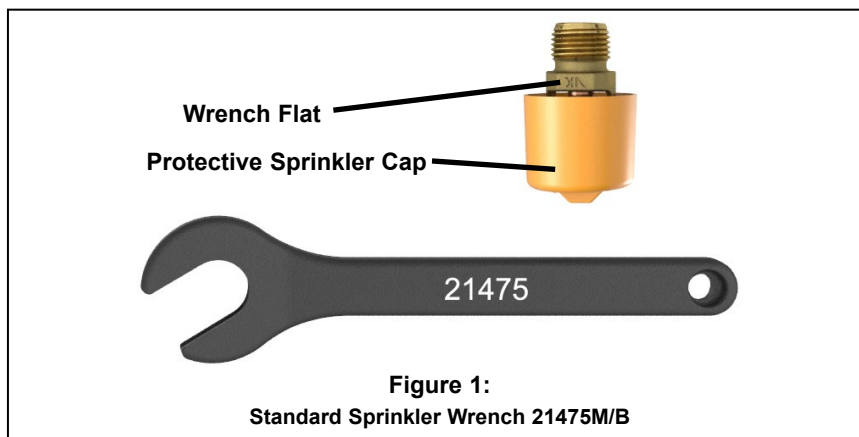
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

The Viking Microfast® Quick Response Pendent Sprinkler VK302 is available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.





TECHNICAL DATA

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Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue

Sprinkler Finishes: Brass, Chrome, White Polyester, Black Polyester, and ENT

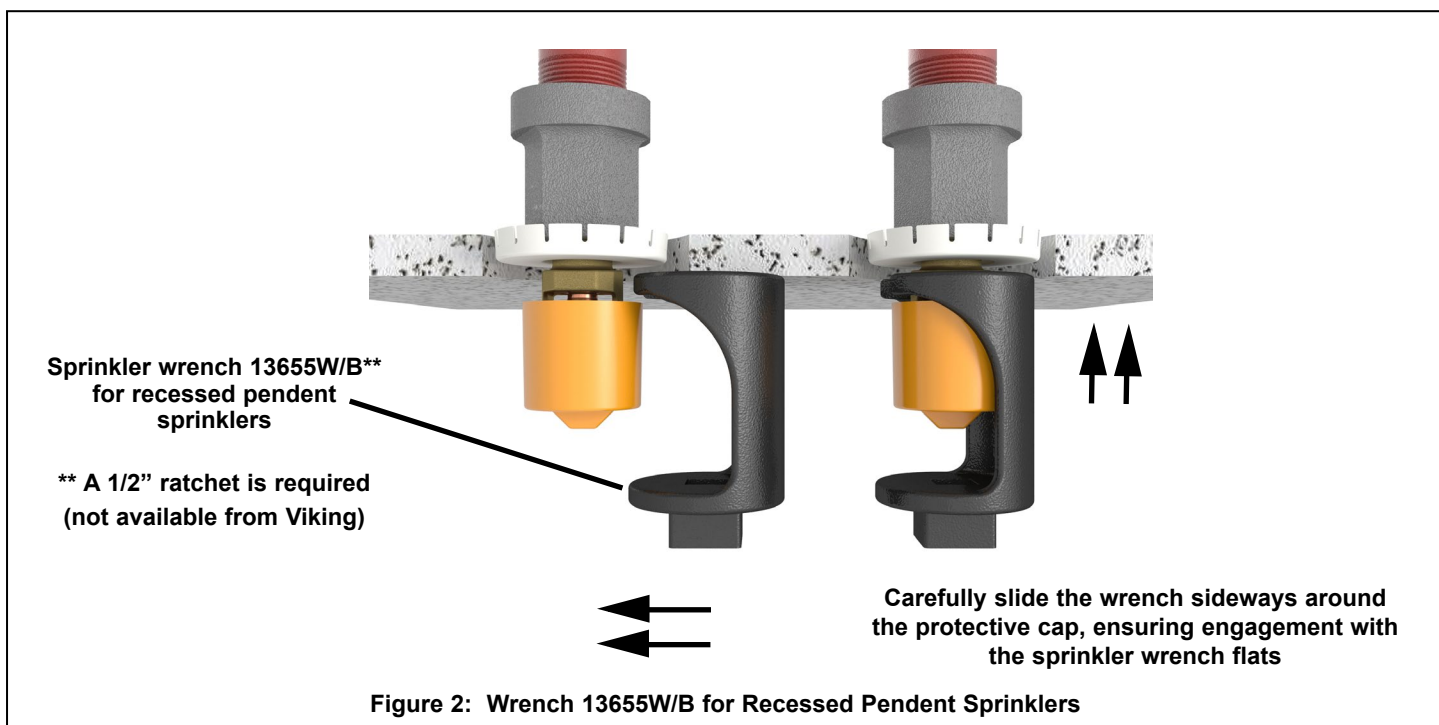
Corrosion-Resistant Coatings³: White Polyester, and Black Polyester. ENT in all temperature ratings except 135 °F (57 °C)

Footnotes

¹ The sprinkler temperature rating is stamped on the deflector.

² Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.

³ The corrosion-resistant coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Charts. These tests cannot and do not represent all possible corrosive environments. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. For automatic sprinklers, the coatings indicated are applied to the exposed exterior surfaces only. Note that the spring is exposed on sprinklers with Polyester and ENT coatings. For ENT coated automatic sprinklers, the waterway is coated.





TECHNICAL DATA

MICROFAST® QUICK RESPONSE PENDENT SPRINKLER VK302 (K5.6)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
 Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com
 Visit the Viking website for the latest edition of this technical data page: www.vikinggroupinc.com

Approval Chart 1 (UL) The Viking Microfast® Quick Response Pendent Sprinkler VK302 Maximum 175 PSI (12 Bar) WWP

KEY	
Temperature	→
Finish	→
Escutcheon (if applicable)	→

Base Part Number ¹	SIN	Sprinkler Style	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals ³ (Refer also to Design Criteria.)					
			NPT	BSP	U.S.	metric ²	Inches	mm	cULus ⁴	VdS	LPCB	CE ⁷	8	China Approval
12979	VK302	Pendent	1/2"	15 mm	5.6	80.6	2-1/4	58	A1Z, B1Y, D2, C2X	A1	A1Z, B1Y	D1Z, C1Y	D1	--
21354 ⁹	VK302	Pendent	--	15 mm	5.6	80.6	2-1/4	58	D3	--	--	--	--	D3

NOTICE - Product Below - Limited Availability (Contact Local Viking Office)

06662B	VK302	Pendent	1/2"	15 mm	5.6	80.6	2-1/4	58	A1Z, B1Y, D2, C2X	--	--	--	--	--
18021	VK302	Pendent	1/2"	15 mm	5.6	80.6	2-1/4	58	A1X, B1Y	A1	A1X, B1Y	D1X, C1Y ⁷	D1	--

Approved Temperature Ratings

A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C)
 B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)
 C - 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)
 D - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C)

Approved Finishes

1 - Brass, Chrome, White Polyester^{5,6}, Black Polyester^{5,6}
 2 - ENT⁵
 3 - Chrome

Approved Escutcheons

X - Standard surface-mounted escutcheon or the Viking Micromatic® Model E-1 Recessed Escutcheon
 Y - Standard surface-mounted escutcheon or recessed with the Viking Micromatic® Model E-1, E-2, or E-3 Recessed Escutcheon
 Z - Standard surface-mounted escutcheon

Footnotes

- ¹ Base part number shown. For complete part number, refer to Viking's current price schedule.
² Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
³ This table shows the listings and approvals available at the time of printing. Other approvals may be in process.
⁴ Listed by Underwriters Laboratories Inc. for use in the U.S. and Canada.
⁵ cULus Listed as corrosion-resistant.
⁶ Other colors are available on request with the same Listings and Approvals as the standard colors.
⁷ CE Certified, Standard EN 12259-1, EC-certificate of constancy of performance 0832-CPR-S0021.
⁸ MED Certified, Standard EN 12259-1, EC-0832-MED-1003.
⁹ Approved according to China GB Standard.

DESIGN CRITERIA - UL

(Also refer to Approval Chart 1 above.)

cULus Listing Requirements:

The Viking Microfast® Quick Response Pendent Sprinkler VK302 is cULus Listed as indicated in the Approval Chart for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers.

- Designed for use in Light and Ordinary occupancies.
- The sprinkler installation rules contained in NFPA 13 for standard spray pendent sprinklers must be followed.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to Form No. F_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.



TECHNICAL DATA

MICROFAST® QUICK RESPONSE PENDENT SPRINKLER VK302 (K5.6)

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Approval Chart 2 (FM) The Viking Microfast® Quick Response Pendent Sprinkler VK302 Maximum 175 PSI (12 Bar) WWP

KEY	
Temperature	Finish
A1X ←	Escutcheon (if applicable)

Base Part Number ¹	SIN	Sprinkler Style	Thread Size		Nominal K-Factor		Overall Length		FM Approvals ³ (Refer also to Design Criteria.)
			NPT	BSP	U.S.	metric ²	Inches	mm	
12979	VK302	Pendent	1/2"	15 mm	5.6	80.6	2-1/4	58	A1Z, B1Y, D2X, C2
21354 ⁶	VK302	Pendent	--	15 mm	5.6	80.6	2-1/4	58	C3

NOTICE - Product Below - Limited Availability (Contact Local Viking Office)

06662B	VK302	Pendent	1/2"	15 mm	5.6	80.6	2-1/4	58	A1Z, B1Y, D2X, C2
18021	VK302	Pendent	1/2"	15 mm	5.6	80.6	2-1/4	58	A1Z, B1Y

Approved Temperature Ratings

A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C)
 B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)
 C - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C)
 D - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C)

Approved Finishes

1 - Brass, Chrome, White Polyester⁴, and Black Polyester⁴
 2 - ENT⁵
 3 - Chrome

Approved Escutcheons

X - Standard surface-mounted escutcheon or the Viking Micromatic® Model E-1 Recessed Escutcheon
 Y - Standard surface-mounted escutcheon or recessed with the Viking Micromatic® Model E-1 or E-2 Recessed Escutcheon
 Z - Standard surface-mounted escutcheon

Footnotes

- ¹ Base part number shown. For complete part number, refer to Viking's current price schedule.
² Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
³ This table shows the FM Approvals available at the time of printing. Other approvals may be in process.
⁴ Other colors are available on request with the same Approvals as the standard colors.
⁵ FM approved as corrosion resistant.
⁶ Approved according to China GB Standard.

DESIGN CRITERIA - FM

(Also refer to Approval Chart 2 above.)

FM Approval Requirements:

The Viking Microfast® Quick Response Pendent Sprinkler VK302 is FM Approved as quick response **Non-storage** pendent sprinklers as indicated in the FM Approval Guide. For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including Data Sheet 2-0). FM Global Loss Prevention Data Sheets contain guidelines relating to, but not limited to: minimum water supply requirements, hydraulic design, ceiling slope and obstructions, minimum and maximum allowable spacing, and deflector distance below the ceiling.

NOTE: The FM installation guidelines may differ from cULus and/or NFPA criteria.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to Form No. F_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.



TECHNICAL DATA

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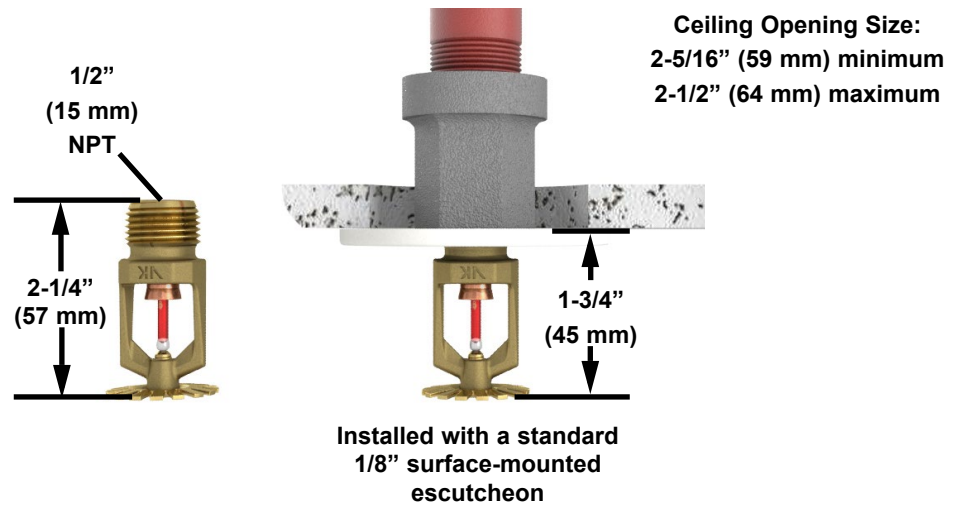


Figure 3: Sprinkler Dimensions with a Standard Escutcheon

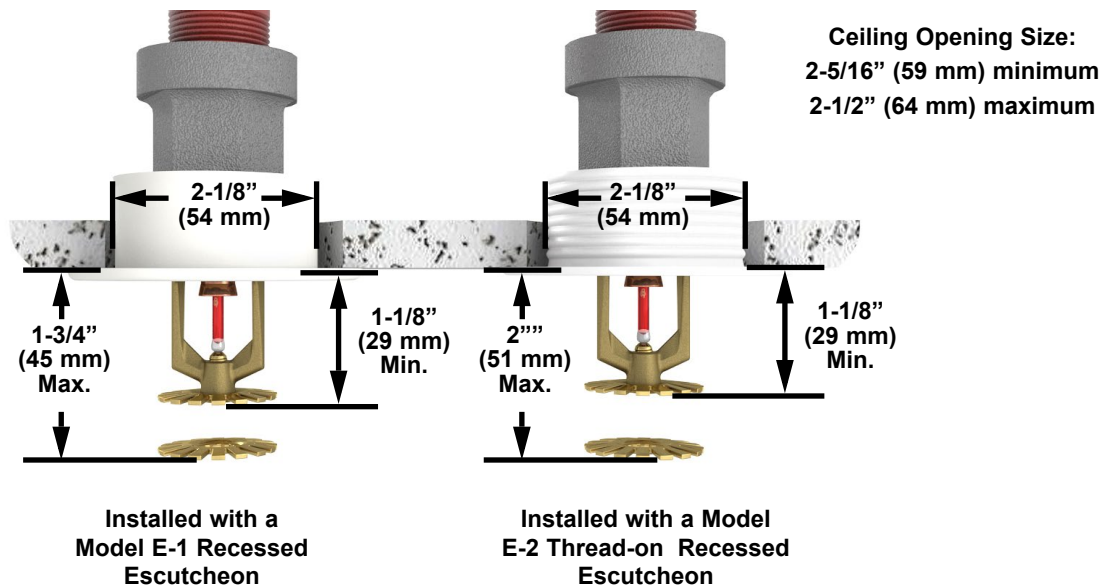


Figure 4: Sprinkler Dimensions with the Model E-1 and E-2 Recessed Escutcheons