



COSCO
Fire Protection

MATERIAL SUBMITTAL

AUTOMATIC FIRE SPRINKLER SYSTEMS

For

ICELAND SKATING RINK

**1430 DEL PASO BLVD.
SACRAMENTO, CA 95815**

COSCO JOB NO. 23RD2372

CONTRACT WITH:
ROEBBELEN CONTRACTING, INC.
1240 HAWKS FLIGHT COURT
EL DORADO HILLS, CA 95762



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COSCO
Fire Protection

SECTION 1

PIPE & FITTINGS

SCHEDULE 10 & 40



Always ready to protect your most valuable assets.

As the leading supplier of steel sprinkler pipe, we understand that there are no second chances in fire suppression. You need products of enduring quality and exceptional strength—plus reliable service. You need Bull Moose.

Bull Moose Fire Sprinkler Pipe Product Information

Nominal Pipe Size (Inches)		1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"	8"	NPS (In.)		1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
SCHEDULE 10	O.D. (in)	1.315	1.660	1.900	2.375	2.875	3.500	4.500	6.625	8.625	SCHEDULE 40		1.315	1.660	1.900	2.375	2.875	3.500	4.500
	I.D. (in)	1.097	1.442	1.682	2.157	2.635	3.260	4.260	6.357	8.249			1.049	1.380	1.610	2.067	2.469	3.068	4.026
	Empty Weight (lb/ft)	1.410	1.810	2.090	2.640	3.530	4.340	5.620	9.290	16.940			1.680	2.270	2.720	3.660	5.800	7.580	10.800
	Water Filled Weight (lb/ft)	1.820	2.518	3.053	4.223	5.893	7.957	11.796	23.038	40.086			2.055	2.918	3.602	5.114	7.875	10.783	16.316
	C.R.R.	15.27	9.91	7.76	6.27	4.92	3.54	2.50	1.158	1.805			1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Pieces per Lift	91	61	61	37	30	19	19	10	7			70	51	44	30	30	19	19
	Lift Weight (lbs) 21' lengths	2,695	2,319	2,677	2,051	2,224	1,732	2,242	1,951	2,490			2,470	2,431	2,513	2,306	3,654	3,024	4,309
	Lift Weight (lbs) 24' lengths	3,079	2,650	3,060	2,344	2,542	1,979	2,563	2,230	2,848			2,822	2,778	2,872	2,635	4,176	3,456	4,925
	Lift Weight (lbs) 25' lengths	3,208	2,760	3,187	2,442	2,648	2,062	2,670					2,940	2,894	2,992	2,745	4,350	3,601	5,130

SCHEDULE 10 & 40 ADVANTAGES:

- UL listed (US & Canada) and FM approved
- ASTM A135 and A795 Type E, Grade A Certified
- Complies with NFPA-13, 13R and 14
- Industry-leading hydraulic characteristics
- CRR of 1.0 and greater
- All pipe NDT weld tested

OTHER BENEFITS/SERVICES:

- We have the most stocking locations in the industry, for best delivery and availability
- Plain end or roll groove
- Eddy Guard II™ bacterial-resistant internal coating
- Custom length options
- Hot dipped galvanization
- Reddi-Pipe® red or black pipe eliminates field painting
- Compatible for use in wet, dry, preaction and deluge sprinkler systems
- The only maker with EPDs (to help earn LEED points).

Exclusive maker of Reddi-Pipe®
RED OR BLACK PAINTED PIPE.



cULus LISTED



800.325.4467
sales@BullMooseIndustries.com
BullMooseTube.com

Fire Sprinkler Pipe

Schedule 10 and Schedule 40

Submittal Data Sheet



FM Approved and Fully Listed Sprinkler Pipe

Wheatland's Schedule 10 and Schedule 40 steel fire sprinkler pipe is FM Approved and UL, C-UL and FM Listed.

Approvals and Specifications

Both products meet or exceed the following standards:

- ASTM A135, Type E, Grade A (Schedule 10)
- ASTM A795, Type E, Grade A (Schedule 40)
- NFPA 13

Manufacturing Protocols

Schedule 10 and Schedule 40 are subjected to the toughest possible testing protocols to ensure the highest quality and long-lasting performance.

Finishes and Coatings

All Wheatland black steel fire sprinkler pipe up to 6" receives a proprietary mill coating to ensure a clean, corrosion-resistant surface that outperforms and outlasts standard lacquer coatings. This coating allows the pipe to be easily painted, without special preparation. Schedule 10 and Schedule 40 can be ordered in black, or with hot-dip galvanizing, to meet FM/UL requirements for dry systems that meet the zinc coating specifications of ASTM A795 or A53. All Wheatland galvanized material is also UL Listed.

Product Marking

Each length of Wheatland fire sprinkler pipe is continuously stenciled to show the manufacturer, type of pipe, grade, size and length. Barcoding is acceptable as a supplementary identification method.

SCHEDULE 10 SPECIFICATIONS

NPS	NOM OD		NOM ID		NOMINAL WALL		NOMINAL WEIGHT		UL		PIECES
	in.	mm	in.	mm	in.	mm	lbs./ft.	kg/m	CRR*	Lift	
1¼	1.660	42.2	1.442	36.6	.109	2.77	1.81	2.69	7.3	61	
1½	1.900	48.3	1.682	42.7	.109	2.77	2.09	3.11	5.8	61	
2	2.375	60.3	2.157	54.8	.109	2.77	2.64	3.93	4.7	37	
2½	2.875	73.0	2.635	66.9	.120	3.05	3.53	5.26	3.5	30	
3	3.500	88.9	3.260	82.8	.120	3.05	4.34	6.46	2.6	19	
4	4.500	114.3	4.260	108.2	.120	3.05	5.62	8.37	1.6	19	
5	5.563	141.3	5.295	134.5	.134	3.40	7.78	11.58	1.5	13	
6	6.625	168.3	6.357	161.5	.134	3.40	9.30	13.85	1.0	10	
8	8.625	219.1	8.249	209.5	.188	4.78	16.96	25.26	2.1	7	

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

* The CRR is a ratio value used to measure the ability of a pipe to withstand corrosion. Threaded Schedule 40 steel pipe is used as the benchmark (value of 1.0).

SCHEDULE 40 SPECIFICATIONS

NPS	NOM OD		NOM ID		NOMINAL WALL		NOMINAL WEIGHT		UL		PIECES
	in.	mm	in.	mm	in.	mm	lbs./ft.	kg/m	CRR*	Lift	
1	1.315	33.4	1.049	26.6	.133	3.38	1.68	2.50	1.00	70	
1¼	1.660	42.2	1.380	35.1	.140	3.56	2.27	3.39	1.00	51	
1½	1.900	48.3	1.610	40.9	.145	3.68	2.72	4.05	1.00	44	
2	2.375	60.3	2.067	52.5	.154	3.91	3.66	5.45	1.00	30	

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

* The CRR is a ratio value used to measure the ability of a pipe to withstand corrosion. Threaded Schedule 40 steel pipe is used as the benchmark (value of 1.0).



SUBMITTAL INFORMATION

PROJECT:

ENGINEER:

LOCATIONS:

CONTRACTOR:

SPECIFICATION REFERENCE:

COMMENTS:

☐ BLACK

☐ HOT-DIP GALVANIZED



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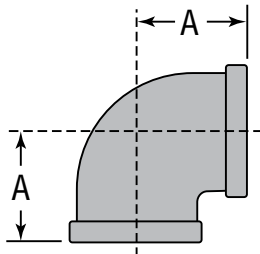


Wheatland Tube
A DIVISION OF ZEKELMAN INDUSTRIES

WFS-051516

FIG. 3201

90° Elbow



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

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.

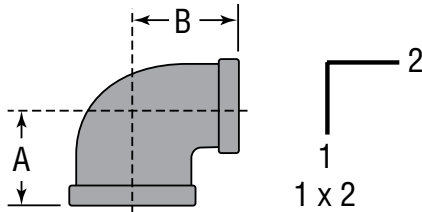
PROJECT INFORMATION

APPROVAL STAMP

Project:	<input type="checkbox"/> Approved
Address:	<input type="checkbox"/> Approved as noted
Contractor:	<input type="checkbox"/> Not approved
Engineer:	Remarks:
Submittal Date:	
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.

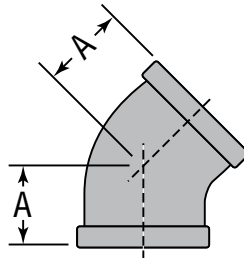
PROJECT INFORMATION

APPROVAL STAMP

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

FIG. 3202

45° Elbow



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FIGURE 3202 - 45° 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	1.12	0.46
25	3450	28.44	0.21
1¼	500	1.29	0.73
32	3450	32.76	0.33
1½	500	1.43	0.92
40	3450	36.32	0.42
2	500	1.68	1.50
50	3450	42.67	0.68

▲ – 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.

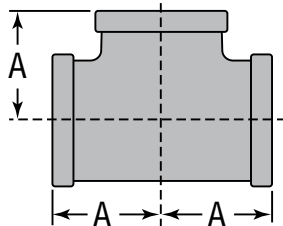
PROJECT INFORMATION

APPROVAL STAMP

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

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	500	1.50	0.85
25	3450	38.10	0.39
1¼	500	1.75	1.22
32	3450	44.45	0.55
1½	500	1.94	1.55
40	3450	49.27	0.70
2	500	2.25	2.45
50	3450	57.15	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.

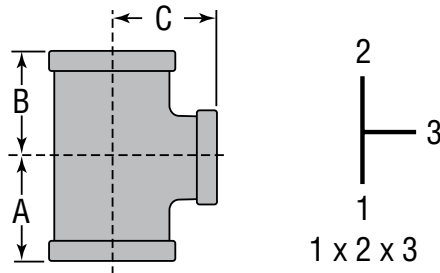
PROJECT INFORMATION

APPROVAL STAMP

Project:	<input type="checkbox"/> Approved
Address:	<input type="checkbox"/> Approved as noted
Contractor:	<input type="checkbox"/> Not approved
Engineer:	Remarks:
Submittal Date:	
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

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

FIG. 3205R

Reducing Tee

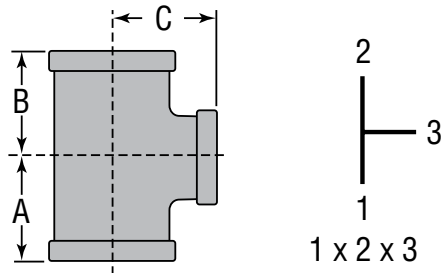


FIGURE 3205R - REDUCING TEE					
Nominal Size	Max. Working Pressure▲	Dimensions			Approx. Wt. Each
1 x 2 x 3		A	B	C	
In. (mm)	PSI (kPa)	In. (mm)	In. (mm)	In. (mm)	Lbs. (kg)
1¼ x 1¼ x 2*	500	2.10	2.10	1.90	1.75
32 x 32 x 50	3450	53.34	53.34	48.26	0.79
1½ x 1 x ½	500	1.41	1.34	1.66	0.95
40 x 25 x 15	3450	35.81	34.04	42.16	0.43
1½ x 1 x ¾	500	1.52	1.37	1.75	1.14
40 x 25 x 20	3450	38.61	34.80	44.45	0.52
1½ x 1 x 1	500	1.65	1.50	1.80	1.17
40 x 25 x 25	3450	41.91	38.10	45.72	0.53
1½ x 1 x 1¼	500	1.82	1.67	1.88	1.34
40 x 25 x 32	3450	46.23	42.42	47.75	0.61
1½ x 1 x 1½	500	1.94	1.80	1.94	1.45
40 x 25 x 40	3450	49.28	45.72	49.28	0.66
1½ x 1¼ x ½	500	1.41	1.34	1.66	1.05
40 x 32 x 15	3450	35.81	34.04	42.16	0.48
1½ x 1¼ x ¾	500	1.52	1.45	1.75	1.15
40 x 32 x 20	3450	38.61	36.83	44.45	0.5
1½ x 1¼ x 1	500	1.65	1.58	1.80	1.25
40 x 32 x 25	3450	41.91	40.13	45.72	0.57
1½ x 1¼ x 2*	500	2.16	2.10	2.02	1.90
40 x 32 x 50	3450	54.86	53.34	51.30	0.86
1½ x 1½ x ½	500	1.41	1.41	1.16	1.15
40 x 40 x 15	3450	35.81	35.81	29.46	0.52
1½ x 1½ x ¾	500	1.52	1.52	1.75	1.24
40 x 40 x 20	3450	38.61	38.61	44.45	0.56
1½ x 1½ x 1	500	1.65	1.65	1.80	1.30
40 x 40 x 25	3450	41.91	41.91	45.72	0.59
1½ x 1½ x 1¼	500	1.82	1.82	1.88	1.48
40 x 40 x 32	3450	46.23	46.23	47.75	0.67

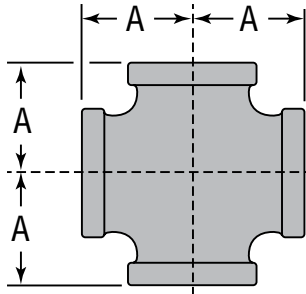
FIGURE 3205R - REDUCING TEE					
Nominal Size	Max. Working Pressure▲	Dimensions			Approx. Wt. Each
1 x 2 x 3		A	B	C	
In. (mm)	PSI (kPa)	In. (mm)	In. (mm)	In. (mm)	Lbs. (kg)
1½ x 1½ x 2*	500	2.16	2.16	2.02	1.98
40 x 40 x 50	3450	54.86	54.86	51.30	0.90
2 x 1 x 2	500	2.25	2.02	2.25	2.15
50 x 25 x 50	3450	57.15	51.31	57.15	0.98
2 x 1¼ x 2	500	2.25	2.10	2.25	2.30
50 x 32 x 50	3450	57.15	53.34	57.15	1.04
2 x 1½ x ½	500	1.49	1.41	1.88	1.50
50 x 40 x 15	3450	37.85	35.81	47.75	0.68
2 x 1½ x ¾	500	1.60	1.52	1.97	1.62
50 x 40 x 20	3450	40.64	38.61	50.04	0.73
2 x 1½ x 1	500	1.73	1.65	2.02	1.64
50 x 40 x 25	3450	43.94	41.91	51.31	0.74
2 x 1½ x 1¼	500	1.90	1.82	2.10	1.80
50 x 40 x 32	3450	48.26	46.23	53.34	0.82
2 x 1½ x 1½	500	2.02	1.94	2.16	2.00
50 x 40 x 40	3450	51.31	49.28	54.86	0.91
2 x 1½ x 2	500	2.25	2.16	2.25	2.35
50 x 40 x 50	3450	57.15	54.86	57.15	1.07
2 x 2 x ½	500	1.49	1.49	1.88	1.60
50 x 50 x 15	3450	37.85	37.85	47.75	0.73
2 x 2 x ¾	500	1.60	1.60	1.97	1.68
50 x 50 x 20	3450	40.64	40.64	50.04	0.76
2 x 2 x 1	500	1.73	1.73	2.02	1.85
50 x 50 x 25	3450	43.94	43.94	51.31	0.84
2 x 2 x 1¼	500	1.90	1.90	2.10	2.04
50 x 50 x 32	3450	48.26	48.26	53.34	0.93
2 x 2 x 1½	500	2.02	2.02	2.16	2.18
50 x 50 x 40	3450	51.31	51.31	54.86	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. 3207

Cross



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

FIGURE 3207 - CROSS

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	0.98
25	3450	38.10	0.44
1¼	500	1.75	1.50
32	3450	44.45	0.68
1½	500	1.94	1.90
40	3450	49.27	0.86
2	500	2.25	2.95
50	3450	57.15	1.34

▲ – 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.

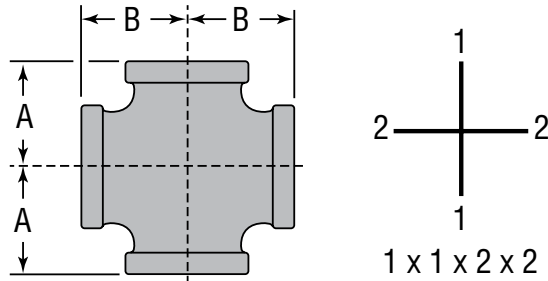
PROJECT INFORMATION

APPROVAL STAMP

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

FIG. 3207R

Reducing Cross



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

FIGURE 3207R - REDUCING CROSS

Nominal Size	Max. Working Pressure▲	Dimensions		Approx. Wt. Each
1 x 1 x 2 x 2		A	B	
In. (mm)	PSI (kPa)	In. (mm)	In. (mm)	Lbs. (kg)
1¼ x 1¼ x 1 x 1 32 x 32 x 25 x 25	500 3450	1.58 40.13	1.67 42.41	1.27 0.58
1½ x 1½ x 1 x 1 40 x 40 x 25 x 25	500 3450	1.65 41.91	1.80 45.72	1.48 0.67
2 x 2 x 1 x 1 50 x 50 x 25 x 25	500 3450	1.73 43.94	2.02 51.30	2.10 0.95

▲ – 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.

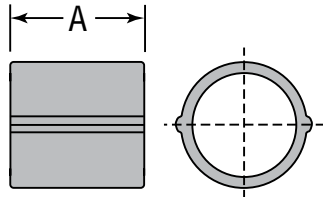
PROJECT INFORMATION

APPROVAL STAMP

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

FIG. 3221

Coupling



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

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.

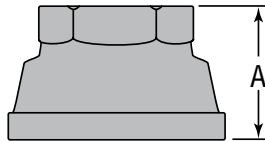
PROJECT INFORMATION

APPROVAL STAMP

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

FIG. 3221R

Reducing Coupling



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

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

▲ – 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.

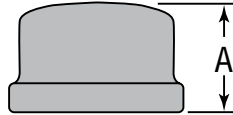
PROJECT INFORMATION

APPROVAL STAMP

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

FIG. 3224

Cap



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

FIGURE 3224 - CAP

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	1.16	0.32
25	3450	29.46	0.15
1¼	500	1.28	0.43
32	3450	32.51	0.20
1½	500	1.33	0.60
40	3450	33.78	0.27
2	500	1.45	0.91
50	3450	36.83	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.

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:	<input type="checkbox"/> Approved
Address:	<input type="checkbox"/> Approved as noted
Contractor:	<input type="checkbox"/> Not approved
Engineer:	Remarks:
Submittal Date:	
Notes 1:	
Notes 2:	

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 – 4"/DN32 – DN100

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
- For exceptions reference section 6.0 Notifications

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



104-1a/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 per ASTM

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)

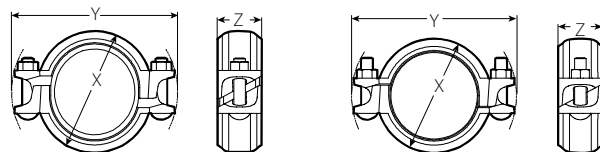
- ☐ Standard: Carbon steel oval neck track bolt(s) meeting the mechanical property requirements of ASTM A449 (imperial) and ISO 898-1 Class 9.8 (M10-M16) Class 8.8 (M20 and greater). Carbon steel hex nuts meeting the mechanical property requirements of ASTM A563 Grade B (imperial) and ASTM A563M Class 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	Qty.	Bolt/Nut		Dimensions					Weight
Nominal	Actual Outside Diameter					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	¾ × 2 M10 × 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	¾ × 2 M10 × 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	¾ × 2 ½ M10 × 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	¾ × 2 ½ M10 × 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	¾ × 2 ½ M10 × 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	¾ × 2 ½ M10 × 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	¾ × 2 ½ M10 × 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	¾ × 2 ½ M10 × 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 × 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 × 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 × 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 × 83	8.38 213	10.38 264	7.88 200	10.13 257	2.25 57	6.0 2.7	
	6.250 159.0	365 2517	11198 49753	0.17 4.32	2	½ × 3 ¼ M12 × 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 × 83	8.00 203	10.25 260	7.75 197	10.13 257	2.25 57	6.0 2.7	
8 DN200	8.625 219.1	365 2517	21326 94863	0.17 4.32	2	¾ × 4 M16 × 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	¾ × 4 M16 × 101	10.63 270	13.25 337	10.25 260	10.13 257	2.63 67	11.4 5.2	
10 DN250	10.750 273.0	300 2068	27229 121121	0.25 6.4	2	⅞ × 6 ½ M22 × 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 × 165	16.00 406	19.00 483	15.50 394	19.13 486	2.75 70	27.6 12.5	

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.

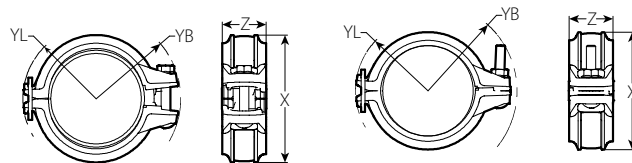
³ The allowable pipe end separation dimension shown is for system layout purposes only. Style 009N couplings are considered rigid connections and will not accommodate expansion or contraction of the piping system.

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.
- The Allowable Pipe End Separation dimension shown is for system layout purposes only. Style 009N or Style 109 Installation-Ready rigid couplings are considered rigid connections and will not accommodate expansion/contraction or angular movement of the piping system. Contact Victaulic for torsional resistance information.

4.1 DIMENSIONS

Style 109 One-Bolt *Installation-Ready* Coupling



Style 109 Pre-Assembled

Style 109 Joint Assembled

Size		Max. Working Pressure	Max. End Load	Allow. Pipe End Sep. Maximum	Bolt/Nut		Dimensions								Weight
Nominal	Actual Outside Diameter				Qty.	Size	Pre-Assembled				Assembled				Approx. (Each)
							YL	YB	X	Z	YL	YB	X	Z	
inches DN	inches mm	psi kPa	Lbs. N	inches mm		inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	lb kg
1 1/4 DN32	1.660 42.4	365 2517	790 3514	0.10 2.54	1	3/8 x 2 1/4 M10 x 57	1.97 50	2.49 63	3.17 81	1.95 50	1.93 49	2.59 66	2.84 72	1.95 50	1.5 0.7
1 1/2 DN40	1.900 48.3	365 2517	1035 4603	0.10 2.54	1	3/8 x 2 1/4 M10 x 57	2.13 54	2.60 66	3.41 87	1.95 50	2.1 53	2.68 68	3.07 78	1.95 50	1.6 0.7
2 DN50	2.375 60.3	365 2517	1617 7192	0.12 3.048	1	3/8 x 2 1/4 M10 x 57	2.32 59	2.85 72	3.76 96	1.98 50	2.29 58	2.95 75	3.45 88	1.98 50	1.9 0.9
2 1/2	2.875 73.0	365 2517	2370 10540	0.12 3.048	1	3/8 x 2 1/4 M10 x 57	2.63 67	3.09 78	4.29 109	1.99 51	2.61 66	3.15 80	3.93 100	1.99 51	2.1 1.0
3 DN80	3.500 88.9	365 2517	3512 15620	0.12 3.048	1	7/16 x 2 3/4 M11 x 69	2.93 74	3.53 90	5.13 130	2.07 53	2.89 73	3.78 96	4.67 119	2.07 53	2.7 1.2
4 DN100	4.500 114.3	300 2068	4771 21223	0.17 4.318	1	7/16 x 2 3/4 M11 x 69	3.47 88	4.01 102	6.03 153	2.08 53	3.43 87	4.22 107	5.56 141	2.08 53	3.5 1.6

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.
- The Allowable Pipe End Separation dimension shown is for system layout purposes only. Style 009N or Style 109 Installation-Ready rigid couplings are considered rigid connections and will not accommodate expansion/contraction or angular movement of the piping system. Contact Victaulic for torsional resistance information.

5.0 PERFORMANCE

Style 009N Two-Bolt *Installation-Ready* Coupling Listings/Approvals⁶

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
3 DN80	3.500 88.9	365 2517 25	365 2517 25	365 2517 25	365 2517 25
4 DN100	4.500 114.3	300 2068 20	365 2517 25	300 2068 20	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
	3 – 4 DN80 – DN100	300 2068 20	300 2068 20
Easy-Flow	1 ¼ – 2 DN32 – DN50	N/A	300 2068 20
	3 – 4 DN80 – DN100	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 – 4 DN40 – DN100	300 2068 20	300 2068 20
GL	1 ¼ – 2 DN32 – DN50	N/A	300 2068
MF	1 ¼ – 4 DN32 – DN100	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

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.

5.3 PERFORMANCE (CONTINUED)

Specialty Pipe

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

Pipe Type	Size	Pressure Rating	
	inches	cULus	FM
	DN	psi kPa bar	psi kPa bar
TF	2 1/2 – 4 73.00 mm – DN100	N/A	300 2068 20
WG7, WG7E	1 1/4 – 2 DN32 – DN50	N/A	300 2068 20
	3 – 4 DN80 – DN100	N/A	300 2068 20
WLS	1 1/4 – 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.

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

[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](#)

[I-IMPACT: Impact Tool Usage Guidelines](#)

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

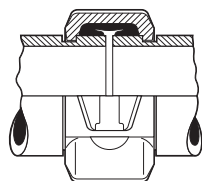
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Victaulic® Flexible Coupling

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
- For exceptions see section 6.0 Notifications

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)

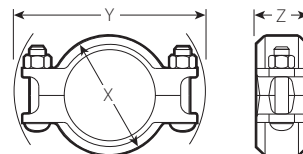
Standard: Carbon steel oval neck track bolts meeting the mechanical property requirements of ASTM A449 (imperial) and ISO 898-1 Class 9.8 (M10-M16) Class 8.8 (M20 and greater). Carbon steel hex nuts meeting the mechanical property requirements of ASTM A563 Grade B (imperial - Heavy Hex nuts) and ASTM A563M Class 9 (metric - hex nuts). Track bolts and hex nuts are zinc electroplated per ASTM B633 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 Flexible Coupling



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	⅝ x 2 M10 x 51	2.38 61	4.27 108	1.77 45	1.3 0.6
1 ¼ DN32	1.660 42.4	0-0.06 0-1.6	2°-10'	0.45 38	2	⅝ x 2 M10 x 51	2.68 68	4.61 117	1.77 45	1.4 0.6
1 ½ DN40	1.900 48.3	0-0.06 0-1.6	1°-56'	0.40 33	2	⅝ 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	⅝ x 2 M10 x 51	3.43 87	5.22 133	1.88 48	1.7 0.8
2 ½	2.875 73.0	0-0.06 0-1.6	1°-15'	0.26 22	2	⅝ 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	⅝ 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	½ x 2 ¾ M12 x 70	4.50 114	7.00 178	1.88 48	2.9 1.3
3 ½ DN90	4.000 101.6	0-0.06 0-1.6	0°-54'	0.19 16	2	½ x 2 ¾ 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	½ x 2 ¾ 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	½ x 2 ¾ 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	⅝ x 3 ¼ M16 x 83	6.13 156	9.43 240	2.13 54	5.5 2.5
	5.250 133.0	0-0.13 0-3.2	1°-21'	0.28 24	2	⅝ x 3 ¼ 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	⅝ x 3 ¼ M16 x 83	6.80 173	9.59 244	2.13 54	6.3 2.9
5	5.563 141.3	0-0.13 0-3.2	1°-18'	0.27 23	2	⅝ x 3 ¼ M16 x 83	6.88 175	10.07 256	2.13 54	5.8 2.6
	6.000 152.4	0-0.13 0-3.2	1°-12'	0.21 18	2	⅝ x 3 ¼ M16 x 83	7.38 187	10.48 266	1.88 48	6.2 2.8
	6.250 159.0	0-0.13 0-3.2	1°-9'	0.24 20	2	⅝ x 3 ¼ 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	⅝ x 3 ¼ M16 x 83	7.84 199	10.66 271	2.08 53	6.6 3.0
6 DN150	6.625 168.3	0-0.13 0-3.2	1°-5'	0.23 18	2	⅝ x 3 ¼ M16 x 83	8.00 203	11.07 281	2.13 54	7.0 3.2
200A ⁴	216.3	0-0.13 0-3.2	0°-51'	0.18 46	2	¾ x 4 ¼ 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	¾ x 4 ¼ 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 ¾ - 3 ½"/DN20 - DN90; 25% for 4"/DN100 and larger.

⁴ Japanese Industrial Standard (JIS) size

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 Flexible Coupling

Size		Maximum Working Pressure ⁵	Maximum End Load ⁵
Nominal inches DN	Actual Outside Diameter inches mm		
1 DN25	1.315 33.7	500 3447	680 3025
1 ¼ DN32	1.660 42.4	500 3447	1080 4805
1 ½ DN40	1.900 48.3	500 3447	1420 6320
2 DN50	2.375 60.3	500 3447	2215 9860
2 ½	2.875 73.0	500 3447	3245 14440
DN65	3.000 76.1	500 3447	3535 15730
3 DN80	3.500 88.9	500 3447	4800 21360
3 ½ DN90	4.000 101.6	500 3447	6300 28035
4 DN100	4.500 114.3	500 3447	7950 35380
	4.250 108.0	450 3103	6380 28395
	5.000 127.0	450 3103	8820 39250
	5.250 133.0	450 3103	9735 43325
DN125	5.500 139.7	450 3103	10665 47460
5	5.563 141.3	450 3103	10935 48660
	6.000 152.4	450 3103	12735 56670
	6.250 159.0	450 3103	13800 61405
6 DN150	6.625 168.3	450 3103	15525 69085
	6.500 165.1	450 3103	14930 66412
200A ⁴	216.3	450 3103	25625 113986
8 DN200	8.625 219.1	450 3103	26280 116945

⁴ Japanese Industrial Standard (JIS) size

⁵ 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



- Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping 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.

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 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 Piping 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](#)

[I-ENDCAP: Victaulic End Cap Installation Safety 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

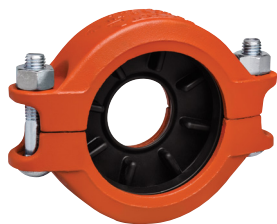
Refer to the Warranty section of the current Price List or contact Victaulic for details.

Trademarks

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.

Victaulic® Reducing Coupling

Style 750



1.0 PRODUCT DESCRIPTION

Available Sizes

- 2 x 1" through 10 x 8"/DN50 x DN25 through DN250 x DN200

Pipe Material

- Carbon steel
- For exceptions reference section 6.0 Notifications

NOTE

- For other pipe materials, contact Victaulic.

Maximum Working Pressure

- 500 psi/3447 kPa
- Working pressure dependent on material, wall thickness and size of pipe

Application

- Joins Original Groove System (OGS) roll grooved and cut grooved pipe, as well as OGS grooved fittings, valves and accessories
- Permits direct reduction on piping run
- Optional steel washer prevents telescoping of the smaller pipe inside the larger pipe during vertical system assembly

Pipe Preparation

- Cut or roll grooved in accordance with [publication 25.01](#): Victaulic Standard Groove Specifications.

2.0 CERTIFICATION/LISTINGS



EN 10311
CPR (EU)
No. 305/2011



BS EN 10311
CPR (UK)
2019 No. 465



NOTE

- Download [publication 10.01](#) for Fire Protection Certifications/Listings Reference Guide.

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

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 conforming to ASTM A153.

Optional: Contact Victaulic with your requirements.

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 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.

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 (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 ZN/FE5, finish Type III (imperial) or Type II (metric).

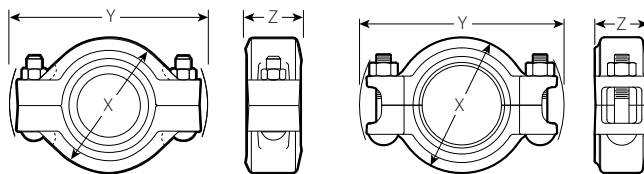
Optional: Stainless steel oval neck track bolts meeting the mechanical property requirements of ASTM F593, Group 2 (316 stainless steel), condition CW. Stainless steel heavy nuts meeting the mechanical property requirements of ASTM F594, Group 2 (316 stainless steel), condition CW, with galling reducing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

Assembly Washer (optional): Galvanized carbon steel.

² Optional bolts/nuts are available in imperial size only

4.0 DIMENSIONS

Style 750 Reducing Coupling



Size				Pipe End Separation ³		Deflect. From CL ³		Bolt/Nut		Dimensions			Weight	
Nominal inches DN		Actual Outside Diameter inches mm		Allowable inches mm	Per Cplg. Degrees	Pipe in/ft mm/m	Qty.	Size inches mm	X inches mm	Y inches mm	Z inches mm	Approximate (Each) lb kg		
2 DN50	x	1 DN25	x	2.375 60.3	1.315 33.7	0 - 0.07 0 - 1.8	0° - 57'	0.20 17	2	3⁄8 x 2	3.38 85	5.28 134	1.88 48	2.7 1.2
		1 ½ DN40		1.900 48.3	0 - 0.07 0 - 1.8	0° - 57'	0.20 17	2	3⁄8 x 2	3.38 85	5.28 134	1.88 48	2.0 1.0	
2 ½	x	2 DN50	x	2.875 73.0	2.375 60.3	0 - 0.07 0 - 1.8	0° - 47'	0.16 14	2	3⁄8 x 2	4.00 102	5.93 151	1.88 48	3.1 1.4
DN65	x	2 DN50	x	3.000 76.1	2.375 60.3	0 - 0.07 0 - 1.8	0° - 47'	0.16 14	2	½ x 2 ¾	4.38 111	6.63 168	1.88 48	4.6 2.1
		3 DN80		x	2.375 60.3	0 - 0.07 0 - 1.8	0° - 39'	0.13 11	2	½ x 2 ¾	4.75 121	7.13 181	1.88 48	4.9 2.2
2 ½	2.875 73.0	0 - 0.07 0 - 1.8	0° - 39'		0.13 11	2	½ x 2 ¾	4.75 121	7.13 181	1.88 48	4.3 2.0			
DN65	3.00 76.1	0 - 0.07 0 - 1.8	0° - 39'		0.13 11	2	½ x 2 ¾	4.75 121	7.13 181	1.88 48	4.2 1.9			
	4 DN100	x	2.375 60.3		0 - 0.13 0 - 3.2	1° - 19'	0.28 25	2	5⁄8 x 3 ¼	6.25 159	8.90 226	2.25 57	8.1 3.7	
2 ½	2.875 73.0		0 - 0.13 0 - 3.2	1° - 19'	0.28 25	2	5⁄8 x 3 ¼	6.25 159	8.90 226	2.25 57	8.6 3.9			
DN65	3.000 76.1		0 - 0.13 0 - 3.2	1° - 19'	0.28 25	2	5⁄8 x 3 ¼	6.25 159	8.90 226	2.25 57	6.9 3.1			
	3 DN80		3.500 88.9	0 - 0.13 0 - 3.2	1° - 19'	0.28 25	2	5⁄8 x 3 ¼	6.00 152	8.90 226	2.25 57	6.7 3.0		
5	x		4 DN100	x	5.563 141.3	4.500 114.3	0 - 0.13 0 - 3.2	1° - 3'	0.22 19	2	¾ x 4 ¼	7.18 182	10.70 272	2.13 54
165.1	x	4 DN100	x	6.500 165.1	4.500 114.3	0 - 0.13 0 - 3.2	0° - 55'	0.19 16	2	¾ x 4 ¼	8.63 219	11.90 302	2.25 57	15.2 6.9
		6 DN150		x	6.625 168.3	4.500 114.3	0 - 0.13 0 - 3.2	0° - 52'	0.18 15	2	¾ x 4 ¼	8.63 219	11.90 302	2.25 57
5	x	5	x		5.563 141.3	0 - 0.13 0 - 3.2	0° - 52'	0.18 15	2	¾ x 4 ¼	8.31 211	11.90 302	2.25 57	12.9 5.9
		8 DN200		x	6.500 165.1	0 - 0.13 0 - 3.2	0° - 38'	0.13 11	2	7⁄8 x 5	10.75 273	14.88 378	2.50 64	23.2 10.5
6	x	6 DN150	x		6.625 168.3	0 - 0.13 0 - 3.2	0° - 38'	0.13 11	2	7⁄8 x 5	10.81 275	14.88 378	2.50 64	22.4 10.2
		10 DN250		x	8 DN200	x	10.750 273.0	8.625 219.1	0 - 0.13 0 - 3.2	0° - 25'	0.90 8	2	1 x 5 ½	13.12 333

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; and 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 750 Reducing Coupling

Size				Maximum Working Pressure ⁴	Maximum End Load ⁴
Nominal inches DN		Actual Outside Diameter inches mm			
2 DN50	x	1 DN25		350 2413	500 2225
		1 ½ DN40		350 2413	1000 4450
2 ½	x	2 DN50		500 3447	2215 9850
DN65	x	2 DN50		350 2413	1550 6900
3 DN80	x	2 DN50		350 2413	1550 6900
		2 ½		500 3447	3250 14460
		DN65		350 2413	2475 11010
4 DN100	x	2 DN50		350 2413	1550 6900
		2 ½		500 3447	2275 10125
		DN65		350 2413	2475 11014
5	x	4 DN100		350 2413	5565 24765
165.1	x	4 DN100		350 2413	5565 24765
6 DN150	x	4 DN100		350 2413	5565 24765
		5		500 3447	8500 37825
8 DN200	x	6 DN150		350 2413	11610 51645
		6		500 3447	12060 53645
10 DN250	x	8 DN200		350 2413	20450 90970

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. Contact Victaulic for performance on other pipe and material. Maximum working pressure rating based on larger pipe size. Maximum end load rating based on smaller pipe size.

NOTES

- WARNING: FOR ONE-TIME FIELD USE ONLY the Maximum Joint Working Pressure may be increased to 1 ½ times the figures shown.
- For joint pressure ratings on additional carbon steel wall thicknesses see [publication 06.15](#).

5.1 PERFORMANCE

Flow Data - Head Loss

Equivalent lengths of standard weight steel pipe are shown in the tables. All data is based on water flowing at +60°F/+16°C.

Flow Reducing

Size	Equivalent Pipe Length
Nominal inches DN	Small Diameter ft m
2 DN50	1 DN25 5.9 1.8
	1 ½ DN40 2.0 0.6
2 ½ x DN50	2 DN50 1.9 0.6
DN65	2 DN50 1.9 0.6
3 DN80	2 DN50 5.5 1.7
	2 ½ 1.2 3.8
	DN65 3.8 1.2
4 DN100	2 DN50 6.0 1.8
	2 ½ 6.0 1.8
	DN65 6.0 1.8
	3 DN80 6.0 1.8
5 x DN100	4 DN100 3.0 0.9
165.1 x DN100	4 DN100 6.0 1.8
6 DN150	4 DN100 6.0 1.8
	5 4.5 1.4
8 DN200	165.1 6 7.3 2.2
	6 DN150 7.3 2.2
10 DN250	8 DN200 8.7 2.7

Flow Expanding

Size	Equivalent Pipe Length
Nominal inches DN	Small Diameter ft m
1 DN25	2 DN50 2.7 0.8
1 ½ DN40	2 DN50 1.9 0.6
2 DN50	2 ½ DN50 1.0 0.3
	DN65 1.0 0.3
	3 DN80 3.5 1.1
	4 DN100 3.0 0.9
2 ½ x DN80	3 DN80 2.5 0.8
	4 DN100 3.0 0.9
DN65	3 DN80 2.5 0.8
	4 DN100 3.0 0.9
3 DN80	4 DN100 2.5 0.8
4 DN100	5 3.3 1.0
	165.1 4.6 1.4
	6 DN150 4.6 1.4
5 x DN150	6 DN150 2.3 0.7
165.1 x DN200	8 DN200 5.4 1.7
6 DN150	8 DN200 6.0 1.8
8 DN200	10 DN250 6.3 1.9

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.

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.
 - Only No. 61 bull plugs shall be used with Style 750 reducing couplings in systems where a vacuum may develop.
- Failure to follow these instructions could result in death or serious personal injury and property damage.

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

[05.01: Victaulic Seal Selection Guide](#)

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

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

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

[26.01: Victaulic Design Data](#)

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

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

User Responsibility for Product Selection and Suitability

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Warranty

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Trademarks

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Material Specifications:

Fitting:

Ductile iron conforming to ASTM A-536, grade 65-45-12.

Fitting Coating:

Orange enamel

Red enamel in Europe, Middle East, Africa, and India

Optional: Hot dipped galvanized

Approvals/Listings:



Product Description:

FireLock® products comprise a unique system specifically designed for fire protection services. FireLock full-flow elbows and tees feature CAD-developed, hydrodynamic design, affording a shorter center-to-end dimension than standard fittings. A noticeable bulge allows the water to make a smoother turn to maintain similar flow characteristics as standard full flow fittings.

FireLock fittings are designed for use exclusively with Victaulic couplings that have been Listed or Approved for Fire Protection Services. Use of other couplings or flange adapters may result in bolt pad interference.

Refer to the appropriate listing agency or approval body for pressure ratings. Pressure ratings vary by agency.

Job/Owner

System No.	
Location	

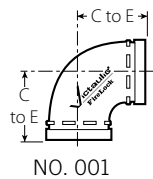
Contractor

Submitted By	
Date	

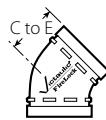
Engineer

Spec Section	
Paragraph	
Approved	
Date	

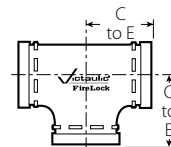
Dimensions:



NO. 001



NO. 003



NO. 002



No. 006

Nominal Size inches mm	Actual Outside Diameter inches mm	No. 001 90° Elbow		No. 003 45° Elbow		No. 002 Straight Tee		No. 006 Cap	
		C to E inches mm	Approx. Weight Each Lbs. kg	C to E inches mm	Approx. Weight Each Lbs. kg	C to E inches mm	Approx. Weight Each Lbs. kg	C to E inches mm	Approx. Weight Each Lbs. kg
1 ¼ 32	1.660 42.4	—	—	—	—	—	—	0.82 21	0.3 0.1
1 ½ 40	1.900 48.3	—	—	—	—	—	—	0.82 21	0.4 0.2
2 50	2.375 60.3	2.75 70	1.7 0.8	2.00 51	1.8 0.8	2.75 70	2.4 1.1	0.88 22	0.6 0.3
2 ½ 65	2.875 73.0	3.00 76	3.1 1.4	2.25 57	2.2 1.0	3.00 76	3.6 1.6	0.88 22	1.0 0.5
76.1 mm	3.000 76.1	3.00 76	3.30 1.5	2.25 57	2.4 1.1	3.00 76.2	3.8 1.7	—	—
3 80	3.500 88.9	3.38 86	4.0 1.8	2.50 64	3.1 1.4	3.38 86	5.3 2.4	0.88 22	1.2 0.5
108 mm	4.250 108.0	4.00 102	5.7 2.6	3.00 76	5.1 2.3	4.00 102	7.5 3.4	—	—
4 100	4.500 114.3	4.00 102	6.7 3.0	3.00 76	5.6 2.5	4.00 102	8.7 3.9	1.00 25	2.4 1.1
5 125	5.563 141.3	4.88 124	12.6 5.7	3.25 83	8.3 3.8	4.88 124	15.7 7.1	1.00 25	4.1 1.9
139.7 mm	5.500 139.7	4.88 124.0	12.4 5.6	3.25 82.6	8.2 3.7	4.88 124.0	15.4 6.9	—	—
159 mm	6.250 158.8	5.50 140	12.6 5.7	3.50 89	9.2 4.2	5.50 140	17.9 8.0	—	—
6 150	6.625 168.3	5.50 140	18.3 8.3	3.50 89	11.7 5.3	5.50 140	22.7 10.3	1.00 25	5.9 2.7
165.1 mm	6.500 165.1	5.43 139.7	17.6 7.9	3.50 88.9	11.4 5.2	5.50 139.7	22.0 9.9	—	—
8 200	8.625 219.1	6.81 173	25.5 11.6	4.25 108	20.4 9.3	6.94 176	38.7 17.6	1.13 29	12.7 5.8

Flow Data:

Nominal Size inches mm	Actual Outside Diameter inches mm	Frictional Resistance Equivalent Feet/meters of Straight Pipe ¹			
		Elbows		No. 002 Straight Tee	
		No. 001 90° Elbow	No. 003 45° Elbow	Branch	Run
1 ¼ 32	1.660 42.4	— —	— —	— —	— —
1 ½ 40	1.900 48.3	— —	— —	— —	— —
2 50	2.375 60.3	3.5 1.1	1.8 0.5	8.5 2.6	3.5 1.1
2 ½ 65	2.875 73.0	4.3 1.3	2.2 0.7	10.8 3.3	4.3 1.3
76.1 mm	3.000 76.1	4.5 1.4	2.3 0.7	11.0 3.4	4.5 1.4
3 80	3.500 88.9	5.0 1.5	2.6 0.8	13.0 4.0	5.0 1.5
108 mm	4.250 108.0	6.4 2.0	3.2 0.9	15.3 4.7	6.4 2.0
4 100	4.500 114.3	6.8 2.1	3.4 1.0	16.0 4.9	6.8 2.1
5 125	5.563 141.3	8.5 2.6	4.2 1.3	21.0 6.4	8.5 2.6
139.7 mm	5.500 139.7	8.3 2.5	4.1 1.3	20.6 6.3	8.3 2.5
159 mm	6.250 158.8	9.4 2.9	4.9 1.5	25.0 7.6	9.6 2.9
6 150	6.625 168.3	10.0 3.0	5.0 1.5	25.0 7.6	10.0 3.0
165.1 mm	6.500 165.1	9.8 3.0	4.9 1.5	24.5 7.5	9.8 3.0
8 200	8.625 219.1	13.0 4.0	5.0 1.5	33.0 10.1	13.0 4.0

¹ The flow data listed is based upon the pressure drop of Schedule 40 pipe.

General Notes:

NOTE: When assembling FireLock EZ couplings onto end caps, take additional care to make certain the end cap is fully seated against the gasket end stop. For FireLock EZ Style 009N/009H 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 009/009V/009H couplings.

Installation

Reference should always be made to the [I-100 Victaulic Field Installation Handbook](#) for the product you are installing. Handbooks are included with each shipment of Victaulic products for 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.

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.

Trademarks

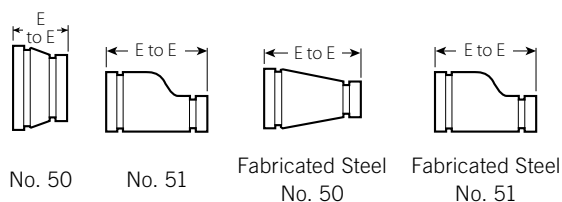
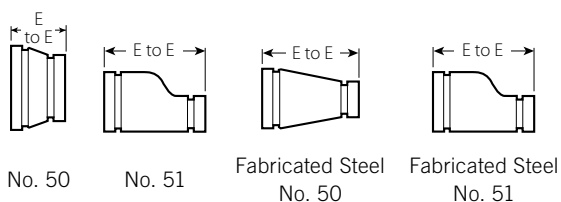
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4.15 DIMENSIONS

Concentric/Eccentric Reducer

No. 50 Concentric

No. 51 Eccentric



Size	No. 50 Concentric Reducer		No. 51 Eccentric Reducer	
Nominal inches DN	E to E inches mm	Approx. Weight (Each) lb kg	E to E inches mm	Approx. Weight (Each) lb kg
1 1/4 DN32 x 3/4 DN20	+	1.9 0.9	—	—
1 DN25	+	1.9 0.9	—	—
1 1/2 DN40 x 3/4 DN20	+	1.4 0.6	—	—
1 DN25	2.50 64	0.8 0.4	8.50 (sw) 216	4.5 2.0
1 1/4 DN32	2.50 64	1.0 0.5	—	—
2 DN50 x 3/4 DN20	2.50 64	0.9 0.3	9.00 (sw) 229	2.0 0.9
1 DN25	2.50 64	0.7 0.3	9.00 (sw) 229	2.3 1.0
1 1/4 DN32	2.50 64	1.2 0.5	9.00 (sw) 229	4.6 2.1
1 1/2 DN40	2.50 64	1.0 0.5	3.50 89	1.1 0.5
2 1/2 x 3/4 DN20	+	1.3 0.6	+	3.3 1.5
1 DN25	2.50 64	1.1 0.5	9.50 241	3.5 1.6
1 1/4 DN32	3.50 89	3.3 1.5	3.50 89	1.4 0.6
1 1/2 DN40	2.50 64	3.6 1.6	9.50 (sw) 241	3.7 1.7
2 DN50	2.50 64	3.9 1.8	3.50 89	4.3 2.0
3 DN80 x 3/4 DN20	+	1.5 0.7	+	4.5 2.0
1 DN25	2.50 64	1.3 0.6	9.50 (sw) 241	4.8 2.2
1 1/4 DN32	2.50 64	1.4 0.6	+	4.8 2.2
1 1/2 DN40	2.50 64	5.1 2.3	9.50 (sw) 241	5.1 2.3
2 DN50	2.50 64	1.6 0.7	3.50 89	6.0 2.7
2 1/2	2.50 64	1.8 0.8	3.50 89	7.0 3.2
DN65	2.50 64	2.1 1.0	—	—
3 1/2 DN90 x 3 DN80	2.50 64	2.0 0.9	9.50 (sw) 241	7.0 3.2
4 DN100 x 1 DN25	3.00 76	3.0 1.4	13.00 (sw) 330	6.5 2.9

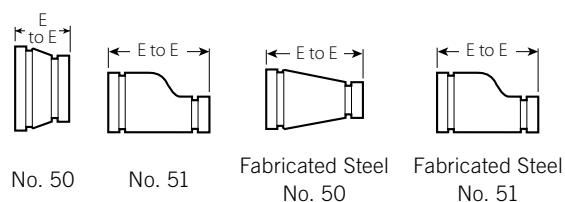
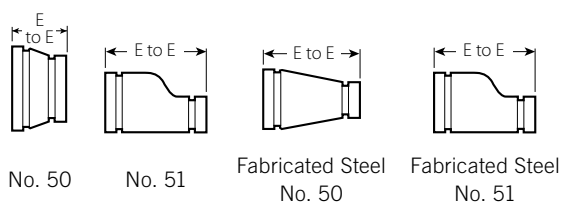
Size	No. 50 Concentric Reducer		No. 51 Eccentric Reducer	
Nominal inches DN	E to E inches mm	Approx. Weight (Each) lb kg	E to E inches mm	Approx. Weight (Each) lb kg
1 1/4 DN32	+	4.6 2.1	—	—
1 1/2 DN40	3.00 (sw) 76	2.6 1.2	10.00 (sw) 254	8.1 3.7
2 DN50	3.00 76	2.4 1.1	4.00 102	3.3 1.5
2 1/2	3.00 76	2.7 1.2	4.00 102	3.4 1.5
3 DN80	3.00 76	3.2 1.4	4.00 102	3.5 1.6
3 1/2 DN90	3.00 76	2.9 1.3	10.00 (sw) 254	8.0 3.6
5 x 2 DN50	11.00 (sw) 279	9.0 4.1	11.00 (sw) 279	5.2 2.4
2 1/2	4.00 102	4.3 2.0	11.00 (sw) 279	10.8 4.9
3 DN80	4.00 102	5.5 2.5	11.00 (sw) 279	11.1 5.0
4 DN100	3.50 89	4.3 1.9	5.00 127	12.0 5.4
6 DN150 x 1 DN25	4.00 102	5.0 2.3	11.50 (sw) 292	14.5 6.6
1 1/2 DN40	+	5.5 2.5	+	+
2 DN50	4.00 102	6.6 3.0	11.50 (sw) 292	14.5 6.6
2 1/2	4.00 102	6.4 2.9	11.50 (sw) 292	14.2 6.4
3 DN80	4.00 102	6.4 2.9	5.50 140	15.0 6.8
4 DN100	4.00 102	6.5 2.9	5.50 140	17.0 7.7
5	4.00 102	6.4 2.9	5.50 140	17.0 7.7
8 DN200 x 2 1/2	16.00 406	7.9 3.6	12.00 (sw) 305	26.1 11.8
3 DN80	5.00 127	9.3 4.2	12.00 (sw) 305	22.0 10.0
4 DN100	5.00 127	10.4 4.8	12.00 (sw) 305	23.0 10.4
5	5.00 127	11.6 5.2	12.00 (sw) 305	23.0 10.4
6 DN150	5.00 127	11.9 5.4	6.00 152	24.0 10.9

4.15 DIMENSIONS (Continued)

Concentric/Eccentric Reducer

No. 50 Concentric

No. 51 Eccentric



Size		No. 50 Concentric Reducer		No. 51 Eccentric Reducer	
Nominal inches DN		E to E inches mm	Approx. Weight (Each) lb kg	E to E inches mm	Approx. Weight (Each) lb kg
10 DN250	4 DN100	6.00 152	19.7 8.9	13.00 (sw) 330	32.0 14.5
	5	+	33.0 15.0	+	34.6 15.7
	6 DN150	6.00 152	20.0 9.1	13.00 (sw) 330	36.9 16.7
	8 DN200	6.00 152	22.0 10.0	7.00 178	21.6 9.8
12 DN300	4 DN100	+	44.0 20.0	14.00 (sw) 356	48.0 21.8
	6 DN150	7.00 178	24.6 11.2	14.00 (sw) 356	50.0 22.7
	8 DN200	7.00 178	52.0 23.6	14.00 (sw) 356	53.5 24.3
	10 DN250	7.00 178	39.0 17.7	14.00 (sw) 356	57.0 25.9
14 ² DN350	6 DN150	13.00 330	65.0 29.5	13.00 330	60.0 27.2
	8 DN200	13.00 330	65.0 29.5	13.00 330	60.0 27.2
	10 DN250	13.00 330	66.0 29.9	13.00 330	65.0 29.5
	12 DN300	13.00 330	68.0 30.8	13.00 330	66.0 29.9
16 ² DN400	8 DN200	14.00 356	73.0 33.1	14.00 355	73.0 33.1
	10 DN250	14.00 356	73.0 33.1	14.00 355	73.0 33.1
	12 DN300	14.00 356	73.0 33.1	14.00 355	73.0 33.1
	14 DN350	14.00 356	73.0 33.1	14.00 355	73.0 33.1
18 ² DN450	10 DN250	15.00 381	91.0 41.3	15.00 381	91.0 41.3
	12 DN300	15.00 381	91.0 41.3	15.00 381	91.0 41.3
	14 DN350	15.00 381	91.0 41.3	15.00 381	91.0 41.3
	16 DN400	15.00 381	91.0 41.3	15.00 381	91.0 41.3

² For 14"/DN350 and larger roll grooved systems, Victaulic offers the Advanced Groove System (AGS). For pricing and availability of cut groove fittings in this size, contact your nearest Victaulic sales representative.

Size		No. 50 Concentric Reducer		No. 51 Eccentric Reducer	
Nominal inches DN		E to E inches mm	Approx. Weight (Each) lb kg	E to E inches mm	Approx. Weight (Each) lb kg
20 ² DN500	10 DN250	20.00 508	110.0 49.9	20.00 508	177.0 80.3
	12 DN300	20.00 508	120.0 54.4	20.00 508	120.0 54.4
	14 DN350	20.00 508	149.0 67.9	20.00 508	149.0 67.9
	16 DN400	20.00 508	120.0 54.4	20.00 508	120.0 54.4
24 ² DN600	18 DN450	20.00 508	136.0 61.7	20.00 508	136.0 61.7
	10 DN250	20.00 508	142.0 64.4	20.00 508	142.0 64.4
	12 DN300	20.00 508	150.0 68.0	20.00 508	150.0 68.0
	14 DN350	20.00 508	162.0 73.5	20.00 508	162.0 73.5
14 – 60 DN350 – DN1500	16 DN400	20.00 508	162.0 73.5	20.00 508	162.0 73.5
	18 DN450	20.00 508	162.0 73.5	20.00 508	162.0 73.5
	20 DN500	20.00 508	151.0 68.5	20.00 508	190.0 86.2
	For AGS fitting information, see publication 20.05				



² For 14"/DN350 and larger roll grooved systems, Victaulic offers the Advanced Groove System (AGS). For pricing and availability of cut groove fittings in this size, contact your nearest Victaulic sales representative.

(s) = Carbon Steel Direct Roll Groove (OGS)

(sw) = Carbon Steel Segmentally Welded

+ Contact Victaulic for details.

NOTES

- Available with male threaded small end No. 52.
- Cast fitting available for JIS size. Contact Victaulic for details.
- Steel eccentric reducers available through 30"/DN750, contact Victaulic for dimensions.
- All fittings are ductile iron unless otherwise noted with an (sw) or (s).

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

Victaulic
10.54

IGS™



No. 142
Welded Outlet



Style 922
Outlet-T



Style 920N
Mechanical-T Outlet



No. 101
Installation-Ready™
90° Elbow



No. 102
Installation-Ready™
Tee



No. 103
Installation-Ready™
45° Elbow



Style 108
Installation-Ready™
Rigid Coupling



Style 115
OGS x IGS
Reducing Coupling



Style 118
1" Outlet 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



RG2910
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.

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Victaulic

1.0 PRODUCT DESCRIPTION

Pipe Material

- Carbon steel, Sch. 40, Sch. 10, light-wall/specialty pipe. For use with alternative materials please contact Victaulic.
- 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

RG2910 Grooving Capability

- Reference [publication 24.21](#)

2.0 CERTIFICATION/LISTINGS



LPS 1219: Issue 3.1



EN 10311
CPR (EU)
No. 305/2011



BS EN 10311
CPR (UK)
2019 No. 465



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 RG2910 Roll Grooving Tool.

3.0 SPECIFICATIONS – MATERIAL

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

Housing Coating: (specify choice)

Orange coating.

Red coating (standard for EMEA-I and Asia Pacific).

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

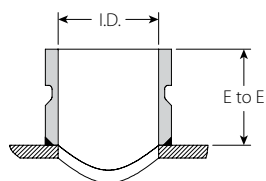
No. WB-1: Steel Alloy

No. NAP-1: Aluminum Alloy

RG2910 Roll Grooving Tool: Reference [publication 24.21](#)

4.0 DIMENSIONS

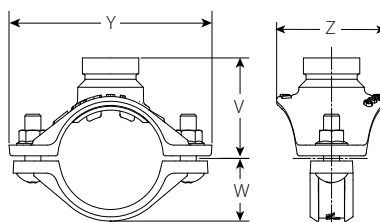
No. 142 Welded Outlet



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

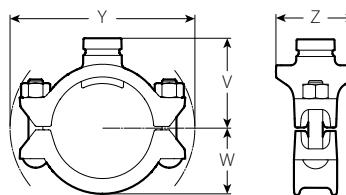
Style 922 Outlet-T



Size	Bolt/Nut	Dimensions								Weight
Nominal inches DN	Actual Outside Diameter inches mm		Size	Minimum Hole Diameter/Hole Saw Size	Maximum Hole Diameter/ Hole Saw Size	Y	V	W	Z	Approximate (Each) lb kg
Run x Branch	Run x Branch	Qty.	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	
1 ¼ DN32	1.660 42.4	2	¾ x 1 ¾	1 ⅜ 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 ⅜ 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 ⅜ 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 ⅜ 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 ⅜ 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

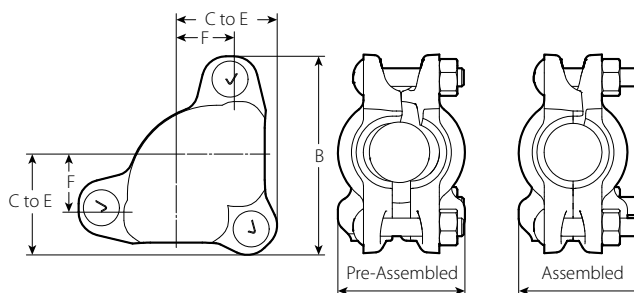
Style 920N Mechanical-T Outlet



Size		Bolt/Nut		Dimensions						Weight
Nominal inches DN	Actual Outside Diameter inches mm	Qty.	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									
3 DN80	1 1.315 88.9	2	1/2 x 2 3/4	1 1/2 38.1	1 5/8 41.0	6.42 163.0	3.12 79.2	2.28 57.9	2.75 69.9	2.7 1.2
4 DN100	1 1.315 88.9	2	1/2 x 2 3/4	1 1/2 38.1	1 5/8 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



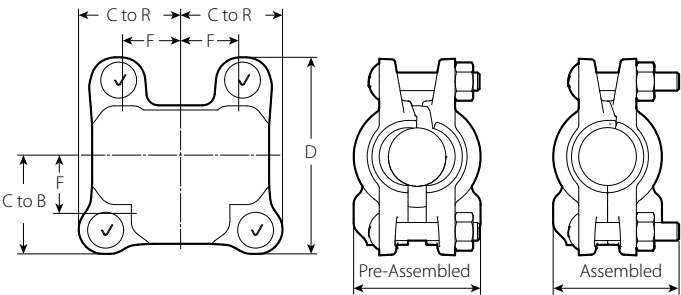
Size		Bolt/Nut		Dimensions					Weight
Nominal inches DN	Actual Outside Diameter inches mm	Qty.	Size inches mm	F Take Out inches mm	C to E inches mm	B inches mm	Pre-Assembled inches mm	Assembled inches mm	Approximate (Each) lb kg
1 DN25	1.315 33.7	3	3/8 x 2 M10 x 50	1.25 32	2.13 54	4.25 108	2.75 70	2.75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

No. 102 Installation-Ready Tee



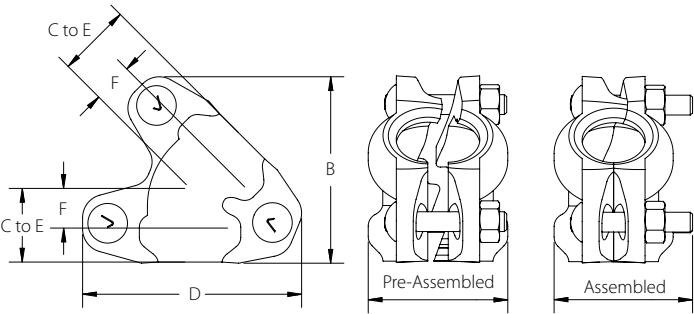
Size		Bolt/Nut		Dimensions						Weight
Nominal inches DN	Actual Outside Diameter inches mm	Qty.	Size inches mm	F Take Out inches mm	C to B inches mm	C to R inches mm	D inches mm	Pre-Assembled inches mm	Assembled inches mm	Approximate (Each) lb kg
1 DN25	1.315 33.7	4	³ / ₈ x 2 M10 x 50	1.25 32	2.13 54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

4.5 DIMENSIONS

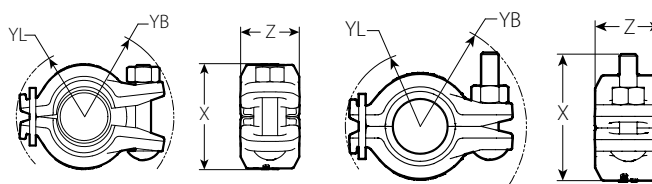
No. 103 Installation-Ready 45° Elbow



Size		Dimensions						Weight
Nominal inches DN		F Take Out inches mm	C to E inches mm	B inches mm	D inches mm	Pre Assembled inches mm	Assembled inches mm	Approximate (Each) Lbs. kg
1 DN25	x 1 DN25	0.88 22	1.50 38	3.63 92	4.25 108	2.75 70	2.63 67	2.1 1.0

4.6 DIMENSIONS

Style 108 Installation-Ready Rigid Coupling



Preassembled

Assembled

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	3/8 x 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

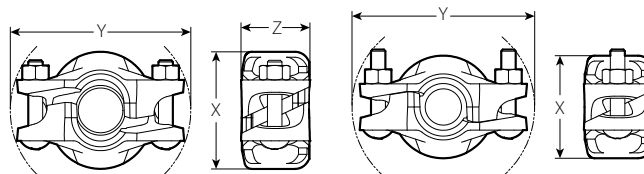
¹ The allowable pipe end separation dimension shown is for system layout purposes only. FireLock™ Style 108 rigid couplings are considered rigid connections and will not accommodate expansion or contraction of the piping system.

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.

4.7 DIMENSIONS

Style 115 OGS x /GS Reducing Coupling



Pre-Assembled

Assembled

Size		Pipe End Separation ²	Bolt/Nut		Dimensions						Weight
Nominal inches DN	Actual Outside Diameter inches mm	Allowable inches mm	Qty.	Size inches mm	Pre-Assembled			Assembled			Approximate (Each) lb kg
					X inches mm	Y inches mm	Z inches mm	X inches mm	Y inches mm	Z inches mm	
1 1/4	1.660	0.14	2	3/8 x 2	3.13	4.75	1.75	2.63	4.75	1.75	1.9
DN32	42.4	3.6		M10 x 50	79	121	44	67	121	44	0.9
1 1/2	1.900	0.14	2	3/8 x 2	3.25	4.88	1.75	2.88	4.88	1.75	2.1
DN40	48.3	3.6		M10 x 50	83	124	44	73	124	44	0.9

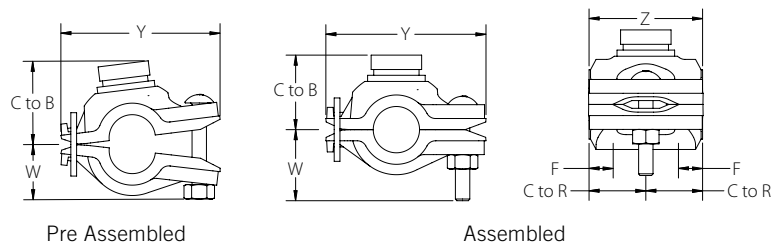
² The allowable pipe end separation dimension shown is for system layout purposes only. FireLock™ Style 115 rigid couplings are considered rigid connections and will not accommodate expansion or contraction of the piping system.

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.

4.8 DIMENSIONS

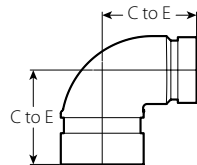
Style 118 1" Outlet Coupling



Size					Dimensions										Weight
Nominal					F Take Out	Z	C to R	Pre Assembled			Assembled			Approx. (Each)	
inches DN					inches mm	inches mm	inches mm	C to B inches mm	W inches mm	Y inches mm	C to B inches mm	W inches mm	Y inches mm	Lbs. kg	
1	X	1	X	1	0.75	3.00	1.50	2.25	1.50	4.25	2.00	1.88	4.25	2.4	
DN25		DN25		DN25	19	76	38	57	38	108	51	48	108	1.1	

4.9 DIMENSIONS

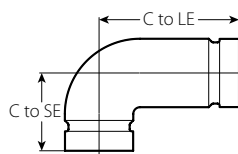
No. 65 OGS x IGS Grooved End of Run Fitting



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

4.10 DIMENSIONS

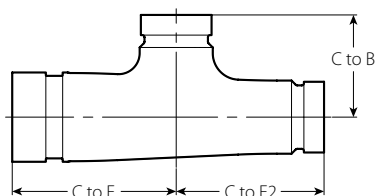
No. 111 /GS Grooved End Elbow



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

4.11 DIMENSIONS

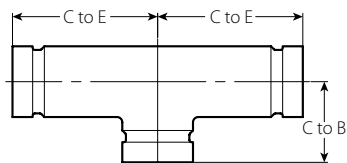
No. 113 OGS x /GS x /GS Reduce on the Run and Outlet Tee



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 1/4 DN32	x	1 DN25	x	1 DN25	3.05 77	2.75 70	1.90 48	1.3 0.6
1 1/2 DN40	x	1 DN25	x	1 DN25	3.05 77	2.75 70	2.03 52	1.3 0.6

4.12 DIMENSIONS

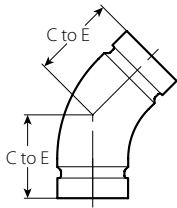
No. 114 /GS x /GS x /GS Grooved Tee



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

4.13 DIMENSIONS

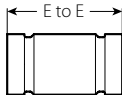
No. 117 /GS 45° Elbow



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

4.14 DIMENSIONS

No. 143 Close Nipple

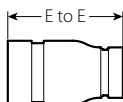


Size		Dimensions	Weight
Nominal	Actual Outside Diameter	E to E	Approximate (Each)
inches	inches	inches	lb
DN	mm	mm	kg
1 DN25	1.315 33.7	1.5 ³	0.2
		38	0.1
		2	0.3
		51	0.1
		2.5	0.4
		64	0.2
		3	0.4
		76	0.2
		3.5	0.5
		89	0.2
		4	0.6
		102	0.3
		4.5	0.6
		114	0.3
		5	0.7
		127	0.3

³ Bolt pad interferences may occur in some installation configurations.

4.15 DIMENSIONS

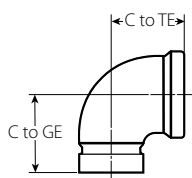
No. 144 OGS x /GS Grooved Concentric Reducer



Size		Dimensions		Weight
Nominal inches DN	Actual Outside Diameter inches mm	E to E inches mm	Approximate (Each) lb kg	
1 1/4 DN32	1.660 42.4	3.00 76	0.5 0.2	
1 1/2 DN40	1.900 48.3	3.00 76	0.6 0.2	

4.16 DIMENSIONS

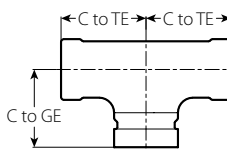
No. 145 Female Threaded x Groove 90° Elbow



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

4.17 DIMENSIONS

No. 147 Back-To-Back Sprinkler Tee



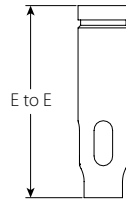
Size						Dimensions		Weight
Nominal inches DN			Actual Outside Diameter inches mm			C-TE inches mm	C-GE inches mm	Approximate (Each) lb kg
Threaded Outlet	Threaded Outlet	Grooved Outlet	Threaded Outlet	Threaded Outlet	Grooved Outlet			
1/2 DN15	x 1/2 DN15	x 1 DN25	0.840 21.3	x 0.840 21.3	x 1.315 33.7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

4.18 DIMENSIONS

No. 148 Sprinkler Reducer

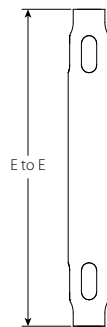


Length	Size		Threaded Outlet Size		Weight
	Nominal inches DN	Actual Outside Diameter inches mm	inches DN	inches DN	Approximate (Each) lb kg
3	1	1.315	½	¾	0.4
76	DN25	33.7	DN15	DN20	0.2
3.5	1	1.315	½	¾	0.5
89	DN25	33.7	DN15	DN20	0.2
4	1	1.315	½	¾	0.6
102	DN25	33.7	DN15	DN20	0.3
4.5	1	1.315	½	¾	0.6
114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



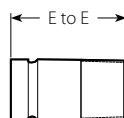
Length	Size		Threaded Outlet Size		Weight
	Nominal inches DN	Actual Outside Diameter inches mm	inches DN	inches DN	Approximate (Each) lb kg
36	1	1.315	½	¾	5.0
914	DN25	33.7	DN15	DN20	2.3

NOTE

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

4.19 DIMENSIONS

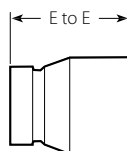
No. 140 Male Threaded x Groove Adapter



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

4.20 DIMENSIONS

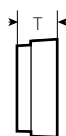
No. 141 Female Threaded x Groove Adapter



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

4.21 DIMENSIONS

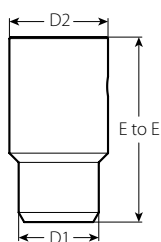
No. 146 Cap



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

4.22 DIMENSIONS

WB-1 Weld Plunger Cone



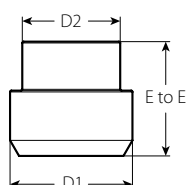
Dimensions			Weight
E to E inches mm	D1 inches mm	D2 inches mm	Approximate (Each) lb kg
3.75 95.3	1.63 41.3	2.00 50.8	2.2 51.0

NOTE

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

4.23 DIMENSIONS

NAP-1 Weld Plunger Cone



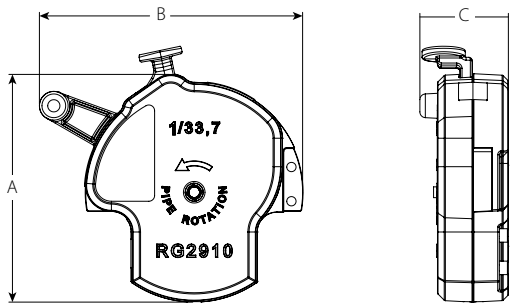
Dimensions			Weight
E to E inches mm	D1 inches mm	D2 inches mm	Approximate (Each) lb kg
1.75 44.5	1.88 47.6	1.50 38.0	0.3 0.2

NOTE

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

4.24 DIMENSIONS

RG2910 Roll Grooving Tool



Dimensions			Weight
A Height	B Width	C Depth	Approximate (Each)
inches	inches	inches	lb
mm	mm	mm	kg
8.00	7.50	3.00	19
200	191	78	8.5

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
922		See publication 10.52	–	–
920N		See publication 11.02	–	–
101	1 DN25	2.0 0.61	–	–
102	1 DN25	–	5.0 1.52	2.7 0.82
103	1 x 1 DN25 x DN25	1 0.3	–	–
115	1 ¼ x 1 DN32 x DN25	5.7 1.74	–	–
	1 ½ x 1 DN40 x DN25	5.0 1.52	–	–
118	1 x 1 x 1 DN25 x DN25 x DN25	–	4.2 1.3	1.1 0.3
111	1 DN25	5.0 1.52	–	–
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
114	1 DN25	–	6.2 1.9	3.3 1.0
117	1 DN25	3.5 1.1	–	–
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	–	–
148		See Note	–	–

- 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
142 ⁴	365 2517 25	365 2517 25	365 2517 25	232 1600 16
922 ^{4,5}	300 2100 21	300 2100 21	365 2517 25	232 1600 16
920N ^{4,5}	365 2517 25	300 2100 21	365 2517 25	232 1600 16
101 ^{4,5}	365 2517 25	365 2517 25	365 2517 25	232 1600 16
102 ^{4,5}	365 2517 25	365 2517 25	365 2517 25	232 1600 16
103 ^{4,5}	365 2517 25	365 2517 25	N/A	N/A
108 ^{4,5}	365 2517 25	365 2517 25	365 2517 25	232 1600 16
115 ^{4,5}	365 2517 25	365 2517 25	365 2517 25	232 1600 16
118 ^{4,5}	365 2517 25	N/A	N/A	N/A
65	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
117	365 2517 25	365 2517 25	N/A	N/A

⁴ Maximum pressure rating is 300 psi / 21 bar when installed on light-wall steel pipe. Please refer to the latest agency websites for the most up-to-date certification details.

⁵ Accommodates full vacuum (29.9 in Hg/760 mm Hg.)

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
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
147	365 2517 25	365 2517 25	N/A	N/A
148	365 2517 25	365 2517 25	365 2517 25	232 1600 16
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
146	365 2517 25	365 2517 25	365 2517 25	232 1600 16

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](#)
[24.21: Victaulic Roll Grooving Tool Model RG2910](#)
[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](#)

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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Style 744 FireLock® Flange Adapter

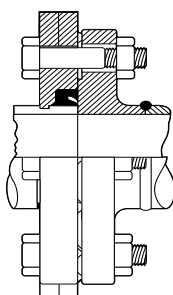
with Vic-Plus™ Gasket System



PRODUCT DESCRIPTION



2 - 8" Sizes



(Exaggerated for clarity)

Style 744 FireLock Flange adapter is designed for directly incorporating flanged components with ANSI CL 125 or CL 150 bolt hole patterns into a grooved pipe system. Sizes 2 - 8" (50 - 200 mm) are hinged for easy handling with integral end tabs which facilitate assembly.

The design incorporates small teeth inside the key shoulder I.D. to prevent rotation.

Because of the outside flange dimension, FireLock Flange adapters should not be used on FireLock fittings. When wafer or lug-type valves are used adjoining a Victaulic fitting, check disc dimensions to assure proper clearance.

FireLock Flange adapters should not be used as anchor points for tie-rods across nonrestrained joints. Mating rubber faced flanges, valves, etc., require the use of a FireLock Flange washer.

FireLock Flange adapters with Vic-Plus gaskets do not require lubrication. The gasket must always be assembled with the color coded lip on the pipe and the other lip facing the mating flange.

Style 744 FireLock Flange Adapters with the Vic-Plus™ Gasket System are designed and recommended for use ONLY on fire protection systems.

Vic-Plus Gasket System:

Victaulic® now offers a gasket system which requires no field lubrication on wet pipe systems. The Vic-Plus™ System (patented) is dry, clean, and non-toxic. It reduces assembly time substantially and eliminates the mess and chance of over-lubrication. Please refer to the latest copy of the Victaulic Field Installation Handbook (I-100) for supplemental lubrication requirements.

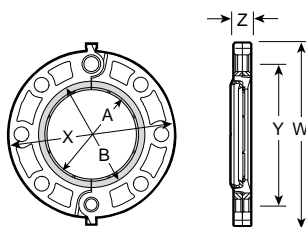


See Victaulic publication 10.01 for details.

DIMENSIONS

Style 744

Sizes 2 - 8" (50 - 200 mm)
ANSI Class 125 and 150 Flange



Note: Gray area of mating face must be free from gouges, undulations or deformities of any type for effective sealing.

Pipe Size		Max. Work Press.* PSI kPa	Max. End Load* Lbs. N	No. Bolts † Req'd.	Bolt Size † Inches	Sealing Surface Inches/mm		Dimensions Inches/millimeters				Aprx. Wgt. Each Lbs. kg
Nominal Diameter In./mm	Actual Outside Diameter In./mm					"A" Max.	"B" Min.	W	X	Y	Z	
2 50	2.375 60.3	175 1200	775 3450	4	5/8 X 2 3/4	2.38 60	3.41 87	6.75 172	6.00 152	4.75 121	0.75 19	2.7 1.2
2 1/2 65	2.875 73.0	175 1200	1135 5050	4	5/8 X 3	2.88 73	3.91 99	7.88 200	7.00 178	5.50 140	0.88 22	4.2 1.9
3 80	3.500 88.9	175 1200	1685 7500	4	5/8 X 3	3.50 89	4.53 115	8.44 214	7.50 191	6.00 152	0.94 24	4.8 2.2
4 100	4.500 114.3	175 1200	2780 11045	8	5/8 X 3	4.50 114	5.53 141	9.94 252	9.00 229	7.50 191	0.94 24	7.1 3.2
5 125	5.563 141.3	175 1200	4250 18920	8	3/4 X 3 1/2	5.56 141	6.71 171	11.00 279	10.00 254	8.50 216	1.00 25	8.3 3.8
6# 150	6.625 168.3	175 1200	6030 26840	8	3/4 X 3 1/2	6.63 168	7.78 198	12.00 305	11.00 279	9.50 241	1.00 25	9.3 4.2
8# 200	8.625 219.1	175 1200	10219 45475	8	3/4 X 3 1/2	8.63 219	9.94 252	14.63 372	13.50 343	11.75 298	1.13 29	13.9 6.3

*Refer to notes below.

†Total bolts required to be supplied by installer. Bolt sizes for conventional flange-to-flange connection. Larger bolts are required when Vic-Flange adapter is utilized with wafer-type valves.

Not available with Vic-Plus gasket system. Lubrication is required.

NOTES

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

WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1 1/2 times the figures shown.

Style 744 FireLock Flange adapters provide rigid joints when used on pipe with standard roll or cut groove dimensions and consequently allow no linear or angular movement at the joint.

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

VIC-FLANGE ADAPTER NOTES

- 1 The Style 744 (2 - 8"/50 - 200 mm) design incorporates small teeth inside the key shoulder I.D. to prevent rotation.
- 2 FireLock Flange adapter should not be used on FireLock fittings. When wafer or lug-type valves are used adjoining a Victaulic fitting, check disc dimensions to assure proper clearance.
- 3 FireLock Flange adapters should not be used as anchor points for tie-rods across nonrestrained joints. Mating rubber faced flanges, valves, etc. require the use of a FireLock Flange washer.
- 4 Area A-B noted in the above drawing must be free from gouges, undulations or deformities of any type for effective sealing.
- 5 FireLock Flange adapter gaskets must always be assembled with the color coded lip on the pipe and the other lip facing the mating flange.
- 6 Flange Washers: FireLock 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 Flange Washer be inserted between the FireLock 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 standard flat flange gasket should be used adjacent to the serrated flange and then the Flange Washer is inserted between the FireLock 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 FireLock Flange adapter.
- C When mating a rubber faced flange: the Flange Washer is placed between the FireLock Flange adapters and the rubber faced flange.
- D When mating AWWA cast flanges to IPS flanges: the Flange Washer is placed between two FireLock Flanges. The hinge points must be oriented approximately 90° to each other. If one flange is not a FireLock Flange adapter (e.g. flanged valve), then a standard flat flange gasket must be placed adjacent to that flange and the Flange Washer inserted between the flange gasket and the FireLock Flange adapter.
- 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 When mating to a Series 705-W Butterfly valve, Style 744 may only be used on one side of the connection.

When ordering Flange Washers, always specify product style (Style 744) and size to assure proper Flange Washer is supplied.

MATERIAL SPECIFICATIONS

Flange 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.

Coating: Black enamel

- **Optional:** Hot dipped galvanized

Bolts/Nuts: Supplied by installer

Gasket:

- **Grade "E" EPDM - Type A Vic-Plus Gasket System Δ**
(Violet color code). FireLock products have been Listed by Underwriters Laboratories Inc. and Approved by Factory Mutual Research for wet and dry (oil free air) sprinkler services up to the rated working pressure using the Grade "E" Type A Vic-Plus Gasket System, requiring no field lubrication for most installation conditions.

Δ Standard gasket approved for dry pipe systems to -40°F (-40°C). Based on "typical" pipe surface conditions, supplemental lubricant is recommended for services installed below 0°F (-18°C) and for all dry pipe systems or systems to be subjected to air tests prior to being filled with water. Supplemental lubrication may also be required on pipe with raised or undercut weld seams or pipe that has voids and/or cracks at the weld seams.

June 2012

For the most current product/pricing information on Anvil products, please visit our website at www.anvilintl.com.



Outlet Fittings for Fire Protection

B U I L D I N G C O N N E C T I O N S T H A T L A S T



Weld-Miser™ Tee-Let®

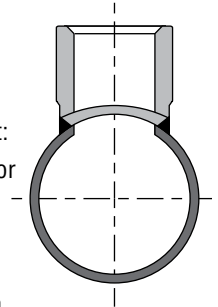
Welding Outlet Fittings

Unified Design™ Series

Merit's Unified Design Series carries all important design considerations into its entire line of welding branch outlet fittings.

Merit® Weld-Miser™ Tee-Lets® are designed and Manufactured to reduce the amount of weld required to install the Tee-Lets on thin wall or proprietary flow pipe. Typically only one weld-pass completes the installation. Merit Tee-Lets install with less weld volume than any other brand of welding outlet fittings for fire sprinkler applications. To accomplish this:

- The contoured end of the fittings employs a reduced outside diameter. Two major advantages are immediately apparent:
- The thinner wall on the contoured end permits welding temperatures to be matched to the thickness of the branch line or main thereby insuring complete penetration without cold welds, weld roll-off, burn-through or excessive distortion.
- On smaller sizes a heavier section is maintained on the threaded end of the fitting. This protects the threads from damage during shipping and handling prior to installation as well as from weld distortion.
- Each outlet size 1½" and larger, whether male or female threaded, cut grooved or beveled requires the same hole size in the header pipe. This simplifies the installation process.



General Specifications

- Tee-Let welding outlet fittings are manufactured from highly weldable steel which conforms to the chemical and physical requirements of ASTM A-53, Grades A or B, Type E. Ease of installation is assured when automatic welding equipment is used to install Merit Tee-Lets.
- Threads are cut in accordance with the requirements of ANSI B1.20.1, national standard for tapered pipe threads, or ISO-7-1 threads are available.
- Tee-Let threaded and grooved welding outlet fittings are UL/ULC Listed and FM Approved for use in the fire sprinkler systems installed in accordance with the requirements of NFPA Bulletin 13. They are rated for 300 PSI operation in fire sprinkler systems, and higher pressures in other non-critical piping systems.
- Tee-Lets are offered in a wide variety of header sizes. The consolidated header sizes shown in the following charts allow the fittings to be installed on more than one header size, permitting the first size listed to fit the header perfectly, while a small gap along the longitudinal center line of the header will appear for the second size listed.
- Merit® Weld-Miser™ Tee-Lets® are identified by a lot number that provides full traceability per ISO 9000 specifications.

For Your Piping Systems Specify Weld-Miser™ Tee-Let®

Branch Outlet Fittings shall be Merit Weld-Miser Tee-Let, Lightweight forged steel, employing low weld volume profile to provide for full penetration welds with minimum burn through and pipe distortion on Schedule 5 thru 10, proprietary thin wall, and standard wall pipe. Threads are to be ANSI B1.20.1, or ISO-7-1, and the bore of the fittings calculated to improve flow. Welding outlets to be UL Listed, FM Approved for use conforming to NFPA, Bulletin 13 and pressure rated for 300 PSI maximum.

How to Order - Use either of the following methods for ordering Merit® Weld-Miser™ Tee-Let®.

Method No. 1

Specify quantity desired followed by the part number shown in the "dimensions" chart for the type and size of outlet desired.

Method No. 2

Use the following system:

Quantity	Part Number	Quantity	Outlet Size	Header Size	Weight	Type End	Merit Tee-Let	Steel Material
		↓ Always order a few more than actually required for the job.	↓ Column "A" of Chart	↓ Insert size consolidation from Column "B" of chart.	↓ Sch. 10 Standard	↓ A - Female Thread B - Male Thread C - Cut Groove C/R - Roll Groove		



Weld-Miser™ Tee-Let®

Welding Outlet Fittings



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

For Fire Protection & Other Low Pressure Piping Systems

Merit Weld-Miser™ Tee-Let® Welding Branch Outlet Fittings offer the user a high strength, low cost forged threaded and grooved line of fittings specifically designed and manufactured to be installed on Schedules 5 thru 10, proprietary thin wall flow pipe and standard wall pipe.

Merit Tee-Lets are forged steel welding outlet fittings. The material used in manufacture meets the chemical and physical requirements of ASTM A 53, Grades A or B, Type E, A-135, A-795, Tee-Lets employ a low weld volume design to provide for either a partial or full penetration weld employing a single pass with minimum burn-through and pipe distortion. Weld Miser Tee-Lets are recommended for use on proprietary thin wall, Schedules 5, 10 and 40 pipe. Threads comply with ANSI B1.20.1 or ISO7/1. They are UL Listed and FM Approved for use conforming to the requirements of Bulletin 13 1999 of the National Fire Protection Association. When used in fire sprinkler systems, Tee-Lets are rated for 300 psi. When used in mechanical systems, maximum pressures are calculated using criteria developed for ASME B31 piping code.

TEE-LET WELDED OUTLET FITTING (UL VIZU — EX6032, FM APPROVAL GUIDE CHAPTER 1 — PIPE FITTINGS)

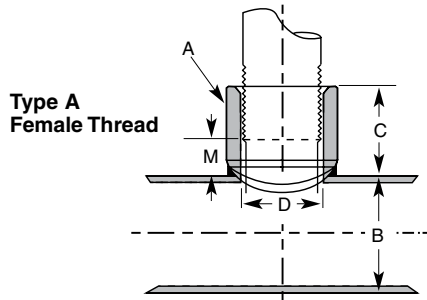
Outlet Model	Outlet Pipe Size (Inch)	Header Pipe Size (Inch)	Rated Pressure (psig)
Tee-Let Type A (F-Threaded End)	1/2, 3/4, 1	1/2 - 8 (Sch.10, 40)	300
	1 1/4, 1 1/2, 2, 2 1/2, 3, 4	1/2 - 4 (Sch. 5, DynaFlow)	
	2	4 (EZ-Flow)	
	2, 4	6 (EZ-Flow)	
Tee-Let Type C (Grooved End)	1 1/4 - 8	1 1/4 - 8 (Sch.10, 40)	300
	2 1/2 - 8	1 1/2 - 4 (Sch. 5, DynaFlow)	
Tee-Let Type C/R (Roll Grooved End)	1 1/4 - 6	1 1/4 - 8 (All Schedules)	300

1) Size-on-size (i.e. 2 x 2) Tee-Lets are not FM Approved.

2) FM rated working pressure when welded on Sch. 5 or non-threadable lightwall pipe is 175 psi.

Weld-Miser™ Tee-Let®

Welding Outlet Fittings



WELD-MISER™ TEE-LET® DIMENSIONS & PART NUMBERS						
Part Number	Nominal Outlet A	Nominal Header B	Outlet Length C	Inside Diameter D	Make Up M	Weight Each
NPT (BSPT)	In (mm)	In (mm)	In (mm)	In (mm)	In (mm)	Lb. (kg)
1002002	1/4 x	1/4 - 8				0.080
—	6 x	6 - 200				0.04
1005012	1/2 x	1 1/4 - 1 1/2	1.063	0.700	0.500	0.171
—		32 - 40	27.0	17.8	12.7	0.08
1005015		1 1/2 - 2	1.063	0.700	0.500	0.171
—		40 - 50	27.0	17.8	12.7	0.08
1005020		2 - 2 1/2	1.063	0.700	0.500	0.171
—	13 x	50 - 65	27.0	17.8	12.7	0.08
1005025	3/4 x	2 1/2 - 8	1.063	0.700	0.500	0.169
—		65 - 200	27.0	17.8	12.7	0.08
1007012		1 1/4 - 1 1/2	1.125	0.900	0.500	0.260
—		32 - 40	28.6	22.9	12.7	0.12
1007015		1 1/2 - 2	1.125	0.900	0.500	0.260
—	19 x	40 - 50	28.6	22.9	12.7	0.12
1007020	1 x	2 - 2 1/2	1.125	0.900	0.500	0.260
—		50 - 65	28.6	22.9	12.7	0.12
1007025		2 1/2 - 8	1.125	0.900	0.500	0.256
—		65 - 200	28.6	22.9	12.7	0.12
1010012		1 1/4 - 1 1/2	1.250	1.145	0.500	0.331
1110012	25 x	32 - 40	31.8	29.1	12.7	0.15
1010015		1 1/2 - 2	1.250	1.145	0.500	0.331
1110015		40 - 50	31.8	29.1	12.7	0.15
1010020		2 - 2 1/2	1.250	1.145	0.500	0.320
1110020		50 - 65	31.8	29.1	12.7	0.15
1010025	3 x	2 1/2 - 3	1.250	1.145	0.500	0.314
1110025		65 - 80	31.8	29.1	12.7	0.14
1010030		3 - 4	1.250	1.145	0.500	0.309
1110030		80 - 100	31.8	29.1	12.7	0.14
1010050		5 - 8	1.250	1.145	0.500	0.291
1110050	32 x	125 - 200	31.8	29.1	12.7	0.13
1012012		1/4	1.375	1.490	0.500	0.432
1112012		32	34.9	37.8	12.7	0.19
1012015		1 1/2 - 2	1.375	1.490	0.500	0.421
1112015		40 - 50	34.9	37.8	12.7	0.19
1012020	1 1/4 x	2 - 2 1/2	1.375	1.490	0.500	0.421
1112020		50 - 65	34.9	37.8	12.7	0.19
1012025		2 1/2 - 3	1.375	1.490	0.500	0.411
1112025		65 - 80	34.9	37.8	12.7	0.19
1012030		3 - 4	1.375	1.490	0.500	0.389
1112030	40 x	80 - 100	34.9	37.8	12.7	0.18
1012050		5 - 8	1.375	1.490	0.500	0.389
1112050		125 - 200	34.9	37.8	12.7	0.18
1015015		1 1/2	1.625	1.610	0.875	0.477
1115015		40	41.3	40.9	22.2	0.22
1015020	1 1/2 x	2	1.625	1.610	0.875	0.477
1115020		50	41.3	40.9	22.2	0.22
1015025		2 1/2	1.625	1.610	0.875	0.477
1115025		65	41.3	40.9	22.2	0.22
1015030		3 - 4	1.625	1.610	0.875	0.477
1115030	40 x	80 - 100	41.3	40.9	22.2	0.22
1015040		4	1.625	1.610	0.875	0.477
1115040		100	41.3	40.9	22.2	0.22
1015050		5 - 8	1.625	1.610	0.875	0.477
1115050		125 - 200	41.3	40.9	22.2	0.22

WELD-MISER™ TEE-LET® DIMENSIONS & PART NUMBERS						
Part Number	Nominal Outlet A	Nominal Header B	Outlet Length C	Inside Diameter D	Make Up M	Weight Each
NPT (BSPT)	In (mm)	In (mm)	In (mm)	In (mm)	In (mm)	Lb. (kg)
1020020	2 x	2	1.750	2.067	0.875	0.857
1120020		50	44.5	52.5	22.2	0.38
1020025		2 1/2	1.750	2.067	0.875	0.829
1120025		65	44.5	52.5	22.2	0.38
1020030		3	1.750	2.067	0.875	0.829
1120030		80	44.5	52.5	22.2	0.39
1020040		4	1.750	2.067	0.875	0.800
1120040		100	44.5	52.5	22.2	0.36
1020050		5	1.750	2.067	0.875	0.743
1120050		125	44.5	52.5	22.2	0.34
1020060	2 1/2 x	6	1.750	2.067	0.875	0.743
1120060		150	44.5	52.5	22.2	0.34
1020080		8	1.750	2.067	0.875	0.743
1120080		200	44.5	52.5	22.2	0.34
1025025		2 1/2	2.215	2.469	1.125	1.250
1125025		65	54.0	62.7	28.6	0.55
1025030		3	2.215	2.469	1.125	1.200
1125030		80	54.0	62.7	28.6	0.55
1025040		4	2.215	2.469	1.125	1.150
1125040		100	54.0	62.7	28.6	0.52
1025050	3 x	5	2.215	2.469	1.125	1.150
1125050		125	54.0	62.7	28.6	0.52
1025060		6	2.215	2.469	1.125	1.150
1125060		150	54.0	62.7	28.6	0.52
1025080		8	2.215	2.469	1.125	1.150
1125080		200	54.0	62.7	28.6	0.52
1030030		3	2.500	3.068	1.500	1.550
—		80	63.5	77.9	38.1	0.70
1030040		4	2.500	3.068	1.500	1.450
—		100	63.5	77.9	38.1	0.66
1030050	3 x	5	2.500	3.068	1.500	1.450
—		125	63.5	77.9	38.1	0.66
1030060		6	2.500	3.068	1.500	1.450
—		150	63.5	77.9	38.1	0.66
1030080		8	2.500	3.068	1.500	1.450
—		200	63.5	77.9	38.1	0.66
1040040		4	3.000	4.026	2.000	2.850
—		100	76.2	102.3	50.8	1.29
1040050		5	3.000	4.026	2.000	2.850
—		125	76.2	102.3	50.8	1.29
1040060	4 x	6	3.000	4.026	2.000	2.800
—		150	76.2	102.3	50.8	1.27
1040080		8	3.000	4.026	2.000	2.800
—		200	76.2	102.3	50.8	1.27

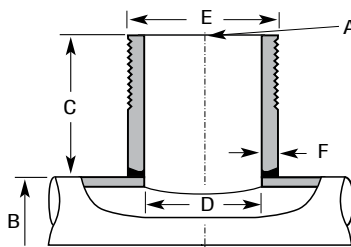
Note:
 Part #1002002 is not UL Listed or FM Approved.
 Part #1012012 is not FM Approved.
 All size-on-size (i.e. 2 x 2) Tee-Lets are not FM Approved.



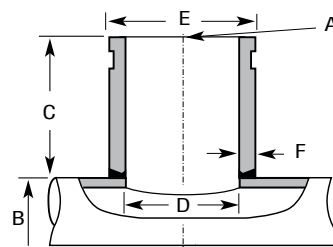
Weld-Miser™ Tee-Let®

Welding Outlet Fittings

Type B
Male Thread
Standard Weight



Type C
Cut Groove
Standard Weight

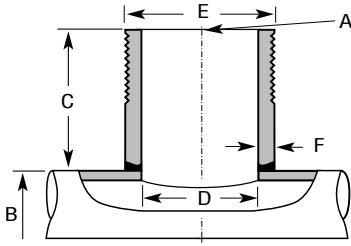


WELD-MISER™ TEE-LET® - DIMENSIONS (NOMINAL SIZES 1" THRU 2")

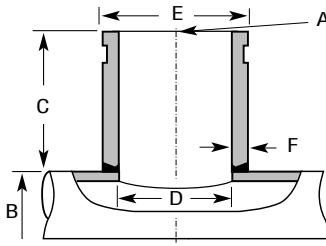
Male Thread Std. Wt.	Cut Groove Std. Wt.	Nominal Outlet A	Nominal Header B	Outlet Length C	Inside Diameter D	Outside Diameter E	Wall Thickness F
<i>NPT (BSPT)</i>	<i>NPT (BSPT)</i>	<i>In. (mm)</i>	<i>In. (mm)</i>	<i>In. (mm)</i>	<i>In. (mm)</i>	<i>In. (mm)</i>	<i>In. (mm)</i>
1310012	2010012	1 x 25 x	1¼ - 1½ 32 - 40	3 80	1.049 26.6	1.315 33.4	0.133 3.4
1310015	2010015		1½ - 2 40 - 50	3 80	1.049 26.6	1.315 33.4	0.133 3.4
1310020	2010020		2 - 2½ 50 - 65	3 80	1.049 26.6	1.315 33.4	0.133 3.4
1310025	2010025		2½ - 4 65 - 100	3 80	1.049 26.6	1.315 33.4	0.133 3.4
1310050	2010050		5 - 8 125 - 200	3 80	1.049 26.6	1.315 33.4	0.133 3.4
1312012	2012012	1¼ x 32 x	1¼ 32	3 80	1.368 34.7	1.660 42.2	0.140 3.6
1312015	2012015		1½ 40	3 80	1.368 34.7	1.660 42.2	0.140 3.6
1312020	2012020		2 - 2½ 50 - 65	3 80	1.368 34.7	1.660 42.2	0.140 3.6
1312025	2012025		3 - 4 80 - 100	3 80	1.368 34.7	1.660 42.2	0.140 3.6
1312050	2012050		5 - 8 125 - 200	3 80	1.368 34.7	1.660 42.2	0.140 3.6
1315015	2015015	1½ x 40 x	1½ 40	3 80	1.610 40.9	1.900 48.3	0.145 3.7
1315020	2015020		2 50	3 80	1.610 40.9	1.900 48.3	0.145 3.7
1315025	2015025		2½ 65	3 80	1.610 40.9	1.900 48.3	0.145 3.7
1315030	2015030		3 - 4 80 - 100	3 80	1.610 40.9	1.900 48.3	0.145 3.7
1315050	2015050		5 - 8 125 - 200	3 80	1.610 40.9	1.900 48.3	0.145 3.7
1320020	2020020	2 x 50 x	2 50	3 80	2.067 52.5	2.375 60.3	0.154 3.9
1320025	2020025		2½ 65	3 80	2.067 52.5	2.375 60.3	0.154 3.9
1320030	2020030		3 80	3 80	2.067 52.5	2.375 60.3	0.154 3.9
1320035	2020035		4 100	3 80	2.067 52.5	2.375 60.3	0.154 3.9
1320050	2020050		5 125	3 80	2.067 52.5	2.375 60.3	0.154 3.9
1320060	2020060		6 150	3 80	2.067 52.5	2.375 60.3	0.154 3.9
1320080	2020080		8 200	3 80	2.067 52.5	2.375 60.3	0.154 3.9

Note: Tee-Lets are manufactured to fit size-on-size, that is the contoured shape on a given Tee-Let is made to fit perfectly on the first listed header size. If installed on the second header size marked on the fitting, a slight gap of approximately 1/32" will appear along the longitudinal centerline of the header. For example, a 1" x 2 - 2½" Tee-Let, is a 1" outlet fitting manufactured to fit perfectly on the 2" header size listed, while leaving a 1/32" gap along the longitudinal centerline of the 2½" size. If a perfect fit is required for a 2½" header pipe, then a 1" x 2½ - 3" Tee-Let would be ordered. Size consolidations are employed to reduce inventory and provide for greater flexibility.

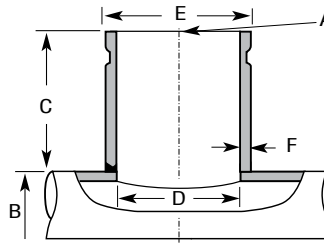
**Type B
Male Thread
Standard Weight**



**Type C
Cut Groove
Standard Weight**



**Type C/R
Roll Groove
Schedule 10**



Weld-Miser™ Tee-Let®

Welding Outlet Fittings

WELD-MISER™ TEE-LET® - DIMENSIONS (NOMINAL SIZES 2½" THRU 8")

Male Thread Std. Wt.	Cut Groove Std. Wt.	Roll Groove Sch. 10	Nominal Outlet A	Nominal Header B	Outlet Length C	Inside Diameter - D		Outside Diameter E	Wall Thickness - F	
						Standard Weight	Schedule 10		Standard Weight	Schedule 10
NPT (ISO-7-1)	NPT (ISO-7-1)	NPT (ISO-7-1)	In.(mm)	In.(mm)	In.(mm)	In.(mm)	In.(mm)	In.(mm)	In.(mm)	In.(mm)
1325025	2025025 2125025	2225025	2½ x 65 x	2½ 65	3 80	2.469 62.7	2.635 67.0	2.875 76.2	0.203 5.0	0.120 3.0
1325030	2025030 2125030	2225030		3 80	3 80	2.469 62.7	2.635 67.0	2.875 76.2	0.203 5.0	0.120 3.0
1325035	2025035 2125035	2225035		4 100	3 80	2.469 62.7	2.635 67.0	2.875 76.2	0.203 5.0	0.120 3.0
1325050	2025050 2125050	2225050		5 125	3 80	2.469 62.7	2.635 67.0	2.875 76.2	0.203 5.0	0.120 3.0
1325060	2025060 2125060	2225060		6 150	3 80	2.469 62.7	2.635 67.0	2.875 76.2	0.203 5.0	0.120 3.0
1325080	2025080 2125080	2225080		8 200	3 80	2.469 62.7	2.635 67.0	2.875 76.2	0.203 5.0	0.120 3.0
1330030	2030030	2230030	3 x 80 x	3 80	3 80	3.068 78.0	3.260 83.0	3.500 88.0	0.216 5.0	0.120 3.0
1330035	2030035	2230035		3½ 85	3 80	3.068 78.0	3.260 83.0	3.500 88.0	0.216 5.0	0.120 3.0
1330040	2030040	2230040		4 100	3 80	3.068 78.0	3.260 83.0	3.500 88.0	0.216 5.0	0.120 3.0
1330050	2030050	2230050		5 125	3 80	3.068 78.0	3.260 83.0	3.500 88.0	0.216 5.0	0.120 3.0
1330060	2030060	2230060		6 150	3 80	3.068 78.0	3.260 83.0	3.500 88.0	0.216 5.0	0.120 3.0
1330080	2030080	2230080		8 200	3 80	3.068 78.0	3.260 83.0	3.500 88.0	0.216 5.0	0.120 3.0
1340040	2040040	2240040	4 x 100 x	4 100	4 100	4.026 102.0	4.260 108.0	4.500 114.0	0.237 6.0	0.120 3.0
1340050	2040050	2240050		5 125	4 100	4.026 102.0	4.260 108.0	4.500 114.0	0.237 6.0	0.120 3.0
1340060	2040060	2240060		6 150	4 100	4.026 102.0	4.260 108.0	4.500 114.0	0.237 6.0	0.120 3.0
1340080	2040080	2240080		8 200	4 100	4.026 102.0	4.260 108.0	4.500 114.0	0.237 6.0	0.120 3.0
—	2050050	—	5 x 125 x	5 125	4 100	5.047 128.2	—	—	—	—
—	2050060	—		6 150	4 100	5.047 128.2	—	—	—	—
—	2050080	—		8 200	4 100	5.047 128.2	—	—	—	—
—	2060060	2260060	6 x 150 x	6 150	4 100	6.065 155.0	6.357 161.5	6.625 168.3	0.280 7.1	0.134 3.0
—	2060080	2260080		8 200	4 100	6.065 155.0	6.357 161.5	6.625 168.3	0.280 7.1	0.134 3.0
—	2080080	—	8 x 200 x	8 200	4 100	7.981 203.0	8.329 212.0	8.625 213.0	0.322 8.0	0.148 3.0

Note: Tee-Lets are manufactured to fit size-on-size, that is the contoured shape on a given Tee-Let is made to fit perfectly on the first listed header size. If installed on the second header size marked on the fitting, a slight gap of approximately 1/32" will appear along the longitudinal centerline of the header. For example, a 1" x 2 - 2½" Tee-Let, is a 1" outlet fitting manufactured to fit perfectly on the 2" header size listed, while leaving a 1/32" gap along the longitudinal centerline of the 2½" size. If a perfect fit is required for a 2½" header pipe, then a 1" x 2½ - 3" Tee-Let would be ordered. Size consolidations are employed to reduce inventory and provide for greater flexibility.



COSCO
Fire Protection

SECTION 2

SPRINKLER HEADS



TECHNICAL DATA SHEET

VK3001 Quick Response Upright Sprinkler K5.6 (80.6)

1. PRODUCT IDENTIFICATION

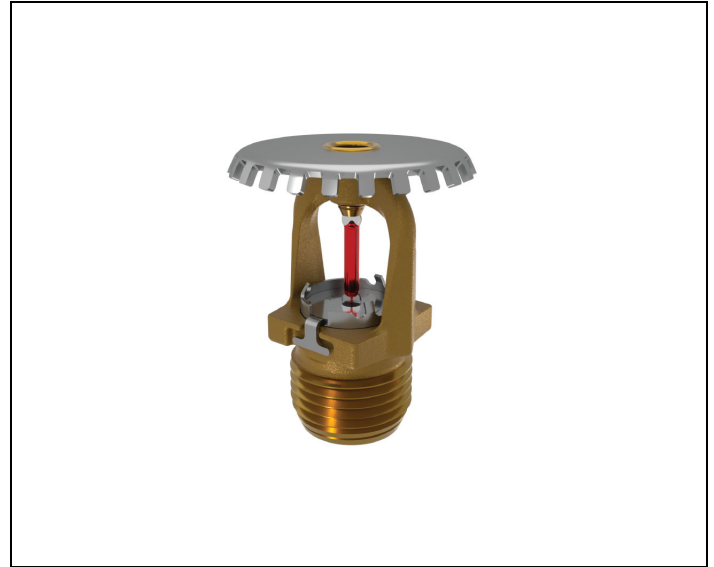
This document covers the following product, hereafter referred to as “sprinkler”:

VK3001: Quick Response, Standard Coverage, Upright, K5.6 (80.6) Sprinkler.

2. INTENDED USE

The sprinkler is intended to be used in automatic fire sprinkler systems as allowed by applicable approval authorities. The sprinkler must be used in accordance with:

1. the sprinkler's Listings, Approvals, and associated design requirements.
2. the recognized design and installations standards issued, for example NFPA, FM, EN, VdS, or LPCB.
3. the latest revisions of all applicable manufacturer's documentation.



Governmental codes, ordinances, and standards may apply and may differ from one another.

WARNING

Cancer and Reproductive Harm www.P65Warnings.ca.gov

3. LISTING AND APPROVALS

Refer to section 5 for details and requirements that must be followed.



cULus Listed



VdS Approved



FM Approved



UKCA Approved



CE



MED Approved



LPCB Approved



TECHNICAL DATA SHEET

VK3001 Quick Response Upright Sprinkler K5.6 (80.6)

4. TECHNICAL SPECIFICATIONS

4.1 Definitions

Standard Upright Sprinkler: A sprinkler intended to be oriented with the deflector above the frame so water flows upward through the orifice, striking the deflector and forming an umbrella-shaped spray pattern downward. These sprinklers are marked “SSU” (Standard Spray Upright) or “UPRIGHT” on the deflector.

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. Sprinklers can be ordered as corrosion resistant sprinklers and can be used with escutcheons when allowed by the approval body.

4.2 Ratings and Physical Characteristics

Parameter	Value
Minimum operating pressure	7 psi (0.5 bar)
Maximum rated pressure	UL: 250 psi (17 bar) FM and CE: 175 psi (12 bar)
Factory tested pressure	500 psi (35 bar)
Thread size	1/2" NPT or 15 mm BSPT
Nominal K-factor	8.0 U.S. (115)
Minimum temperature rating (glass bulb)	-65 °F (-55 °C)

4.3 Markings and Dimensions

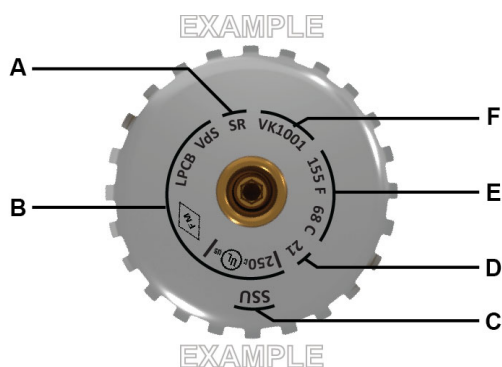


Figure – 1: Markings

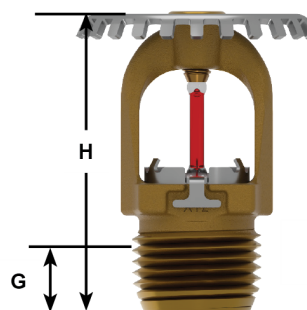


Figure – 2: Dimensions

Ref	Description	Value
A	Response type	QR: Quick Response
B	Listings and Approvals	See sections 3 and 5
C	Sprinkler type	SSU: Standard Spray Upright
D	Manufacture date (year)	See marking
E	Nominal temperature rating	See marking
F	Manufacturers Sprinkler Identification Number (SIN)	VK3001
G	Nominal pipe engagement	7/16" (11 mm)
H	Height	1-15/16" (49 mm)

4.4 Materials of Construction

NOTICE: Do not disassemble the sprinkler.

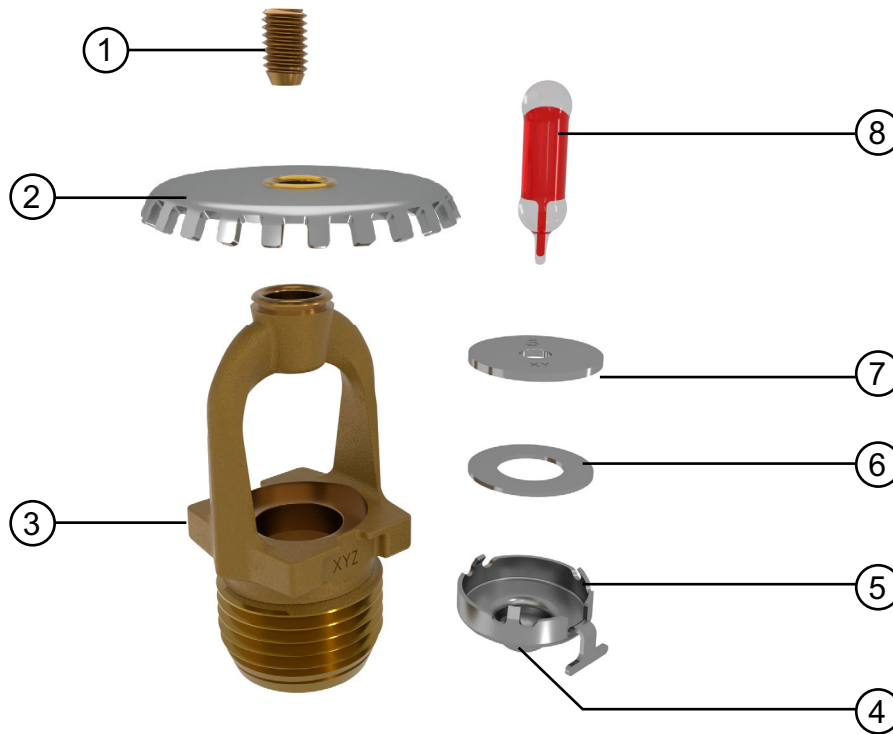


Figure – 3 Sprinkler Components

Ref	Description	Material
1	Compression screw	Brass CW612N, CW508L, UNS-C36000 or UNS-C26000
2	Deflector	Stainless steel UNS S30400
3	Sprinkler body	CW602N, UNS-C84400 or QM brass
4	Pip cap seal	Polytetrafluoroethylene (PTFE)
5	Pip cap shell	Stainless steel UNS-S44400
6	Belleville spring	Nickel alloy
7	Pip cap disc	Stainless steel UNS-S30100
8	Bulb	Glass, nominal 0.10" (3 mm) diameter



TECHNICAL DATA SHEET

VK3001 Quick Response Upright Sprinkler K5.6 (80.6)

5. LISTING AND APPROVAL DESIGN REQUIREMENTS

5.1 Listing and Approval Specifications

Sprinkler Base Part Number ¹	Thread Size		Approval Body				
	NPT	BSPT	cULus		FM		
			Approval Specification	Maximum working water pressure	Approval Specification	Maximum working water pressure	
23869	1/2"	—	A1	250 psi (17 bar)	A1	175 psi (12 bar)	
23881	—	15 mm	A1	250 psi (17 bar)	A1	175 psi (12 bar)	
Additional Listings and Approvals Maximum WWP 175 psi (12 bar)							
			CE	LPCB	VdS	UKCA	MED
23869	1/2"	—	A1	A1	A1	A1	A1
23881	—	15 mm	A1	A1	A1	A1	A1
Approval Specification (Temperature Ratings) Key: A = 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C) and 286 °F (141 °C)							
Approval Specification (Finishes) Key: 1 = Brass, Chrome, White Polyester ^{2,3} , Black Polyester ^{2,3} , and ENT ^{3,4}							
1 For complete part number, refer to Viking's current price list. 2 For White Polyester and Black Polyester, other colors are available upon request and will carry the same Listings and Approvals as the standard colors. 3 cULus Listed as corrosion resistant. 4 FM Approved as corrosion resistant.							

5.2 cULus Listing Requirements and Details

The sprinkler is cULus Listed as indicated in Table 5.1 for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers. This sprinkler is designed for use in light and ordinary hazard occupancies.

5.3 FM Approval Requirements and Details

The sprinkler is FM Approved as quick response Non–Storage upright sprinkler as indicated in the FM Approval Guide. The sprinkler is also approved for use in FM Approved vacuum dry sprinkler systems with a maximum supervisory vacuum pressure of –3 psi (–207 mbar). 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. For specific application and installation requirements, refer to the latest applicable FM Loss Prevention Data Sheets (including Data Sheet 2–0).



TECHNICAL DATA SHEET

VK3001 Quick Response Upright Sprinkler K5.6 (80.6)

5.4 Additional Approval Requirements and Details

Refer to Table 5.1 for approved configurations allowed by each of the following approvals.

- CE CPR: Standard EN 12259-1:1999 +A3:2006; Declaration of Performance DOP_XT1A.
- LPCB: Standard EN 12259-1:1999 +A3:2006; Certificate Number 096m.
- VdS: Standard EN 12259-1:1999 +A3:2006; Certificate Number G 422005.
- UKCA: Standard EN12259-1:1999 +A3:2006; Declaration of Conformity UKCA DOC_S5048.
- MED: Standard EN 12259-1:1999 +A3:2006; Declaration of Conformity DOC_MED_XT1.

5.5 Corrosion Resistant Coatings

The corrosion resistant coatings have passed the standard corrosion tests required by the approving agencies and are listed and approved as indicated in Table 5.1. These tests do not represent all possible corrosive environments. The Electro-less Nickel PTFE (ENT) finish passed the UL 199 thirty day corrosion test and is cULus listed and FM Approved as corrosion resistant. For automatic sprinklers, the ENT coating is applied to all exposed exterior surfaces, including the waterway.

Prior to installation, verify that the coatings are compatible with, or suitable for, the proposed environment. The ENT finish has not been evaluated for environments containing chlorine, such as indoor swimming pools. It is not recommended for these applications.

5.6 Sprinkler Guards and Water Shields

The sprinkler is approved for use with the Model XG Sprinkler Guard and the Model XWU upright water shield. Refer to the Guards and Water Shields for XT1 Sprinklers technical data sheet for more information.

5.7 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.



TECHNICAL DATA SHEET

VK3001 Quick Response Upright Sprinkler K5.6 (80.6)

6. ORDERING PROCEDURE

6.1 Sprinkler

1. Choose a sprinkler base part number with the required thread size and listing or approval (refer to section 5):
2. Add the suffix for the desired finish.
3. Add the suffix for the desired temperature rating.

NOTE: For Polyester, insert the desired temperature rating suffix where the dash (–) is shown.

EXAMPLE: 23869MB/W = VK3001 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).

1. Sprinkler Base Part Number		2. Finish		3. Temperature Rating			
See Section 5		Description	Suffix	Nominal Temperature Rating	Bulb Color	Maximum Ambient Ceiling Temperature	Suffix
23869	1/2" NPT	Brass	A	135 °F (57 °C)	Orange	100 °F (38 °C)	A
23881	15 mm BSPT	Chrome	F	155 °F (68 °C)	Red	100 °F (38 °C)	B
		White Polyester	M–W	175 °F (79 °C)	Yellow	150 °F (65 °C)	D
		Black Polyester	M–B	200 °F (93 °C)	Green	150 °F (65 °C)	E
		ENT	JN	286 °F (141 °C)	Blue	225 °F (107 °C)	G
				OPEN	—	—	Z

6.2 Sprinkler Accessories



Figure – 4: Sprinkler Accessories

Ref.	Part Number	Description
1)	23559MB	Straight wrench: required for proper installation
2)	01724A	Sprinkler cabinet: holds up to 6 sprinklers
3)	01725A	Sprinkler cabinet: holds up to 12 sprinklers (not shown)



TECHNICAL DATA SHEET

VK3001 Quick Response Upright Sprinkler K5.6 (80.6)

7. CONTACT

The sprinkler and accessories are available through Viking distributors only. Contact your local Viking sales office which can be found on our website:

Americas and Asia: www.vikinggroupinc.com/locations OR Europe, Middle East, Africa (EMEA): www.viking-emea.com/contact

Manufacturer:

The Viking Corporation
5150 Beltway SE
Caledonia, MI 49316
Tel.: (800) 968-9501
Fax: 269-818-1680
Technical Services: 1-877-384-5464
techsvcs@vikingcorp.com

Importer EU:

Viking S.A.
21, Z.I. Haneboesch
L-4562 Differdange / Niederkorn
Tel.: +352 58 37 37 – 1
Fax: +352 58 37 36
vikinglux@viking-emea.com

Asia Pacific (APAC) Main Office:

The Viking Corporation (Far East) Pte. Ltd.
69 Tuas View Square
Westlink Techpark, Singapore 637621
Tel: (+65) 6 278 4061
Fax: (+65) 6 278 4609
vikingAPAC@vikingcorp.com



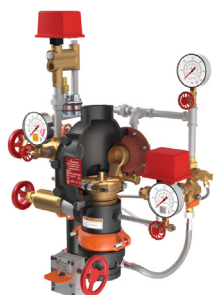
COSCO
Fire Protection

SECTION 3

VALVES

Victaulic® FireLock NXT™ Dry Valve

Series 768N



Patented

1.0 PRODUCT DESCRIPTION

Available Sizes:

- 1 ½ – 8" /40 – 200 mm

Pressure Class:

- Up to 300 psi/2068 kPa/20 Bar

Minimum Air Pressure:

- 13 psi/90 kPa/.90 Bar

Actuation Options:

- Series 776 Low Pressure Actuator
- Optional: Series 746-LPA Dry Accelerator

Valve Configurations:

- Bare
- Pre-trimmed: Completely assembled with all necessary trim components.
- Vic-Quick Riser: Pre-trimmed and includes:
 - Shut Off Valve (1 ½"/40 mm: Series 728 Ball Valve, 2" – 8"/50 – 200 mm: Series 705 FireLock Butterfly Valve)
 - Pre-set high or low air and alarm pressure switches
 - Drain kit
- Fire-Pac Series 745 (refer to Victaulic [submittal 30.23](#))

Pipe Preparation:

- Victaulic Original Groove System

Application/Media:

- For use on fire protection systems only.

2.0 CERTIFICATION/LISTINGS



NOTE

- CCC approval for DN80, DN100, DN150, DN200.

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



3.0 SPECIFICATIONS - MATERIAL

Body: Ductile iron conforming to ASTM A536, grade 65-45-12.

Clapper: Aluminum bronze UNS-C95500

Latch: Aluminum bronze UNS-C95500

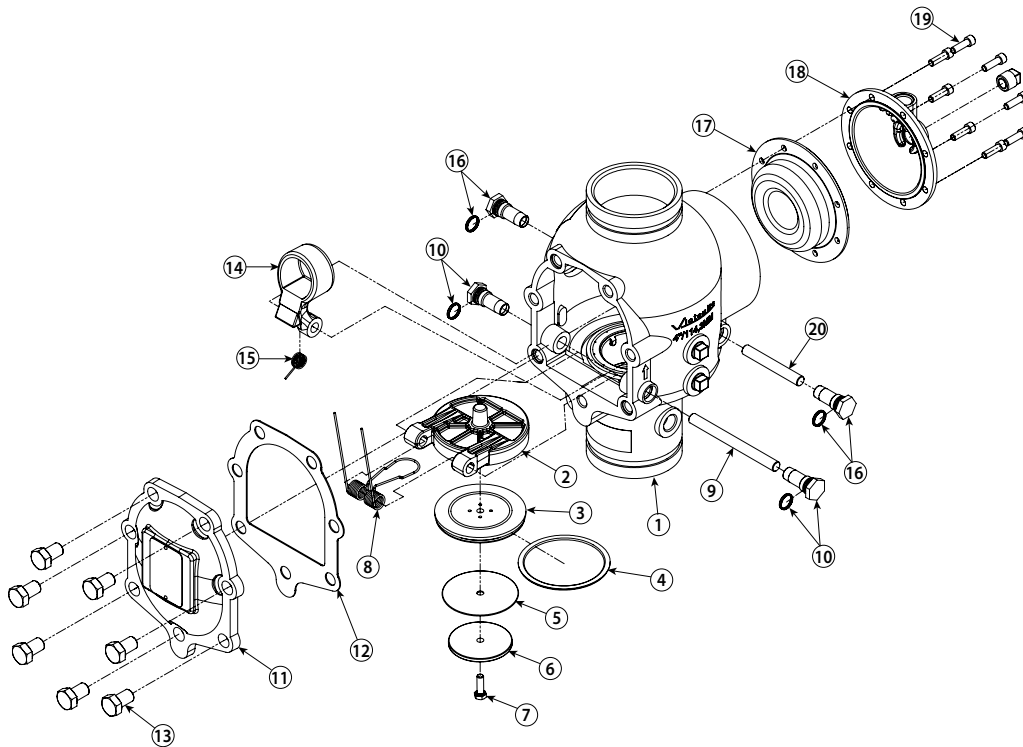
Shafts: Stainless 17-4

Clapper Seal: Peroxide cured EPDM, ASTM D2000

Bushings/Seat O-rings: Nitrile

Springs: Stainless Steel (300 Series)

Diaphragm: Peroxide cured EPDM with fabric reinforcement



The 1½-inch/48.3-mm and 2-inch/60.3-mm valve sizes contain washers under the heads of the cover plate bolts.

Item	Description
1	Valve Body
2	Clapper
3	Clapper Seal
4	Seal Ring
5	Seal Washer
6	Seal Retaining Ring
7	Seal Assembly Bolt
8	Clapper Spring
9	Clapper Shaft
10	Clapper Shaft Bushing and O-Ring (Qty. 2)

Item	Description
11	Cover Plate
12	Cover Plate Gasket
13	Cover Plate Bolts
14	Latch
15	Latch Spring
16	Latch Spring Bushing and O-Ring (Qty. 2)
17	Diaphragm
18	Diaphragm Cover
19	Diaphragm Cover Cap Screws (Qty. 8)
20	Latch Shaft

3.0 SPECIFICATIONS – MATERIAL (CONTINUED)

Standard Trim Package:

- Series 776 Low Pressure Actuator – The Series 776 Low Pressure Actuator is pneumatically actuated and requires only 13 psi/90 kPa minimum air pressure, regardless of the system supply pressure. This actuator allows the system to operate with a low air or gas pressure of 7 psi/48 kPa.
- All required pipe nipples and fittings - standard galvanized finish
- All standard trim accessories
- All required gauges

Optional Trim Package: Black Trim for Foam Systems – If the valve is intended for use in a foam system, black trim must be ordered, per NFPA requirements. Specify this requirement on the order.

Optional Accessories:

Alarm Pressure Switch – Alarm Pressure Switches are designed to activate electrical alarms and control panels when a sustained flow of water occurs (such as with an open sprinkler). Included in VQR trim.

Air Supervisory Pressure Switch – Air Pressure Supervisory Switches are used to monitor low and high system air pressure and are factory pre-set. Included in VQR trim.

Series 746-LPA Dry Accelerator – The Series 746-LPA Dry Accelerator is required when the Series 768N Dry Valve is installed in large systems to improve response time. Refer to Victaulic submittal 30.64.

Series 760 Water Motor Alarm – The Series 760 Water Motor Alarm is a mechanical device that sounds when a sustained flow of water occurs (such as with an open sprinkler). Refer to Victaulic submittal 30.32.

Series 75B Supplemental Alarm Device – The Series 75B Supplemental Alarm Device is designed to provide a continuous alarm for systems equipped with a mechanical device. Refer to Victaulic submittal 30.33.

Series 75D Water Column Kit – The Series 75D Water Column Kit is designed to minimize residual water in the riser from collecting above the clapper. Refer to Victaulic submittal 30.34.

Air Supply System – The air supply system contains all components for establishing and maintaining air in the system. The compressor, low-pressure alarms, ball valves, and required trim are included in the air supply system.

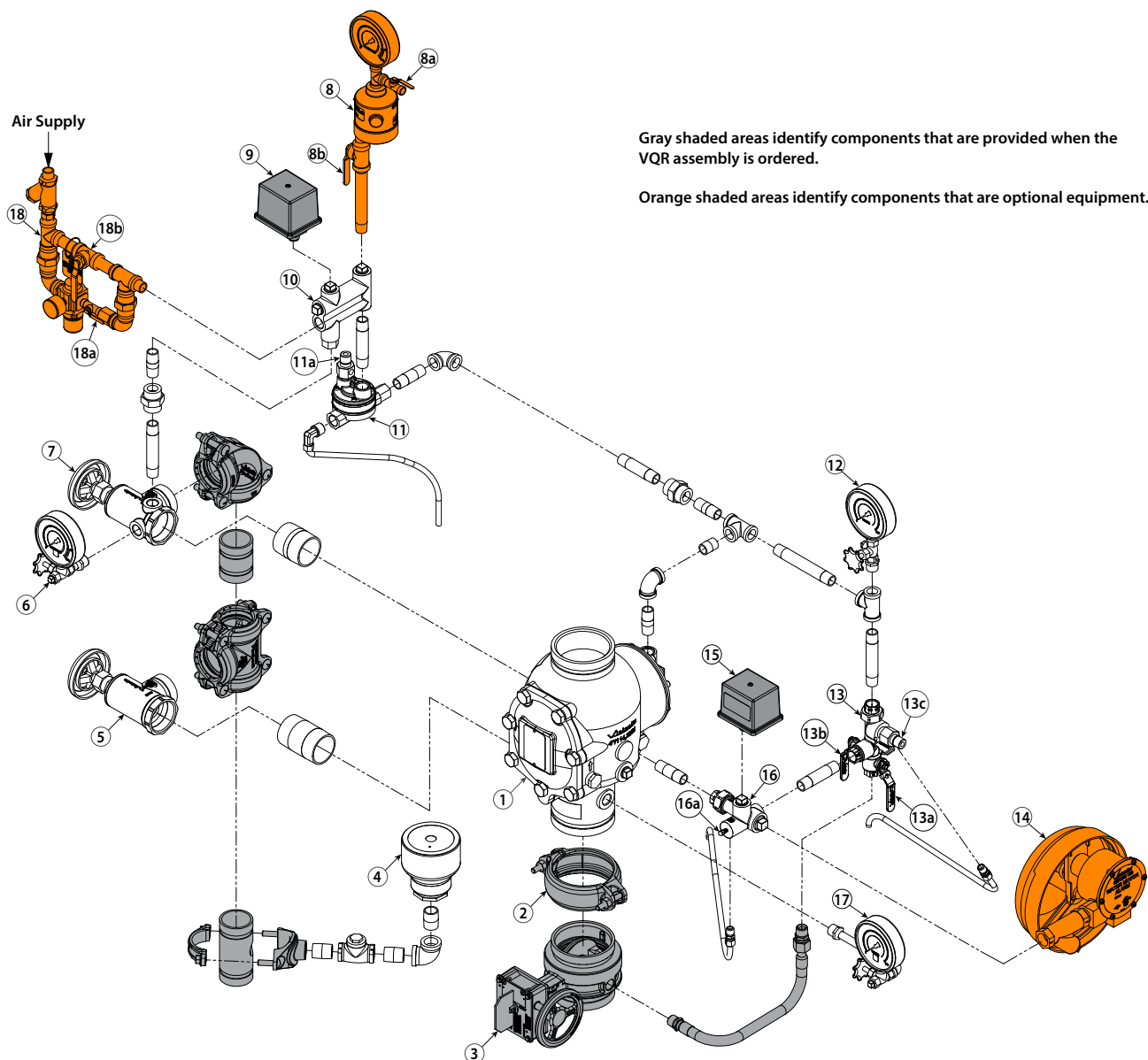
Air Compressor (See page 6 for more on the Victaulic Series 7C7 Compressor Package)

Air Maintenance Trim Assembly

Fire Alarm Control Panels

Drain Connection Kit – Included in VQR option.

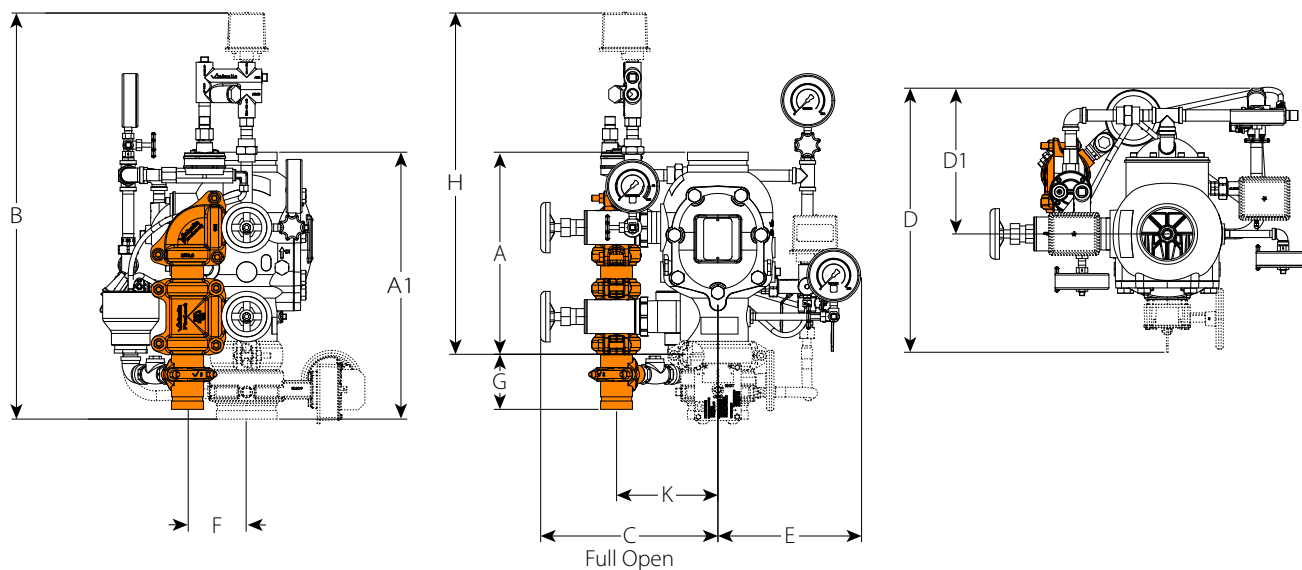
3.0 SPECIFICATIONS – MATERIAL (CONTINUED)



Item	Description
1	Series 768N FireLock NXT Dry Valve
2	FireLock Rigid Coupling
3	Water Supply Main Control Valve
4	Drip Cup
5	Water Supply Main Drain Valve – Flow Test
6	System Pressure Gauge/Gauge Valve Assembly
7	System Main Drain Valve
8	Series 746-LPA Dry Accelerator Assembly
8a	Series 746-LPA Dry Accelerator ¼-Turn Vent Ball Valve
8b	Series 746-LPA Dry Accelerator Isolation Ball Valve
9	Air Supervisory Pressure Switch
10	Air Manifold
11	Series 776 Low-Pressure Actuator
11a	Auto Vent Sleeve of Series 776 Low-Pressure Actuator

Item	Description
12	Charge Line Pressure Gauge/Gauge Valve Assembly
13	Priming Manifold Assembly
13a	Charge Line Ball Valve
13b	Alarm Test Ball Valve
13c	Auto Drain Sleeve
14	Series 760 Water Motor Alarm Assembly
15	Alarm Pressure Switch
16	Alarm Manifold Assembly
16a	Ball Drip Plunger
17	Water Supply Pressure Gauge/Gauge Valve Assembly
18	Victaulic Air Maintenance Trim Assembly (AMTA)
18a	Slow-Fill Ball Valve of the Victaulic AMTA
18b	Fast-Fill Ball Valve of the Victaulic AMTA

4.0 DIMENSIONS



Size	Dimensions											Weight	
												Approx. (Each)	
Nominal inches DN	A inches mm	A1 inches mm	B inches mm	C inches mm	D inches mm	D1 inches mm	E inches mm	F inches mm	G inches mm	H inches mm	K inches mm	Without Trim lbs kg	With Trim lbs kg
1½ DN40	9.00 228.60	16.37 415.80	31.50 800	9.25 235	15.25 387	10.00 254	9.25 235	3.25 83	10.25 260	21.75 552	6.00 152	16.7 7.6	43.0 19.5
2 DN50	9.00 228.60	13.83 351.28	31.50 800	9.25 235	16.25 413	10.00 254	9.25 235	3.25 83	10.25 260	21.75 552	6.00 152	17.0 7.7	43.0 19.5
2½	12.61 320.29	16.51 419.35	29.75 756	11.25 286	17.25 438	9.75 248	9.75 248	4.00 102	6.25 159	23.75 603	6.50 165	41.0 18.7	65.0 29.5
76.1 mm	12.61 320.29	16.51 419.35	29.75 756	11.25 286	17.25 438	9.75 248	9.75 248	4.00 102	6.25 159	23.75 603	6.50 165	41.0 18.7	65.0 29.5
3 DN80	12.61 320.29	16.51 419.35	29.75 756	11.25 286	17.25 438	9.75 248	9.75 248	4.00 102	6.25 159	23.75 603	6.50 165	41.0 18.7	65.0 29.5
4 DN100	15.03 381.76	19.85 504.19	31.50 800	13.50 343	20.00 508	11.25 286	11.00 279	4.75 121	4.50 114	25.75 654	8.00 203	59.0 26.7	95.0 43.0
165.1 mm	16.00 406.40	22.13 562.10	31.00 787	14.00 356	23.25 591	11.75 298	11.25 286	4.50 114	4.25 108	27.00 686	8.25 210	80.0 36.2	116.0 52.6
6 DN150	16.00 406.40	22.13 562.10	31.00 787	14.00 356	23.25 591	11.75 298	11.25 286	4.50 114	4.25 108	27.00 686	8.25 210	80.0 36.2	116.0 52.6
8 DN200	17.50 444.50	23.02 584.71	32.75 832	14.75 375	25.75 654	12.50 318	12.25 311	4.75 121	4.25 108	29.00 737	9.25 235	122.0 55.3	158.0 71.6

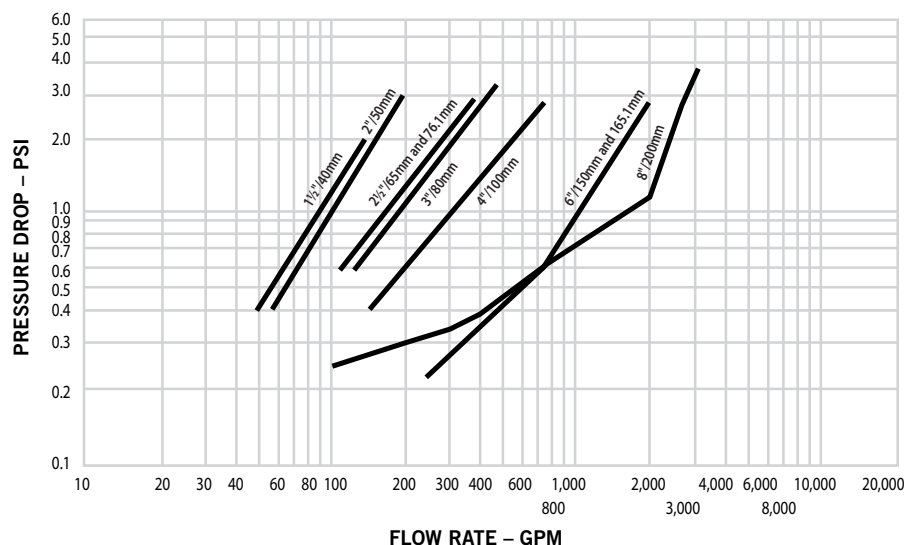
NOTES

- The "A" dimension is the actual takeout dimension of the valve body.
- The "A1" dimension is the actual takeout dimension of the valve body with water supply main control valve.
- For systems with the optional Series 746-LPA Dry Accelerator, add 11.50 inches/292 mm to the "B" dimension to account for the additional height.
- The "D" and "D1" dimensions are not fixed measurements. The drip cup can be rotated to provide more clearance at the back of the trim.
- Components shown as dotted lines denote optional equipment.
- The recommended drain connection kit (shaded in orange) is for reference and takeout dimensions. This drain connection comes standard when the VQR assembly is ordered.

5.0 PERFORMANCE

Hydraulic Friction Loss

The chart below expresses the flow of water at 65°F/18°C through an open valve.



Frictional Resistance

The chart below expresses the frictional resistance of Victaulic Series 768N FireLock NXT.

Dry Valve in equivalent feet of straight pipe.

Nominal Size inches DN	Actual Outside Diameter inches mm	Equivalent Length of Pipe feet meters
1 1/2 DN40	1.900 48.3	3.00 0.914
2 DN50	2.375 60.3	9.00 2.743
2 1/2	2.875 73.0	8.00 2.438
76.1 mm	3.000 76.1	8.00 2.439
3 DN80	3.500 88.9	17.00 5.182
4 DN100	4.500 114.3	21.00 6.401
165.1 mm	6.500 165.1	22.00 6.706
6 DN150	6.625 168.3	22.00 6.706
8 DN200	8.625 219.1	50.00 15.240

Cv Values:

Cv values for flow of water at +60°F/+16°C through a fully open valve are shown in the table below.

Formulas for Cv values

$$\Delta P = Q^2 / C_v^2$$

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

Where:

Flow Coefficient	Cv
Q (Flow)	GPM
ΔP (Pressure Drop)	psi

Valve Size		Full Open
Nominal Size inches DN	Actual Outside Diameter inches mm	Flow Coefficient Cv Kv
1 1/2 DN40	1.900 48.3	60 52.0
2 DN50	2.375 60.3	110 95.0
2 1/2	2.875 73.0	180 156.0
76.1 mm	3.000 76.1	180 156.0
3 DN80	3.500 88.9	200 173.0
4 DN100	4.500 114.3	350 302.8
165.1 mm	6.500 165.1	1000 865.0
6 DN150	6.625 168.3	1000 865.0
8 DN200	8.625 219.1	1500 1499.1


5.0 PERFORMANCE (CONTINUED)


Air Supply Requirements


- Minimum: 13 psi/90 kPa/.9 Bar regardless of the system water pressure
- Maximum Recommended: 18 psi/124 kPa/1.24 Bar
- Multiple Series 768N FireLock NXT Dry Valves with a common air supply:
 - Isolate systems with a Victaulic spring –loaded, soft-seated ball check valve to ensure air integrity and serviceability of each system.
- Sizing the compressor:
 - Engineer/system designer is responsible
 - Entire system must be charged to the required air pressure within 30 minutes to meet NFPA requirements
 - An oversized compressor will slow down or possibly prevent valve operation
 - Compressor filling the system too fast:
 - May be necessary to restrict the air supply
 - Ensure that air exhausted from an open sprinkler or manual release valve is not replaced by the air supply system as fast as it is exhausted
- Compressor Requirements
 - Base or Riser Mounted Compressors:
 - “On” or “low” pressure setting: 13 psi/90 kPa/.9 Bar
 - “Off” or “high” pressure setting: 18 psi/124 kPa/1.24 Bar
 - Victaulic Series 7C7 riser mounted and pre-set for pressure requirements (refer to Victaulic [submittal 30.22](#)).
 - If the compressor is not equipped with a pressure switch, the Series 757P Air Maintenance Trim Assembly with pressure switch should be installed (refer to Victaulic [submittal 30.36](#)).
- Shop Air or Tank-Mounted Air Compressors:
 - Series 757 Regulated Air Maintenance Trim Assembly should be installed (refer to Victaulic [submittal 30.35](#))
 - 13 psi/90 kPa/.9 Bar should be used as the set point for the air regulator
 - The compressor cut-in (turn-on) pressure setting should be at least 5 psi/34kPa/34 Bar above the set point of the air regulator.
 - Exploded View Trim: Series 757 Regulated Air Maintenance Trim Assembly (refer to Victaulic [submittal 30.35](#))
- Compressor Requirements and settings for systems installed with series 746 or series 746-LPA dry accelerators
 - A tank-mounted air compressor with a Series 757 Regulated AMTA must be used to supply air to system installed with a Series 746 or Series 746-LPA Dry Accelerator.
 - In the event a compressor becomes inoperative, a properly sized tank-mounted air compressor provides the greatest protection, since air can be supplied continuously to the sprinkler system for an extended time period.


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

- [30.35: FireLock™ Air Maintenance Trim Assembly Series 757 Submittal](#)
- [30.36: FireLock™ Air Maintenance Trim Assembly Series 757P Submittal](#)
- [30.22: FireLock® Compressor Package Series 7C7 Submittal](#)
- [30.32: FireLock™ Water Motor Alarm Series 760 Submittal](#)
- [30.64: FireLock™ Dry Accelerator Series 746-LPA](#)
- [30.65: FireLock™ Low Pressure Actuator Series 776 Submittal](#)
- [I-768N: FireLock NXT™ Dry Valve Series 768N Installation Manual](#)

User Responsibility for Product Selection and Suitability

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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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FireLock® Check Valves

Series 717 Check Valve

Series 717H High Pressure Check Valve



10.08



Series 717H
High Pressure Check Valve
(2 – 3"/DN50 – DN80)



Series 717
(2 ½ – 3"/73 mm – DN80)



Series 717
(4 – 12"/DN100 – DN300)

1.0 PRODUCT DESCRIPTION

Available Sizes

- 2 – 3"/DN50 – DN80 (Series 717H)
- 2 ½ – 12"/73 mm – DN300 (Series 717)

Pipe Material

- Carbon Steel, Schedule 10, Schedule 40. For use with alternative material please contact Victaulic.

Maximum Working Pressure

- Up to 365 psi/2517 kPa/25 bar
- Working pressure dependent on pipe size, 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.

Available End Connections

- Victaulic Original Groove System (OGS) standard groove

2.0 CERTIFICATION/LISTINGS



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



2.0 CERTIFICATION/LISTINGS

Approvals/Listings

Series 717H

Size		Approval/Listing Service Pressures				
Nominal inches DN	Actual Outside Diameter inches mm	cULus psi kPa	FM psi kPa	LPCB psi kPa	VdS psi kPa	CCCf psi kPa
2 DN50	2.375 60.3	365 2517	365 2517	365 2517	363 2500	N/A
2 ½	2.875 73.0	365 2517	365 2517	365 2517	N/A	363 2500
DN65	3.000 76.1	365 2517	365 2517	365 2517	363 2500	363 2500
3 DN80	3.500 88.9	365 2517	365 2517	365 2517	363 2500	363 2500

Series 717

Size		Approval/Listing Service Pressures				
Nominal inches DN	Actual Outside Diameter inches mm	cULus psi kPa	FM psi kPa	LPCB psi kPa	VdS psi kPa	CCCf psi kPa
2 ½	2.875 73.0	250 1725	N/A	N/A	N/A	N/A
DN65	3.000 76.1	250 1725	N/A	N/A	232 1600	N/A
3 DN80	3.500 88.9	250 1725	N/A	N/A	232 1600	N/A
4 DN100	4.500 114.3	365 2517	365 2517	365 2517	363 2500	363 2500
DN125	5.500 139.7	365 2517	365 2517	365 2517	363 2500	363 2500
5	5.563 141.3	365 2517	365 2517	365 2517	N/A	N/A
	6.500 165.1	365 2517	365 2517	365 2517	N/A	363 2500
6 DN150	6.625 168.3	365 2517	365 2517	365 2517	363 2500	N/A
8 DN200	8.625 219.1	365 2517	365 2517	348 2400	247 1700	363 2500
10 DN250	10.750 273.0	250 1725	250 1725	250 1725	N/A	232 1600
12 DN300	12.750 323.9	250 1725	250 1725	250 1725	N/A	N/A

3.0 SPECIFICATIONS – MATERIAL

Body:

Ductile Iron conforming to ASTM A536, Grade 65-45-12.

Body Coating:

Series 717H Body: Black Paint

Series 717H Endface: Electroless Nickel conforming to ASTM B733

Series 717 (2 ½ – 3"/73mm – DN80): PPS Coating

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

Optional: Series 717 (4 – 12"/DN100 – DN300): PPS Coating

Body Seat:

Series 717H: Nitrile O-ring installed into an Electroless Nickel plating conforming to ASTM B733

Series 717 (2 ½ – 3"/73 mm – DN80): PPS Coated Ductile Iron

Series 717 (4 – 12"/DN100 – DN300): Ductile Iron with Electroless Nickel plating conforming to ASTM B733

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"/73 mm – DN80): Aluminum bronze with elastomer seal

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

Shaft:

Series 717H: Brass

Series 717 (2 ½ – 3"/73 mm – 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

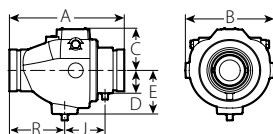
Optional Pressure Taps:

Series 717H: Available on all sizes

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

4.0 DIMENSIONS

Series 717H

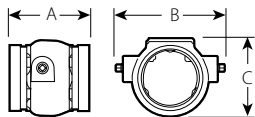


Typical 2 – 3"/50 – 80 mm

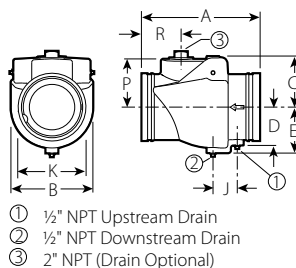
Size		Dimensions						Weight
Nominal inches DN	Actual Outside Diameter inches mm	E to E A inches mm	B inches mm	C inches mm	E inches mm	J inches mm	R inches mm	Approx. (Each) lb kg
2	2.375	8.66	6.46	3.23	3.02	2.80	4.25	10.7
DN50	60.3	220	165	83	77	72	108	4.9
2½	2.875	9.37	6.94	3.31	3.40	3.38	4.38	13.8
	73.0	238	177	85	87	86	112	6.3
DN65	3.000	9.37	6.94	3.31	3.40	3.38	4.38	13.8
	76.1	238	177	85	87	86	112	6.3
3	3.500	9.62	7.44	3.53	3.65	3.38	4.63	20.0
DN80	88.9	244	189	90	93	86	118	9.1

4.1 DIMENSIONS

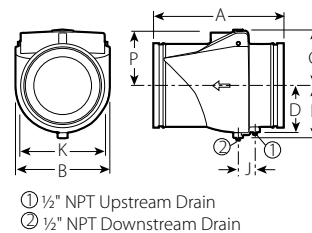
Series 717



Typical 2 ½ – 3"/73 mm – DN80



Typical 4 – 8"/DN100 – DN200



Typical 10 – 12"/DN250 – DN300

Size		Dimensions								Weight
Nominal inches DN	Actual Outside Diameter inches mm	E to E A inches mm	B inches mm	C inches mm	E inches mm	J inches mm	K inches mm	P inches mm	R inches mm	Approx. (Each) lb kg
2 ½	2.875 73.0	3.88 99	4.26 109	3.57 91	– –	– –	– –	– –	– –	3.6 1.6
DN65	3.000 76.1	3.88 99	4.26 108	3.57 91	– –	– –	– –	– –	– –	3.6 1.6
3 DN80	3.500 88.9	4.25 108	5.06 129	4.17 106	– –	– –	– –	– –	– –	4.5 2.0
4 DN100	4.500 114.3	9.63 245	6.00 152	3.88 99	3.50 89	2.00 51	4.50 114	3.50 89	3.35 85	20.0 9.1
DN125	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 12.2
5	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 12.2
	6.500 165.1	11.50 292	8.00 203	5.00 127	4.50 114	2.38 60	6.67 169	4.73 120	3.89 99	38.0 17.2
6 DN150	6.625 168.3	11.50 292	8.00 203	5.00 127	4.50 114	2.38 60	6.67 169	4.73 120	3.89 99	38.0 17.2
8 DN200	8.625 219.1	14.00 356	9.88 251	6.06 154	5.65 144	2.15 55	8.85 225	5.65 144	5.75 146	64.0 29.0
10 DN250	10.750 273.0	17.00 432	12.00 305	7.09 180	6.69 170	2.15 55	10.92 277	6.73 171	– –	100.0 45.4
12 DN300	12.750 323.9	19.50 495	14.00 356	8.06 205	7.64 194	2.51 64	12.81 325	7.73 196	– –	140.0 63.5

5.0 PERFORMANCE

Flow Characteristics

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

Formulas for C_v/K_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

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

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

Where:

Q = Flow (m³/hr)

ΔP = Pressure Drop (Bar)

K_v = Flow Coefficient

Series 717H

Size		Flow Characteristics
Nominal inches DN	Actual Outside Diameter inches mm	Full Open C_v K_v
2	2.375	160
DN50	60.3	138
2½	2.875	215
	73.0	186
DN65	3.000	215
	76.1	186
3	3.500	315
DN80	88.9	272

Series 717

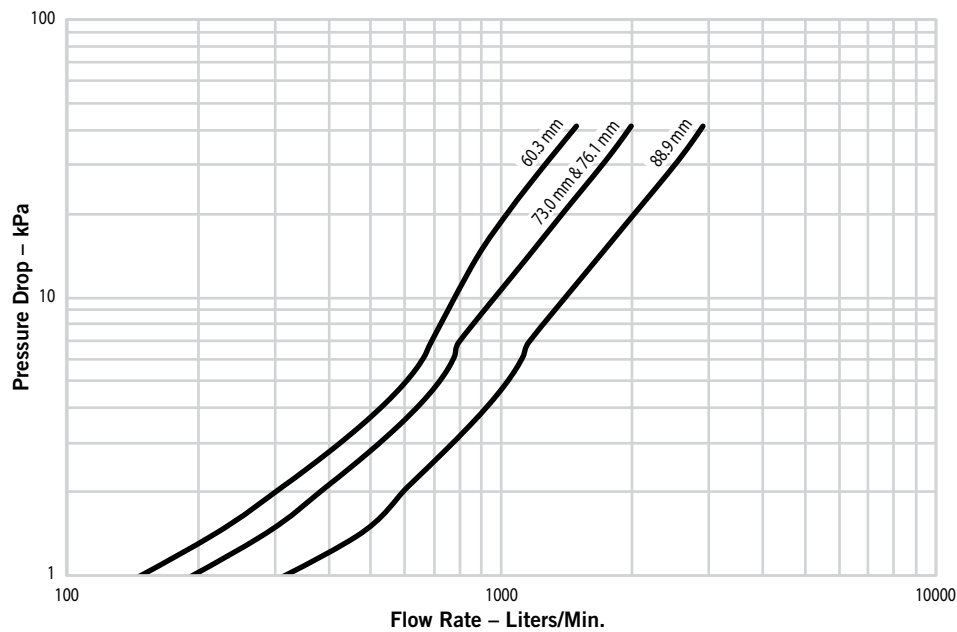
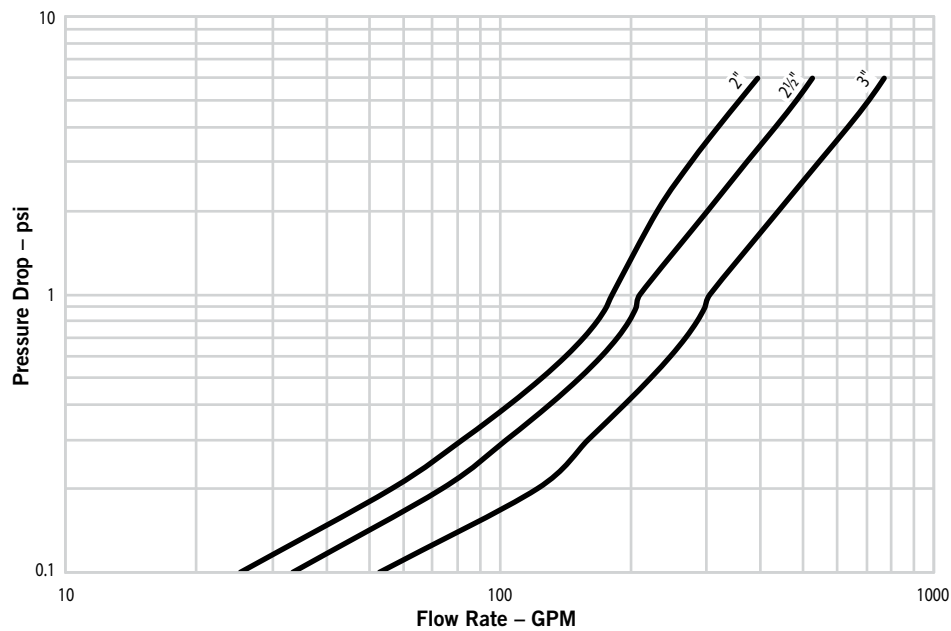
Size		Flow Characteristics
Nominal inches DN	Actual Outside Diameter inches mm	Full Open C_v K_v
2½	2.875	140
	73.0	121
DN65	3.000	140
	76.1	121
3	3.500	250
DN80	88.9	216
4	4.500	390
DN100	114.3	337
DN125	5.500	700
	139.7	606
5	5.563	700
	141.3	606
	6.500	1000
	165.1	865
6	6.625	1000
DN150	168.3	865
8	8.625	1800
DN200	219.1	1557
10	10.750	3000
DN250	273.0	2595
12	12.750	4200
DN300	323.9	3633

5.0 PERFORMANCE (CONTINUED)

Flow Characteristics

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

S717H

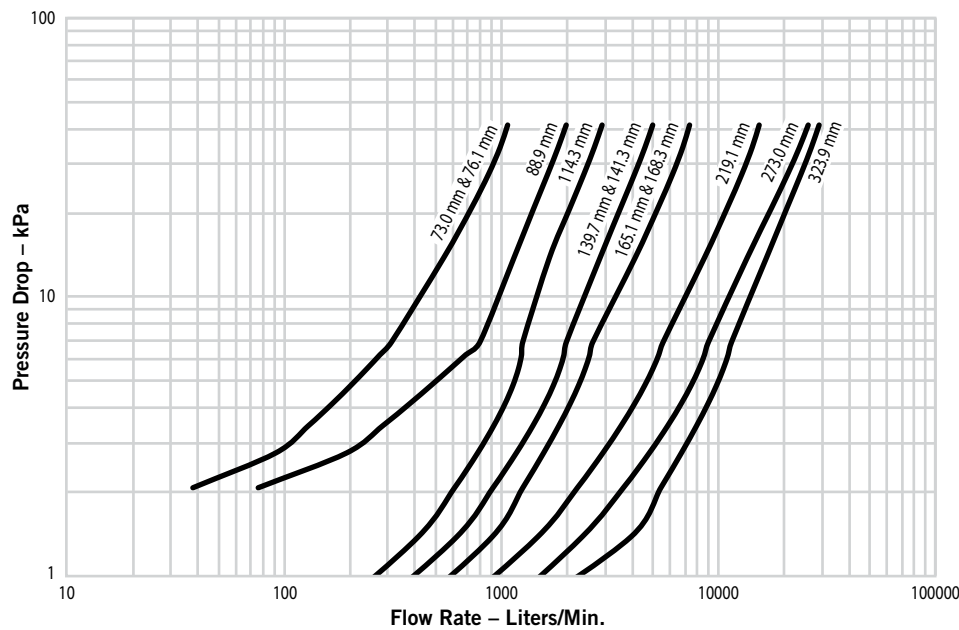
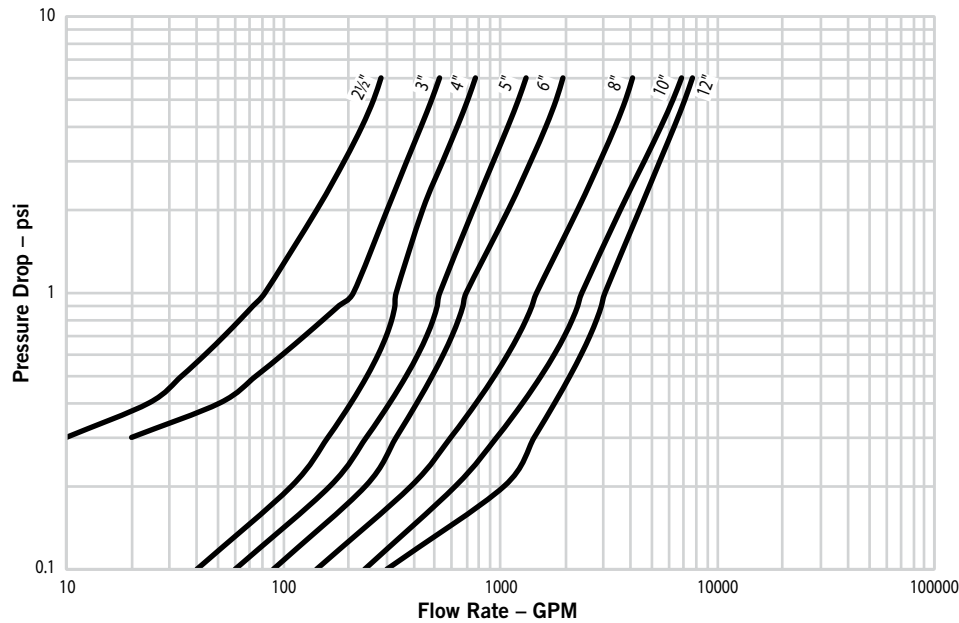


5.1 PERFORMANCE

Flow Characteristics

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

S717



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

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CONNECTIONS (FDC) EXPOSED FIRE DEPT. INLET CONNECTIONS-CLAPPER TYPE

Model/Series No.
**5710-5734
SERIES**

SPECIFICATIONS

TWO-WAY WITH SINGLE CLAPPER, 300 PSI RATED

Cast brass two-way inlet body, swing clapper and pin lug swivel. Back or angle outlet as selected by model number. Lettering as selected. Size 4" x 2-1/2" x 2-1/2".

TWO-WAY WITH DOUBLE CLAPPER, 175 PSI RATED

Cast brass two-way inlet body, drop clappers and pin lug swivels. Size and outlet as selected by model number. Lettering as selected.



UL File #EX4078
Model #S201B



MODEL 5710 (Shown)

MODEL SELECTION

TWO-WAY WITH SINGLE CLAPPER

- ☐ 5710 Back Outlet (UL Listed) ◀FM▶
- ☐ 5715 Angle Outlet (UL Listed) ◀FM▶

TWO-WAY WITH DOUBLE CLAPPER

- ☐ 5721 Back Outlet
- ☐ 5722 Back Outlet
- ☐ 5723 Back Outlet
- ☐ 5724 Back Outlet
- ☐ 5731 Angle Outlet
- ☐ 5732 Angle Outlet
- ☐ 5733 Angle Outlet
- ☐ 5734 Angle Outlet

Note: Refer to Model Dimensional Chart for UL & FM Listing

PRODUCT OPTIONS

FINISHES:

- ☐ -B Polished Brass
- ☐ -C Rough Chrome Plated Body
- ☐ -D Polished Chrome Plated

THREADS:

- ☐ N.S.T.
- ☐ Other _____

LETTERING AVAILABLE:

- ☐ AUTO. SPKR.
- ☐ STANDPIPE

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5710-5734 SERIES Date: 12/11/18

MEMBERSHIP



FIRE EQUIPMENT
MANUFACTURERS'
ASSOCIATION



ONFSA
NATIONAL FIRE SPRINKLER ASSOCIATION, INC.



POTTER ROEMER/FIRE PRO

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Also in:
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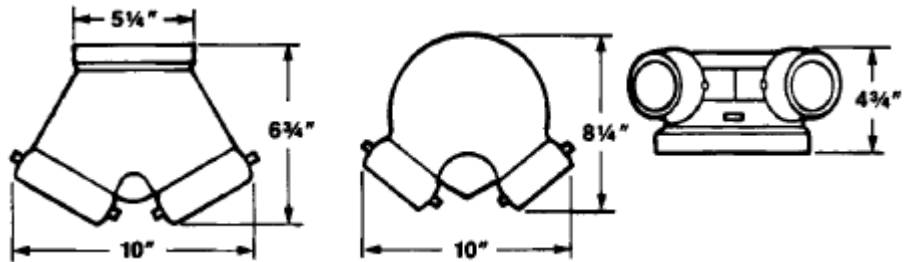
www.potterroemer.com

MODEL DIMENSIONS

TWO-WAY WITH SINGLE CLAPPER





UL Listed File #EX4078
Model #S201B



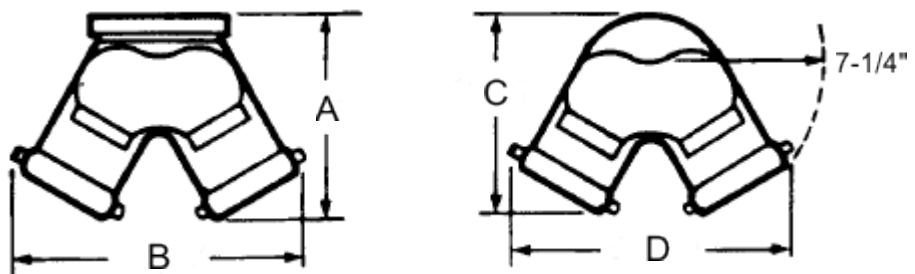
MODEL 5710 - 5715

TWO-WAY WITH DOUBLE CLAPPER

Outlet	Approvals	Outlet	Approvals	Size	A	B	C	D
Back Model No.	 LISTED #EX3314	Angle Model No.	 LISTED #EX3314					
5721	Yes	5731	Yes	4 x 2-1/2 x 2-1/2	7-1/2	11-1/2	8-1/2	11-1/2
5722	Yes	5732	Yes	6 x 2-1/2 x 2-1/2	9-1/2	10-1/2	9	10-3/4
5723	Yes	5733	Yes	4 x 3 x 3	9-1/2	11-1/2	9-1/2	11
5724	Yes	5734	Yes	6 x 3 x 3	10	11	10-1/2	11



UL Listed File #EX3314
Model #A105



MODEL 5721 - 5734

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5710-5734 SERIES Date: 12/11/18

MEMBERSHIP



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MANUFACTURERS'
ASSOCIATION



CASPE
American Society of
Plumbing Engineers

ONFSA
NATIONAL FIRE SPRINKLER ASSOCIATION, INC.



POTTER ROEMER/FIRE PRO

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Los Angeles Area
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626-855-4890

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Chicago (800) 547-3473
Atlanta (800) 762-0542
Miami (866) 961-3473
Dallas (866) 644-3473

www.potterroemer.com

SPECIFICATIONS

ROUND IDENTIFICATION PLATES

Cast brass or red painted finish aluminum plate, size and material as selected by model number. Raised lettering as selected.

RECTANGULAR IDENTIFICATION PLATE

4" x 8" cast brass or red painted finish aluminum plate, material as selected by model number. Raised lettering as selected.

AUTOMATIC DRAIN DEVICE

Cast brass angle or straight connection, male N.P.T. both ends. size and design as selected by model number.

SILLCOCK

Brass flanged sillcock with 3/4" female N.P.T. inlet x male G.H.T.; stem shield and removable tee handle key.



MODEL 5962 (Shown)

MODEL SELECTION

ROUND IDENTIFICATION PLATES

- ☐ 5962 Brass
- ☐ 5964 Brass
- ☐ 5966 Aluminum
- ☐ 5968 Aluminum

RECTANGULAR IDENTIFICATION PLATE

- ☐ 5970 Brass
- ☐ 5975 Aluminum

AUTOMATIC DRAIN DEVICE

- ☐ 5981
- ☐ 5982
- ☐ 5983
- ☐ 5984

SILLCOCK

- ☐ 5990

PRODUCT OPTIONS

FINISHES:

- ☐ -B Polished Brass
- ☐ -D Polished Chrome Plated

VARIATIONS:

- ☐ -E Any Engraved 1" Lettering
Specify Lettering: _____
- ☐ -F Sillcock Flange Plate (Round I.D. Plates Only)

LETTERING AVAILABLE: (Round I.D. Plates)

- ☐ AUTO. SPKR.
- ☐ STANDPIPE
- ☐ DRY STANDPIPE
- ☐ AUTO. SPKR. STANDPIPE
- ☐ HYDRANT
- ☐ PUMP TEST CONNECTION

LETTERING AVAILABLE: (Rectangular I.D. Plates)

- ☐ AUTO. SPKR.
- ☐ STANDPIPE
- ☐ DRY STANDPIPE FIRE DEPT. CONN.
- ☐ COMBINATION STANDPIPE
- ☐ AUTO. SPKR. FIRE DEPT. CONN.
- ☐ PUMP TEST CONNECTION
- ☐ FIRE DEPARTMENT CONNECTION

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5962-5990 SERIES Date: 2/16/23

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POTTER ROEMER/FIRE PRO

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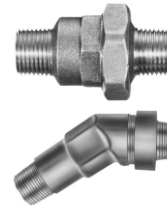
MODEL DIMENSIONS

ROUND IDENTIFICATION PLATES			
Model No.	Pipe Size	Plate Diameter	Material
5962	4"	9-3/4"	Brass
5964	6"	12"	Brass
5966	4"	9-3/4"	Aluminum
5968	6"	12"	Aluminum

AUTOMATIC DRAIN DEVICES		
Model No.	Size	Design
5981	1/2"	Straight
5982	3/4"	Straight
5983	1/2"	Angle
5984	3/4"	Angle



ROUND IDENTIFICATION PLATES



AUTOMATIC DRAIN DEVICE



RECTANGULAR IDENTIFICATION PLATES



SILLCOCK

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COLLECT_{AND}DRAIN[®]

Model 5300/5300ALBV

QUALITY COMPONENTS FOR FIRE SPRINKLER SYSTEMS

Dry and Pre-Action System Auxiliary Drains

The AGF COLLECT_{AND}DRAIN Model 5300 and 5300ALBV are fully assembled auxiliary drains (drum drips, low-point drains) designed to collect moisture that condenses in dry and pre-action fire sprinkler systems, while minimizing the system's air pressure loss when draining.

The Model 5300 and 5300ALBV come fully assembled with 1" brass, quarter-turn ball valves and chrome-plated brass balls. They are easily installed into new systems or retrofitted into existing systems. The Model 5300ALBV includes a water detector that sounds an audible alarm and flashes a visual alert when water has been detected. This helps notify personnel that draining is required and helps to prevent freeze-ups in colder months. The water detector can be wired to a BMS or fire control panel for remote notification. COLLECT_{AND}DRAIN Auxiliary Drains are made with galvanized or black steel piping components, and offer locking kits for added security.

Features

- Galvanized or Black Steel Piping Components
- Fully Assembled
- Easy Installation
- Highly Visible NFPA Signage
- BMS or Fire Control Panel Integration
- Optional 110V Plug-In
- Locking Kits Available



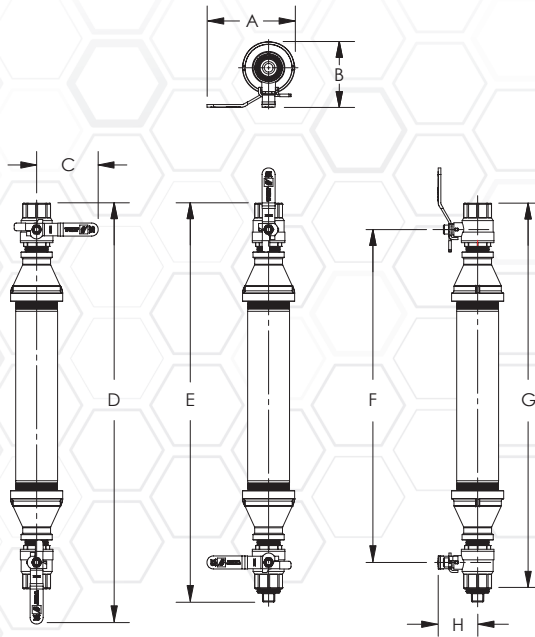
Models

Part Numbers		
Piping	with Water Detector	without Water Detector
Galvanized	5300ALBV	5300A
Black Steel	5300ALBV-B	5300B

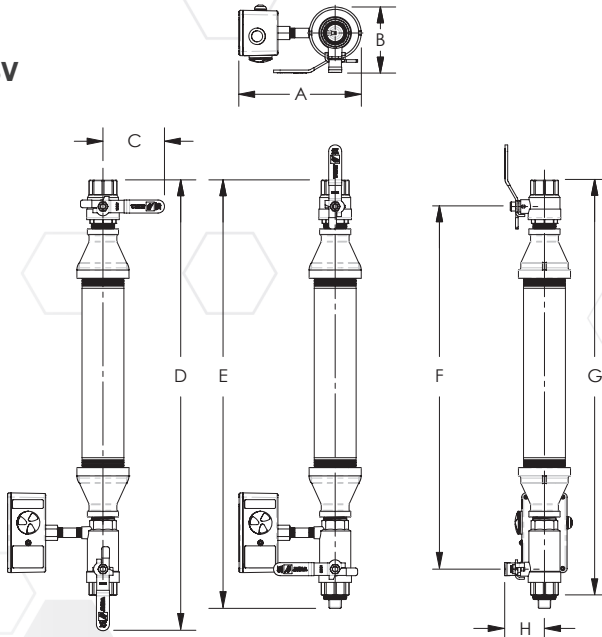


Dimensions

M5300



M5300ALBV



Model	A	B	C	D	E	F	G	H
5300	4 $\frac{3}{4}$ " (121 mm)	3 $\frac{3}{4}$ " (94 mm)	3 $\frac{1}{2}$ " (89 mm)	23 $\frac{7}{8}$ " (607 mm)	22 $\frac{5}{8}$ " (575 mm)	18 $\frac{7}{8}$ " (480 mm)	21 $\frac{7}{8}$ " (556 mm)	2 $\frac{1}{4}$ " (57 mm)
5300ALBV	6 $\frac{3}{4}$ " (171 mm)	3 $\frac{3}{4}$ " (94 mm)	3 $\frac{1}{2}$ " (89 mm)	25 $\frac{5}{8}$ " (650 mm)	24 $\frac{3}{8}$ " (618 mm)	20 $\frac{5}{8}$ " (523 mm)	23 $\frac{5}{8}$ " (599 mm)	2 $\frac{1}{4}$ " (57 mm)

Sizes have been rounded to the highest millimeter

USA Patent and Other Patents Pending

For use on dry and pre-action
fire sprinkler systems.

Valve Size

1"

Connections

Inlet..... NPT

Outlet..... NPT

Installation Orientation

Vertical

Electrical Requirements

5300..... None

5300ALBV... 9V, 12-24V DC, or 110V AC

Materials

Body Galvanized or Black Steel

Valves Brass

Handles Steel

Drain Plug Steel

Rating

300 PSI

Compliance

NFPA 13

NYC-BSA No. 720-87-SM

Approvals

UL/ULC (EX27218)

FM



AGF Manufacturing Inc.
100 Quaker Lane, Malvern, PA 19355

Phone: 610-240-4900

Fax: 610-240-4906

www.agfmfg.com

Job Name: _____

Architect: _____

Engineer: _____

Contractor: _____



COSCO
Fire Protection

SECTION 4

HANGERS

TOLCO Fig. 200 - "Trimline" Adjustable Band Hanger

TOLCO Fig. 200F - "Trimline" Adjustable Band Hanger with Felt Lining for Copper Tubing

TOLCO Fig. 200C - "Trimline" Adjustable Band Hanger with Plastic Coated

TOLCO Fig. 200S - "Trimline" Adjustable Band Hanger with Removable Nut (For sizes 1" thru 2")

Size Range:

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

Material: Steel, Pre-Galvanized

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) sizes have flared edges for ease of installation on all pipe types and protects CPVC plastic pipe from abrasion. Captured knurled nut design (flared top) on 1" thru 2" sizes keep nut from separating with hanger. Hanger is easily installed around pipe.
- 1/2" (15mm), 3/4" (20mm), and 2 1/2" (65mm) thru 8" (200mm) Spring tension on nut holds it securely in hanger before installation. Knurled nut is easily removed.
- For 1/2" (15mm) and 3/4" (20mm) sizes with non-captured knurl nuts order Fig. 200S

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: Part number and pipe size

**** Note:** For metric hanger rod sizes add the metric rod size to the figure number.
Example: 200M8-1 1/2 or 200M10-1 1/2

† M8 rod size is not UL Listed or FM Approved

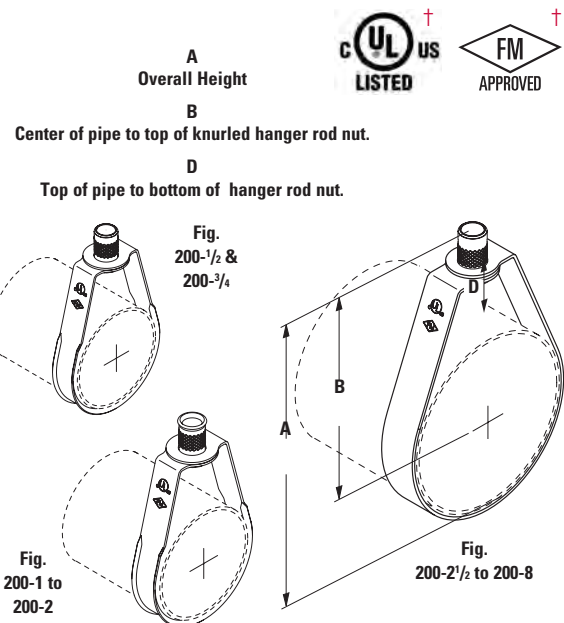


Fig. 200C
200C-1 1/2 shown



Fig. 200F
200F-1 1/2 shown



Fig. 200
shown with captured nut
1" thru 2" sizes only



Fig. 200 & Fig. 200S
shown with
non-captured nut

Part No.**	Pipe Size in. (mm)	Rod Size in. mm**	A in. (mm)	B in. (mm)	D in. (mm)	Max. Rec. Load lbs. (kN)	Approx. Wt./100 lbs. (kg)
200-1/2	1/2" (15)	3/8"-16 M8† or M10	3 1/8" (79.4)	2 5/8" (66.7)	1 11/32" (34.1)	400 (1.78)	11 (5.0)
200-3/4	3/4" (20)	3/8"-16 M8† or M10	3 1/8" (79.4)	2 1/2" (63.5)	1 1/16" (27.0)	400 (1.78)	11 (5.0)
200-1	1" (25)	3/8"-16 M8† or M10	3 3/8" (85.7)	2 5/8" (66.7)	1 1/8" (28.6)	400 (1.78)	12 (5.5)
200-1 1/4	1 1/4" (32)	3/8"-16 M8† or M10	3 3/4" (94.0)	2 7/8" (73.0)	1 5/32" (29.3)	400 (1.78)	13 (5.9)
200-1 1/2	1 1/2" (40)	3/8"-16 M†8 or M10	3 7/8" (98.4)	2 7/8" (73.0)	1 3/16" (30.2)	400 (1.78)	14 (6.4)
200-2	2" (50)	3/8"-16 M8† or M10	4 1/2" (114.3)	3 9/16" (80.8)	1 3/16" (30.2)	400 (1.78)	15 (6.9)
200-2 1/2	2 1/2" (65)	3/8"-16 M10	5 5/8" (142.9)	4 1/8" (104.7)	1 7/16" (36.5)	600 (2.67)	27 (12.3)
200-3	3" (75)	3/8"-16 M10	5 7/8" (149.1)	4" (101.6)	1 1/4" (31.7)	600 (2.67)	29 (13.3)
200-3 1/2	3 1/2" (90)	3/8"-16 M10	7 3/8" (187.3)	5 1/4" (133.3)	2 3/16" (55.6)	600 (2.67)	34 (15.6)
200-4	4" (100)	3/8"-16 M10	7 3/8" (187.3)	5" (127.0)	1 3/8" (34.9)	1000 (4.45)	35 (16.0)
200-5	5" (125)	1/2"-13 M12	9 1/8" (231.8)	6 1/4" (158.7)	3 11/32" (84.9)	1250 (5.56)	66 (30.2)
200-6	6" (150)	1/2"-13 M12	10 1/8" (257.2)	6 3/4" (171.4)	2 7/32" (56.3)	1250 (5.56)	73 (33.4)
200-8	8" (200)	1/2"-13 M12	13 1/8" (333.4)	8 3/4" (222.2)	3 7/32" (81.7)	1250 (5.56)	136 (62.3)

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

Threaded Accessories

B3205 - Threaded rod (right-hand threads - both ends)

B3205L - Threaded rod (right & left hand threads)

Size Range: 3/8"-16 thru 7/8"-9 rod

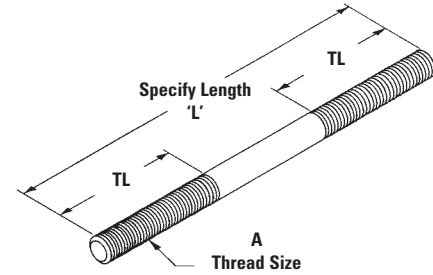
Material: Steel

Function: Recommended for use as a hanger support in hanger assemblies. Rod is threaded on both ends with right hand threads of the length shown. Also available with left and right hand threads - specify Fig. B3205L when ordering.

Maximum Temperature: 750°F (399°C)

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

Order By: Figure number, rod size, length and finish



Part No.	Thread Size A	Standard Thread Length TL in. (mm)	Design Load			
			650°F (343°C) Lbs. (kN)		750°F (399°C) Lbs. (kN)	
B3205-3/8 x 'L'	3/8"-16	2 1/2" (63.5)	730 (3.25)		572 (2.54)	
B3205-1/2 x 'L'	1/2"-13	2 1/2" (63.5)	1350 (6.00)		1057 (4.70)	
B3205-5/8 x 'L'	5/8"-11	2 1/2" (63.5)	2160 (9.61)		1692 (7.52)	
B3205-3/4 x 'L'	3/4"-10	3" (76.2)	3230 (14.37)		2530 (11.25)	
B3205-7/8 x 'L'	7/8"-9	3 1/2" (88.9)	4480 (19.93)		3508 (15.60)	

For larger sizes consult full line pipe hanger catalog.

ATR - All threaded rod - 120" (3.05m) lengths

TOLCO Fig. 99 - all threaded rod cut to length

Size Range: 1/4"-20 thru 7/8"-9 rod in 120" lengths or cut to length

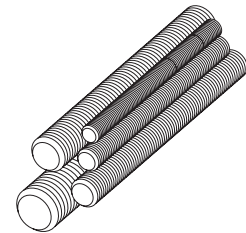
Material: Steel

Maximum Temperature: 750°F (399°C)

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

Approvals: 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.

Order By: Figure number, rod size, length and finish



OPM



Part No. - Size x Length		Threads Per Inch	Recommended Load		Approx. Wt./100 Ft.	
ATR	Fig. 99		Lbs. (kN)		Lbs. (kg)	
ATR 1/4" x 120	99-1/4" x length	20	240 (1.07)		12 (5.44)	
ATR 3/8" x 120	99-3/8" x length	16	730 (3.24)		29 (13.15)	
ATR 1/2" x 120	99-1/2" x length	13	1350 (6.00)		53 (24.04)	
ATR 5/8" x 120	99-5/8" x length	11	2160 (9.60)		89 (40.37)	
ATR 3/4" x 120	99-3/4" x length	10	3230 (14.37)		123 (55.79)	
ATR 7/8" x 120	99-7/8" x length	9	4480 (19.93)		170 (77.11)	

For larger sizes consult full line pipe hanger catalog.

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

CPVC Clamps

B3184 - Offset Hanger for CPVC Plastic Pipe and IPS Pipe

Size Range: 3/4" (20mm) thru 2" (32mm)

Material: Pre-Galvanized Steel

Function: Designed to be used as a hanger for CPVC piping or steel piping where the "stand-off" design will ease installation by eliminating the need for wood blocking.

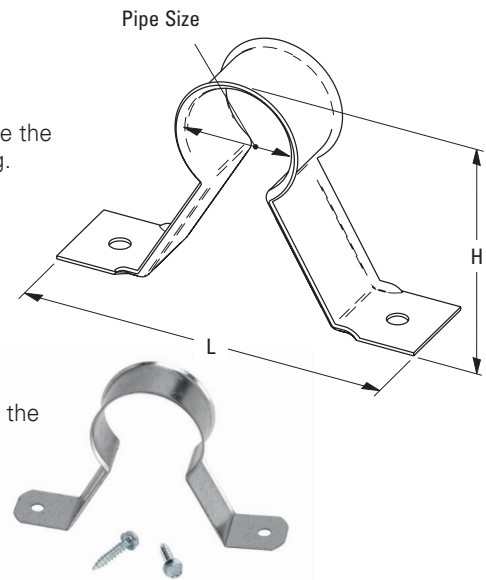
Features:

- Flared edge design protects CPVC pipe from any rough or abrasive surfaces
- The "Stand-Off" design eliminates the need for wood block extension
- Can be installed on horizontal or vertical piping regardless of mounting surface orientation
- Attaches easily to wood structure with two hex head self-threading screws furnished with product

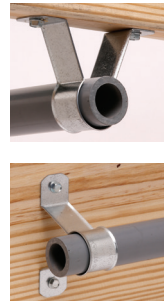
Installation Note: When installed in wood structural members and threads from the #10 x 1" screws are exposed, use Fig. 27B speed nut to secure

Approvals: Meets and exceeds the requirements of NFPA 13, 13R and 13D

Order By: Part number and pipe size



Part No.	CPVC Pipe Size in. (mm)	H Overall in. (mm)	L Overall in. (mm)	Max. Hanger Spacing ft. (m)	Fastener Hex Head Size in. (mm)	Approx. Wt./100 Lbs. (kg)
B3184-3/4	3/4" (20)	2 9/16" (65.1)	4 1/4" (107.9)	5 1/2 (1.67)	5/16" (7.9)	9.0 (4.1)
B3184-1	1" (25)	2 13/16" (71.4)	4 1/2" (114.3)	6 (1.83)	5/16" (7.9)	10.0 (4.5)
B3184-1 1/4	1 1/4" (32)	3 3/16" (81.0)	4 5/8" (117.5)	6 1/2 (1.98)	5/16" (7.9)	12.0 (5.4)
B3184-1 1/2	1 1/2" (40)	3 7/16" (87.3)	5" (127.0)	7 (2.13)	5/16" (7.9)	12.0 (5.4)
B3184-2	2" (50)	3 7/8" (98.4)	5" (127.0)	8 (2.44)	5/16" (7.9)	15.0 (6.8)



TOLCO™ Fig. 75 - Swivel Attachment

Size Range: — 3/8"-16 Rod Attachment

Material: Steel

Function: Three recommended applications for this product:

- May be used as a branch line restraint for structural attachment to anchor bolt, beam clamp, etc.
- May be used as an upper attachment with short hanger rod to omit seismic bracing.
- May be used in a pitched or sloped roof application, to meet requirements of NFPA 13 (2010) 9.1.2.6.

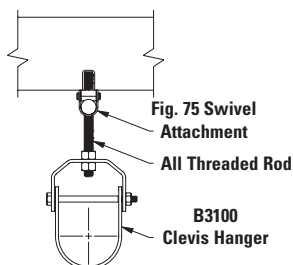
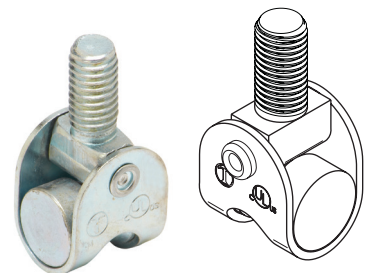
Approvals: Underwriters Laboratories Listed in the USA (UL) and Canada (cUL) to support up to 4" (100mm) pipe.

Finish: Electro-Galvanized

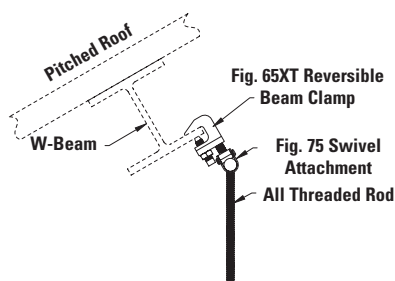
Weight: Approx. Wt./100 - 13.3 Lbs. (6.0kg)

Order By: Part number

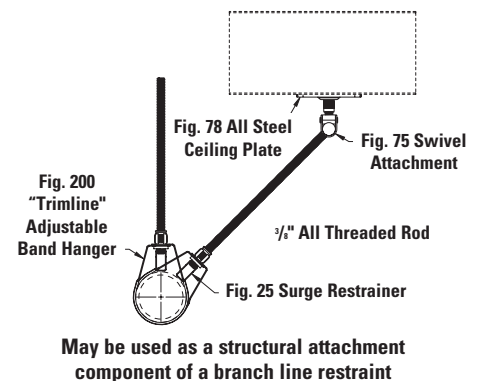
Patent: #7,887,248



May be used as an upper attachment with short hanger rod to omit seismic bracing



May be used with a pitched roof application, to meet requirements of NFPA 13 (2010-2016) Sec. 9.1.2.6.



Beam Clamps

TOLCO Fig. 69R - Retrofit Capable Beam Clamp Retaining Strap

Size Range: $\frac{3}{8}$ "-16 & $\frac{1}{2}$ "-13 rod
4" (101.6mm) thru 16" (406.4mm) lengths
Note: longer lengths are available consult factory



Material: Pre-Galvanized Steel

Function: To offer more secure fastening of various types of beam clamps to beam where danger of movement might be expected. NFPA 13 requires the use of retaining straps with all beam clamps installed in earthquake areas. Satisfies requirements of NFPA 13.

Features: Beveled locking slot* is precisely formed to align with the threaded section of a hanger rod or set screw and engage the unit securely. May be used as shown in Section "A-A" or inverted. Allows easy installation for new construction or retrofit applications.

Important Note: Good installation practice of a retaining strap requires that the strap be held tightly and securely to all component parts of the assembly. Therefore the beveled locking slot of the Fig. 69R will provide a secure reliable installation.

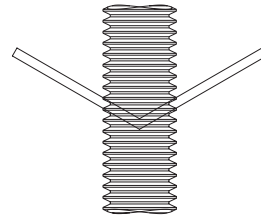
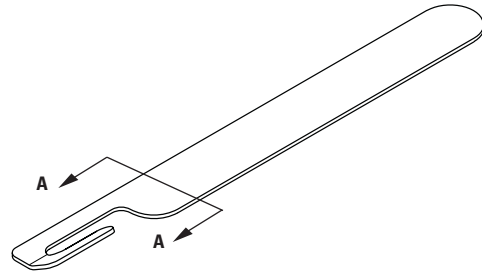
Approvals: Underwriters Laboratories Listed in the USA (UL) and Canada (cUL). Approved for use with any listed B-Line series or Tolco beam clamp.

Finish: Pre-Galvanized

Order By: Figure number, length, and finish.

Note: Minimum return on strap is 1" (25.4mm)

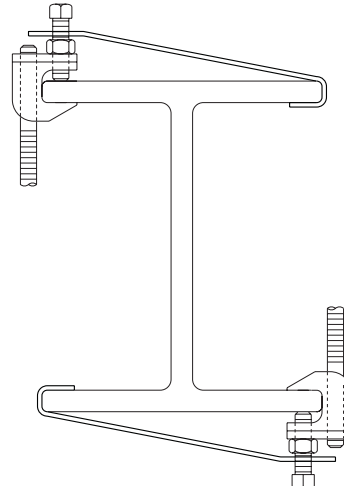
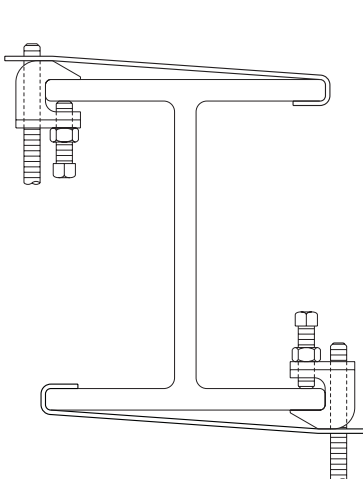
* Patent #5,947,424



A - A



Part No.	Slot Width in. (mm)	For Use With	Length
69R- $\frac{3}{8}$ -L	$\frac{7}{16}$ " (11.1)	B3033- $\frac{3}{8}$, B3034- $\frac{3}{8}$, 65- $\frac{3}{8}$, 65XT- $\frac{3}{8}$, 66- $\frac{3}{8}$	Specify
69R- $\frac{1}{2}$ -L	$\frac{9}{16}$ " (14.3)	B3033- $\frac{1}{2}$, B3034- $\frac{1}{2}$, 65- $\frac{1}{2}$, 66- $\frac{1}{2}$	Specify



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

TOLCO Fig. 65 - Reversible Steel C-Type Beam Clamp $\frac{3}{4}$ " (19.0mm) Throat Opening

Size Range:

Fig. 65 - $\frac{1}{2}$ "-13 rod sizes, and $\frac{5}{8}$ "-11 rod sizes

Fig. 65XT - $\frac{3}{8}$ "-16 rod size (see below)

Material: Steel with hardened cup point set screw and jam nut

Function: Recommended for hanging from steel beam where flange thickness does not exceed $\frac{3}{4}$ " (19.0mm).

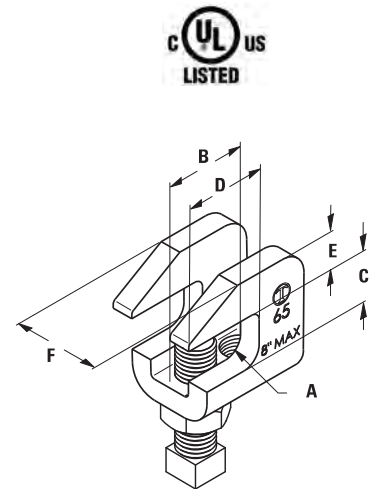
Features: All steel construction eliminates structural deficiencies associated with casting type beam clamps. May be used on top or bottom flange of beam. (Beveled lip allows hanging from top flange where clearance is limited.) May be installed with set screw in up or down position. Offset design permits unlimited rod adjustment by allowing the rod to be threaded completely through the clamp. Open design permits inspection of thread engagement.

Approvals: Underwriters Laboratories Listed in the USA (UL) and Canada (cUL). Exceeds requirements of the National Fire Protection Association (NFPA), pamphlet 13, $\frac{3}{8}$ "-16 rod will support $\frac{1}{2}$ " (15mm) thru 4" (100mm) pipe
 $\frac{1}{2}$ "-13 rod will support thru 8" (200mm) pipe

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

Order By: Figure number and finish

Fig. 65 Patent #4,570,885



Set Screw and Locknut Included



Part No.	Rod Size A	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)
65- $\frac{1}{2}$	$\frac{1}{2}$ "-13	1 $\frac{1}{2}$ " (38.1)	$\frac{3}{4}$ " (19.0)	1" (25.4)	$\frac{9}{16}$ " (14.3)
65- $\frac{5}{8}$	$\frac{5}{8}$ "-11	1 $\frac{1}{2}$ " (38.1)	$\frac{3}{4}$ " (19.0)	1" (25.4)	$\frac{9}{16}$ " (14.3)

Part No.	F in. (mm)	Approx. Wt./100 Lbs. (kg)
65- $\frac{1}{2}$	1 $\frac{1}{4}$ " (31.7)	55 (24.9)
65- $\frac{5}{8}$	1 $\frac{1}{4}$ " (31.7)	55 (24.9)

TOLCO Fig. 65XT - Reversible Steel C-Type Beam Clamp $\frac{3}{4}$ " (19.0mm) Throat Opening

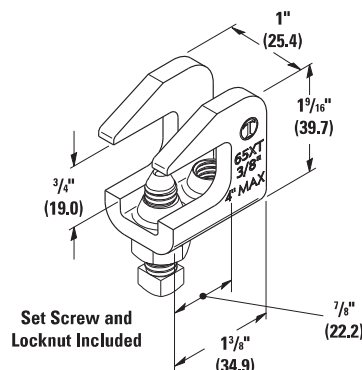
Feature: Extruded holes allows for more thread engagement of threaded rod and set screw.

Finish: Plain or Electro-Galvanized

Order By: Figure number and finish

Approvals: Underwriters Laboratories Listed (cULus) and FM Approved (FM) for up to 4" (100mm) pipe.

Designed to meet or exceed requirements of FM DS 2-0 and NFPA 13.



Set Screw and Locknut Included



Part No.	For Rod Size	Approx. Wt/100 Lbs. (kg)
65XT	$\frac{3}{8}$ "-16	28.0 (12.7)

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

Seismic Bracing

TOLCO Fig. 4L - sway brace attachment (UL listed)

Size Range: 1" (25mm) through 8" (200mm) IPS. 10" (250mm) and 12" (300mm) not UL listed

Material: Steel and stainless steel.

Function: For bracing pipe against sway and seismic disturbance.

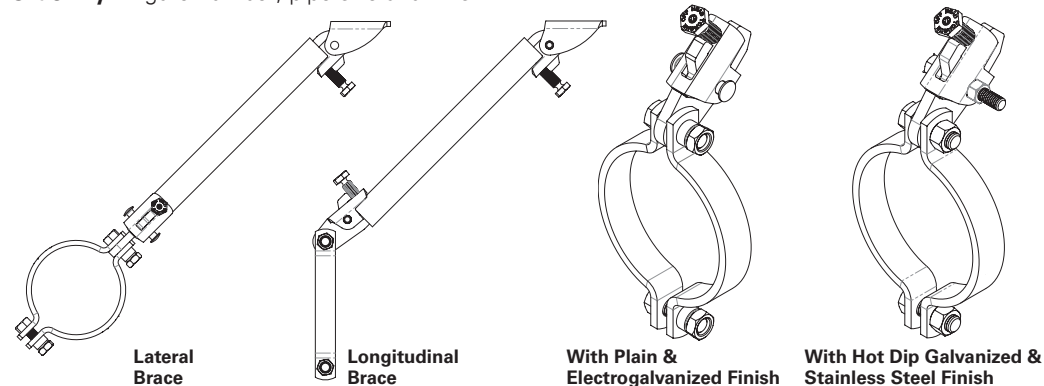
Approvals: Underwriters Laboratories Listed in the USA (UL) and Canada (cUL) 1" (25mm) through 8" (200mm) pipe. UL Listed for the following sprinkler type pipes: Sch. 40, Sch. 10, Bull Moose Eddy Flow, Wheatland Mega Flow, DIN 2448, KSD 3562, KSD 3507. Ask the factory for additional information as it may vary by product size. For FM Approval information refer to FM Approved page 75. 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.

Installation Instructions: Fig. 4L is the "braced pipe" attachment component of a longitudinal and lateral 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 guidelines should be followed. (For complete detailed instructions see instruction sheet [IL309015EN](#)).

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 bolt until head snaps off. Jaw attachment can pivot for adjustment to proper brace angle.

Finish: Plain, Electrogalvanized, Hot Dip Galvanized or Stainless Steel (only for 4" & 6" sizes).

Order By: Figure number, pipe size and finish.



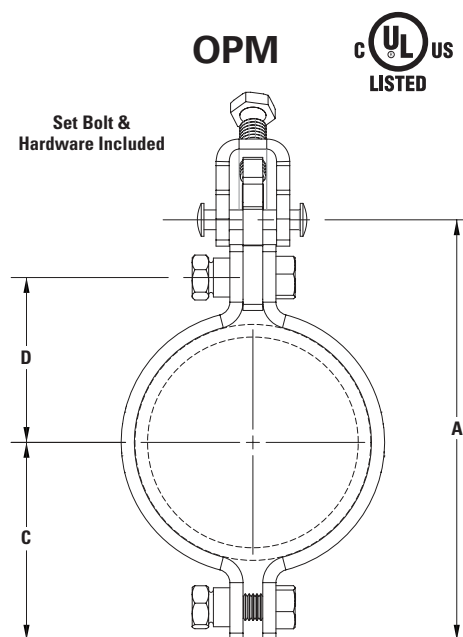
Part No.	Nom Pipe Size in.	(mm)	A (Max) in.	C in.	D in.	Bolt Size in.	UL Max. Rec. Load Logitudinal lbs.	Lateral lbs.	PLN & EG. Approx. Wt./100 lbs.
4L-1	1	(25)	5	2	1 ³ / ₈	1/2-13	1000	1000	176
4L-1 ¹ / ₄	1 ¹ / ₄	(32)	5 ² / ₇	2 ¹ / ₁₆	1 ⁵ / ₈	1/2-13	1000	1000	182
4L-1 ¹ / ₂	1 ¹ / ₂	(40)	5 ¹ / ₂	2 ¹ / ₃	1 ² / ₃	1/2-13	1000	1000	187
4L-2	2	(50)	6 ² / ₇	2 ² / ₃	2	1/2-13	1600	1000	204
4L-2 ¹ / ₂	2 ¹ / ₂	—	6 ⁷ / ₉	3	2 ¹ / ₃	1/2-13	2000	1000	217
4L-65mm	—	(65)	6 ⁷ / ₉	3	2 ¹ / ₃	1/2-13	700	1000	214
4L-3	3	(80)	7 ³ / ₇	3 ¹ / ₄	2 ⁵ / ₈	1/2-13	2000	1000	323
4L-3 ¹ / ₂	3 ¹ / ₂	(90)	8	3 ¹ / ₂	2 ⁷ / ₈	1/2-13	2000	1000	343
4L-4***	4	(100)	8 ³ / ₇	3 ³ / ₄	3 ¹ / ₈	1/2-13	2000**	1000	253
4L-5	5	—	9 ⁵ / ₉	4 ³ / ₈	3 ⁵ / ₈	1/2-13	2000**	1600*	314
4L-125mm	—	(125)	9 ⁵ / ₉	4 ³ / ₈	3 ⁵ / ₈	1/2-13	1200	1600*	314
4L-6***	6	—	11 ³ / ₇	5 ¹ / ₃	4 ⁴ / ₇	1/2-13	2000	1600*	540
4L-150mm	—	(150)	11 ³ / ₇	5 ¹ / ₃	4 ⁴ / ₇	1/2-13	1200	1600*	538
4L-8	8	—	13 ³ / ₅	6 ² / ₅	5 ² / ₃	1/2-13	2000	2100*	645
4L-200mm	—	(200)	13 ³ / ₅	6 ² / ₅	5 ² / ₃	1/2-13	1400	2100*	643
4L-10****	10	(254)	17 ³ / ₅	8 ¹ / ₄	7 ¹ / ₄	1/2-13	NA	NA	1349
4L-12****	12	(300)	19 ³ / ₅	9 ¹ / ₄	8 ¹ / ₄	1/2-13	NA	NA	1526

* Only UL listed as a lateral brace for use with a 1" (25mm) pipe as the brace member.

** Only UL listed as a longitudinal brace for use with a 1" (25mm) thru 1¹/₂" (40mm) pipe as the brace member.

*** Fig 4L-4 and Fig 4L-6 are only sizes available in stainless steel 316.

**** FM approved not UL listed.



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.

Updated 4-2-21

TOLCO Fig. 4L - sway brace attachment (FM approved)

Size Range: 1" (25mm) through 12" (300mm) IPS.

Material: Steel.

Function: For bracing pipe against sway and seismic disturbance.

Approvals: Approved by Factory Mutual Engineering (FM), 1" (25mm) through 12" (300mm) pipe. For UL Listed information refer to UL Listed page 74. 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.

Installation Instructions: Fig. 4L is the "braced pipe" attachment component of a longitudinal and lateral 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 FM 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 bolt until head snaps off. Jaw attachment can pivot for adjustment to proper brace angle. (For complete detailed instructions see instruction sheet [IL309015EN](#)).

Finish: Plain, Electrogalvanized.

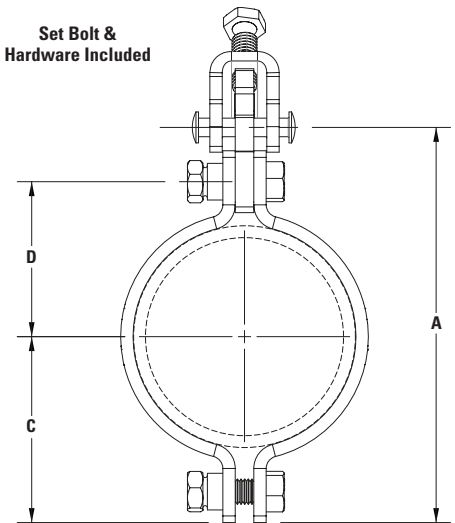
Order By: Figure number, pipe size and finish.

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

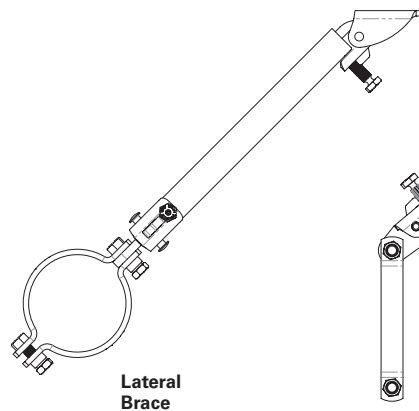
OPM



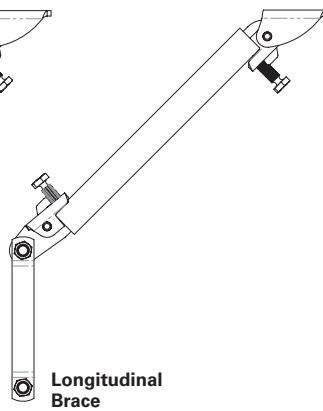
Set Bolt &
Hardware Included



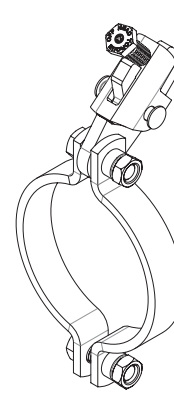
Seismic Bracing



Lateral
Brace



Longitudinal
Brace



With Plain &
Electrogalvanized
Finish



Part No.	Nom Pipe Size in. (mm)	A (Max) in.	C in.	D in.	Bolt Size in.	FM Max. Rec. Load Longitudinal				FM Max. Rec. Load Lateral				Approx. Wt./100 lbs.
						30°-44° lbs. (kN)	45°-59° lbs. (kN)	60°-74° lbs. (kN)	75°-90° lbs. (kN)	30°-44° lbs. (kN)	45°-59° lbs. (kN)	60°-74° lbs. (kN)	75°-90° lbs. (kN)	
4L-1	1 (25)	5	2	1 3/8	1/2-13	1060 (4.72)	1160 (5.16)	1400 (6.23)	1500 (6.68)	1370 (6.10)	1940 (8.63)	2380 (10.59)	2650 (11.79)	176
4L-1 1/4	1 1/4 (32)	5 7/8	2 1/8	1 5/8	1/2-13	1060 (4.72)	1160 (5.16)	1400 (6.23)	1500 (6.68)	1370 (6.10)	1940 (8.63)	2380 (10.59)	2650 (11.79)	182
4L-1 1/2	1 1/2 (40)	5 1/2	2 1/3	1 2/3	1/2-13	740 (3.30)	1020 (4.54)	1250 (5.57)	920 (4.10)	1370 (6.10)	1940 (8.63)	2380 (10.59)	2650 (11.79)	187
4L-2	2 (50)	6 7/8	2 2/3	2	1/2-13	740 (3.30)	1020 (4.54)	1250 (5.57)	920 (4.10)	1420 (6.32)	1990 (8.86)	2440 (10.86)	2720 (12.10)	204
4L-2 1/2	2 1/2 (63.5)	6 7/8	3	2 1/3	1/2-13	520 (2.32)	650 (2.90)	790 (3.52)	1040 (4.63)	1410 (6.28)	1990 (8.86)	2440 (10.86)	2720 (12.10)	220
4L-65mm	— (65)	6 7/8	3	2 1/3	1/2-13	520 (2.32)	650 (2.90)	790 (3.52)	1040 (4.63)	1410 (6.28)	1990 (8.86)	2440 (10.86)	2720 (12.10)	218
4L-3	3 (80)	7 3/4	3 1/4	2 5/8	1/2-13	520 (2.32)	650 (2.90)	790 (3.52)	1040 (4.63)	1410 (6.28)	1990 (8.86)	2440 (10.86)	2720 (12.10)	323
4L-3 1/2	3 1/2 (90)	8	3 1/2	2 7/8	1/2-13	520 (2.32)	650 (2.90)	790 (3.52)	1040 (4.63)	1410 (6.28)	1990 (8.86)	2440 (10.86)	2720 (12.10)	343
4L-4	4 (100)	8 3/4	3 3/4	3 1/8	1/2-13	520 (2.32)	650 (2.90)	790 (3.52)	1040 (4.63)	1410 (6.28)	1990 (8.86)	2440 (10.86)	2720 (12.10)	253
4L-5	5 (125)	9 5/8	4 3/8	3 5/8	1/2-13	520 (2.32)	650 (2.90)	790 (3.52)	1040 (4.63)	1410 (6.28)	1990 (8.86)	2440 (10.86)	2720 (12.10)	313
4L-125mm	— (125)	9 5/8	4 3/8	3 5/8	1/2-13	520 (2.32)	650 (2.90)	790 (3.52)	1040 (4.63)	1410 (6.28)	1990 (8.86)	2440 (10.86)	2720 (12.10)	312
4L-6	6 (150)	11 3/4	5 1/3	4 7/8	1/2-13	870 (3.87)	1200 (5.34)	1460 (6.50)	1630 (7.26)	1560 (6.94)	2210 (9.84)	2710 (12.06)	3020 (13.44)	540
4L-150mm	— (150)	11 3/4	5 1/3	4 7/8	1/2-13	870 (3.87)	1200 (5.34)	1460 (6.50)	1630 (7.26)	1560 (6.94)	2210 (9.84)	2710 (12.06)	3020 (13.44)	538
4L-8	8 (200)	13 3/5	6 2/5	5 2/3	1/2-13	1190 (5.30)	1440 (6.41)	1580 (7.03)	1750 (7.79)	1560 (6.94)	2210 (9.84)	2710 (12.06)	3020 (13.44)	645
4L-200mm	— (200)	13 3/5	6 2/5	5 2/3	1/2-13	1190 (5.30)	1440 (6.41)	1580 (7.03)	1750 (7.79)	1560 (6.94)	2210 (9.84)	2710 (12.06)	3020 (13.44)	643
4L-10	10 (254)	17 3/5	8 1/4	7 1/4	1/2-13	1620 (7.21)	1660 (7.38)	1570 (6.98)	1740 (7.74)	1620 (7.21)	2300 (10.23)	2820 (12.54)	3140 (13.97)	1349
4L-12	12 (300)	19 3/5	9 1/4	8 1/4	1/2-13	1620 (7.21)	1660 (7.38)	1570 (6.98)	1740 (7.74)	1620 (7.21)	2300 (10.23)	2820 (12.54)	3140 (13.97)	1526

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.

Updated 4-2-21

Seismic Bracing

Fig. 980 - TOLCO Universal swivel sway brace attachment - $\frac{3}{8}$ "-16 to $\frac{3}{4}$ "-10 rods

Fig. 980H - TOLCO Universal swivel sway brace attachment - $\frac{7}{8}$ "-9 to $1\frac{1}{4}$ "-7

Size Range: One size fits bracing pipe 1" (25mm) thru 2" (50mm), B-Line series 12 gauge (2.6mm) channel.

Material: Carbon steel

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 and in accordance with NFPA 13, 2019 Section 18.5.11.5. The Fig. 980 mounts to any surface angle and the 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. 1001, 2002, 3000, 4L or approved attachment to pipe to form a complete bracing assembly. NFPA 13 guidelines should be followed.

To Install: Place the Fig. 980 onto the "bracing pipe". Tighten the set bolt 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). UL Listed for the following brace member type pipes: Sch. 40, KSD 3562. Ask the factory for additional information as it may vary by product size. 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 61.

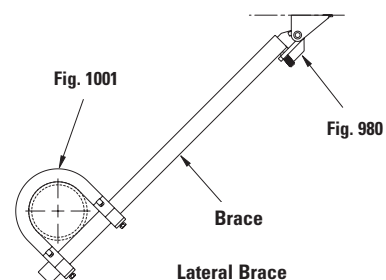
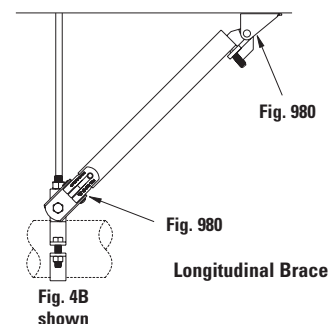
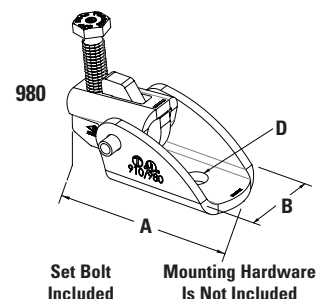
Note: Fig. 980 Swivel Attachment and Fig. 1001, 2002, 3000, 4L, or approved attachment to pipe make up a sway brace system of UL Listed attachments and bracing materials which satisfies the requirements of Underwriters Laboratories and the National Fire Protection Association (NFPA)

Finish: Plain, Electro-Galvanized or Stainless Steel.

Contact customer service for alternative finishes.

Order By: Figure number and finish.

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



Catalog #	A in. (mm)	B in. (mm)	D** in. (mm)	Max. Design Load (cULus) lbs./ (kN)	Approx.Wt./100 lbs. (kg)
*980- $\frac{3}{8}$	$4\frac{9}{16}$ (114.9)	$2\frac{1}{16}$ (52.4)	$\frac{7}{16}$ (11.1)	1600 (7.12)	149 (67.6)
*980- $\frac{1}{2}$			$\frac{9}{16}$ (14.3)	2100 (9.34)	148 (67.1)
*980- $\frac{5}{8}$			$\frac{11}{16}$ (17.5)	2100 (9.34)	147 (66.7)
*980- $\frac{3}{4}$			$\frac{13}{16}$ (20.6)	2100 (9.34)	146 (66.2)
980H- $\frac{7}{8}$	$6\frac{3}{4}$ (171.4)	$3\frac{1}{2}$ (88.9)	$\frac{15}{16}$ (23.8)	Fig. 980H is not UL Listed or FM Approved	402 (182.3)
980H-1			$1\frac{1}{16}$ (27.0)		400 (181.4)
980H- $1\frac{1}{8}$			$1\frac{3}{16}$ (30.2)		397 (180.1)
980H- $1\frac{1}{4}$			$1\frac{5}{16}$ (33.3)		390 (176.9)

* Sizes available in stainless steel (980S- $\frac{3}{8}$, 980S- $\frac{1}{2}$, 980S- $\frac{5}{8}$, and 980S- $\frac{3}{4}$) and have the same UL rating as what is listed.

** Mounting attachment hole size.

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.

Fig. 980 - TOLCO Universal swivel sway brace attachment - $\frac{3}{8}$ "-16 to $\frac{3}{4}$ "-10 rods
Fig. 980H - TOLCO Universal swivel sway brace attachment - $\frac{7}{8}$ "-9 to $1\frac{1}{4}$ "-7

Size Range: One size fits bracing pipe 1" (25mm) thru 2" (50mm), B-Line series 12 gauge (2.6mm) channel.

Material: Carbon steel

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 and in accordance with NFPA 13, 2019 Section 18.5.11.5. The Fig. 980 mounts to any surface angle and the 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, 3000, 4L, or other TOLCO approved attachment to pipe to form a complete bracing assembly. NFPA 13 guidelines should be followed.

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

Approvals: —Approved by Factory Mutual Engineering (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 60.

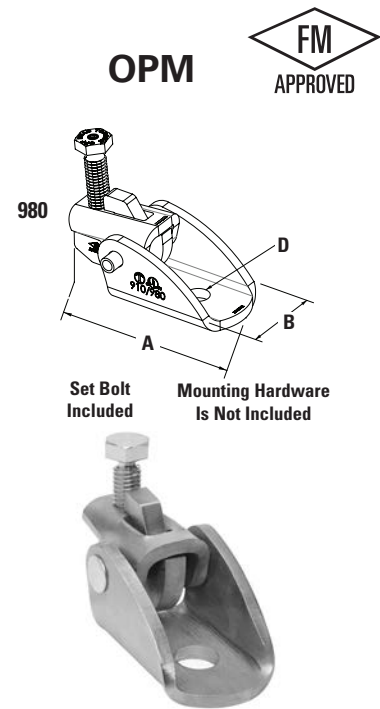
Note: Fig. 980 Swivel Attachment and Fig. 1000, 1001, 4L or other TOLCO approved attachment to pipe that make up a sway brace system of bracing materials which satisfies the requirements of Factory Mutual Engineering and the National Fire Protection Association (NFPA)

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

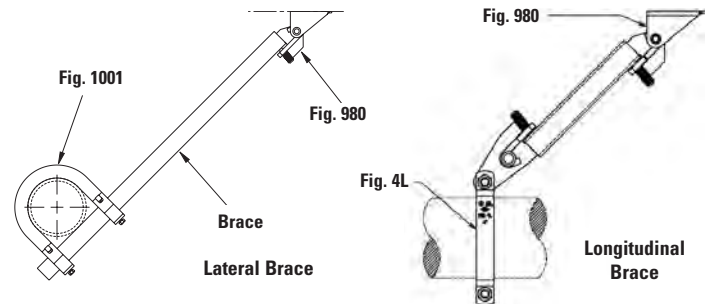
Order By: Figure number and finish.

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

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



Set Bolt Included
Mounting Hardware Is Not Included



Catalog #	A		B		D**		Max. 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- $\frac{3}{8}$	$4\frac{9}{16}$ (114.9)	$2\frac{1}{16}$ (52.4)	$1\frac{1}{16}$ (14.3)	$1\frac{1}{16}$ (14.3)	$\frac{7}{16}$ (11.1)						149 (67.6)
980- $\frac{1}{2}$					$\frac{9}{16}$ (14.3)						148 (67.1)
980- $\frac{5}{8}$					$\frac{11}{16}$ (17.5)						147 (66.7)
980- $\frac{3}{4}$					$\frac{13}{16}$ (20.6)						146 (66.2)
980H- $\frac{7}{8}$	$6\frac{3}{4}$ (171.4)	$3\frac{1}{2}$ (88.9)	$1\frac{1}{16}$ (27.0)	$1\frac{1}{16}$ (27.0)	$\frac{15}{16}$ (23.8)						402 (182.3)
980H-1					$1\frac{1}{16}$ (27.0)						400 (181.4)
980H- $1\frac{1}{8}$					$1\frac{3}{16}$ (30.2)						397 (180.1)
980H- $1\frac{1}{4}$					$1\frac{5}{16}$ (33.3)						390 (176.9)

** Mounting attachment hole size.

*** Installed with 1" or $1\frac{1}{4}$ " schedule 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.

Seismic Bracing

TOLCO Fig. 1001 - sway brace attachment (UL listed)

Size Range: Pipe size to be braced: 1" (25mm) thru 8" (200mm) IPS.
Pipe size used for bracing: 1" (25mm) and 1¼" (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 schedule 7 through schedule 40 IPS. Field adjustable, making critical pre-engineering of bracing pipe length unnecessary. Unique design requires no threading of bracing pipe. Comes assembled and ready for installation. Fig. 1001 has built-in visual verification of correct installation. See installation note below.

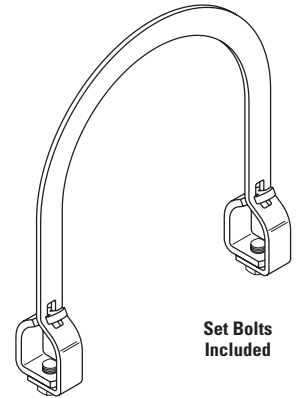
Installation Note: Position Fig. 1001 over the pipe to be braced and tighten two hex head cone point set bolts until heads bottom out. A minimum of 1" (25mm) pipe extension is recommended. Brace pipe can be installed on top or bottom of pipe to be braced.

Approvals: Underwriters Laboratories Listed in the USA (UL) and Canada (cUL). UL Listed for the following sprinkler type pipes: Sch. 40 (and as brace member), Sch. 10, Bull Moose Eddy Flow, Wheatland Mega Flow, DIN 2448, KSD 3562 (and as brace member), KSD 3507. Ask the factory for additional information as it may vary by product size. 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 67.

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

Order By: Order by figure number, pipe size to be braced, followed by pipe size used for bracing (1" (25mm) or 1¼" (32mm)), and finish.

OPM  LISTED



Set Bolts
Included



Pipe Size in. (mm)	Part Number & Approx. Wt./100				Design Load - Lbs.		
	1" (25mm) Brace Pipe		1¼" (32mm) Brace Pipe		For Brace Pipe Size 1" / 1¼"		
		Lbs. (kg)		Lbs. (kg)	Sch. 7 1" / 1¼"	Sch. 10 1" / 1¼"	Sch. 40 1" / 1¼"
1" (25)	1001-1 X 1	104.6 (47.4)	1001-1 X 1¼	122.2 (55.4)	— / —	— / —	1000 / 1000
1¼" (32)	1001-1¼ X 1	105.2 (47.7)	1001-1¼ X 1¼	122.6 (55.6)	1000 / 1000	1000 / 1000	1000 / 1000
1½" (40)	1001-1½ X 1	107.0 (48.5)	1001-1½ X 1¼	124.7 (56.6)	1500 / 1500	1500 / 1500	1500 / 1500
2" (50)	1001-2 X 1	112.6 (51.1)	1001-2 X 1¼	129.2 (58.6)	1500 / 1500	1500 / 1500	1500 / 1500
2½" (65)	1001-2½ X 1	136.3 (61.8)	1001-2½ X 1¼*	154.4 (70.0)	2000 / 2000	2000 / 2000	2000 / 2000
3" (80)	1001-3 X 1	145.0 (65.8)	1001-3 X 1¼	163.1 (74.0)	2000 / 2000	2000 / 2000	2000 / 2000
4" (100)	1001-4 X 1	158.6 (71.9)	1001-4 X 1¼	176.7 (80.1)	2000 / 2000	2000 / 2000	2000 / 2000
5" (100)	1001-5 X 1	173.2 (78.6)	1001-5 X 1¼	191.4 (86.8)	— / —	2000 / 2000	2000 / 2000
6" (150)	1001-6 X 1	190.0 (85.2)	1001-6 X 1¼*	206.0 (93.4)	2000 / 2000	2000 / 2000	2000 / 2000
8" (200)	1001-8 X 1	217.4 (111.5)	1001-8 X 1¼*	265.3 (120.3)	— / —	2000 / 2000	2000 / 2000

*Note: Metric sizes available for 65mm, 150mm, 200mm pipe size with 25mm and 32mm brace pipe size. Contact the factory.

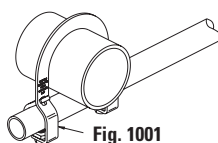
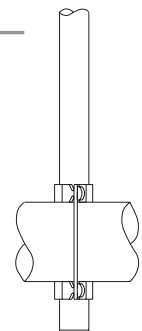
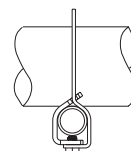
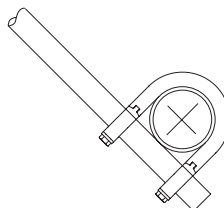


Fig. 1001



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

TOLCO Fig. 1001 - sway brace attachment (FM approved)

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 schedule 7 through schedule 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 bolts 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: Approved by Factory Mutual Engineering (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 66.

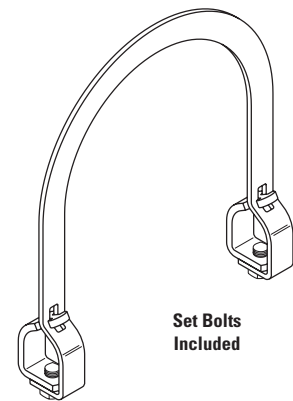
Finish: Plain, Electro-Galvanized or Hot Dip Galvanized. Contact customer service for alternative finishes and materials.

Order By: Order by figure number, pipe size to be braced, followed by pipe size used for bracing (1" (25mm) or 1 1/4" (32mm)), 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 FM Approval requires that Fig. 1001 must be used only with other TOLCO™ bracing products. **The Fig. 1001 is not intended for use with the Fig. 907 4-way Longitudinal Brace Attachment.**

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

OPM



Pipe Size in. (mm)	Part Number & Approx. Wt./100				Design Load - For Sch. 7, Sch. 10, & Sch. 40 Pipe							
	1" (25mm) Brace Pipe		1 1/4" (32mm) Brace Pipe		Allowable Horizontal Capacity (lbf) Per Installation ^{1,2,3}							
	Lbs.	(kg)	Lbs.	(kg)	30°-44° Lbs. (kN)	45°-59° Lbs. (kN)	60°-74° Lbs. (kN)	75°-90° Lbs. (kN)	30°-44° Lbs. (kN)	45°-59° Lbs. (kN)	60°-74° Lbs. (kN)	75°-90° Lbs. (kN)
1" (25)	1001-1 X 1	104.6 (47.4)	1001-1 X 1 1/4	122.2 (55.4)	1800 (8.01)	2550 (11.34)	3120 (13.88)	3490 (15.52)				
1 1/4" (32)	1001-1 1/4 X 1	105.2 (47.7)	1001-1 1/4 X 1 1/4	122.6 (55.6)	1230 (5.47)	1740 (7.74)	2140 (9.52)	2380 (10.59)				
1 1/2" (40)	1001-1 1/2 X 1	107.0 (48.5)	1001-1 1/2 X 1 1/4	124.7 (56.6)	1230 (5.47)	1740 (7.74)	2140 (9.52)	2380 (10.59)				
2" (50)	1001-2 X 1	112.6 (51.1)	1001-2 X 1 1/4	129.2 (58.6)	1230 (5.47)	1740 (7.74)	2140 (9.52)	2380 (10.59)				
2 1/2" (65)	1001-2 1/2 X 1	136.3 (61.8)	1001-2 1/2 X 1 1/4*	154.4 (70.0)	800 (3.56)	1130 (5.03)	1380 (6.14)	1540 (6.85)				
3" (80)	1001-3 X 1	145.0 (65.8)	1001-3 X 1 1/4	163.1 (74.0)	850 (3.78)	1200 (5.34)	1470 (6.54)	1640 (7.30)				
4" (100)	1001-4 X 1	158.6 (71.9)	1001-4 X 1 1/4	176.7 (80.1)	850 (3.78)	1200 (5.34)	1470 (6.54)	1640 (7.30)				
5" (100)	1001-5 X 1	173.2 (78.6)	1001-5 X 1 1/4	191.4 (86.8)	510 (2.27)	730 (3.25)	890 (3.96)	990 (4.40)				
6" (150)	1001-6 X 1	190.0 (85.2)	1001-6 X 1 1/4*	206.0 (93.4)	510 (2.27)	730 (3.25)	890 (3.96)	990 (4.40)				
8" (200)	1001-8 X 1	217.4 (111.5)	1001-8 X 1 1/4*	265.3 (120.3)	510 (2.27)	730 (3.25)	890 (3.96)	990 (4.40)				

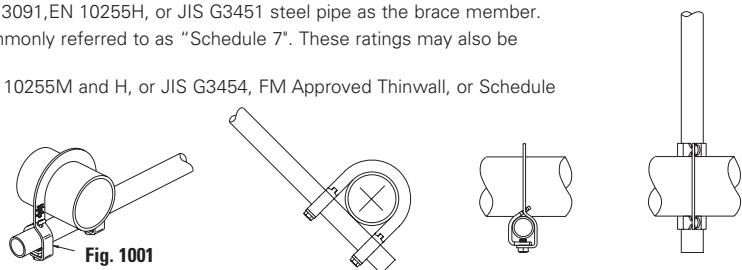
¹ FM Approved when used with 1 or 1 1/4 inch NPS Schedule 40 GB/T 3091, EN 10255H, or JIS G3451 steel pipe as the brace member.

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.

*Note: Metric sizes available for 65mm, 150mm, 200mm pipe size with 25mm and 32mm brace pipe size. Contact the factory.



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



COSCO
Fire Protection

SECTION 5

MISCELLANEOUS

OL Plus Series

Oil-Less, Riser Mount Air Compressors for Dry Pipe & Pre-Action Sprinkler Systems

General Air Products newly improved OL Plus Series Oil Less Riser Mount Fire Protection Air Compressors are UL 1450-VDUR Listed and specifically designed to fill dry pipe and pre-action fire sprinkler systems to 40 PSI within 30 minutes per NFPA 13.

- UL 1450-VDUR Listed
- Oil-Less Piston Compressor
- UL Listed, Pre-Set Pressure Switch
- Fully Automatic, Direct Drive
- Includes Riser Mounting Bracket, 30" Stainless Steel Flex Hose & Union
- ASME Pressure Safety Valve
- Bubble Tight Air Check Valve
- Pre-Wired & Pre-Tested
- Lifetime Technical Support




System Capacity* (gal) @ 40 PSI	Model Number	Average CFM**	Motor HP	Voltage (volts)	Amperage (amps)		Recommended Wire Size (gage)			Unit Weight (lbs)
					FLA	Start Up	25' Run	50' Run	100' Run	
120	OLR12016AC	1.46	1/6	115	3.5	25	12	12	12	29
				208-230	1.9	13.3	12	12	12	
250	OLR25033AC	3.03	1/3	115	4.3	30.1	12	12	10	33
				208-230	2.3	16.1	12	12	12	
400	OLR40050AC	4.85	1/2	115	9.4	65.8	12	10	6	45
				208-230	4.9	34.3	12	12	12	
430	OLR43075AC	5.21	3/4	115	11.6	81.2	12	10	6	48
				208-230	5.8	40.6	12	12	12	
615	OLR615100AC ⁺	7.46	1	115	18	126	12	10	6	48
				208-230	9	63	12	12	12	
915	OLR915150AC ⁺	11.10	1 1/2	115	16.6	116.2	12	12	6	60
				208-230	8.3	58.1	12	12	12	
1225	OLR1225200AC ⁺	14.85	2	208-230	11.6	81.2	12	12	10	70

* System Capacity based on 30min fill at 40 PSIG and 70°F system temperature.

** CFM is based on the average free air delivery as the system fills from 0 to 40 PSIG.

+ Compressor has a capacity above 5.5 CFM at 10 PSIG. Air Maintenance Device required per NFPA 13.

Note: All information is subject to change without notice. Consult factory for most up-to-date product details.

 WARNING: Cancer and Reproductive Harm - www.p65warnings.ca.gov

Fire Protection Air Compressor Accessories

Air Maintenance Device - Part # AMD-1



The AMD-1 regulates the volume of air being delivered to the sprinkler system by the air compressor.

Per NFPA 13 - An Air Maintenance Device is required on every dry system unless the air compressor has a capacity less than 5.5 ft³/min at 10 PSI.

Motor Line Starter - Thermal Overload Protection

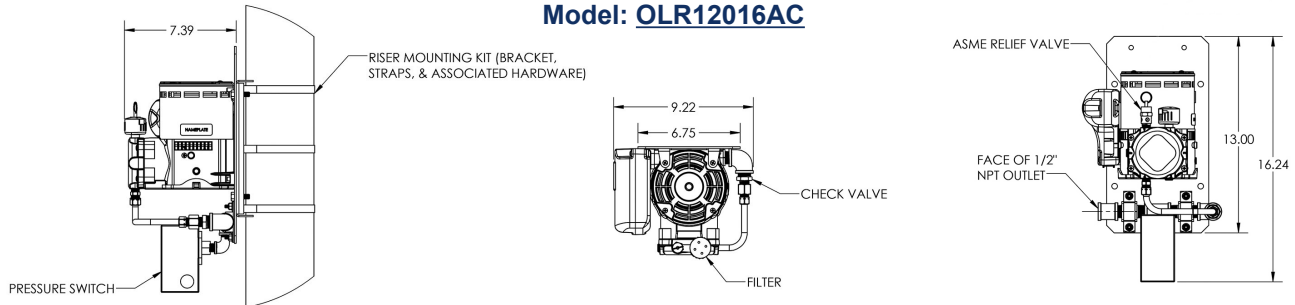


SINGLE PHASE MOTOR LINE STARTERS			
	115V	208/230V	Size
MAX HP	1/2 HP	1 HP	00
	1 HP	2 HP	0
	2 HP	3 HP	1
	3 HP	5 HP	1P
			Model
			MG00A
			MGX0A
			MG01A
			MG15A

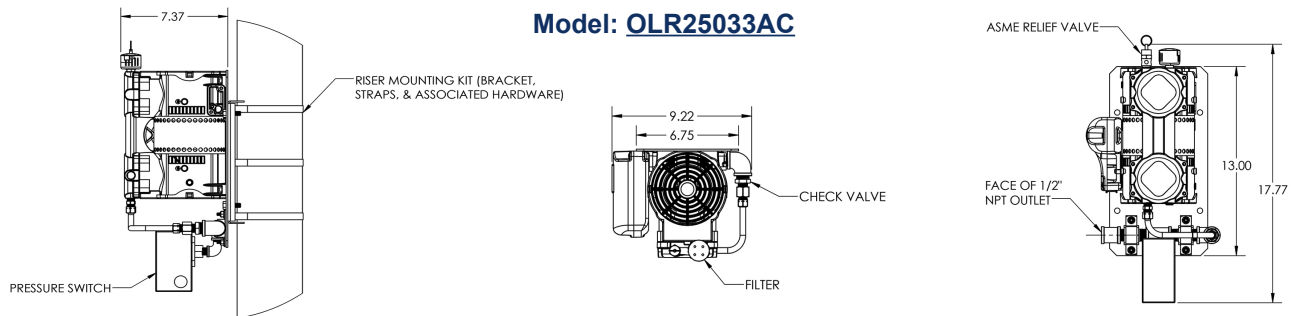
When Ordering a Motor Starter you must specify HP, Voltage & Phase.

OL Plus Series - Riser Mount Fire Protection Air Compressors

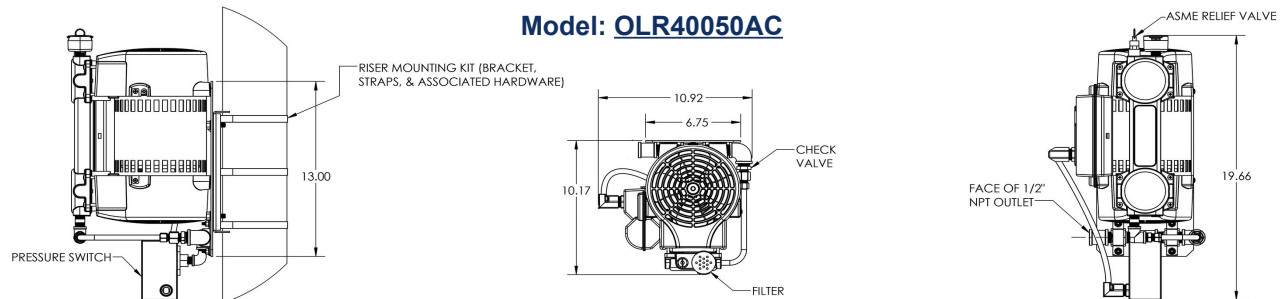
Model: OLR12016AC



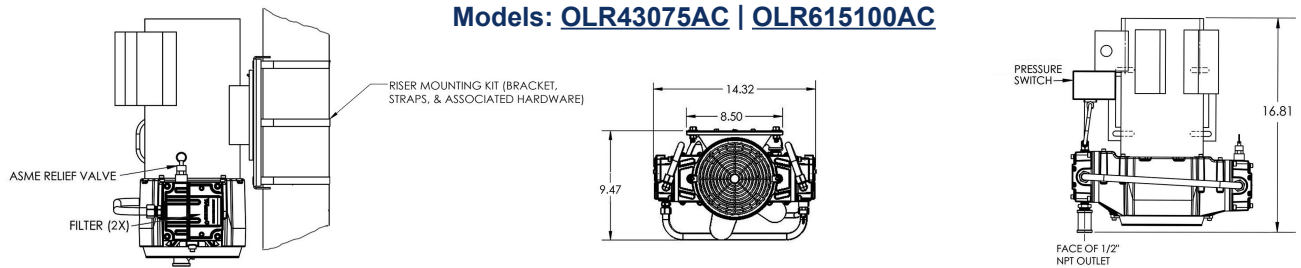
Model: OLR25033AC



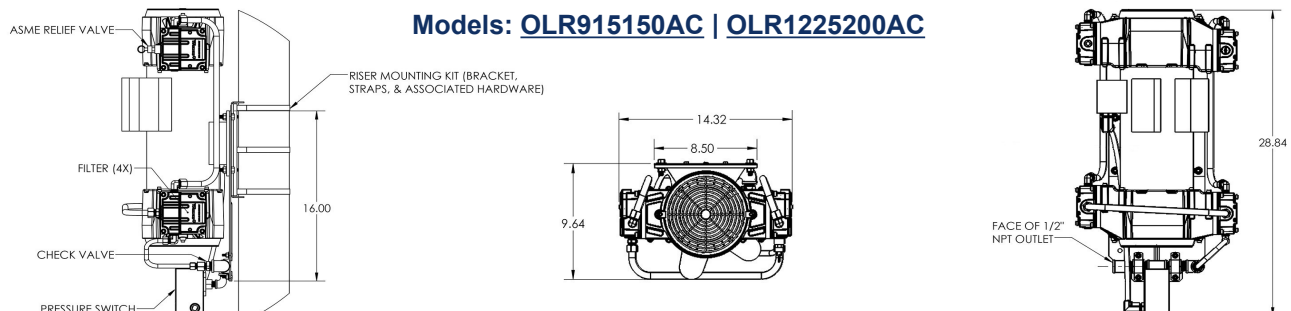
Model: OLR40050AC



Models: OLR43075AC | OLR615100AC



Models: OLR915150AC | OLR1225200AC





TECHNICAL DATA

SPRINKLER WRENCHES AND CABINETS

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

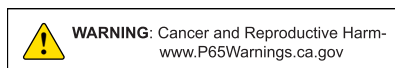
A. Sprinkler Cabinets

Viking sprinkler cabinets are metal enclosures constructed to store an emergency supply of spare sprinklers and a sprinkler installation wrench.

NFPA 13 requires a representative number of each type and temperature rating of sprinkler head to be kept in a cabinet on the premises. NFPA 13 also requires a special sprinkler wrench to be provided in the cabinet. This allows for immediate removal and replacement of sprinklers that have operated or that have become damaged.

Stock of spare sprinklers should include sprinklers of all the types and temperature ratings as are installed in the sprinkler system, in the following quantities:

Number of Sprinklers in the System	Minimum Number of Spare Sprinklers Required
Under 300	6
300-1,000	12
Over 1,000	24



B. Sprinkler Wrenches

Viking sprinkler wrenches are special installation tools specifically designed for use with the various Viking sprinklers and spray nozzles. The appropriate wrenches must be used with the indicated sprinklers and nozzles to provide the proper leverage when tightening sprinklers or nozzles and to minimize slippage during installation.

Using wrenches other than the ones designated for installation may damage the sprinkler. Refer to Tables 2a and 2b and the appropriate sprinkler or spray nozzle data page for the correct installation wrenches that must be used.

Wrenches 21475M/B, 10896W/B, 07297W/B, 05118CW/B, 13635W/B, and 16888M/B provide the amount of leverage needed to tighten sprinklers and spray nozzles into pipe fittings while preventing sprinkler damage. No additional tools are necessary with these wrenches.

The following wrenches require a separate 1/2" ratchet (not available from Viking) to provide the correct amount of leverage: 08336W/B, 10366W/B, 07565W/B, 11663W/B, 13032W/B, 13577W/B, 13619, 15466, 13623W/B, 15467W/B, 15209W/R, 13655W/B, 14031, 14047W/B, 16208W/R, and 16267.

The internal diameters of sprinkler wrenches 08336W/B, 10366W/B, 15209W/R, 16208W/R, and 16267 are designed for use with the sprinkler contained in the protective shell. (A protective shell should be retained in the spare sprinkler cabinet.)

Wrench part number 10551W/B is required for threading institutional escutcheon plates onto institutional sprinklers. Wrench part number 10729 is a 2-1/2" (63.5 mm) C-C face spanner wrench used for removing institutional escutcheon plates from institutional sprinklers (refer to the DISASSEMBLY section of institutional sprinkler technical data pages).

Wrench part number 15915 is optional for removing protective sprinkler caps and for installing E-1 and F-1 Escutcheons on frame style pendent sprinklers from the floor by attaching a length of 1" diameter CPVC tubing to the tool. Refer to Technical Bulletin Form No. 051808.

2. LISTINGS AND APPROVALS

Refer to the specific sprinkler or spray nozzle technical data pages for sprinkler listings and approvals.

3. TECHNICAL DATA

Specifications:

Sprinkler Cabinets: Designed with four 3/16" diameter holes in back. Spacing of mounting holes: 3-1/2" (88.9 mm) length, 3-1/2" (88.9 mm) height. The sprinkler cabinet should be located adjacent to the main system riser.

Material Standards:

Sprinkler Cabinets: Cold Rolled Steel. Finish: Painted high-gloss red enamel interior and exterior, chrome plated door knob.

Wrenches: Ductile Iron, Steel, Acetal, or 50% glass filled nylon (for head cabinet wrenches)

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



TECHNICAL DATA

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

A. Sprinkler Cabinets

1. Determine appropriate cabinet from Table 1 on this page for use with the specific model/number of sprinklers to be contained in the cabinet.
2. Specify cabinet part number and quantity needed.

B. Sprinkler Wrenches

1. Determine the appropriate wrench for use with the given sprinkler or spray nozzle model from Tables 2a and 2b.
2. Specify the wrench part number and quantity needed.

NOTE: Sprinklers and sprinkler wrenches are not supplied with the cabinets; they must be ordered separately.

4. INSTALLATION

Refer to the appropriate sprinkler or spray nozzle technical data page.

5. OPERATION

Refer to the sprinkler or spray nozzle technical data page for the particular model used.

6. INSPECTIONS, TESTS AND MAINTENANCE

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

7. AVAILABILITY

The Viking sprinkler wrenches and cabinets 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.

Table 1: Sprinkler Cabinet Ordering Information and Dimensions

For Sprinkler Models:	Cabinet Capacity	Cabinet Part No.	Size		
			Length	Height	Depth
Viking frame style sprinklers	6 sprinklers	01724A Available since 1971.	10-3/16" (259 mm)	4-11/16" (103 mm)	2-9/16" (65 mm)
Viking frame style sprinklers, ESFR K14 sprinklers, K16.8 pendent sprinklers, and K25.2 EC sprinklers	12 sprinklers (6 K25.2 EC sprinklers)	01725A Available since 1971.	10-3/16" (259 mm)	8-9/16" (217 mm)	2-9/16" (65 mm)
Viking concealed and flush style sprinklers, ESFR K25.2 and K22.4 pendent sprinklers, and K19.6 CMSA sprinklers	5-6 sprinklers	01731A Available since 1971.	13-13/16" (351 mm)	5-11/16" (144 mm)	3" (76 mm)
High Challenge® Sprinklers, upright ESFR sprinklers, and Intermediate Level Sprinklers	6 sprinklers	03985A Available since 1977	12-5/8" (321 mm)	9-1/8" (232 mm)	4-1/8" (105 mm)



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IMPORTANT NOTES

The sprinkler cabinet should be easily accessible.

The sprinkler cabinet must not be exposed to corrosive atmospheres or temperatures above 100 °F (38 °C).

The stock of spare sprinklers should include an adequate number of sprinklers of each type and temperature rating.

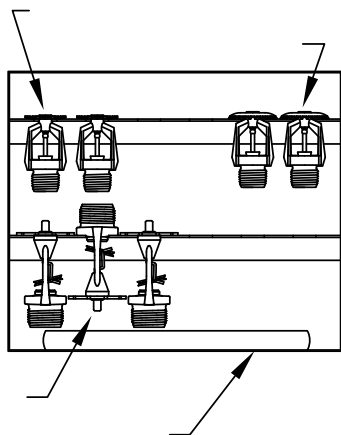
The stock of sprinklers must be in good condition.

A sprinkler wrench of the appropriate type must be included in the cabinet.

Orient sprinklers and sprinkler wrench as indicated in Figure 1 below.

CAUTION: When replacing automatic sprinklers in an existing system, be sure to replace with sprinklers of the correct type, thread size, orifice size, temperature rating, and finish.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to the appropriate sprinkler data page. Viking sprinklers and spray nozzles are designed to be installed in accordance with the latest edition of Viking technical data, the latest 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 use of certain types of sprinklers may be limited due to occupancy and hazard. Refer to the Authority Having Jurisdiction prior to installation.



**Figure 1: Correct orientation of
sprinklers and wrench inside cabinet.
(12-head cabinet shown)**



**Figure 2: Sprinkler Cabinet 01724A
(Sprinklers and wrench not included)**



**Figure 3: Sprinkler Cabinet 01725A
(Sprinklers and wrench not included)**



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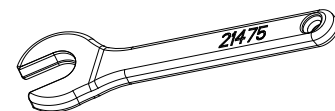
Table 2a: Sprinkler Wrenches

For Sprinkler Models:	Use Wrench:
Frame-style sprinklers and spray nozzles	21475M/B Available since 2017
Wax coated Frame-style sprinklers and spray nozzles	10896W/B Available since 2000 or 05000CW/B*
Wax coated sprinklers and domed concealed pendent sprinklers	13577W/B Available since 2006 replaces 07398W*
Recessed horizontal sidewall sprinklers with protective shields, domed concealed horizontal sidewall sprinklers, and recessed pendent sprinklers	13655W/B Available since 2006
Coated and recessed ECOH K14 sprinkler	13032W/B Available since 2004
Standard adjustable and plain barrel dry sprinklers, K16.8 and ECOH K14 sprinklers	07297W/B Available since 1991
Recessed and domed concealed dry sprinklers	07565W/B Available since 1991
High Challenge® sprinklers, upright ESFR sprinklers, and ELO sprinklers**	05118CW/B Available since 1981
Coated, recessed, and domed concealed ELO sprinklers	11663W/B Available since 2001
Pendent K14 and K16.8 ESFR sprinklers	13635W/B double ended (use Side A) Available since 2006, or 10285W/B*
Pendent K25.2, K22.4 ESFR sprinklers and K19.6 CMSA Sprinkler VK592	13635W/B double ended (use Side B) Available since 2006, or 12143W/B*
Upright EC K25.2 sprinklers	16888M/B Available since 2011
QR and EC Concealed Sprinklers VK461, VK462, VK463, VK464, VK465, VK632, and VK634 (also optional for cap removal)	14031† Available since 2006
QR and EC Concealed Sprinklers VK461, VK462, VK463, VK464, VK465, VK632, and VK634	14047W/B (heavy duty) Available since 2006
Residential Concealed Sprinklers VK456, VK457, VK474, and VK488 (also optional for removal of protective caps)	13619† (red) Available since 2006

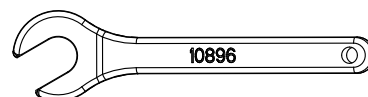
*Wrench no longer available. May still be used until wrench replacement is necessary.

**ELO sprinklers manufactured before Dec. 2001 use wrench part number 07297W/B (07565W/B for coated and recessed).

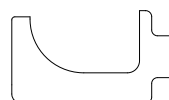
†Ideal for sprinkler cabinets.



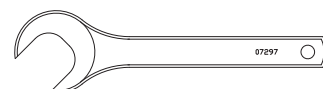
Part No. 21475M/B



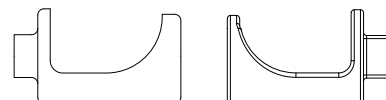
Part No. 10896W/B



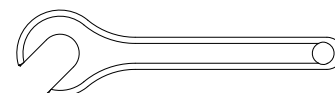
Part No. 13577W/B & 13032W/B



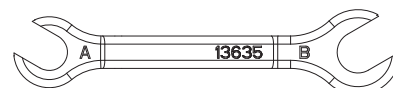
Part No. 07297W/B



Part Nos. 07565W/B & 11663W/B



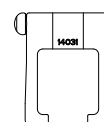
Part No. 05118CW/B



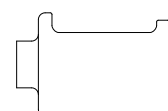
Part No. 13635W/B



Part No. 16888M/B



Part No. 14031



Part No. 14047W/B

Figure 4a: Sprinkler Wrenches



TECHNICAL DATA

SPRINKLER WRENCHES AND CABINETS

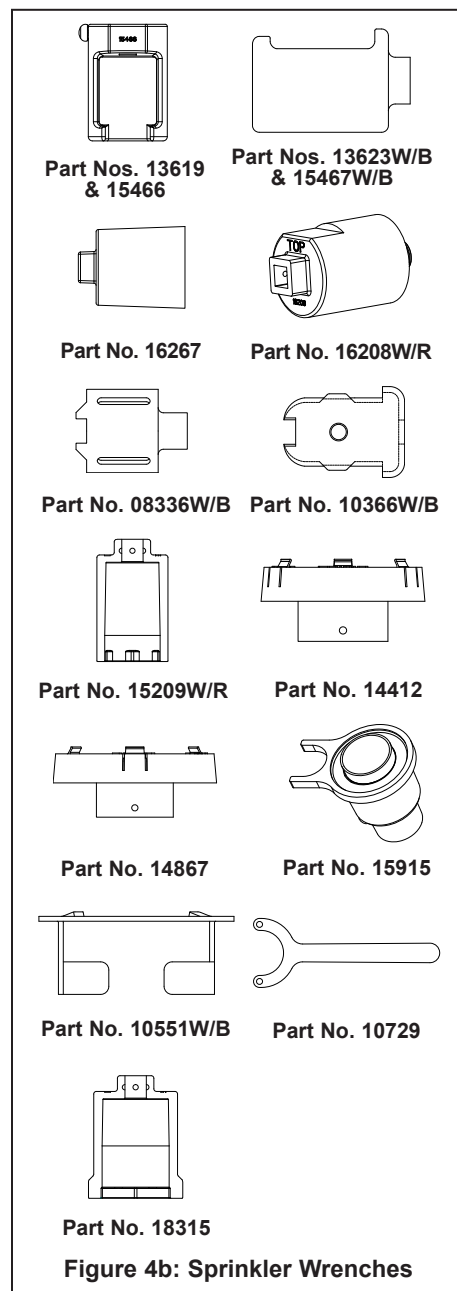
The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

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

Table 2b: Sprinkler Wrenches

For Sprinkler Models:	Use Wrench:
Residential Concealed Sprinklers VK456, VK457, VK474, and VK488	13623W/B (heavy duty) Available since 2006
Residential Concealed HSW Sprinkler VK480	16267† or 16208W/R (heavy duty) Available since 2010
Mirage® QR ELO Concealed Sprinklers VK636 and VK469 (also optional for removal of protective caps)	15466† Available since 2009
Mirage® QR ELO Concealed Sprinklers VK636 and VK469	15467W/B (heavy duty) Available since 2009
Mirage® Concealed and flush style sprinklers	08336W/B (heavy duty) Available since 1993
Mirage® Concealed and flush style sprinklers	10366W/B† Available since 1998
Residential Flush Pendent Sprinklers VK476 and VK478	15209W/R (heavy duty) Available since 2009
Recessed Flush Dry Sprinklers VK482	18315 (heavy duty) Available since 2014
Mirage® and Freedom® Concealed Sprinklers VK461, VK462, VK463, VK464, VK465, VK469, VK474, VK632, VK634, VK636, and VK488 (optional concealed cover installer tool)	14412†, or 14867 for the large diameter cover, Available since 2007
Shipping Cap Remover/ Escutcheon Installer (optional***)	15915† Available since 2010
Institutional style flush sprinklers (for installation of the escutcheon plate)	10551W/B Available since 1999
Institutional style flush sprinklers (spanner wrench for escutcheon plate removal)	10729 Available since 1999
***Allows removal of sprinkler caps and installation of E-1 and F-1 escutcheons on frame style pendent sprinklers from the floor.	
†Ideal for sprinkler cabinets.	





COSCO
Fire Protection

SECTION 6

SAFETY DATA SHEETS



Smith-Cooper International
2867 Vail Avenue
Commerce, CA 90040
Phone: +1 (800) 766-0076
Fax: +1 (323) 890-4456

SAFETY DATA SHEET

Last Updated: 04/17/2018

Section 1		IDENTIFICATION
ThreadFit® Cutting Oil, Dark		
Manufacturer Information Smith-Cooper International 2867 Vail Avenue Commerce, CA 90040 Phone: +1 (800) 766-0076 Fax: +1 (323) 890-4456		Emergency Contact CHEMTREC 1300 Wilson Boulevard Arlington, VA 22209-2380 Phone: +1 (800) 424-9300 International: +1 (703) 527-3887
Product Use	Cutting Oil	
Section 2		HAZARDS IDENTIFICATION
Hazard Classification	This product is not classified as hazardous according to 29 CFR 1910, amended to conform to the United Nations Global Harmonized System of Classification and Labeling of Chemicals (OSHA/GHS).	
Hazard Not Otherwise Classified	None as defined under 29 CFR 1910	
Hazard Statements	This product is not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA. This material should not be used for any other purpose than the intended use in Section 1 without expert advice.	
Precautionary Statements	No hazards resulting from the material as supplied. Health injuries are not known or expected under normal use. Excessive exposure may result in eye, skin or respiratory irritation.	
Potential Health Effects	Routes of Exposure: Ingestion, Skin Contact, Eye Contact, Inhalation Eyes: Exposure may cause irritation Skin: Prolonged or excessive skin contact may cause mild skin irritation Inhalation: Prolonged or excessive inhalation may cause respiratory tract irritation Ingestion: No significant adverse effects are expected upon ingestion of this product. Small amounts (a tablespoon) swallowed during normal handling operations are not likely to cause injury; swallowing larger amounts than that may cause injury. Signs and Symptoms: May cause eye/skin irritation. Inhalation of vapors in high concentrations may cause irritation of respiratory systems.	
Response	In the case of fire, refer to section 5. In the case of spill, refer to section 6 In the case where first aid is required, refer to section 4.	
Storage	Keep in a dry, cool well-ventilated place. Keep away from heat, sparks and open flame. Use care in handling/storage. Keep container closed when not in use. Do not store in unlabelled containers.	
Empty Container Warning	Empty containers may contain residue and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION. Empty containers should be disposed of in accordance with all Federal, state and local regulations. Consider recycling where practical.	

Section 3		COMPOSITION/INFORMATION ON INGREDIENTS
Component Name	CAS Number	Weight %
Severely Hydrotreated Base Oil	64742-54-7	87-93
1-Decene, Sulfurized	72162-15-3	7-13
Section 4		FIRST AID MEASURES
Inhalation	No specific treatment is necessary since this material is not likely to be hazardous by inhalation. If symptoms are experienced, remove source of contamination or move victim to fresh air.	
Skin	Wash contact area with soap and water. Get medical attention if irritation develops or persists.	
Eye	Flush eyes with water as a precaution. Get medical attention if irritation develops or persists.	
Ingestion	Have victim rinse mouth thoroughly with water. Drink water as a precaution. Do not induce vomiting without medical advice. If ingestion of a large amount does occur, seek medical attention.	
Symptoms	May cause eye/skin irritation. Inhalation of vapors in high concentration may cause irritation of the respiratory system.	
General Advice	No hazards which require special first aid. Not expected to be toxic. Seek medical attention if ill effects develop.	
Section 5		FIRE FIGHTING MEASURES
Flash Point, ASTM D-92	Greater than 182.2 °C	
Extinguishing Media	Use water fog, foam, dry chemical or carbon dioxide.	
Special Firefighting Procedures/Equipment	Wear suitable protective gear. In the event of fire, wear self contained breathing apparatus. Use MSHA/NIOSH (approved or equivalent).	
Unusual Fire and Explosion Hazards	None special. Irritating and/or toxic gases may be emitted upon the products decomposition.	
Additional Information	Do not scatter spilled material with high pressure water streams.	
Section 6		ACCIDENTAL RELEASE MEASURES
Personal Precautions	Keep unnecessary personnel away. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.	
Environmental Precautions	Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. Notify appropriate authorities if necessary.	
Methods and Materials Use for Containment	Eliminate all ignition sources (NO SMOKING, FLARES, SPARKS OR FLAMES IN THE IMMEDIATE AREA). Stop leak if you can do so without risk. Dike the spilled material where this is possible. Do not allow to enter sewers and waterways.	
Methods for Clean Up	For larger spills, absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Do not allow the spill to enter sewers or waterways. For small spills, wipe with an absorbent material. Clean surface thoroughly to remove residual contamination. For waste disposal, see section 13 of the SDS.	
Section 7		HANDLING AND STORAGE
Handling	Do not handle or store near open flames, sources of heat or sources of ignition. Protect material from direct sunlight. Do not get this material in contact with skin or eyes. Handle open container with care. Avoid breathing vapors or mists of this product.	
Storage	Keep in a dry, cool and well-ventilated place. Keep away from heat, sparks and open flame. Use care in handling/storage. Keep container closed when not in use.	

Section 8		EXPOSURE CONTROLS/ PERSONAL PROTECTION	
Exposure Guidelines			
Components	CAS-No.	Type	Value
Severely hydrotreated base oil	64742-54-7	ACGIH TLV	5 mg/m ³
1-Decene, sulfurized	72162-15-3	None Established	None Established
Engineering Controls	Provide local and general exhaust to effectively remove and prevent buildup of any vapors or mists generated for the handling or use of this product.		
Personal Protection	Eye/Face Protection: Wear chemical goggles. If splashes occur, wear face shield		
	Skin Protection: Wear suitable protective clothing including oil impervious gloves		
	Respiratory Protection: No personal respiratory protective equipment normally required. If mist is generated (heating or spraying) and engineering controls are not sufficient, wear approved organic vapor respirator suitable for oil mist.		
General Measures	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking and/or smoking. Routinely wash work clothes and protective equipment to remove contaminants. Practice good housekeeping.		
Section 9		PHYSICAL AND CHEMICAL PROPERTIES	
Appearance: Dark brown liquid		Evaporation Rate: Not Determined	
Odor: Typical sulfurized oil odor		DMSO Extract (mineral oil only, IP-346 <3 % wt	
Odor Threshold: Not Available		Upper/lower Flammability LEL 0.9 UEL 7.0	
pH: Not Applicable		Vapor Pressure: <0.013 kPa (0.1 mm hG) at 20 °C	
Melting Point/Freezing Point: 0 °F		Vapor Density: (air=1) >2 at 101 kPa	
Boiling Point and Boiling Range: > 600 °F		Relative Density: 0.8735 specific gravity	
Flash Point: > 182.2 °C		Solubility: Negligible	
Partition Coefficient: > 3.5		Auto-Ignition Temperature: Not Determined	
Decomposition Temperature: Not Determined		Viscosity: approximately 35 cSt @ 40 °C	
VOC Content: 1.0 g/L			
Section 10		STABILITY AND REACTIVITY	
Reactivity	See sub-sections below.		
Chemical Stability	Material is stable under normal conditions.		
Possibility of Hazardous Reactions	Will not occur.		
Conditions to Avoid	Heat, flames and sparks. None known. Avoid temperatures exceeding the flash point. This product may react with strong oxidizing agents.		

Hazardous Decomposition	Carbon oxides and sulfur oxides
Section 11 TOXICOLOGICAL INFORMATION	
Ingestion Toxicity	Minimally toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 401
Skin Toxicity	Minimally toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 402
Eye Irritation	May cause mild, short-lasting discomfort to eyes. Based on test data structurally similar materials. Test(s) equivalent or similar to OECD Guideline 405
Respiratory Irritation	Minimally toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 403
Chronic Toxicity	No data available
Carcinogenicity	Not expected to cause cancer. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 451 453
Other	For the product itself: Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests.
Section 12 ECOLOGICAL INFORMATION	
Ecotoxicity	Material not expected to be harmful to aquatic organisms.
Degradability	Biodegradation: Material – Expected to be inherently biodegradable
Other	Ecological injuries are not known or expected under normal use. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal
Section 13 DISPOSAL CONSIDERATIONS	
Waste Disposal Method	<p>Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix oils with solvents, brake fluids or coolants.</p> <p>RCRA Information. The unused product is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous waste. However, after use it is the responsibility of the user to determine the products status for disposal.</p>
Section 14 TRANSPORT INFORMATION	
UN Number	Not Regulated for Land Transport
UN Proper Shipping Name	Not Applicable
Transport Hazard Class	Not Regulated for Land Transport
Canadian Transportation of Dangerous Goods	Not Regulated for Land Transport
Marine Pollutants	Not regulated for Sea Transport according to IMDG-Code Marine Pollutant: No

Air (IATA)	Not regulated for Air Transport.
Section 15 REGULATORY INFORMATION	
TSCA Status	All components are on the U. S. EPA TSCA Inventory list.
SARA 311/312 Reportable Hazard Categories	None Listed
California Prop 65	This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.
WHMIS DSL Status (Canada)	Not controlled
Section 16 OTHER INFORMATION	
Additional Information	<p>HMIS ratings: Health = 1, Flammability = 1, Physical Hazard = 0, Personal Protection = B</p> <p>NFPA ratings: Health = 1, Flammability = 1, Instability = 0</p>
	There are no Red List materials included in this product.
Prepared By	Human Resource Department
Revised Date	September 8, 2015
Disclaimer	Although the information and recommendations set forth herein are presented in good faith and believed to be correct as of the date hereof, Smith-Cooper International makes no representations as to the completeness or accuracy thereof. Smith-Cooper International makes no warranty whatsoever, expressed or implied, of merchantability or fitness for the particular purpose since the conditions of use are beyond our control. Smith-Cooper International no responsibility for injury to recipient or to third persons for any damage to any property and recipient.



SAFETY DATA SHEET

Section 1 – Product & Company Identification

Product Name:
RIDGID Nu-Clear Thread Cutting Oil (United States)

Product Catalog No.:
11461, 11481, 41575, 41585, 42513, 70835

Recommended Use:
Thread Cutting

Restrictions on Use:
Industrial use only

Company Information:

<u>North America</u> Ridge Tool Company 400 Clark Street Elyria, Ohio 44035-6001 1-800-519-3456 (8:00 am – 5:00 pm EST, M-F) Emergency Telephone call 9-1-1 or local emergency number www.RIDGID.com	<u>Australia</u> Ridge Tool Australia 127 Metrolink Circuit Campbellfield, VIC 3061 1-800-743-443 (8:30 am – 5:00 pm AEST, M-F) Emergency Telephone call 000 or local emergency number www.RIDGID.com.au
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Issue Date: May 2, 2018

Revision: K



Product Name: RIDGID Nu-Clear Thread Cutting Oil (United States)

Section 2 – Hazards Identification

Hazard Classification

This product is classified as not hazardous per US OSHA 29CFR 1910.1200 (HazCom 2012)

Label Elements

Hazard Symbol: No symbol

Signal Word: No signal word.

Hazard Statement: Not applicable

Precautionary Statements Not applicable

Other hazards which do not result in GHS classification: None.

Section 3 – Composition / Information On Ingredients

General information: This product does not contain silicone or chlorinated additives.

Hazardous Component(s):

Chemical name	CAS-No.	Concentration
Mineral oil	Confidential	20 - <50%
Paraffin oils	Confidential	20 - <50%
Vegetable oil	Confidential	1 - <5%

Specific chemical identities and/or exact percentages have been withheld as trade secrets.



Product Name: RIDGID Nu-Clear Thread Cutting Oil (United States)

Section 4 – First Aid Measures

Ingestion:	Rinse mouth thoroughly. Call a POISON CENTER/doctor if you feel unwell. Do NOT induce vomiting.
Inhalation:	Move to fresh air. Call a POISON CENTER/doctor if you feel unwell.
Skin Contact:	Remove contaminated clothing and shoes. Wash contact areas with soap and water. If skin irritation occurs: Get medical advice/attention.
Eye contact:	Flush thoroughly with water. If irritation occurs, get medical assistance. Continue to rinse for at least 15 minutes.

Most important symptoms/effects, acute and delayed

Symptoms:	No data available.
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Indication of immediate medical attention and special treatment needed

Treatment:	Get medical attention if symptoms occur.
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Section 5 – Fire Fighting Measures

General Fire Hazards:	No unusual fire or explosion hazards noted.
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Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	Water spray, fog, CO ₂ , dry chemical, or regular foam. Use fire-extinguishing media appropriate for surrounding materials.
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Unsuitable extinguishing media:	Do not use water jet as an extinguisher, as this will spread the fire.
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Specific hazards arising from the chemical:	Heat may cause the containers to explode. During fire, gases hazardous to health may be formed.
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Special protective equipment and precautions for firefighters

Special fire fighting procedures:	No data available.
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Special protective equipment for fire-fighters:	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
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Product Name: RIDGID Nu-Clear Thread Cutting Oil (United States)

Section 6 – Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:	See Section 8 of the SDS for Personal Protective Equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep unauthorized personnel away. Ensure adequate ventilation.
Methods and material for containment and cleaning up:	Absorb with sand or other inert absorbent. Stop the flow of material, if this is without risk.
Environmental Precautions:	Avoid release to the environment. Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so.

Section 7 – Handling And Storage

Precautions for safe handling:	Observe good industrial hygiene practices. Wear appropriate personal protective equipment. Do not expose to intense heat as product may expand and pressurize container.
Conditions for safe storage, including any incompatibilities:	Store in original tightly closed container. Avoid contact with oxidizing agents. Store away from incompatible materials. Shelf Life: 720 Days



Product Name: RIDGID Nu-Clear Thread Cutting Oil (United States)

Section 8 – Exposure Controls / Personal Protection

Exposure Limits

Chemical name	Type	Exposure Limit Values	Source
Mineral oil - Mist.	PEL	5 mg/m ³	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (01 2017)
Mineral oil - Mist.	TWA	5 mg/m ³	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
Paraffin oils - Inhalable fraction.	TWA	5 mg/m ³	US. ACGIH Threshold Limit Values (03 2014)
Paraffin oils - Mist.	PEL	5 mg/m ³	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Paraffin oils - Mist.	TWA	5 mg/m ³	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
Vegetable oil - Total dust.	PEL	15 mg/m ³	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Vegetable oil - Respirable fraction.	PEL	5 mg/m ³	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)

Protective Measures:	Use personal protective equipment as required.
Respiratory Protection:	In case of inadequate ventilation use suitable respirator. Seek advice from supervisor on the company's respiratory protection standards.
Eye Protection:	Wear safety glasses with side shields (or goggles).
Skin and Body Protection:	Wear protective clothing appropriate for the risk of exposure. Be aware of other hazards such as rotating parts. Contact health and safety professional or manufacturer for specific information.
Hygiene measures:	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

Section 9 – Physical And Chemical Properties

Appearance

Physical state:	Liquid
Form:	No data available.
Color:	Yellow
Odor:	Mild petroleum/solvent
Odor threshold:	No data available.
pH:	No data available.
Melting point/freezing point:	No data available.



Product Name: RIDGID Nu-Clear Thread Cutting Oil (United States)

Initial boiling point and boiling range:	No data available.
Flash Point:	196.11 °C (385.00 °F)
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	No data available.
Vapor density:	No data available.
Relative density:	0.878
Solubility(ies)	
Solubility in water:	Insoluble
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	43 mm ² /s (40 °C, Measured)
Other information	
VOC:	1.1 % (Method 24) 9.4 g/l (ASTM E 1868-10)

Section 10 – Stability And Reactivity

Reactivity:	Not reactive during normal use.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	None under normal conditions.
Conditions to avoid:	Avoid heat or contamination.
Incompatible Materials:	No data available.
Hazardous Decomposition Products:	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

Section 11 – Toxicological Information

Information on likely routes of exposure

Ingestion: May be ingested by accident. Ingestion may cause irritation and malaise.



Product Name: RIDGID Nu-Clear Thread Cutting Oil (United States)

Inhalation: Inhalation is the primary route of exposure. In high concentrations, vapors, fumes or mists may irritate nose, throat and mucus membranes.

Skin Contact: Prolonged skin contact may cause redness and irritation.

Eye contact: Eye contact is possible and should be avoided.

Symptoms related to the physical, chemical and toxicological characteristics

Ingestion: No data available.

Inhalation: No data available.

Skin Contact: No data available.

Eye contact: No data available.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral

Product: Not classified for acute toxicity based on available data.

Dermal

Product: Not classified for acute toxicity based on available data.

Inhalation

Product: Not classified for acute toxicity based on available data.

Repeated dose toxicity

Product: No data available.

Skin Corrosion/Irritation

Product: No data available.

Serious Eye Damage/Eye Irritation

Product: No data available.

Respiratory or Skin Sensitization

Product: No data available.

Carcinogenicity

Product: No data available.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans

No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified



Product Name: RIDGID Nu-Clear Thread Cutting Oil (United States)

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro

Product: No data available.

In vivo

Product: No data available.

Reproductive toxicity

Product: No data available.

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product: No data available.

Aspiration Hazard

Product: No data available.

Other effects: No data available.

Section 12 – Ecological Information

General information: This product has not been evaluated for ecological toxicity or other environmental effects.

Section 13 – Disposal Consideration

Disposal instructions: Discharge, treatment, or disposal may be subject to national, state, or local laws. Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal. It is the responsibility of the product user or owner to determine at the time of disposal, which waste regulations must be applied.

Contaminated Packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.



Product Name: RIDGID Nu-Clear Thread Cutting Oil (United States)

Section 14 – Transportation Information

DOT

Not regulated.

IMDG

Not regulated.

IATA

Not regulated.

Section 15 – Regulatory Information

US Federal Regulations

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

This product is classified as not hazardous per US OSHA 29CFR 1910.1200 (HazCom 2012)

SARA 313 (TRI Reporting)

None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65

No ingredient regulated by CA Prop 65 present.



Product Name: RIDGID Nu-Clear Thread Cutting Oil (United States)

Section 16 – Other Information

Prepared by: Ridge Tool Company (Operating Standard 6-101)

Issue Date: May 2, 2018

Last Revision Date: March 8, 2017

RIDGE TOOL BELIEVES THE STATEMENTS, TECHNICAL INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE RELIABLE BUT THEY ARE GIVEN WITHOUT WARRANTY OR GUARANTEE OF ANY KIND, EXPRESSED OR IMPLIED, AND WE ASSUME NO RESPONSIBILITY FOR ANY LOSS, DAMAGE OR EXPENSE, DIRECT OR CONSEQUENTIAL, ARISING OUT OF THEIR USE.

PipeFit® Thread Sealing Paste with PTFE
Fig. 03-135



Description

FPPI Pipefit® Thread Sealing Paste with PTFE is a premium non-hardening PTFE filled pipe thread sealing paste designed specifically for the fire sprinkler industry. Pipefit is suitable for use on all threadable materials commonly used in fire sprinkler systems, including CPVC. Pipefit’s unique blend of materials provides superior thread sealing qualities over other similarly priced sealants. The particulate PTFE also helps prevent leaks by accumulating in the voids of damaged or defective threads of the pipe or fittings. Additionally, the lubricating qualities of the PTFE and other materials in the sealing paste improve thread seating during pipe and fitting assembly. Pipefit also adheres well to hot oily pipe present in ‘high speed’ fabrication operations.

FBC™ System Compatible**



** FBC™ System Compatible indicates that this product has been tested and is monitored on an ongoing basis to assure its chemical compatibility with FlowGuard Gold® BlazeMaster® and Corzan® pipe and fittings. FBC™

FlowGuard Gold® BlazeMaster® and Corzan® are licensed trademarks of The Lubrizol Corporation or its affiliates.

PROJECT INFORMATION		APPROVAL STAMP
Project:		Approved
Address:		Approved as noted
Contractor:		Not approved
Engineer:		Remarks:
Submittal Date:		
Notes 1:		
Notes 2:		



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Fax: +1 (323) 890-4456

SAFETY DATA SHEET

Last Updated: 04/17/2018

Section 1		IDENTIFICATION
PipeFit®		
<u>PipeFit Pint BIC</u> <u>PipeFit Qt. Flat top</u> <u>PipeFit Qt. BIC</u>		<u>PipeFit 5 gal</u> <u>PipeFit 55 gal</u>
<u>Manufacturer Information</u> Smith-Cooper International 2867 Vail Avenue Commerce, CA 90040 Phone: +1 (800) 766-0076 Fax: +1 (323) 890-4456		<u>Emergency Contact</u> CHEMTREC 1300 Wilson Boulevard Arlington, VA 22209-2380 Phone: (800)424-9300 International: +1 (703) 527-3887
Product Use	Pipe thread sealant	
Section 2		HAZARDS IDENTIFICATION
Hazard Classification	Non-hazardous	
Eye Irrit. 2A, H319 Aquatic Acute 1, H400 Aquatic Chronic 3, H412	Warning	
Hazard Statements	Causes eye irritation May cause skin irritation May cause respiratory irritation	
Precautionary Statements	Avoid contact with skin and eyes. Do not breathe fumes. Always wash hands immediately after handling this product, and once again before leaving the workplace.	
Prevention	Avoid contact with skin and eyes. Wear suitable gloves. Do not eat, drink, or smoke when using this product.	

Response	IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs; get medical advice/attention. IF INHALED: Remove person to fresh air and keep comfortable during breathing. IF IN EYES: Immediately flush eyes with plenty of water. Irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart. Obtain medical attention if pain, blinking or redness persists. Never give anything by mouth to an unconscious person. Get medical attention/advice if you feel unwell.	
Storage	Storage conditions: Keep container closed when not in use. Incompatible products: Strong acids. Strong bases. Strong oxidizers. Solvents. Heat and ignition sources: Keep away from heat, sparks and flame. Prohibitions on mixed storage: Incompatible materials. Storage area: Store in dry, cool, well-ventilated area.	
Disposal	Sewage disposal recommendations: Do not dispose of waste into sewer. Waste disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Ecology - waste materials: Avoid release to the environment.	
Section 3COMPOSITION/INFORMATION ON INGREDIENTS		
Component Name	CAS Number	0 - 0.22
Phosphorodithioic acid, O,O-di-C1-14- alkyl esters, zinc salts	68649-42-3	0 - 0.22
Section 4FIRST AID MEASURES		
Inhalation	May cause irritation, coughing, shortness of breath.	
Skin	Wash with plenty of soap and water. If skin irritation occurs; get medical advice/attention.	
Eye	Immediately flush eyes with plenty of water. Irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart. Obtain medical attention if pain, blinking or redness persists.	
Ingestion	Get medical advice/attention if you feel unwell.	
Symptoms	Inhalation may cause: irritation, coughing, shortness of breath.	
Medical Care	Treat symptomatically. Never give anything by mouth to an unconscious person. Get medical attention/advice if you feel unwell.	
Section 5FIRE FIGHTING MEASURES		
Flash Point	150 °C	
Extinguishing Media	Carbon dioxide. Dry chemical. Foam. Water Spray.	
Special Firefighting Procedures/Equipment	Firefighting instructions: Cool adjacent structures and containers with water spray to protect and prevent ignition. Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Use self-contained breathing apparatus. Remove all unprotected personnel.	
Unusual Fire and Explosion Hazards	Fire hazard: Burning produces irritating, toxic and noxious fumes. Explosion hazard: Product is not explosive. Reactivity: No dangerous reactions known.	

Additional Information		No known unsuitable extinguishing media.	
Section 6ACCIDENTAL RELEASE MEASURES			
Personal Precautions		General Measures: Avoid contact with skin and eyes. Wear suitable gloves. Emergency Responders: Wear suitable gloves. Evacuate unnecessary personnel. Stop leak if safe to do so. Ventilate area.	
Environmental Precautions		Prevent entry to sewers and public waters.	
Methods and Materials Use for Containment		Do not allow minor leaks or spills to accumulate on walking surfaces. Contain and collect as any solid.	
Methods for Clean Up		Section 13: disposal information. Section 7: safe handling.	
Section 7HANDLING AND STORAGE			
Handling		Avoid contact with skin and eyes. Do not breathe fume. Always wash your hands immediately after handling this product, and once again before leaving the workplace. Do not eat, drink or smoke when using this product.	
Storage		Storage conditions: Keep container closed when not in use. Incompatible products: Strong acids. Strong bases. Strong oxidizers. Solvents. Heat and ignition sources: Keep away from heat, sparks and flame. Prohibitions on mixed storage: Incompatible materials. Storage area: Store in dry, cool, well-ventilated area.	
Section 8EXPOSURE CONTROLS/ PERSONAL PROTECTION			
Exposure Guidelines			
Components	CAS-No.	Type	Value
Phosphorodithioic acid, O,O-di-C1-14-alkyl esters, zinc salts	68649-42-3	ACGIH: not applicable OSHA: not applicable	No established limit.
Engineering Controls		Avoid creating mist or spray. Ensure good ventilation of the work station.	
Personal Protection		Eye protection: None under normal use.	
		Hand protection: In case of repeated or prolonged contact wear gloves.	
		Respiratory Protection: None under normal use.	
General Measures		Keep out of reach of children. Do not eat, drink or smoke when using this product.	
Section 9PHYSICAL AND CHEMICAL PROPERTIES			
Appearance: White paste		Evaporation Rate: No data available	
Odor: Mild		Flammability: No data available	
Odor Threshold: No data available		Upper/lower Flammability and/or Explosive Limits: No data available	
pH: No data available		Vapor Pressure: No data available	
Melting Point/Freezing Point: No data available		Vapor Density: No data available	
Boiling Point and Boiling Range: 177 °C		Relative Density: 1.48	

Flash Point: 150 °C		Solubility: Insoluble in water	
Partition Coefficient: No data available		Auto-Ignition Temperature: No data available	
Decomposition Temperature: No data available		Viscosity: No data available	
VOC content: 0 g/L			
Section 10			
STABILITY AND REACTIVITY			
Reactivity		No dangerous reactions known.	
Chemical Stability		Stable under normal conditions.	
Possibility of Hazardous Reactions		Hazardous polymerization will not occur.	
Conditions to Avoid		Heat and open flame.	
Incompatible Materials		Strong acids. Strong bases. Strong oxidizers. Solvents.	
Hazardous Decomposition		Carbon oxides (CO, CO2). Hydrogen fluoride. Perfluoro- carbon olefins.	
Section 11			
TOXICOLOGICAL INFORMATION			
Ingestion Toxicity		0.22 percent of the mixture consists of ingredient(s) of unknown acute toxicity. LD50 oral rat: 26100 mg/kg ATE CLP (oral) 26100.000 mg/kg bodyweight	
Skin Toxicity		Not Classified.	
Eye Irritation		Not Classified.	
Respiratory Irritation		Not Classified.	
Chronic Toxicity		Not Classified.	
Carcinogenicity		Not Classified.	
Other		Potential adverse human health effects and symptoms: AFTER INHALATION: may cause irritation, coughing, shortness of breath. LIKELY ROUTES OF EXPOSURE: ingestion, skin and eye contact.	
Section 12			
ECOLOGICAL INFORMATION			
Ecotoxicity		Phosphorodithioic acid, O,O-di-C1-14-alkyl esters, zinc salts (68649-42-3) LC50 fish 1 10 (10 - 35) mg/l Pimephales promelas OECD GDL 203 (water accomodated fraction) EC50 Daphnia 1 1 (1 - 1.5) mg/l OECD GDL 202 (water accomodated fraction) NOEC (acute) 10 mg/l Pimephales promelas OECD GDL 203 (water accomodated fraction) NOEC chronic crustacea < 1 mg/l	
Degradability		Not readily biodegradable.	

Other	N/A
Section 13 DISPOSAL CONSIDERATIONS	
Waste Disposal Method	<p>Sewage disposal recommendations: Do not dispose of waste into sewer.</p> <p>Waste disposal recommendations: Dispose in a safe manner in accordance with local/national regulations.</p> <p>Ecology - waste materials: Avoid release to the environment.</p>
Section 14 TRANSPORT INFORMATION	
UN Number	Not applicable
UN Proper Shipping Name	Not applicable
Transport Hazard Class	In accordance with DOT and TDG. Not considered a dangerous good for transport regulations.
Canadian Transportation of Dangerous Goods	Listed on the Canadian DSL (Domestic Substances List) inventory.
Marine Pollutants	Do not dispose of waste into sewer.
Special Precautions	No additional information available.
Section 15 REGULATORY INFORMATION	
TSCA Status	<p>Phosphorodithioic acid, O,O-di-C1-14-alkyl esters, zinc salts (68649-42-3)</p> <p>Listed on the United States TSCA (Toxic Substances Control Act) inventory</p>
SARA 311/312 Hazards	Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.
	Must be preheated before ignition can occur.
	Normally stable, even under fire exposure conditions, and not reactive with water.
California Prop 65	Not applicable.
DSL Status (Canada)	<p>Phosphorodithioic acid, O,O-di-C1-14-alkyl esters, zinc salts (68649-42-3)</p> <p>Listed on the Canadian DSL (Domestic Substances List) inventory.</p>
Section 16 OTHER INFORMATION	
Additional Information	There are no Red List materials included in this product.
Prepared By	Human Resource Department
Revised Date	7/20/15
Disclaimer	<p>Although the information and recommendations set forth herein are presented in good faith and believed to be correct as of the date hereof, Smith-Cooper International makes no representations as to the completeness or accuracy thereof. Smith-Cooper International makes no warranty whatsoever, expressed or implied, of merchantability or fitness for the particular purpose since the conditions of use are beyond our control. Smith-Cooper International no responsibility for injury to recipient or to third persons for any damage to any property and recipient.</p>

TUF-GLIDE

Thread Sealant with PTFE

Tuf-Glide® is the #1 selling PTFE paste in the fire sprinkler industry. It has replaced its competitors as the pipefitters choice.

APPLICATIONS:

Tuf-Glide may be used on steel, aluminum, brass, copper, iron, reinforced fiberglass, CPVC, PVC and ABS threaded connections. Not for use with Stainless Steel Pipe.

Tuf-Glide thread sealant is a non hardening, safe to use sealant containing PTFE for sealing and protecting threaded connections. Its low coefficient of friction allows tight makeup with low torque and breaks out easily without damaging threads.

Tuf-Glide contains no lead or other harmful metals and is perfectly safe for use on potable water lines.

Contains no silicone.

NOT FOR USE ON OXYGEN LINES.

Tuf-Glide is recommended for threaded pipe carrying:

Acids, Dilute	Helium Gases
Air	Hydraulic Oil
Ammonia	Inert Gases
Aliphatic Solvents	Kerosene
Brine	LP Gases
CO2	Mineral Oils
Caustic, Dilute	Natural Gas
Cold Tar Naphtha	Nitrogen, Gaseous
Cutting Oils	Petroleum Solvents
Fatty Acids	Steam
Heating Oils	Vegetable Oils
Freon	Water

Tuf-Glide is listed under the Uniform Plumbing Code (UPC), File No. 1282.

Conforms to Federal Specification TT-S-1732 and the requirements

of British Standard 6920: Parts 1 & 2.

TFW is recommended for Plumbing, HVAC, Industrial Piping, Chemical Processing Plants, Manufacturing Plants, Gas Utilities and Fire Sprinkler Piping. Meets U.S. Federal Specification TT-S-1732.

VOC Content: Zero Grams per Liter

ITEM #	DESCRIPTION
1010005	1/2 PINT with BRUSHTOP
1010006	1 PINT with BRUSHTOP
1010007	1 QUART FLAT TOP
1010008	1 QUART with BRUSHTOP
1010009	1 GALLON PAIL
1010010	5 GALLON PAIL
1010011	55 GALLON DRUM



FBC™ System Compatible indicates that this product has been tested, and is monitored on an ongoing basis, to assure its chemical compatibility with FlowGuard Gold®, BlazeMaster® and Corzan® piping systems and products made with TempRite® Technology."

"The FBC System Compatible Logo, FBC™, FlowGuard Gold®, BlazeMaster®, Corzan®, and TempRite® are trademarks of Lubrizol Advanced Materials, Inc. or its affiliates.

Service Rating: -35° F (-37° C) to 500° F (260° C)
Pressures: to 10,000 psi for liquids, 2,000 psi for gases
Shelf Life: Indefinite
V.O.C. Content: None
Fluid Type: Synthetic
Color/Appearance: White Grainy Paste
Dropping Point: (ASTM D-566) Not Applicable
Specific Gravity: 1.20
Density (lb/gal): 10.0
Oil Separation: <5.0
WT. % LOSS @ 212°F (100°C)
Flash Point: (ASTM D-92) >350°F (177°C)
Nonvolatile Content: 100%
Viscosity, Brookfield (ASTM D-2196)
#7 Spindle, 5 rpm @ 77°F (25°C) 160,000-260,000 cps
Brushable To: 0°F (-18°C)
Copper Strip Corrosion: 1A
(ASTM D-4048)

System No.		Location	
Submitted By		Date	

Spec Section		Paragraph	
Approved		Date	

TUF-GLIDE

Thread Sealant with PTFE



California Proposition 65 requirements are that any material produced after October 31st be labeled with the statement below. The only product considered hazardous in ARGCO TUF-GLIDE is Titanium dioxide which is still food grade allowable. Additionally titanium dioxide is only a respirable cancer substance when in a submicron size. Since it is encapsulated in a paste and greater than 1 micron particle size for the largest percentage it is debatable it even needs to be reported as there is no exposure mode.

WARNING: This product can expose you to Titanium dioxide, which is known to the State of California to cause cancer.

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

Below is the formula chemical list for ARGCO TUFGLIDE with CAS Numbers.

INGREDIENT	CAS #
Polybutenes	9003-29-6
Calcium sulfonate	61789-86-4
Potassium aluminum silicate	12001-26-2
Kaolin Clay	1332-58-7
Polyethylene	9002-88-4
Talc	14807-96-6
PTFE	9002-84-0
Titanium dioxide (1.2%)	13463-67-7
Organophyllic clay	68953-58-2

System No.		Location		Spec Section		Paragraph	
Submitted By		Date		Approved		Date	

HAZARD COMMUNICATION SAFETY DATA SHEET
TUF-GLIDE™ PASTE

SECTION 1 – IDENTIFICATION

Distributor's name: Allied Rubber & Gasket Company, Inc. - ARGCO
3145 Tiger Run Court #105
Carlsbad, CA 92010
For information call: (800) 854-1015
Emergency Phone: CHEMTREC: +1-703-527-3887 (INTL) 1-800-424-9300 (NORTH AMERICA)
Date prepared: 2/11/2021
Product name: TUF-GLIDE™ Thread Seal Paste with PTFE

SECTION 2 – HAZARDS IDENTIFICATION

Classification:
This chemical is not hazardous according to OSHA Hazard Communication Standard (29CFR, 1910.1200)
GHS Label element, including precautionary statements

EMERGENCY OVERVIEW

SIGNAL WORD: None

The product contains no substances which at their given concentration are considered to be hazardous to health

Appearance: Off White Physical State: Liquid, Gel Odor: Sweet, Corn Syrup-Like
Precautionary Statements: None

SECTION 3 – COMPOSITION/INGREDIENTS

Chemical Name	CAS-No	Weight %	Trade Secret
Talc	14807-96-6	10-20	*
Kaolin	1332-58-7	15-20	*
Mica	12001-26-2	2-5	*
Titanium Dioxide	13463-67-7	1-2	*

Exact percentage (concentration) of composition has been withheld as a trade secret

SECTION 4 – FIRST AID MEASURES

Eye Contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation: Move to fresh air.

Ingestion: Clean mouth with water and afterwards drink plenty of water.

Notes to Physician: Notes to Physician Treat symptomatically.

SECTION 5 – FIRE FIGHTING MEASURES

Flammable Properties:	Not Flammable
Flash Point:	320° F / > 160° C
Flash Point Media:	Open Cup
Suitable Extinguishing Media:	Dry Powder. Carbon dioxide (CO ₂). Foam. Water spray. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media:	Do not use a solid water stream as it may scatter and spread fire.
Explosion Data:	None
Sensitivity to Mechanical Impact:	None
Sensitivity to Static Discharge:	None
Specific Hazards:	Burning produces obnoxious and toxic fumes. Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke) Halogenated compounds
Protective Equipment and Precautions for Firefighters	As in any # re, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 – ACCIDENTAL RELEASE

Personal Precautions:	Use personal protective equipment.
Environmental Precautions:	Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.
Methods for Containment:	Prevent further leakage or spillage if safe to do so.
Methods for Cleaning Up:	Take up mechanically and collect in suitable container for disposal.

SECTION 7 – HANDLING AND STORAGE

Handling:	Avoid dust formation. Do not breathe vapors/dust. Wear personal protective equipment. Ensure adequate ventilation. Wash thoroughly after handling. Fine dust dispersed in air may ignite. Keep away from open flames, hot surfaces and sources of ignition.
Storage:	Keep container tightly closed in a dry and well-ventilated place.

SECTION 8 – EXPOSURE CONTROL/PERSONAL PROTECTION

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Titanium dioxide 13463-67-7	TWA: 10 mg/m3	TWA: 15 mg/m3 total dust (vacated) TWA: 10 mg/m3 total dust	IDLH: 5000 mg/m3

OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits. ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value. NIOSH IDLH: Immediately Dangerous to Life or Health. 2

Other Exposure Guidelines:	Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).
Engineering Measures:	Ensure adequate ventilation, especially in confined areas.
Personal Protective Equipment:	
Eye/Face Protection	Safety glasses with side-shields.
Skin and Body Protection	Long sleeved clothing. Protective gloves.
Respiratory Protection:	None required under normal usage. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Hygiene Measures:	When using, do not eat, drink or smoke. Remove and wash contaminated clothing before re-use.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Off white grainy paste		
Odor Threshold:	No information available		
pH:	Neutral	Density	10.0 lb/gal
Odor:	Sweet, Corn syrup-like	Specific Gravity	1.20
Autoignition Temperature:	> 260 °C / 500 °F	Oil Separation	<5.0
Boiling Point/Boiling Range	<260 °C / 500 °F	VOC Content	Zero grams per liter
Melting Point/Range:	149 °C / 300 °F		
Physical State:	Liquid Gel		
Flash Point:	350 °F / > =177 °C		
Flashpoint Method:	Open cup		
Water Solubility:	Insoluble in cold water, hot water		
Evaporation Rate:	No information available.		
Vapor Density:	>5 (air = 1)		

SECTION 10 – STABILITY AND REACTIVITY DATA

Stability:	Stable under recommended storage conditions. Deomposes in contact with water
Incompatible Products:	Strong oxidizing agents.
Conditions to avoid:	Dust formation. Heat, flames and sparks
Hazardous Decomposition or Byproducts:	None known.
Hazardous Polymerization:	Will not occur

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information Product does not present an acute toxicity hazard based on known or supplied information

Inhalation May cause irritation of respiratory tract.

Eye Contact May cause slight irritation.

Skin Contact No known effect based on information supplied

Ingestion Not an expected route of exposure. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity

The environmental impact of this product has not been fully investigated.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Methods Dispose of in accordance with federal, state, and local regulations

Contaminated Packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14 - TRANSPORT INFORMATION

DOT: Not regulated

TDG: Not regulated

MEX Not regulated

SECTION 15 - REGULATORY INFORMATION

International Inventories

Legend

TSCA - United States Toxic Substances Control Act:
All components are listed

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42). CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals:

Chemical Name: Titanium dioxide	CAS-No: 13463-67-7	California Prop. 65: Carcinogen
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U.S. EPA Label Information

TSCA - All components are listed

EPA Pesticide Registration Number: Not applicable

SECTION 16 - OTHER INFORMATION

<u>NFPA</u>	Health Hazard 1	Flammability 1	Instability 0	Physical and Chemical Hazards
<u>HMIS</u>	Health Hazard 1	Flammability 1	Physical Hazard 0	Personal Protection X

Disclaimer

The information contained herein is accurate and reliable as of the date issued to the best of the manufacturer's knowledge. ARGCO doesn't warrant or guarantee its accuracy or reliability and shall not be liable for any loss or damage arising from the use thereof. It is the user's responsibility to satisfy itself that the information offered for its consideration is suitable for its particular use.

END OF SDS

LANSDALE

VALVE & MANUFACTURING

www.LansdaleValve.com

PIPE DOPE

Model LVPD

FBC™ System Compatible indicates that this product has been tested, and is monitored on an ongoing basis, to assure its chemical compatibility with FlowGuard Gold®, BlazeMaster® and Corzan® pipe and fittings. FBC™, FlowGuard Gold®, BlazeMaster® and Corzan® are licensed trademarks of The Lubrizol Corporation or its affiliates.

DESCRIPTION

Lansdale's Lans Seal Pipe Dope is a premium thread sealant with PTFE. It is a non-hardening thread sealant, that is suitable for use on all types of piping used in fire sprinkler, plumbing and industrial applications. It can be used on CPVC and is FBC Compatible. The Lans Seal pipe dope will help prevent leaks by filling voids in the threads and the PTFE offers improved lubricating qualities which achieves improved fitting assembly and sealing.

INSTALLATION

Before applying the Lans Seal pipe dope make sure that all male and female threads are free of any debris and burrs. Apply generously to the male threads and brush the pipe dope into the root of the threads. After the fitting is assembled or, "made on" to the pipe, excess pipe dope should be wiped off. The threading of the fitting and pipe will ensure enough pipe dope remains in the joint. Keep covered when not in use, if any settling occurs, stirring the pipe dope may be necessary.

NEVER USE PIPE DOPE AND TEFLON TAPE TOGETHER

SPECIFICATIONS

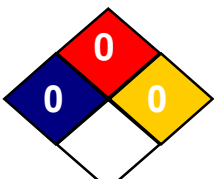

- 1 Quart Container
- Greyish/White Paste with no odor
- Stability- Stable under normal storage and handling conditions
- MSDS - <https://www.breccocorp.com/user/products/SDS-Lanseal.pdf>

PROJECT	APPROVAL STAMP
PROJECT:	<input type="checkbox"/> APPROVED
ADDRESS:	<input type="checkbox"/> APPROVED AS NOTED
ENGINEER:	<input type="checkbox"/> NOT APPROVED
SUBMITTAL DATA:	REMARKS:
NOTES 1:	
NOTES 2:	



UTILITY

SAFETY DATA SHEET

NFPA	HMIS	PPE	Transport Symbol
	<div>HEALTH0</div> <div>FLAMMABILITY0</div> <div>REACTIVITY0</div>		

Date 2019/03/01

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identity: Lansdale International LANS SEAL Thread Sealant with PTFE

Intended Use: Thread sealant.

Manufacturer: **UTILITY**

700 Main Street Westbury, NY 11590
Tel: 1-516-997-6300 Fax: 1-516-997-6345

Web Site: www.UtilityChemicals.com
E-mail: info@UtilityChemical.com

For any transportation or medical chemical emergencies call:

INFOTRAC: (800) 535-5053

24 hours per day - 7 days a week

2. HAZARDS IDENTIFICATION

This product is a white paste with no odor.

EMERGENCY OVERVIEW

May cause mild eye irritation.

May cause mild skin irritation on prolonged contact.

Ingestion: Do not induce vomiting. Get medical attention.

Inhalation: Inhalation is not a normal route of exposure for this product. **Eye:** May cause mild irritation or discomfort.

Skin: Prolonged contact may cause mild irritation to persons with existing skin conditions.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No.	Amount
Petroleum-based Lubricating Oil	64741-88-4, 64742-54-7, 64742-70-7	30-60%
Polyfluoroethylene	9002-84-0	10-20%
Kaolin	1332-58-7	20-30%
Calcium Carbonate	1317-65-3	10-20%
Titanium dioxide	13463-67-7	1-5%
Non-Hazardous Ingredients	Mixture	1-5%

4. FIRST AID MEASURES

Eye: Flush victim's eyes with large quantities of water, holding the eyelids apart. Get medical attention if irritation persists.

Skin: No first aid is required. Wash with soap and water after use.

Ingestion: Do not induce vomiting. Get immediate medical attention.

Inhalation: No first aid is required. Inhalation is not a normal route of exposure for this product.

5. FIRE FIGHTING MEASURES

Flashpoint: Not applicable

Flammable Limits: Not applicable

Autoignition Temperature: Not applicable

Extinguishing Media: Use water fog or spray, carbon dioxide, dry chemical or foam.

Unusual Fire or Explosion Hazards: Not classified as flammable or combustible but will burn under fire conditions.

Special Fire-Fighting Instructions: Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing.

Hazardous Combustion Products: Burning may produce carbon monoxide, carbon dioxide and unidentified hydrocarbons.

Explosion Data (sensitivity to mechanical impact or static discharge): None known.

6. ACCIDENTAL RELEASE MEASURES

Collect with inert absorbent and place in container for disposal. Report releases as required by local, provincial and federal authorities.

7. HANDLING AND STORAGE

Handling: Avoid contact with the eyes. Keep containers closed when not in use.

Storage: Store in a cool, dry area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Petroleum-based Lubricating Oil	5 mg/m3 ACGIH TLV (as oil mist)
Titanium dioxide	10 mg/m3 ACGIH TLV (respirable dust)
Kaolin	2 mg/m3 ACGIH TLV (respirable dust)
Non-Hazardous Ingredients	None Established

Engineering Controls: None required for normal use.

Respiratory Protection: None normally needed.

Skin Protection: None normally required. Rubber gloves can be worn to prevent prolonged contact.

Eye Protection: Safety glasses recommended where contact is possible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance And Odor: Gray paste with no odor.

Physical State: Paste	Boiling Point: Not applicable
Vapor Density: Not applicable	Vapor Pressure: Not applicable
Solubility In Water: Insoluble	Evaporation Rate: Not applicable
Specific Gravity: 1.6	pH: Not determined
Melting Point: Not applicable	Octanol/Water Coefficient: Not determined
VOC Content: 6-11 g/L	

10. STABILITY AND REACTIVITY

Stability: Stable under normal storage and handling conditions.

Incompatibility: Avoid direct contact with open flame.

Hazardous Decomposition Products: Burning may produce carbon monoxide, carbon dioxide and unidentified hydrocarbons.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

HEALTH HAZARDS:

Ingestion: Swallowing may cause nausea, vomiting and diarrhea.

Inhalation: Inhalation is not a normal route of exposure for this product.

Eye: May cause mild irritation or discomfort.

Skin: Prolonged contact may cause mild irritation.

Sensitization: None expected.

Chronic: None Known.

Carcinogenicity: Titanium dioxide could possibly be carcinogenic to humans

Mutagenicity: None known.

Medical Conditions Aggravated by Exposure: None known.

Acute Toxicity Values: Not determined.

12. ECOLOGICAL INFORMATION

No data available for product.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with local, state and federal environmental regulations.

14. TRANSPORT INFORMATION

Transportation of Dangerous Goods Description:

Proper Shipping Name: Not regulated for transport

UN Number: None

Hazard Class/Packing Group: None

Labels Required: None

15. REGULATORY INFORMATION

Inventory Status.

TSCA: All components in the product are on TSCA list.

DSL: Complies

U.S. Federal Regulations

SARA 313.

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard No

Chronic Health Hazard No

Fire Hazard No

Sudden Release of Pressure Hazard No

Reactive Hazard No

16. OTHER INFORMATION

NFPA Rating: Health = 0 Fire = 0 Reactivity = 0

HMIS Rating: Health = 0 Fire = 0 Reactivity = 0

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Information on this form is furnished solely for the purpose of compliance with the Occupational Safety and Health Act and shall not be used for any other purpose. UTILITY urges the customers receiving this Safety Data Sheet to study it carefully to become aware of the hazards, if any, of the product involved. In the interest of safety, you should notify your employees, agents, and contractors of the information on the sheets. The information herein has been compiled from sources believed to be reliable, up-to-date, and is accurate to the best of our knowledge. However, UTILITY cannot give any guarantees regarding information from other sources, and expressly does not make warranties, nor assumes any liability for its use.