



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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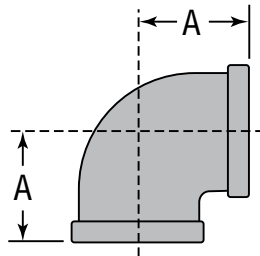


Wheatland Tube
A DIVISION OF ZEKELMAN INDUSTRIES

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.

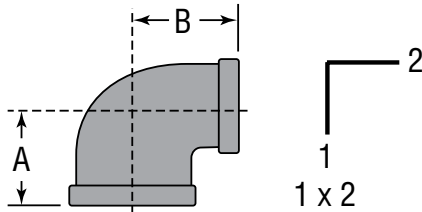
PROJECT INFORMATION

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.

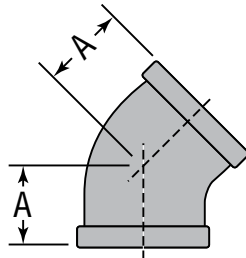
PROJECT INFORMATION

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.

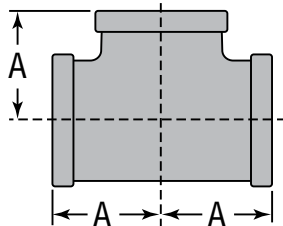
PROJECT INFORMATION

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.

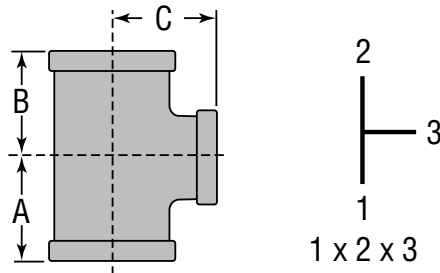
PROJECT INFORMATION

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

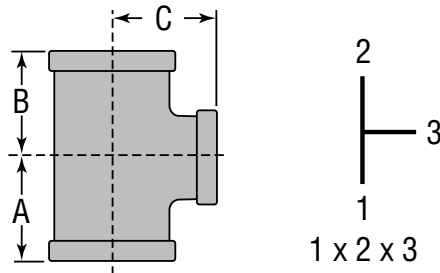


FIGURE 3205R - REDUCING TEE					
Nominal Size	Max. Working Pressure▲	Dimensions			Approx. Wt. Each
1 x 2 x 3		A	B	C	
In. (mm)	PSI (kPa)	In. (mm)	In. (mm)	In. (mm)	Lbs. (kg)
1¼ x 1¼ x 2*	500 3450	2.10 53.34	2.10 53.34	1.90 48.26	1.75 0.79
1½ x 1 x ½	500 3450	1.41 35.81	1.34 34.04	1.66 42.16	0.95 0.43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

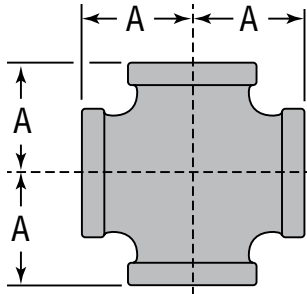
FIGURE 3205R - REDUCING TEE					
Nominal Size	Max. Working Pressure▲	Dimensions			Approx. Wt. Each
1 x 2 x 3		A	B	C	
In. (mm)	PSI (kPa)	In. (mm)	In. (mm)	In. (mm)	Lbs. (kg)
1½ x 1½ x 2*	500 3450	2.16 54.86	2.16 54.86	2.02 51.30	1.98 0.90
2 x 1 x 2	500 3450	2.25 57.15	2.02 51.31	2.25 57.15	2.15 0.98
2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

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

* Part supplied as "Bull Head Tee".

FIG. 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.

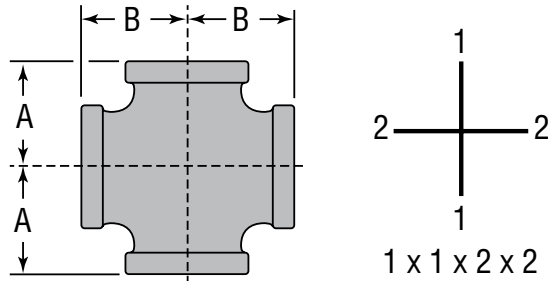
PROJECT INFORMATION

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.

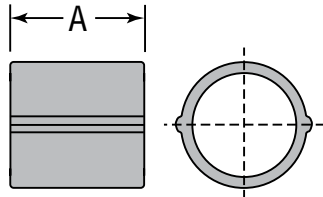
PROJECT INFORMATION

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.

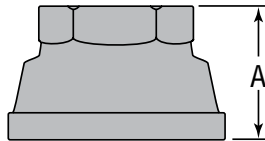
PROJECT INFORMATION

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	500	1.69	0.39
25 x 15	3450	42.92	0.18
1 x 3/4	500	1.69	0.53
25 x 20	3450	42.92	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.

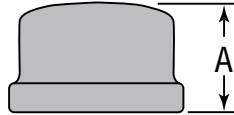
PROJECT INFORMATION

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)

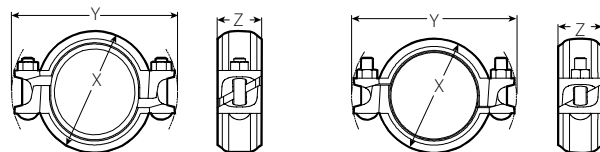
- ☐ Standard: Carbon steel oval neck track bolt(s) meeting the mechanical property requirements of ASTM A449 (imperial) and ISO 898-1 Class 9.8 (M10-M16) Class 8.8 (M20 and greater). Carbon steel hex nuts meeting the mechanical property requirements of ASTM A563 Grade B (imperial) and ASTM A563M Class 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.

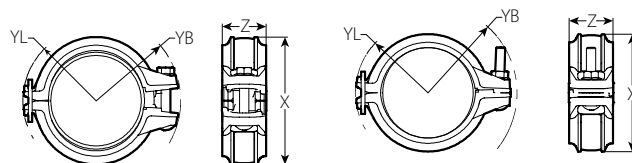
³ The allowable pipe end separation dimension shown is for system layout purposes only. Style 009N couplings are considered rigid connections and will not accommodate expansion or contraction of the piping system.

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.

Intellectual Property Rights

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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

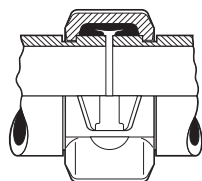
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Victaulic® Flexible Coupling

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)

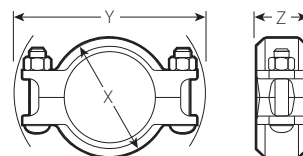
Standard: Carbon steel oval neck track bolts meeting the mechanical property requirements of ASTM A449 (imperial) and ISO 898-1 Class 9.8 (M10-M16) Class 8.8 (M20 and greater). Carbon steel hex nuts meeting the mechanical property requirements of ASTM A563 Grade B (imperial - Heavy Hex nuts) and ASTM 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

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

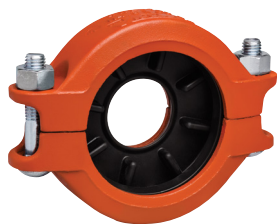
Refer to the Warranty section of the current Price List or contact Victaulic for details.

Trademarks

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Victaulic® 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).

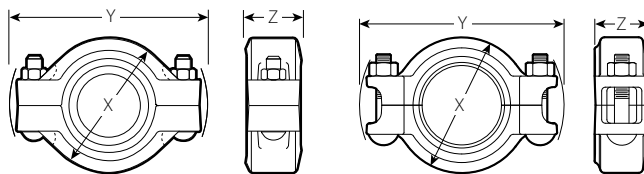
Optional: Stainless steel oval neck track bolts meeting the mechanical property requirements of ASTM F593, Group 2 (316 stainless steel), condition CW. Stainless steel heavy nuts meeting the mechanical property requirements of ASTM F594, Group 2 (316 stainless steel), condition CW, with galling reducing 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	2.375 60.3	x	1.315 33.7	0 - 0.07 0 - 1.8	0° - 57'	0.20 17	2	⅜ x 2	3.38 85	5.28 134	1.88 48	2.7 1.2
2 ½	x	2 DN50	2.875 73.0	x	2.375 60.3	0 - 0.07 0 - 1.8	0° - 47'	0.16 14	2	⅜ x 2	4.00 102	5.93 151	1.88 48	3.1 1.4
3 DN80	x	2 DN50	3.500 88.9	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
		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 ½	2.875 73.0	0 - 0.13 0 - 3.2	1° - 19'	0.28 25	2	⅝ x 3 ¼	6.25 159	8.90 226	2.25 57	8.6 3.9				
											DN65	3.000 76.1		
3 DN80	3.500 88.9	0 - 0.13 0 - 3.2	1° - 19'	0.28 25	2	⅝ x 3 ¼	6.00 152	8.90 226	2.25 57	6.7 3.0				
											5	x	4 DN100	5.563 141.3
165.1	x	4 DN100	6.500 165.1	x	4.500 114.3	0 - 0.13 0 - 3.2	0° - 55'	0.19 16	2	¾ x 4 ¼				
											6 DN150	x	4 DN100	6.625 168.3
5	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	165.1	8.625 219.1
6 DN150	6.625 168.3	0 - 0.13 0 - 3.2	0° - 38'	0.13 11	2	⅞ x 5	10.81 275	14.88 378	2.50 64	22.4 10.2				
											10 DN250	x	8 DN200	10.750 273.0

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		350 2413	2275 10125
		DN65		350 2413	2475 11014
		3 DN80		500 3447	4810 21400
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		5563 2413	8500 37825
8 DN200	x	6 DN150		350 2413	11610 51645
		6		350 2413	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	2 DN50 1.9 0.6
DN65	2 DN50 1.9 0.6
3 DN80	2 DN50 5.5 1.7
	2 ½ 3.8 1.2
	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	4 DN100 3.0 0.9
165.1	4 DN100 6.0 1.8
6 DN150	4 DN100 6.0 1.8
	5 4.5 1.4
8 DN200	165.1 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 1.0 0.3
	DN65 1.0 0.3
	3 DN80 3.5 1.1
	4 DN100 3.0 0.9
2 ½	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	6 DN150 2.3 0.7
165.1	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

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.

Intellectual Property Rights

No statement contained herein concerning a possible or suggested use of any material, product, service, or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of Victaulic or any of its subsidiaries or affiliates covering such use or design, or as a recommendation for the use of such material, product, service, or design in the infringement of any patent or other intellectual property right. The terms "Patented" or "Patent Pending" refer to design or utility patents or patent applications for articles and/or methods of use in the United States and/or other countries.

Note

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

Installation

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

Warranty

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

Trademarks

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



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	

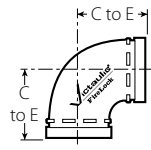
Contractor

Submitted By	
Date	

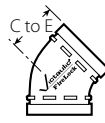
Engineer

Spec Section	
Paragraph	
Approved	
Date	

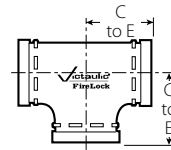
Dimensions:



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

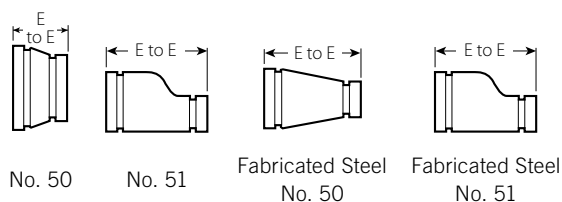
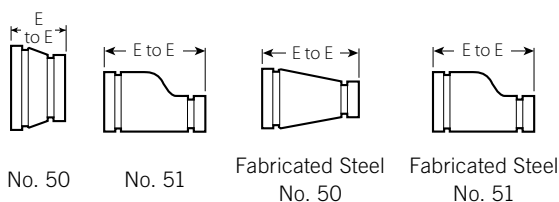
Victaulic® is a registered trademark of Victaulic Company.

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

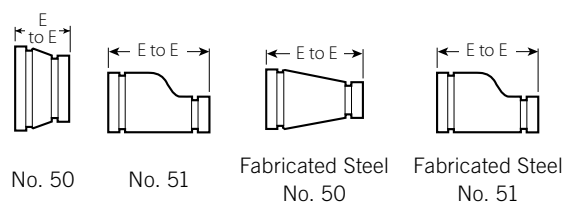
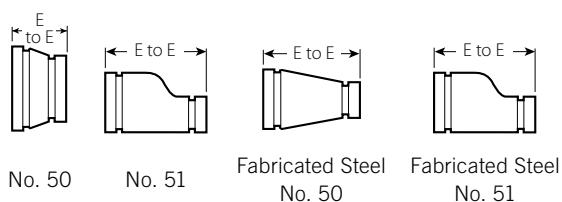
Size	No. 50 Concentric Reducer		No. 51 Eccentric Reducer	
Nominal inches DN	E to E inches mm	Approx. Weight (Each) lb kg	E to E inches mm	Approx. Weight (Each) lb kg
1 1/4 DN32	+	4.6 2.1	—	—
1 1/2 DN40	3.00 (sw) 76	2.6 1.2	10.00 (sw) 254	8.1 3.7
2 DN50	3.00 76	2.4 1.1	4.00 102	3.3 1.5
2 1/2	3.00 76	2.7 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 x 4 DN100	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 x 4 DN100	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 x 6 DN150	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 x 8 DN200	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 x 10 DN250	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 x 10 DN250	12 DN300	20.00 508	110.0 49.9	20.00 508	177.0 80.3
	14 DN350	20.00 508	120.0 54.4	20.00 508	120.0 54.4
	16 DN400	20.00 508	149.0 67.9	20.00 508	149.0 67.9
	18 DN450	20.00 508	120.0 54.4	20.00 508	120.0 54.4
24 ² DN600 x 10 DN250	12 DN300	20.00 508	136.0 61.7	20.00 508	136.0 61.7
	14 DN350	20.00 508	142.0 64.4	20.00 508	142.0 64.4
	16 DN400	20.00 508	150.0 68.0	20.00 508	150.0 68.0
	18 DN450	20.00 508	162.0 73.5	20.00 508	162.0 73.5
14 – 60 DN350 – DN1500	20 DN500	20.00 508	162.0 73.5	20.00 508	162.0 73.5
		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



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.

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

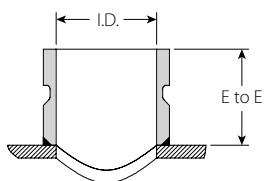
No. WB-1: Steel Alloy

No. NAP-1: Aluminum Alloy

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

4.0 DIMENSIONS

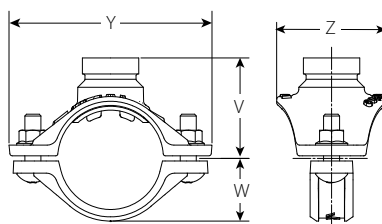
No. 142 Welded Outlet



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

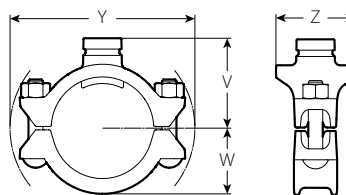
Style 922 Outlet-T



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)
Run x Branch	Run x Branch	Qty.	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	inches mm	lb kg
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

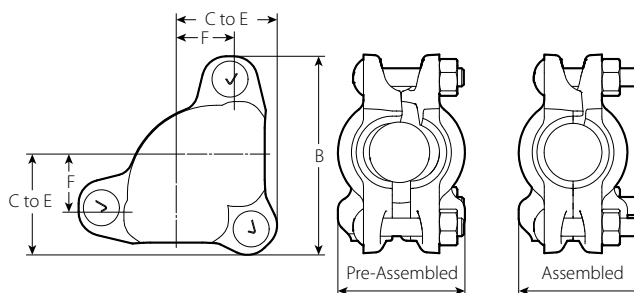
Style 920N Mechanical-T Outlet



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	1.315 33.7	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	1.315 33.7	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



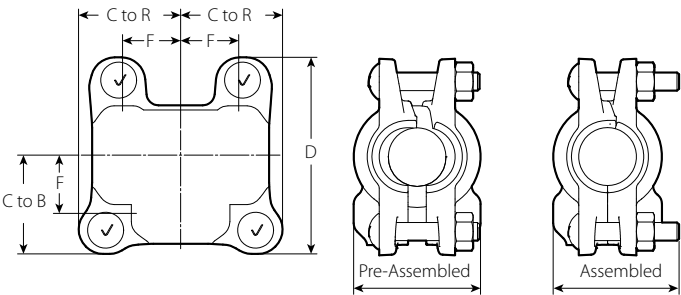
Size		Bolt/Nut		Dimensions					Weight
Nominal inches DN	Actual Outside Diameter inches mm	Qty.	Size inches mm	F Take Out inches mm	C to E inches mm	B inches mm	Pre-Assembled inches mm	Assembled inches mm	Approximate (Each) lb kg
1 DN25	1.315 33.7	3	3/8 x 2 M10 x 50	1.25 32	2.13 54	4.25 108	2.75 70	2.75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

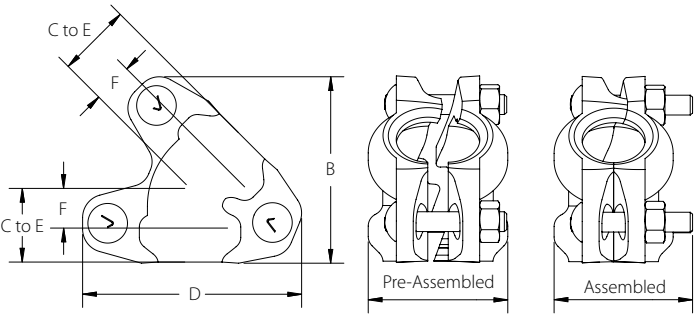


Size		Bolt/Nut		Dimensions						Weight
Nominal inches DN	Actual Outside Diameter inches mm	Qty.	Size inches mm	F Take Out inches mm	C to B inches mm	C to R inches mm	D inches mm	Pre-Assembled inches mm	Assembled inches mm	Approximate (Each) lb kg
1 DN25	1.315 33.7	4	$\frac{3}{8}$ x 2 M10 x 50	1.25 32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

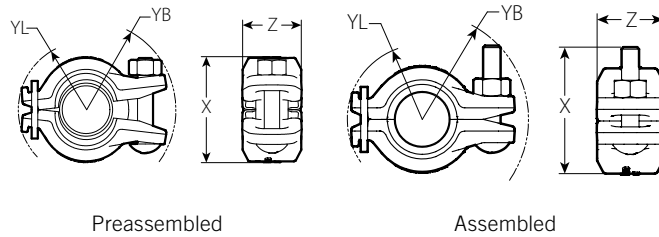
No. 103 Installation-Ready 45° Elbow



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



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 DN25	1.315 33.7	0.14 3.6	1	$\frac{3}{8}$ x 2 M10 x 50	1.66 42.2	2.17 55.2	2.58 65.5	1.43 36.3	1.61 41.0	2.29 58.2	2.27 57.5	1.43 36.3	1.5 0.7

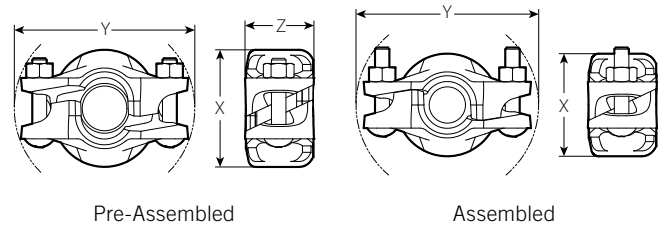
¹ The allowable pipe end separation dimension shown is for system layout purposes only. FireLock™ Style 108 rigid couplings are considered rigid connections and will not accommodate expansion or contraction of the piping system.

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



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 ¼ DN32	1.660 42.4	0.14 3.6	2	$\frac{3}{8}$ x 2 M10 x 50	3.13 79	4.75 121	1.75 44	2.63 67	4.75 121	1.75 44	1.9 0.9
1 ½ DN40	1.900 48.3	0.14 3.6	2	$\frac{3}{8}$ x 2 M10 x 50	3.25 83	4.88 124	1.75 44	2.88 73	4.88 124	1.75 44	2.1 0.9

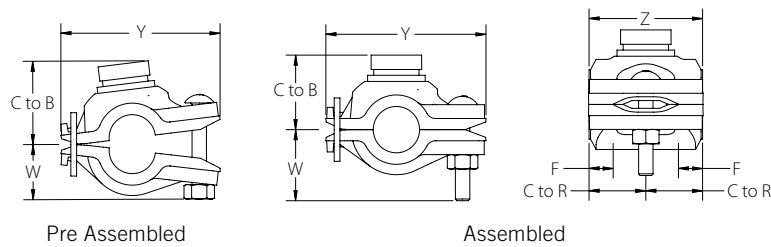
² The allowable pipe end separation dimension shown is for system layout purposes only. FireLock™ Style 115 rigid couplings are considered rigid connections and will not accommodate expansion or contraction of the piping system.

NOTES

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

4.8 DIMENSIONS

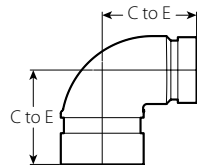
Style 118 1" Outlet Coupling



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

4.9 DIMENSIONS

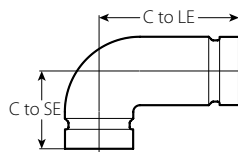
No. 65 OGS x IGS Grooved End of Run Fitting



Size		Dimensions	Weight
Nominal inches DN	Actual Outside Diameter inches mm	C to E inches mm	Approximate (Each) lb kg
1 ¼	1.660	1.88	0.7
DN32	42.4	48	0.3
1 ½	1.900	2.00	0.8
DN40	48.3	51	0.4
2	2.375	2.25	1.2
DN50	60.3	57	0.5
2 ½	2.875	2.50	1.6
x 1 DN25	73.0	64	0.7
	3.000	2.50	1.7
DN65	76.1	64	0.8
3	3.500	2.75	2.6
DN80	88.9	70	1.2

4.10 DIMENSIONS

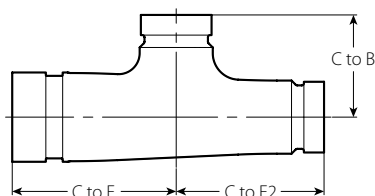
No. 111 /GS Grooved End Elbow



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

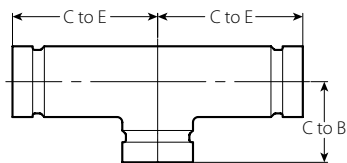
No. 113 OGS x /GS x /GS Reduce on the Run and Outlet Tee



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 ¼ DN32	x	1 DN25	x	1 DN25	3.05 77	2.75 70	1.90 48	1.3 0.6
1 ½ DN40	x	1 DN25	x	1 DN25	3.05 77	2.75 70	2.03 52	1.3 0.6

4.12 DIMENSIONS

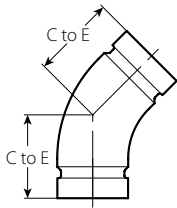
No. 114 /GS x /GS x /GS Grooved Tee



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

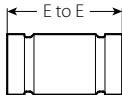
No. 117 /GS 45° Elbow



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

4.14 DIMENSIONS

No. 143 Close Nipple

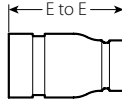


Size		Dimensions	Weight
Nominal	Actual Outside Diameter	E to E	Approximate (Each)
inches DN	inches mm	inches mm	lb kg
1 DN25	1.315 33.7	1.5 ³ 38	0.2 0.1
		2 51	0.3 0.1
		2.5 64	0.4 0.2
		3 76	0.4 0.2
		3.5 89	0.5 0.2
		4 102	0.6 0.3
		4.5 114	0.6 0.3
		5 127	0.7 0.3

³ Bolt pad interferences may occur in some installation configurations.

4.15 DIMENSIONS

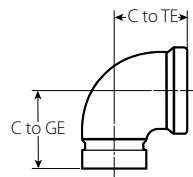
No. 144 OGS x /GS Grooved Concentric Reducer



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

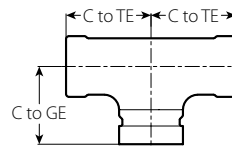
No. 145 Female Threaded x Groove 90° Elbow



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



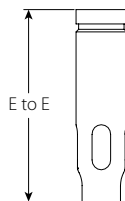
Size						Dimensions		Weight
Nominal inches DN			Actual Outside Diameter inches mm			C-TE inches mm	C-GE inches mm	Approximate (Each) lb kg
Threaded Outlet	Threaded Outlet	Grooved Outlet	Threaded Outlet	Threaded Outlet	Grooved Outlet			
1/2 DN15	x 1/2 DN15	x 1 DN25	0.840 21.3	x 0.840 21.3	x 1.315 33.7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

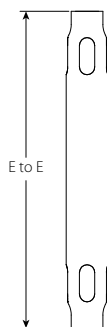


Length	Size		Threaded Outlet Size		Weight
	Nominal inches DN	Actual Outside Diameter inches mm	inches DN	inches DN	Approximate (Each) lb kg
3	1	1.315	½	¾	0.4
76	DN25	33.7	DN15	DN20	0.2
3.5	1	1.315	½	¾	0.5
89	DN25	33.7	DN15	DN20	0.2
4	1	1.315	½	¾	0.6
102	DN25	33.7	DN15	DN20	0.3
4.5	1	1.315	½	¾	0.6
114	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



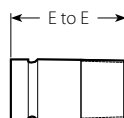
Length	Size		Threaded Outlet Size		Weight
	Nominal inches DN	Actual Outside Diameter inches mm	inches DN	inches DN	Approximate (Each) lb kg
36	1	1.315	½	¾	5.0
914	DN25	33.7	DN15	DN20	2.3

NOTE

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

4.19 DIMENSIONS

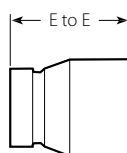
No. 140 Male Threaded x Groove Adapter



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

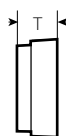
No. 141 Female Threaded x Groove Adapter



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

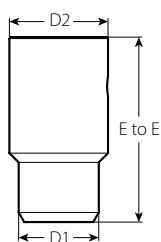
No. 146 Cap



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



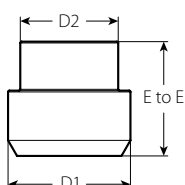
Dimensions			Weight
E to E inches mm	D1 inches mm	D2 inches mm	Approximate (Each) lb kg
3.75 95.3	1.63 41.3	2.00 50.8	2.2 51.0

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



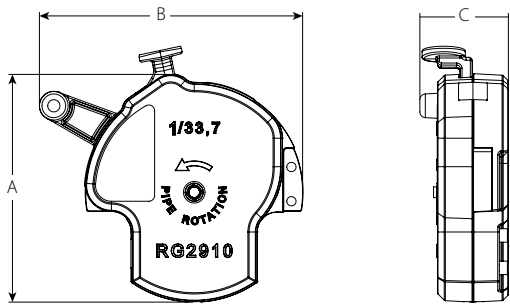
Dimensions			Weight
E to E inches mm	D1 inches mm	D2 inches mm	Approximate (Each) lb kg
1.75 44.5	1.88 47.6	1.50 38.0	0.3 0.2

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

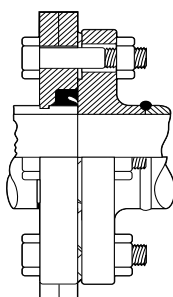
with Vic-Plus™ Gasket System



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.

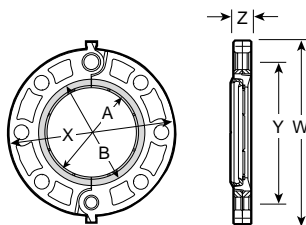


See Victaulic publication 10.01 for details.

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



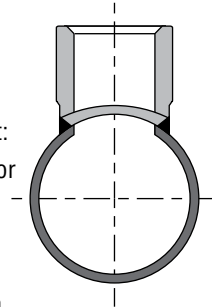
Weld-Miser™ Tee-Let® Welding Outlet Fittings

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)

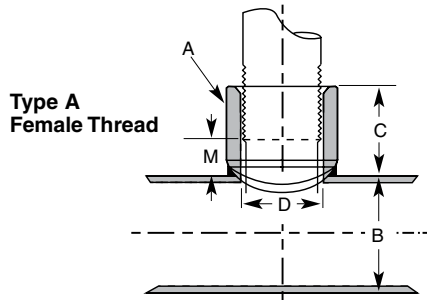
Outlet Model	Outlet Pipe Size (Inch)	Header Pipe Size (Inch)	Rated Pressure (psig)
Tee-Let Type A (F-Threaded End)	1/2, 3/4, 1	1/2 - 8 (Sch.10, 40)	300
	1 1/4, 1 1/2, 2, 2 1/2, 3, 4	1/2 - 4 (Sch. 5, DynaFlow)	
	2	4 (EZ-Flow)	
	2, 4	6 (EZ-Flow)	
Tee-Let Type C (Grooved End)	1 1/4 - 8	1 1/4 - 8 (Sch.10,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

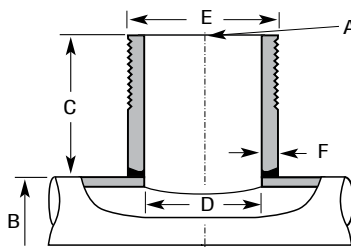
WELD-MISER™ TEE-LET® DIMENSIONS & PART NUMBERS						
Part Number	Nominal Outlet A	Nominal Header B	Outlet Length C	Inside Diameter D	Make Up M	Weight Each
NPT (BSPT)	In (mm)	In (mm)	In (mm)	In (mm)	In (mm)	Lb. (kg)
1020020	2 x	2	1.750	2.067	0.875	0.857
1120020		50	44.5	52.5	22.2	0.38
1020025		2 1/2	1.750	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
1130030		80	63.5	77.9	38.1	0.70
1030040		4	2.500	3.068	1.500	1.450
1130040		100	63.5	77.9	38.1	0.66
1030050	3 x	5	2.500	3.068	1.500	1.450
1130050		125	63.5	77.9	38.1	0.66
1030060		6	2.500	3.068	1.500	1.450
1130060		150	63.5	77.9	38.1	0.66
1030080		8	2.500	3.068	1.500	1.450
1130080		200	63.5	77.9	38.1	0.66
1040040		4	3.000	4.026	2.000	2.850
1140040		100	76.2	102.3	50.8	1.29
1040050		5	3.000	4.026	2.000	2.850
1140050		125	76.2	102.3	50.8	1.29
1040060	4 x	6	3.000	4.026	2.000	2.800
1140060		150	76.2	102.3	50.8	1.27
1040080		8	3.000	4.026	2.000	2.800
1140080		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.

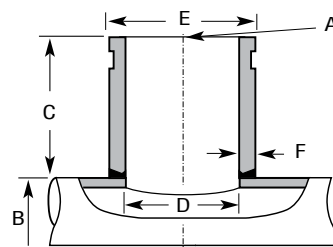


Weld-Miser™ Tee-Let® Welding Outlet Fittings

Type B
Male Thread
Standard Weight



Type C
Cut Groove
Standard Weight

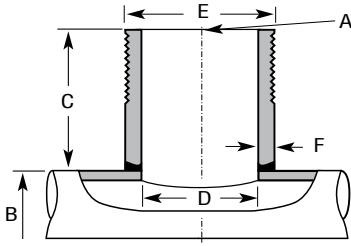


WELD-MISER™ TEE-LET® - DIMENSIONS (NOMINAL SIZES 1" THRU 2")

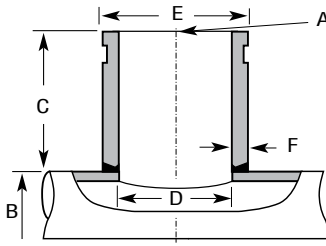
Male Thread Std. Wt.	Cut Groove Std. Wt.	Nominal Outlet A	Nominal Header B	Outlet Length C	Inside Diameter D	Outside Diameter E	Wall Thickness F
<i>NPT (BSPT)</i>	<i>NPT (BSPT)</i>	<i>In. (mm)</i>	<i>In. (mm)</i>	<i>In. (mm)</i>	<i>In. (mm)</i>	<i>In. (mm)</i>	<i>In. (mm)</i>
1310012	2010012	1 x 25 x	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.

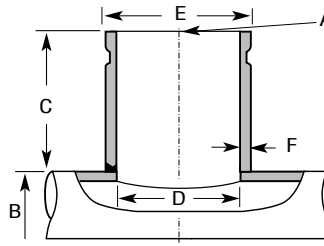
**Type B
Male Thread
Standard Weight**



**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

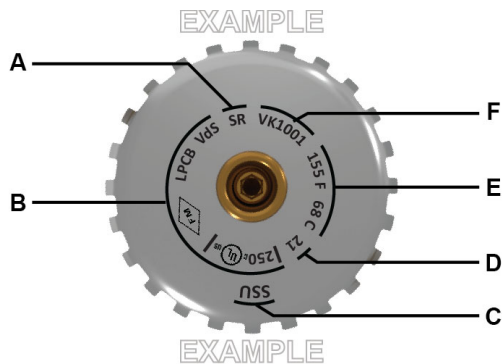


Figure – 1: Markings

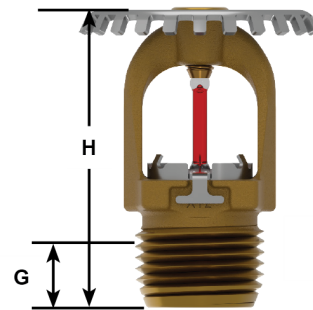


Figure – 2: Dimensions

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.

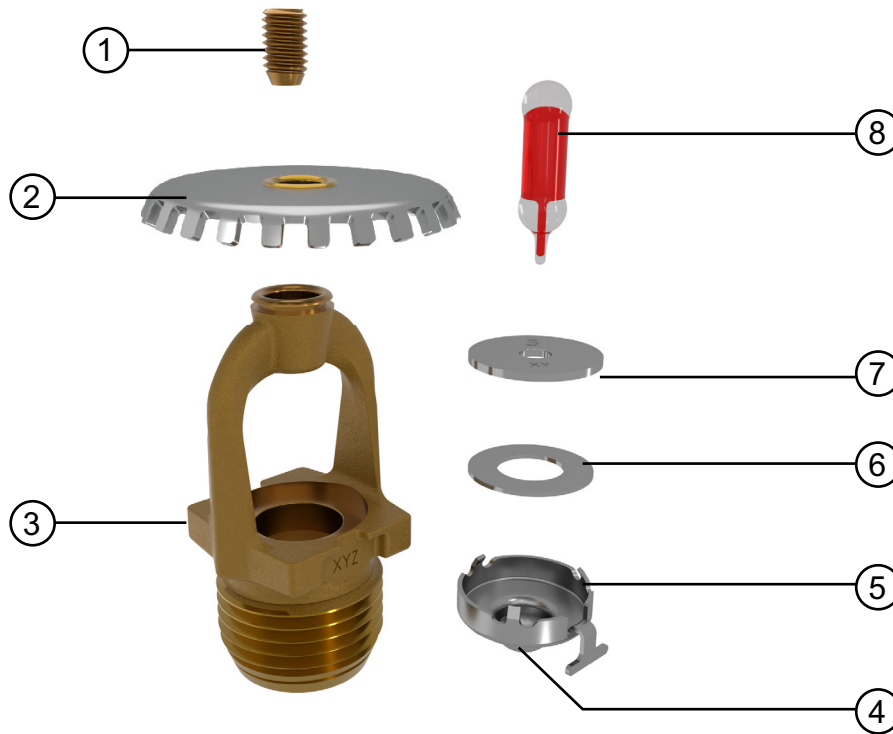


Figure – 3 Sprinkler Components

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



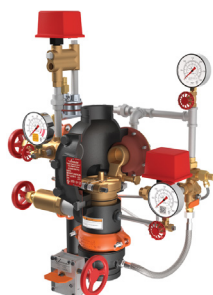
COSCO
Fire Protection

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

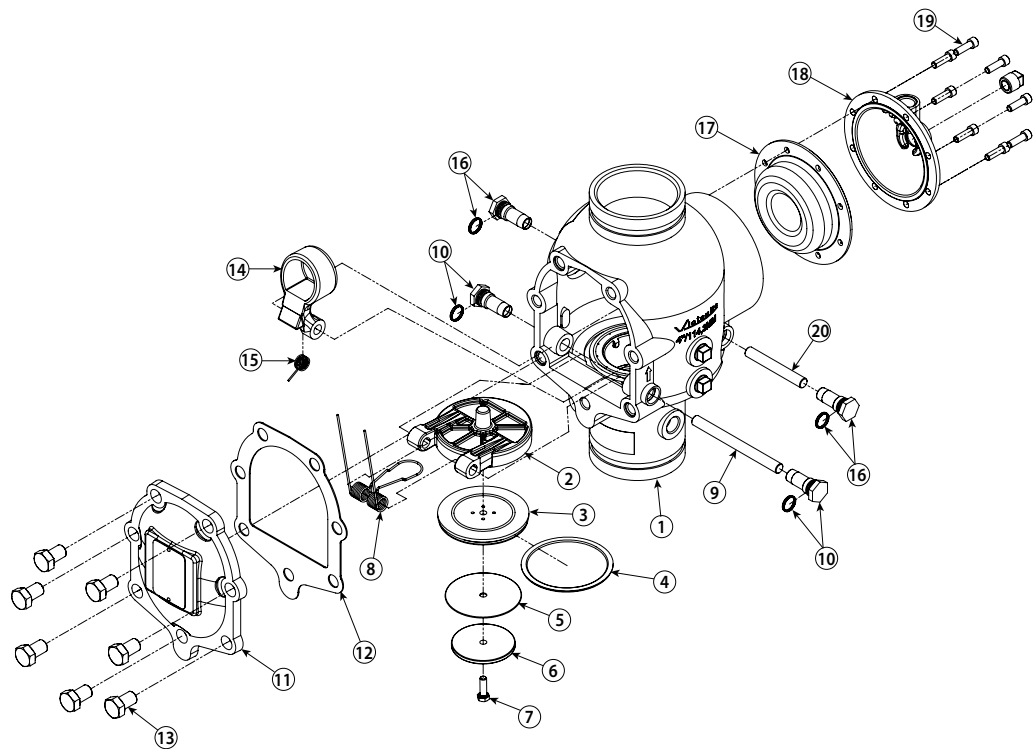
- CCC approval for DN80, DN100, DN150, DN200.

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.

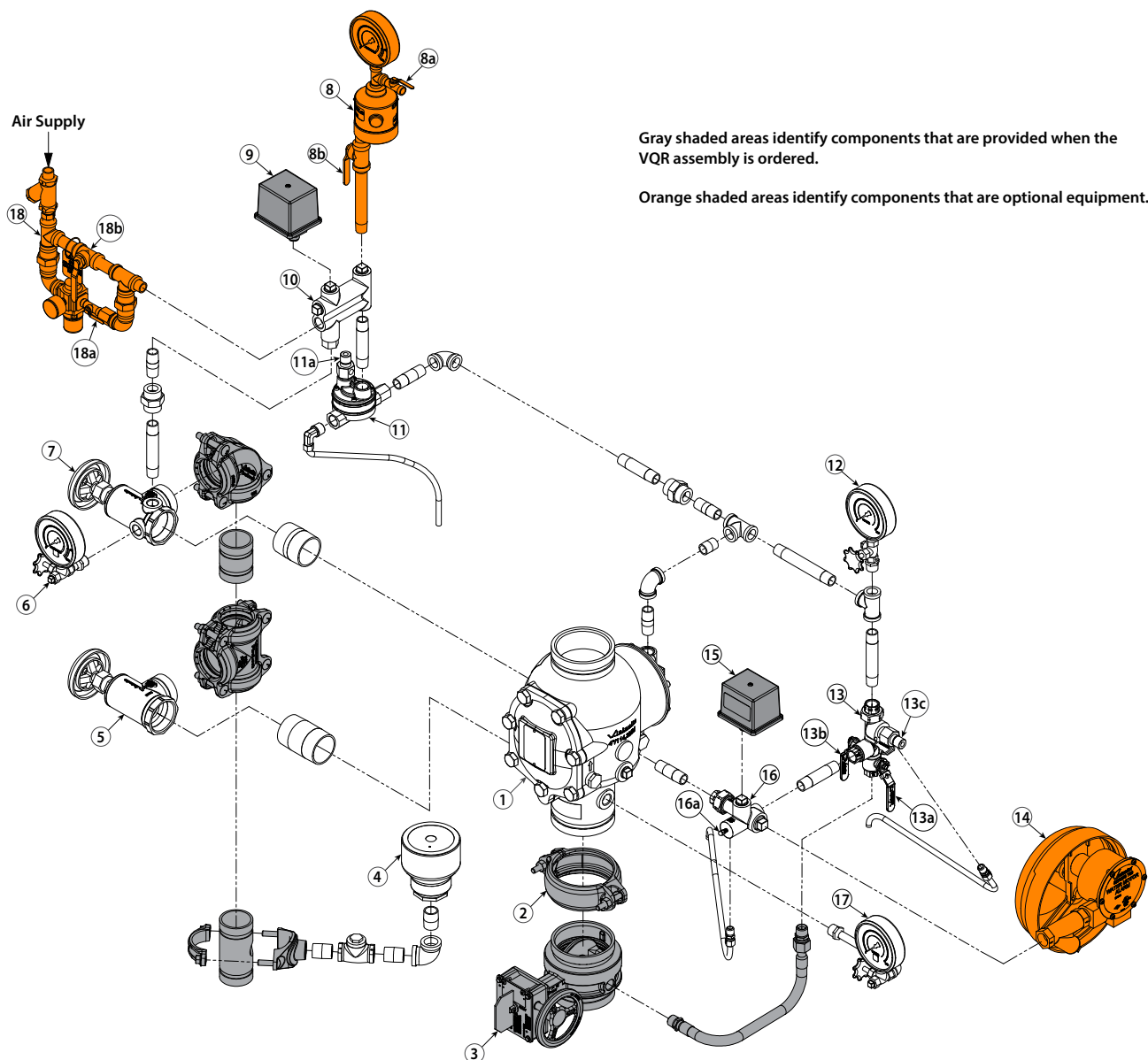
Air Compressor (See page 6 for more on the Victaulic Series 7C7 Compressor Package)

Air Maintenance Trim Assembly

Fire Alarm Control Panels

Drain Connection Kit – Included in VQR option.

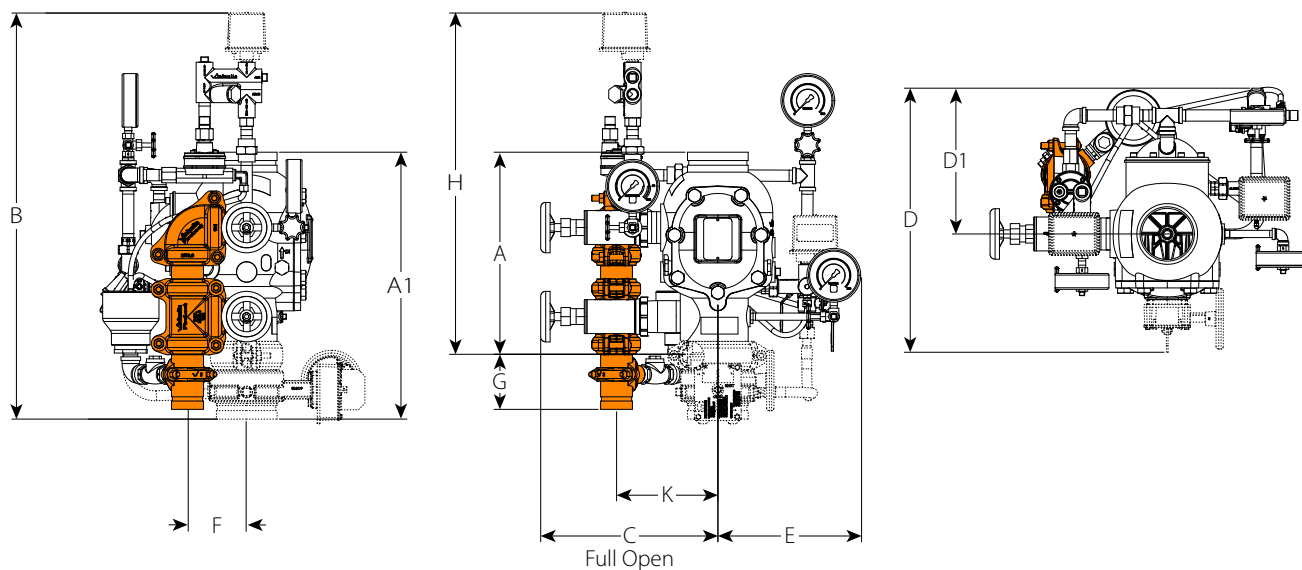
3.0 SPECIFICATIONS – MATERIAL (CONTINUED)



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

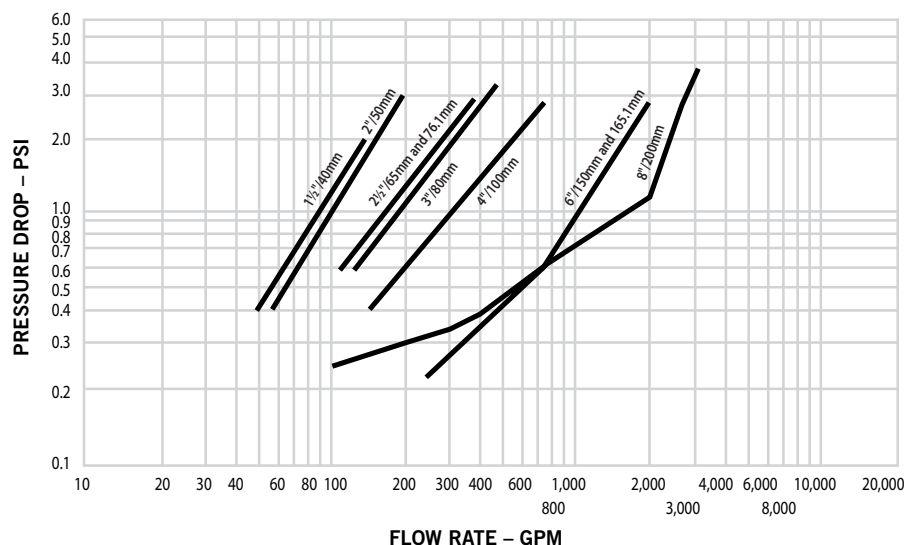
NOTES

- 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

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

Intellectual Property Rights

No statement contained herein concerning a possible or suggested use of any material, product, service, or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of Victaulic or any of its subsidiaries or affiliates covering such use or design, or as a recommendation for the use of such material, product, service, or design in the infringement of any patent or other intellectual property right. The terms "Patented" or "Patent Pending" refer to design or utility patents or patent applications for articles and/or methods of use in the United States and/or other countries.

Note

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

Installation

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

Warranty

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

Trademarks

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

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

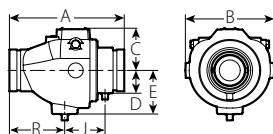
Optional Pressure Taps:

Series 717H: Available on all sizes

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

4.0 DIMENSIONS

Series 717H

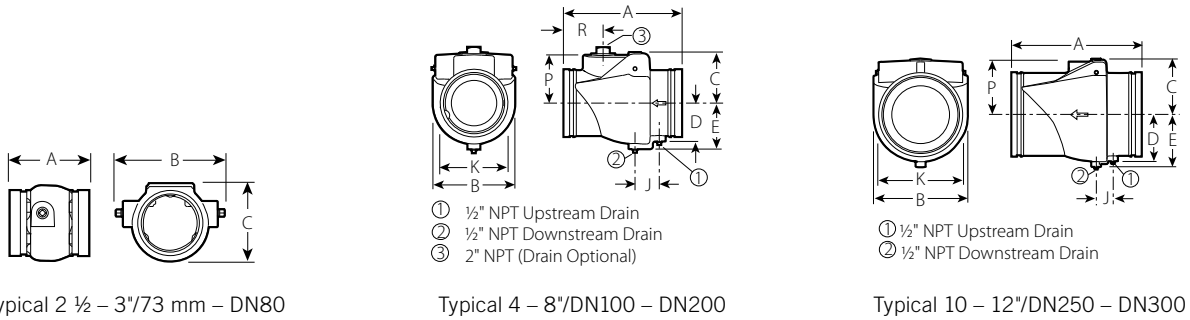


Typical 2 – 3"/50 – 80 mm

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



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

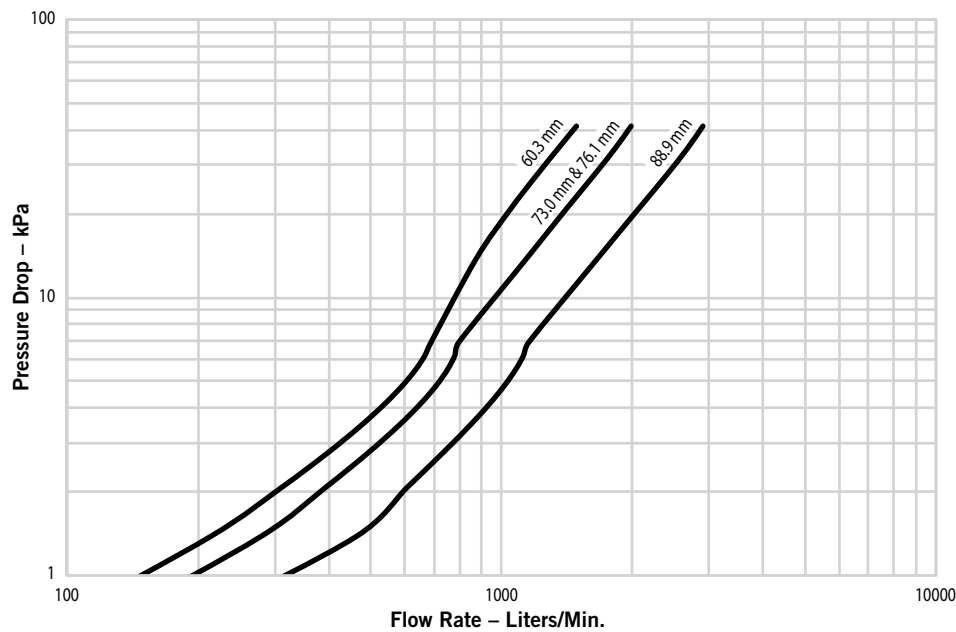
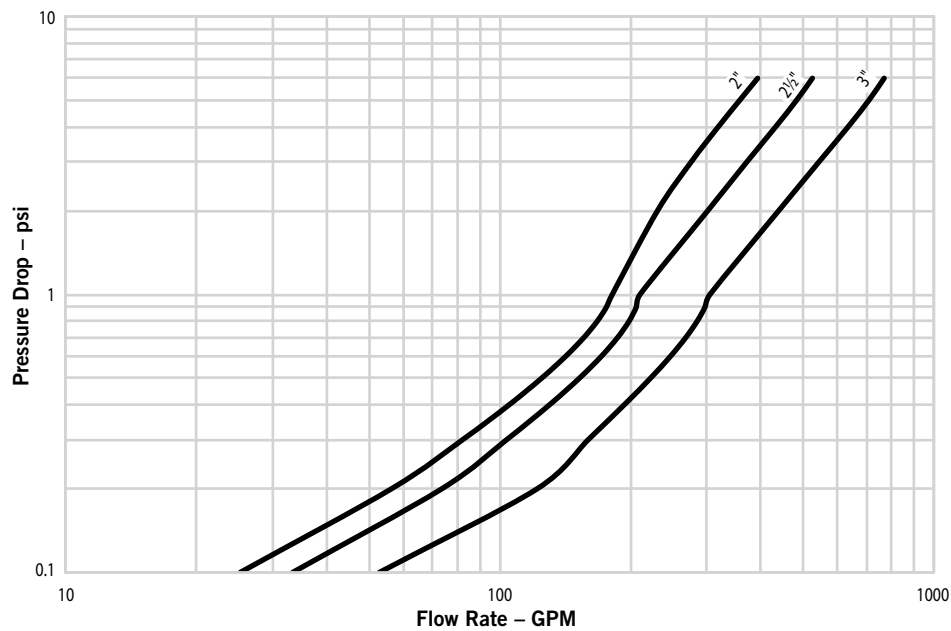
Size		Flow Characteristics
Nominal inches DN	Actual Outside Diameter inches mm	Full Open C_v K_v
2½	2.875	140
	73.0	121
DN65	3.000	140
	76.1	121
3	3.500	250
DN80	88.9	216
4	4.500	390
DN100	114.3	337
DN125	5.500	700
	139.7	606
5	5.563	700
	141.3	606
	6.500	1000
	165.1	865
6	6.625	1000
DN150	168.3	865
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

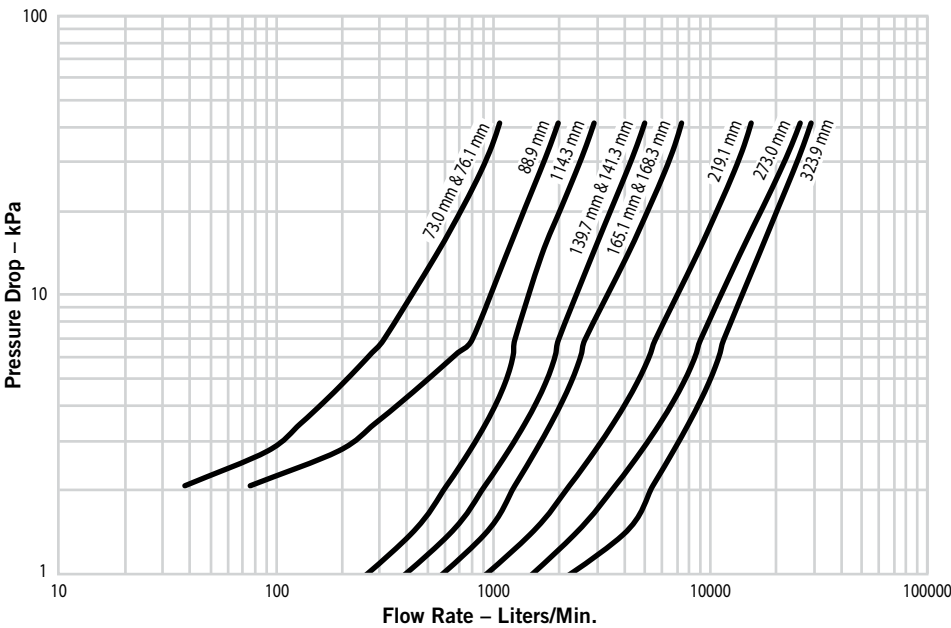
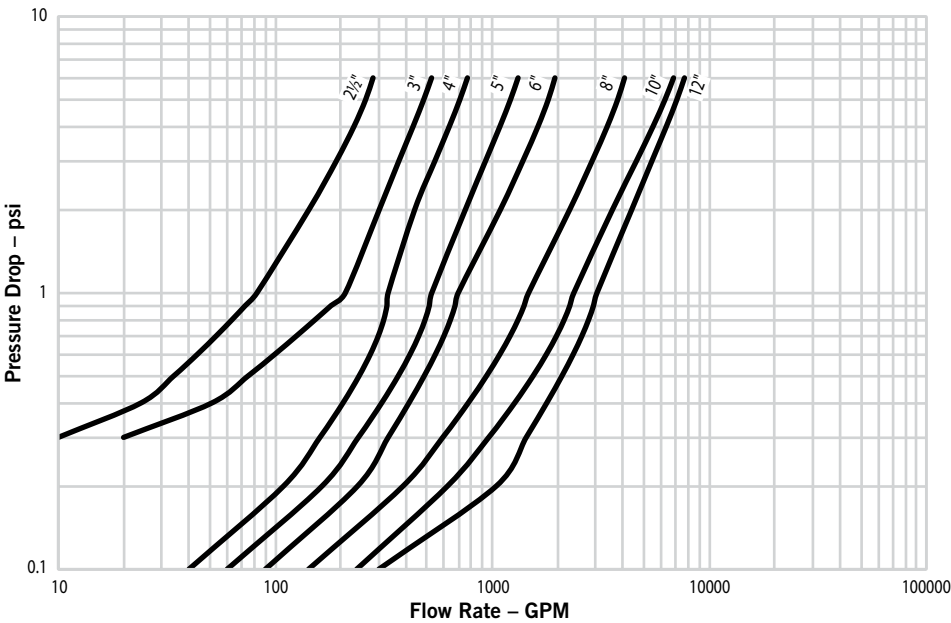


5.1 PERFORMANCE

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](#)

User Responsibility for Product Selection and Suitability

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

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Note

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

Installation

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

Warranty

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

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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

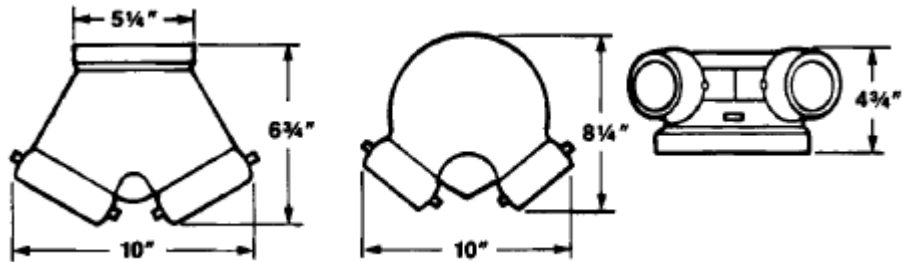
Headquarters:
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Los Angeles Area
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626-855-4890

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Atlanta (800) 762-0542
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MODEL DIMENSIONS

TWO-WAY WITH SINGLE CLAPPER





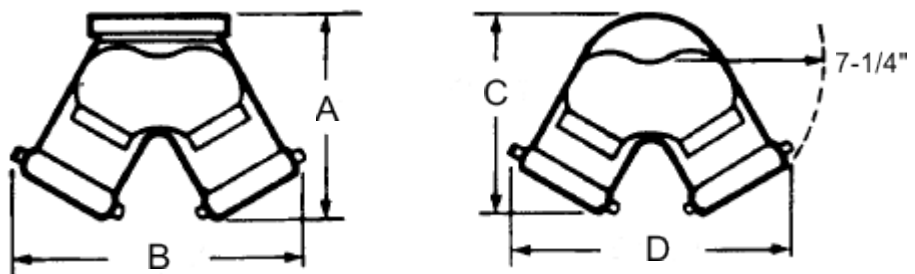
UL Listed File #EX4078
Model #S201B

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



MODEL 5721 - 5734

UL Listed File #EX3314
Model #A105

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5710-5734 SERIES Date: 12/11/18

MEMBERSHIP



FIRE EQUIPMENT
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ASSOCIATION



CASPE
American Society of
Plumbing Engineers

ONFSA
NATIONAL FIRE SPRINKLER ASSOCIATION, INC.



POTTER ROEMER/FIRE PRO

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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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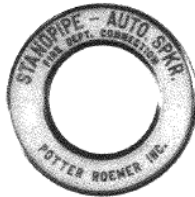
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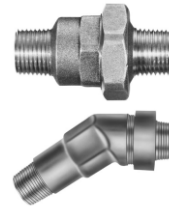
MODEL DIMENSIONS

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



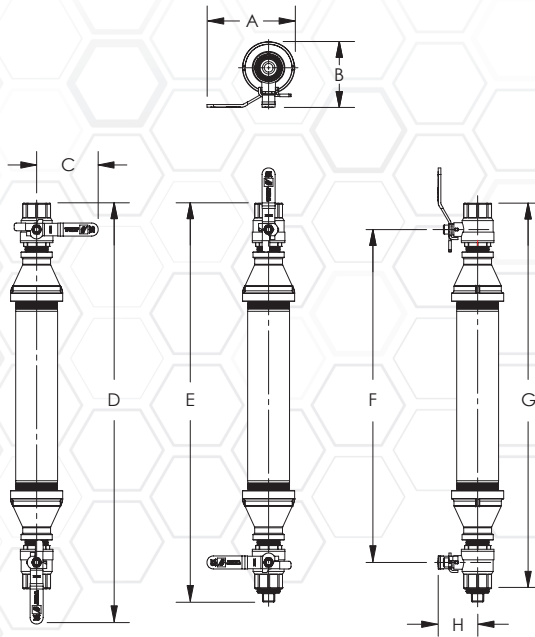
Models

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

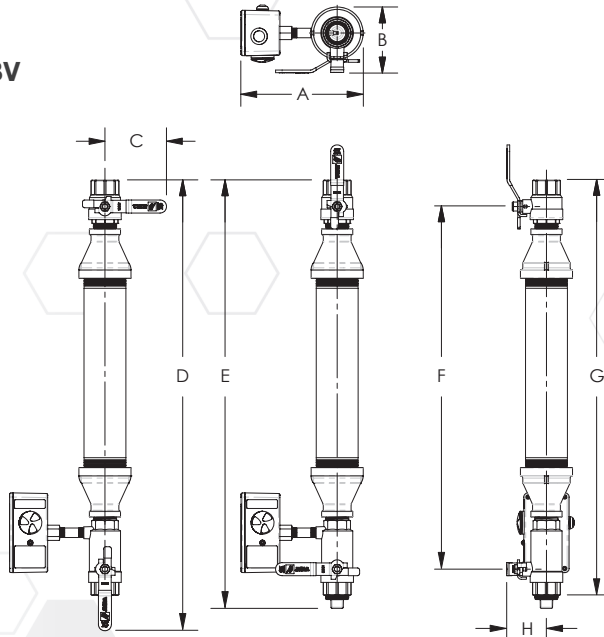


Dimensions

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

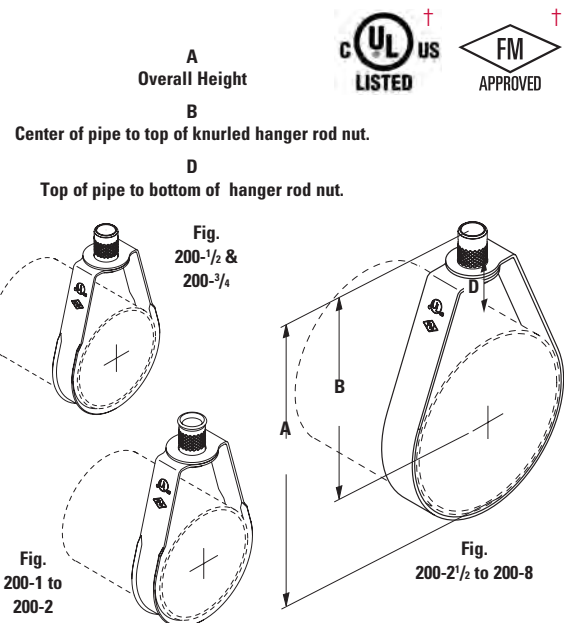


Fig. 200C
200C-1 1/2 shown



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

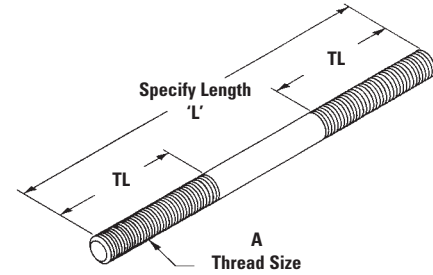
Material: Steel

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		Design Load			
		Thread Length in.	TL (mm)	650°F (343°C)		750°F (399°C)	
				Lbs.	(kN)	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

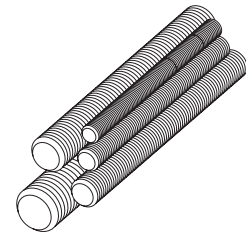
Material: Steel

Maximum Temperature: 750°F (399°C)

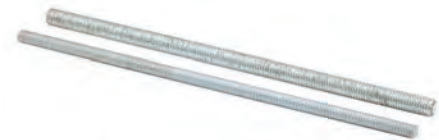
Finish: Plain or Electro-Galvanized. Contact customer service for alternative finishes and materials.

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.

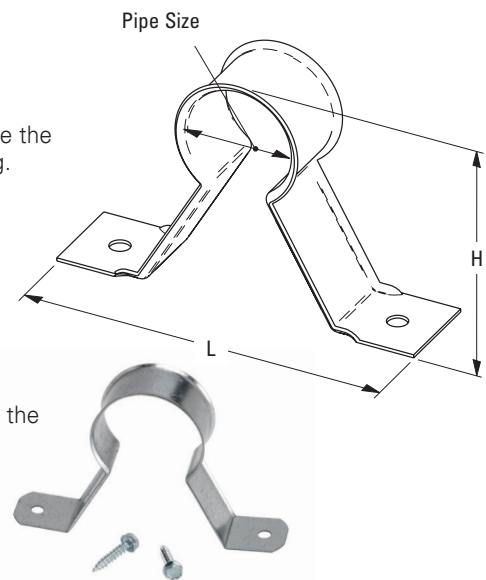
Features:

- 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.

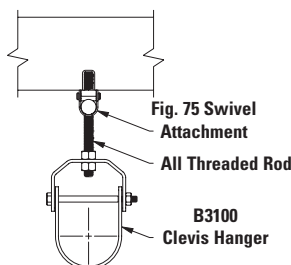
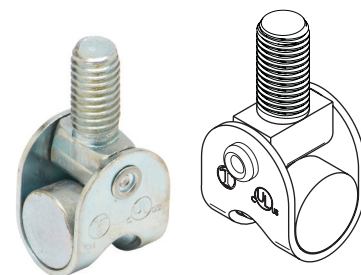
Approvals: Underwriters Laboratories Listed in the USA (UL) and Canada (cUL) to support up to 4" (100mm) pipe.

Finish: Electro-Galvanized

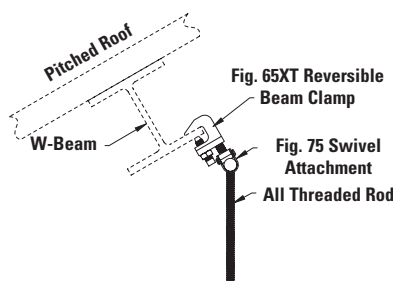
Weight: Approx. Wt./100 - 13.3 Lbs. (6.0kg)

Order By: Part number

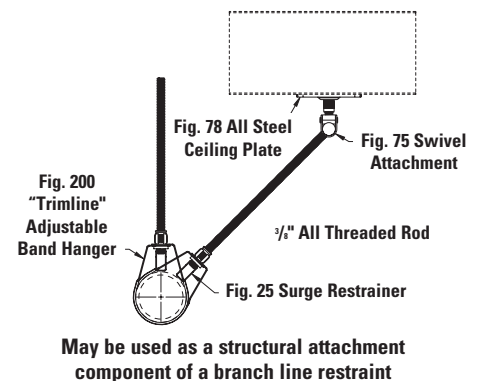
Patent: #7,887,248



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.



May be used as a structural attachment component of a branch line restraint

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.

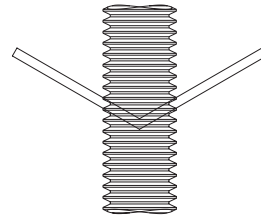
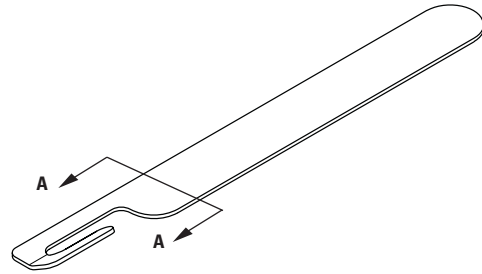
Approvals: Underwriters Laboratories Listed in the USA (UL) and Canada (cUL). Approved for use with any listed B-Line series or Tolco beam clamp.

Finish: Pre-Galvanized

Order By: Figure number, length, and finish.

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

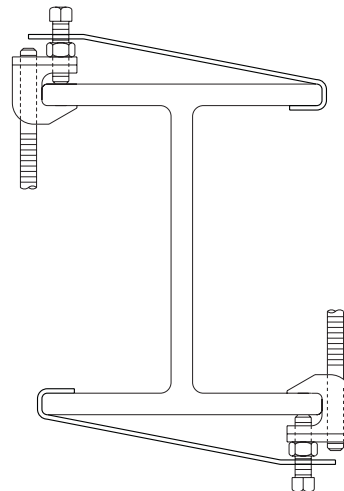
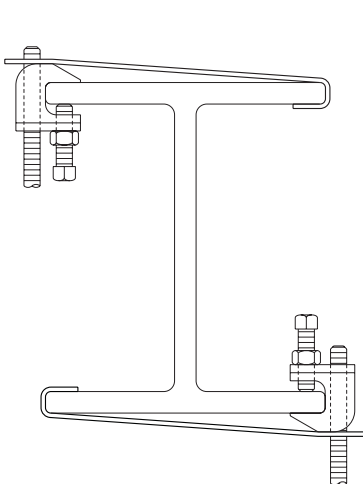
* Patent #5,947,424



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).

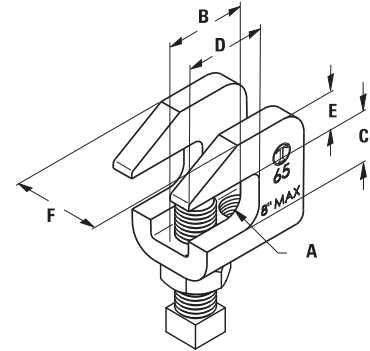
Features: All steel construction eliminates structural deficiencies associated with casting type beam clamps. May be used on top or bottom flange of beam. (Beveled lip allows hanging from top flange where clearance is limited.) May be installed with set screw in up or down position. Offset design permits 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

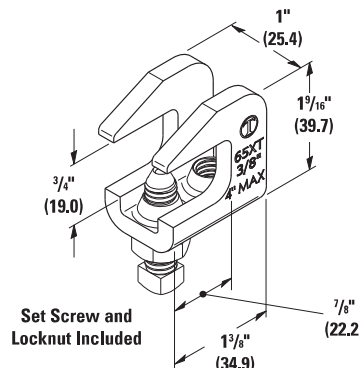
Feature: Extruded holes allows for more thread engagement of threaded rod and set screw.

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.

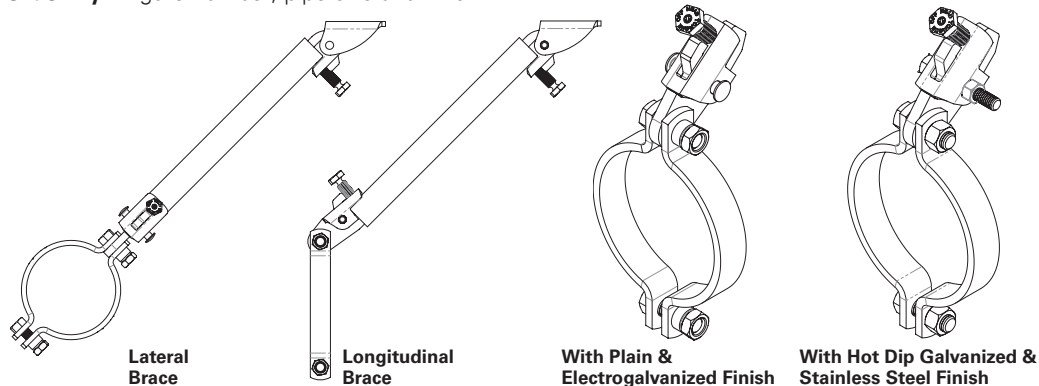
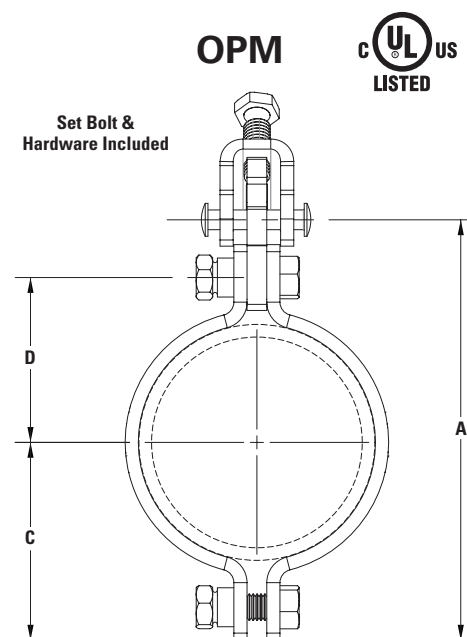
Approvals: Underwriters Laboratories Listed in the USA (UL) and Canada (cUL) 1" (25mm) through 8" (200mm) pipe. UL Listed for the following sprinkler type pipes: Sch. 40, Sch. 10, Bull Moose Eddy Flow, Wheatland Mega Flow, DIN 2448, KSD 3562, KSD 3507. Ask the factory for additional information as it 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.

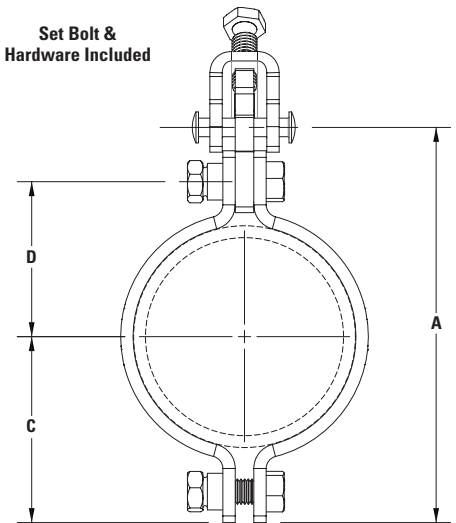
Order By: Figure number, pipe size and finish.

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

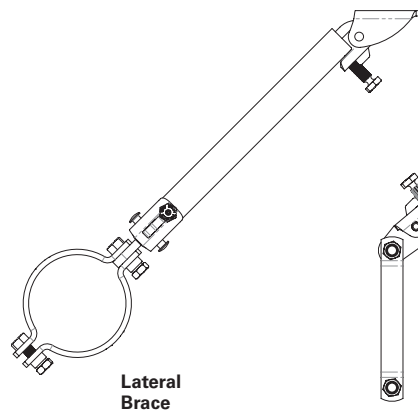
OPM



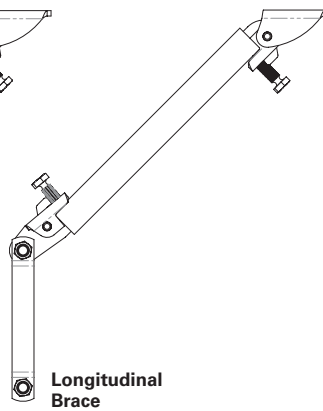
Set Bolt &
Hardware Included



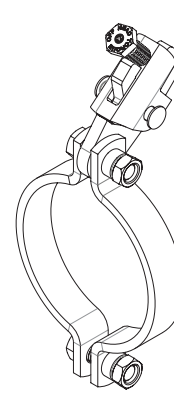
Seismic Bracing



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	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 / ₁₆	2 ¹ / ₁₆	1 ⁵ / ₈	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 ¹ / ₂	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 ² / ₁₆	2 ² / ₃	2	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	—	6 ¹ / ₈	3	2 ¹ / ₃	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 ¹ / ₈	3	2 ¹ / ₃	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 / ₁₆	3 ¹ / ₄	2 ⁵ / ₈	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	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 / ₁₆	3 ³ / ₄	3 ¹ / ₈	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	—	9 ⁵ / ₁₆	4 ³ / ₈	3 ⁵ / ₈	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 / ₁₆	4 ³ / ₈	3 ⁵ / ₈	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	—	11 ³ / ₁₆	5 ¹ / ₃	4 ⁴ / ₇	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 / ₁₆	5 ¹ / ₃	4 ⁴ / ₇	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	—	13 ³ / ₁₆	6 ¹ / ₅	5 ² / ₃	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 / ₁₆	6 ¹ / ₅	5 ² / ₃	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 / ₁₆	8 ¹ / ₄	7 ¹ / ₄	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 / ₁₆	9 ¹ / ₄	8 ¹ / ₄	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.

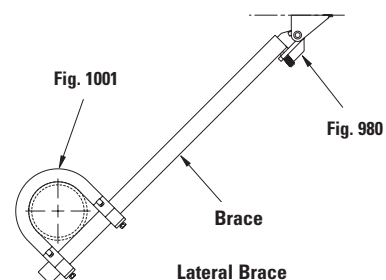
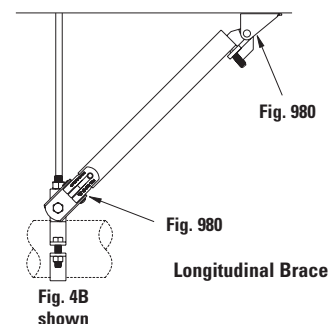
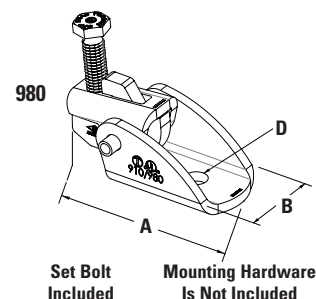
Note: Fig. 980 Swivel Attachment and Fig. 1001, 2002, 3000, 4L, or approved attachment to pipe make up a sway brace system of UL Listed attachments and bracing materials which satisfies the requirements of Underwriters Laboratories and the National Fire Protection Association (NFPA)

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.

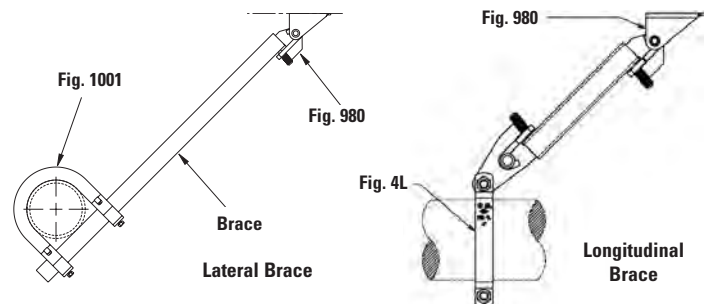
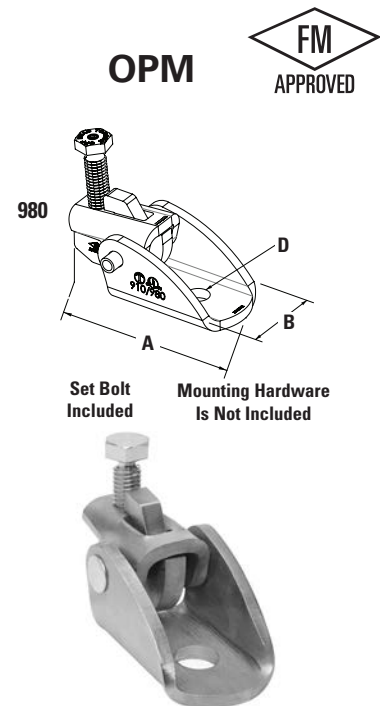
Note: Fig. 980 Swivel Attachment and Fig. 1000, 1001, 4L or other TOLCO approved attachment to pipe that make up a sway brace system of bracing materials which satisfies the requirements of Factory Mutual Engineering and the National Fire Protection Association (NFPA)

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.



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)			$\frac{7}{16}$ (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)			$\frac{15}{16}$ (23.8)						402 (182.3)
980H-1					$1\frac{1}{16}$ (27.0)	Fig. 980H is not UL Listed or FM Approved					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 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. Comes assembled and ready for installation. Fig. 1001 has built-in visual verification of correct installation. See installation note below.

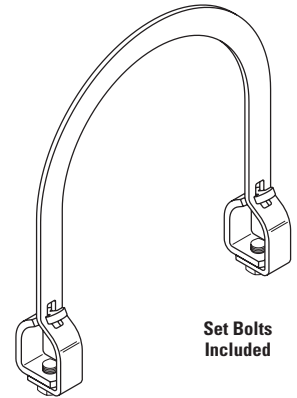
Installation Note: Position Fig. 1001 over the pipe to be braced and tighten two hex head cone point set bolts until heads bottom out. A minimum of 1" (25mm) pipe extension is recommended. Brace pipe can be installed on top or bottom of pipe to be braced.

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 1 1/4" (32mm)), and finish.

OPM  LISTED



Set Bolts
Included



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

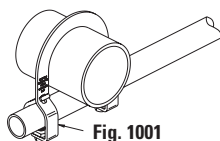
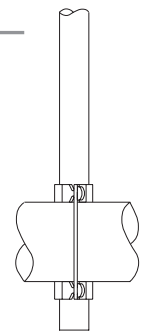
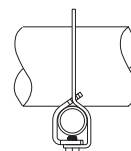
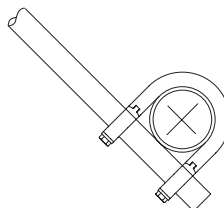


Fig. 1001



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.

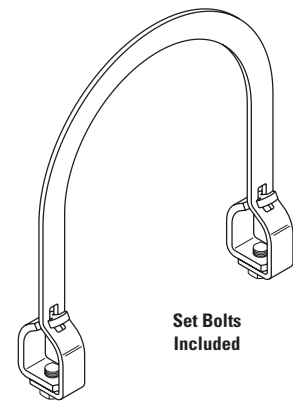
Finish: Plain, Electro-Galvanized or Hot Dip Galvanized. Contact customer service for alternative finishes and materials.

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)				

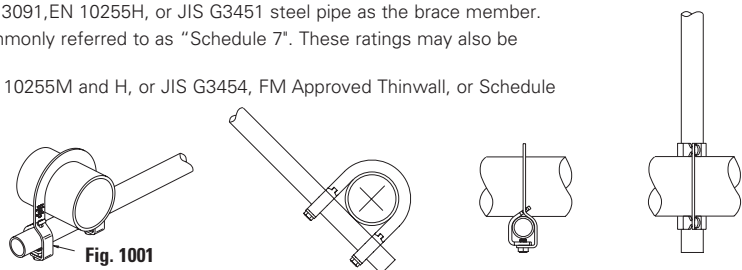
¹ FM Approved when used with 1 or 1 1/4 inch NPS Schedule 40 GB/T 3091, EN 10255H, or JIS G3451 steel pipe as the brace member.

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

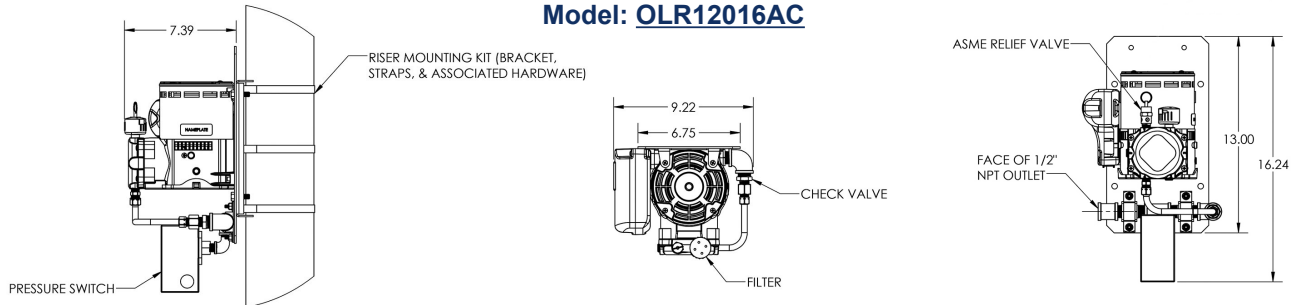


SINGLE PHASE MOTOR LINE STARTERS				
	115V	208/230V	Size	Model
MAX HP	1/2 HP	1 HP	00	MG00A
	1 HP	2 HP	0	MGX0A
	2 HP	3 HP	1	MG01A
	3 HP	5 HP	1P	MG15A

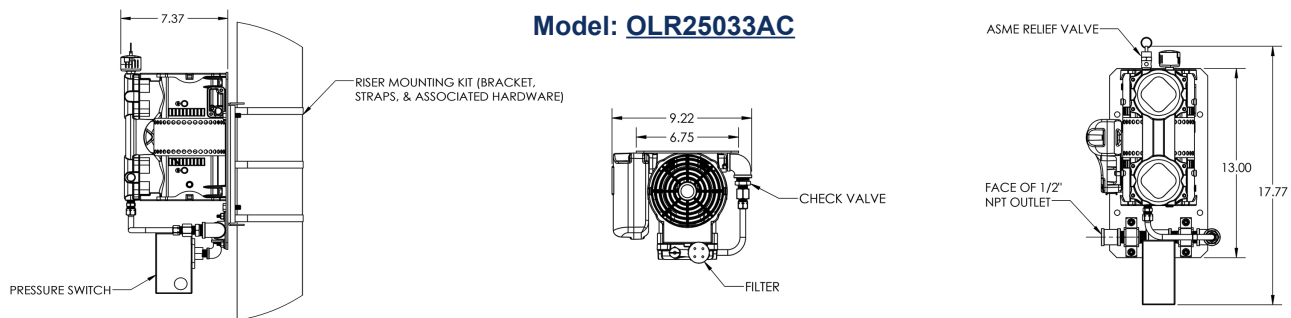
When Ordering a Motor Starter you must specify HP, Voltage & Phase.

OL Plus Series - Riser Mount Fire Protection Air Compressors

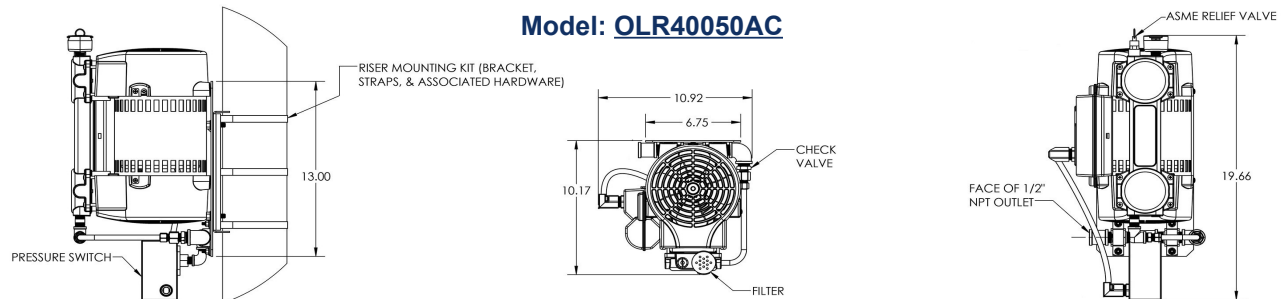
Model: OLR12016AC



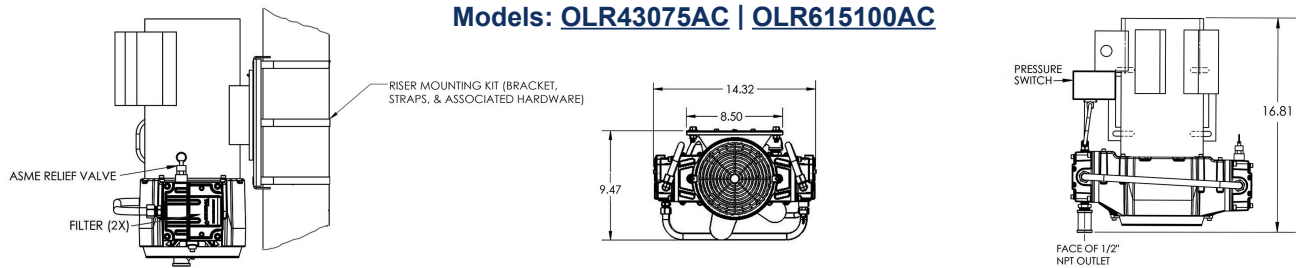
Model: OLR25033AC



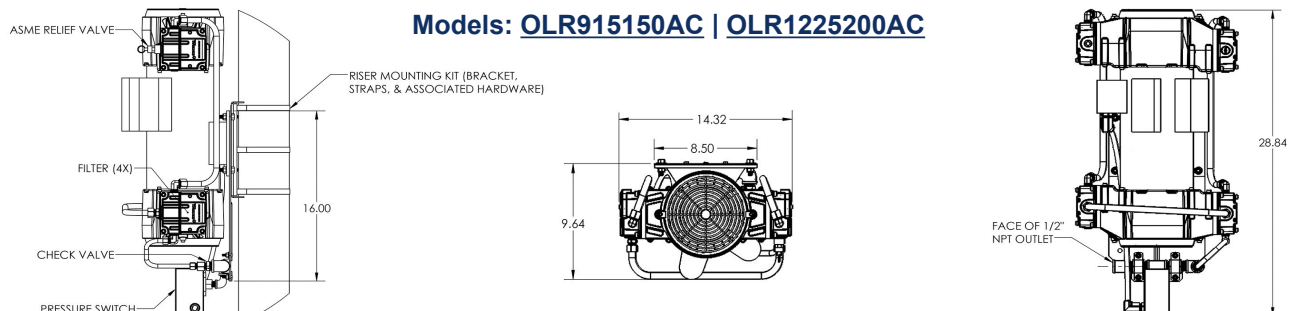
Model: OLR40050AC



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

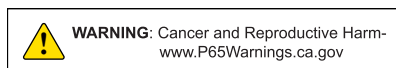
A. Sprinkler Cabinets

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

SPRINKLER WRENCHES AND CABINETS

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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.

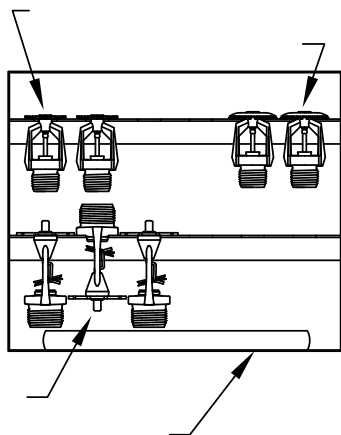
The stock of sprinklers must be in good condition.

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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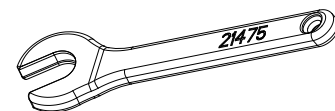
Table 2a: Sprinkler Wrenches

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

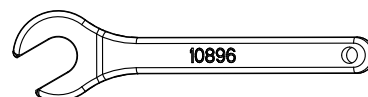
* Wrench no longer available. May still be used until wrench replacement is necessary.

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

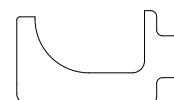
† Ideal for sprinkler cabinets.



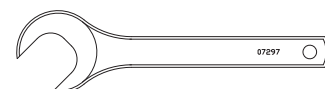
Part No. 21475M/B



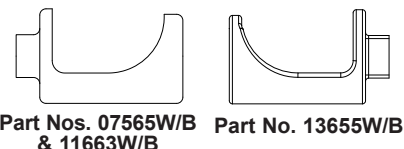
Part No. 10896W/B



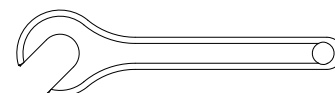
Part No. 13577W/B & 13032W/B



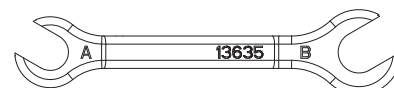
Part No. 07297W/B



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



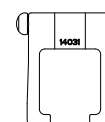
Part No. 05118CW/B



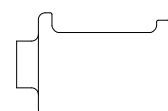
Part No. 13635W/B



Part No. 16888M/B



Part No. 14031



Part No. 14047W/B

Figure 4a: Sprinkler Wrenches



TECHNICAL DATA

SPRINKLER WRENCHES AND CABINETS

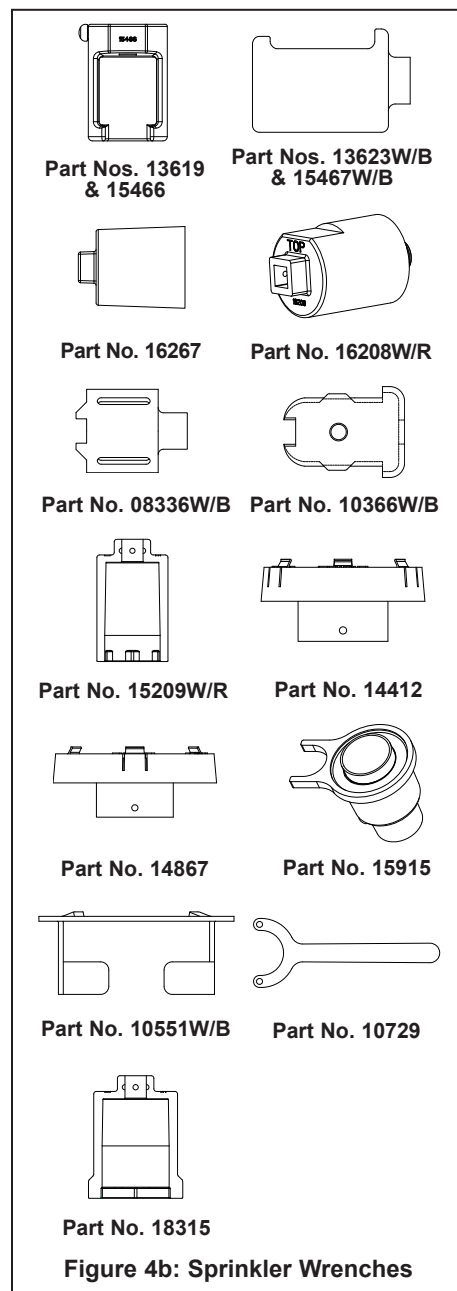
The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

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

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

Table 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 style="text-align: center;">HMIS ratings: Health = 1, Flammability = 1, Physical Hazard = 0, Personal Protection = B</p> <p style="text-align: center;">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:	



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
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 6		ACCIDENTAL 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 7		HANDLING 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 8		EXPOSURE 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 9		PHYSICAL 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
---------------------------------	--------------------	---------------------------------

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

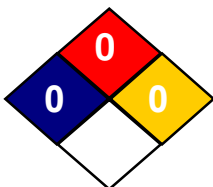

- 1 Quart Container
- Greyish/White Paste with no odor
- Stability- Stable under normal storage and handling conditions
- MSDS - <https://www.breccocorp.com/user/products/SDS-Lanseal.pdf>

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/m ³ ACGIH TLV (as oil mist)
Titanium dioxide	10 mg/m ³ ACGIH TLV (respirable dust)
Kaolin	2 mg/m ³ 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.



Iceland Skating Rink
1430 Del Paso Blvd.
Sacramento, CA 95815

Cosco Project #
23RD2373

Fire Alarm System
Product Data Submittal

Revision 0
5/30/2024

3850 Atherton Road
Rocklin, CA 95765
(916) 652-1306
Project Manager: Eric Davison
Project Designer: Byron Gonzales



NFW-50X/XI Intelligent Addressable Fire Alarm Control Panels

General

The **FireWarden-50X (NFW-50X)** and **FireWarden-50XI (NFW-50XI)** are the latest intelligent addressable fire alarm control panels (FACPs) within the FireWarden Series and are direct replacements for the FireWarden-50 (NFW-50). The NFW-50X Series supports up to 50 addressable devices in any combination of detectors or modules. With an extensive list of powerful features, the NFW-50X Series programs just like FireWarden-100 products, yet fits into applications previously served only by conventional panels.

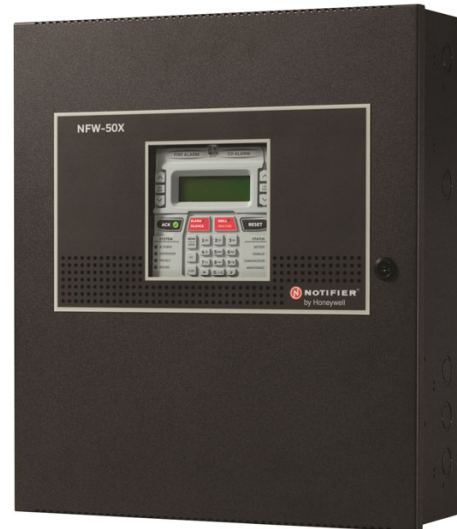
The NFW-50X features a pre-installed IPOTS-COM, a dual technology (POTS and IP) communicator. The POTS transmits system status (alarms, troubles, AC loss, etc.) to a Central Station via the public switched telephone network. The IP communicator's internet monitoring capability sends alarm signals over the Internet saving the monthly cost of two dedicated business telephone lines. Although not required, the secondary telephone line may be retained providing backup communication over the public switched telephone line. Optional cellular reporting is available using an HW-TG7F Series Communicators or the CLSS Pathway.

Remote and local programming of the control panel is possible using the FS-Tools Upload/Download utility. Programming databases can be uploaded/downloaded via the panel's USB port (and USB cable) or via an ethernet connection using the IPOTS-COM communicator (*NFW-50X only*). The USB port also allows for the download or upload of the entire program, history file, walk-test data, current status and system voltages by means of a USB flash drive.

The power supply and all electronics are contained on a circuit board supported on a new quick install chassis and housed in a metal cabinet. Available accessories include local and remote upload/download software, remote annunciators, and reverse polarity/city box transmitter (4XTM).

Features

- Listed to UL Standard 864, 10th edition
- Pre-installed IPOTS-COM Ethernet IP and POTS (Plain Old Telephone Service) Central Station Communicator (*NFW-50X only*)
- Optional Cellular Central Station Communicators over AlarmNet® (*NFW-50X only*)
- Compatible with SWIFT® wireless devices
- Auto-programming (learn mode) reduces installation time. Reports two devices set to the same address
- Certified for seismic applications when used with the appropriate seismic mounting kit
- Two independently programmable, built-in, Class A or Class B NAC circuits
- Selectable strobe synchronization for System Sensor, Wheelock, and Gentex devices
- Notification Appliance Circuit End of Line resistor matching
- Four programmable function keys for ease of maintenance
- Two programmable relays and one fixed trouble relay
- Built-in Programmer
- Integral 80-character LCD display with backlighting
- Real-time clock/calendar with automatic daylight savings control
- History file with 1,000 event capacity
- Addressable sounder base
- Control module delay timer
- Automatic detector sensitivity testing (NFPA 72 compliant)
- Automatic device type-code verification
- Point trouble identification



- Waterflow selection per module point
- Alarm verification selection per detector point
- Maintenance alert warns when smoke detector dust accumulation is excessive
- One-person audible or silent walktest with walktest log & printout
- System alarm verification selection per detector point
- PAS (Positive Alarm Sequence) and Pre-signal per point (NFPA 72 compliant)
- Up to 16 ANN-BUS annunciators- 8 per each ANN-Bus
- Remote Acknowledge, Alarm Silence, Reset and Drill via addressable modules or remote annunciator
- Upload/Download of program and data via USB with optional FS-Tools Programming Utility

SLC COMMUNICATION LOOP

- Supports FlashScan® and CLIP protocols
- SLC operates up to 10,000 ft. (3,000 m) in FlashScan mode with twisted, unshielded wire
- Single addressable SLC loop which meets NFPA Class B and Class A requirements
- 50 addressable device capacity (any combination of addressable detectors and modules)
- Compatible with NOTIFIER FireWarden & ONYX Series addressable devices (refer to the *FireWarden SLC Wiring Manual*)

NOTIFICATION APPLIANCE CIRCUITS (NACS)

- Two independently programmable output circuits. Circuits can be configured for Class A or Class B wiring.
 - Class B
 - Class A
- Silence Inhibit and Autosilence timer options
- Continuous, March Time, Temporal, or California code for main circuit board NACs with two-stage capability
- Selectable strobe synchronization per NAC
- 2.5 A special application, 250mA regulated, total power for NACs

NOTE: Maximum or total 24VDC system power shared between all NAC circuits and the ANN-BUS is 2.7 A

PROGRAMMING AND SOFTWARE

- Autoprogramming (learn mode) reduces installation time

- Custom English labels (per point) may be manually entered or selected from an internal library file
- Two programmable Form-C relay outputs
- 50 software zones
- Continuous fire protection during online programming
- Program Check automatically catches common errors not linked to any zone or input point
- **OFFLINE PROGRAMMING:** Create the entire program in your office using FS-Tools, a Windows®-based software package, and upload/download system programming locally. Offline programming requires an ethernet connection. FS-Tools is available on www.notifier.com.

User interface

LED INDICATORS

- | | |
|---------------------------|---|
| • Fire Alarm (red) | • CO Alarm (yellow) |
| • AC Power (green) | • Supervisory (yellow) |
| • Trouble (yellow) | • Ground fault (yellow) |
| • Battery fault (yellow) | • Disabled (yellow) |
| • Maintenance (yellow) | • Communication (yellow) |
| • Alarm Silenced (yellow) | • F1-F4 Programmable Function Keys (yellow) |

KEYPAD

- | | |
|---------------------------------------|---------------------------|
| • 16 key alpha-numeric pad | • Acknowledge |
| • Alarm Silence | • Drill (Manual Evacuate) |
| • Four (4) programmable function keys | • Reset (lamp test) |

Product Line Information

NFW-50X: Addressable Fire Alarm Control Panel with one SLC loop. Includes main circuit board with display, pre-installed IPOTS-COM communicator, chassis with transformer, backbox with door, plastic bag containing screws, cables, key, etc.

NFW-50XI: Addressable Fire Alarm Control Panel with one SLC loop. Includes main circuit board with display, chassis with transformer, dress panel, backbox with door, plastic bag containing screws, cables, key, etc.

FS-Tools: Programming software for Windows®-based PC computer. Available for download at www.notifier.com.

IPOTS-COM: Dual technology (POTS and IP) communicator. (replacement board) (*NFW-50X only*)

HW-AV-LTE-M: Optional CLSS Pathway

HW-TG7FS-A/HW-TG7FS-V: CLSS-Enabled 5G /LTE-M Commercial Fire Alarm Communicators for AT&T® and Verizon®

HW-TG7FE-A/HW-TG7FE-V: CLSS-Enabled 5G/LTE-M Dual Path Commercial Fire Alarm Communicators for AT&T and Verizon

HW-TG7FP-A/HW-TG7FP-A: CLSS-Enabled 5G/LTE-M Sole Path Commercial Fire Alarm Communicators for AT&T and Verizon

DP-ES-R: Optional dress panel for the NFW-50XR (red).

DP-ES-B: Optional dress panel for NFW-50X (black).

TR-CE-B: Optional trim ring for semi-flush mounting. (Black. For red, order **TR-CE**.)

BB-XP: Optional cabinet for one or two modules.

BB-25: Optional cabinet for up to six modules mounted on CHS-6 chassis.

BB-26: Battery backbox, holds up to two 25 AH batteries & CHG-75.

NFS-LBB: Battery box, houses two 55 AH batteries

CHS-6: Chassis, mounts up to six multi-modules in a BB-25 cabinet.

CHG-75: Battery charger for lead-acid batteries with a rating of 25 to 75 AH.

CHG-120: Remote battery charging system for lead-acid batteries with a rating of 55 to 120 AH. Requires additional NFS-LBB for mounting.

NOTE: CHG-120 or CHG-75 required for batteries larger than 18AH.

BAT Series: Batteries, see data sheet DN-6933.

PRN Series: UL listed compatible event printer.

SEISKIT-COMMENC: Seismic kit for the NFW-50X Series backbox. Includes battery bracket for two 7, 12, or 18 AH batteries.

OPTIONAL MODULES

4XTM Reverse Polarity Transmitter Module: Provides a supervised output for local energy municipal box transmitter, alarm and trouble. Includes a disable switch and disable trouble LED.

COMPATIBLE ANNUNCIATORS

N-ANN-80: Remote, black LCD annunciator mimics the information displayed on the FACP LCD display. Recommended wire type is unshielded.

N-ANN-100: Remote LCD annunciator mimics the information displayed on the FACP LCD display. Recommended wire type is unshielded. For use in FM applications only. (Basic model is black; order R for red.)

N-ANN-I/O: LED Driver Module provides connections to a user supplied graphic annunciator. (See DN-7105.)

N-ANN-LED: Annunciator Module provides three LEDs for each zone: Alarm, Trouble, and Supervisory. Ships with red enclosure. (See DN-60242.)

N-ANN-RLED: Provides alarm (red) indicators for up to 30 input zones or addressable points. (See DN-60242.)

N-ANN-RLY: Relay Module provides 10 programmable Form-C relays. Can be mounted inside the cabinet. (See DN-7107.)

N-ANN-S/PG: Serial/Parallel Printer Gateway module provides a connection for a serial or parallel printer. (See DN-7103.)

ADDRESSABLE DEVICES

FSP-951: Addressable low-profile photoelectric smoke detector. FlashScan only.

FSP-951-IV: Addressable low-profile photoelectric smoke detector. Ivory. FlashScan and CLIP mode.

NP-200: Addressable low-profile photoelectric smoke detector. B300-6 base included, FlashScan only.

NP-200-IV: Addressable low-profile photoelectric smoke detector. Ivory, B300-6-IV base included. FlashScan and CLIP mode.

FSP-951T: Addressable low-profile photoelectric smoke detector with thermal sensor. FlashScan only.

FSP-951T-IV: Addressable low-profile photoelectric smoke detector with thermal sensor. Ivory. FlashScan and CLIP mode.

NP-200T: Addressable low-profile photoelectric smoke detector with thermal sensor. B300-6 base included. FlashScan only.

NP-200T-IV: Addressable low-profile photoelectric smoke detector with thermal sensor. Ivory, B300-6-IV base included. FlashScan and CLIP mode.

FSP-951R: Remote test capable addressable photoelectric smoke detector for use with DNR(W) duct detector housing. FlashScan only.

FSP-951R-IV: Remote test capable addressable photoelectric smoke detector for use with DNR(W) duct detector housing. Ivory. FlashScan and CLIP mode.

NP-200R: Remote test capable addressable photoelectric smoke detector for use with DNR(W) duct detector housing. FlashScan only.

NP-200R-IV: Remote test capable addressable photoelectric smoke detector for use with DNR(W) duct detector housing. Ivory, FlashScan and CLIP mode.

FST-951: Low-profile 135°F fixed thermal sensor. FlashScan only.

FST-951-IV: Low-profile 135°F fixed thermal sensor. Ivory. FlashScan and CLIP mode.

NH-200: Low-profile 135°F fixed thermal sensor. B300-6 base included, FlashScan only.

NH-200-IV: Low-profile 135°F fixed thermal sensor. Ivory. B300-6-IV base included, FlashScan and CLIP mode.

FST-951R: Low-profile, intelligent, rate-of-rise thermal sensor. FlashScan only.

FST-951R-IV: Low-profile, intelligent, rate-of-rise thermal sensor. Ivory. FlashScan and CLIP mode.

NH-200R: Low-profile 135°F fixed thermal sensor. B300-6 base included, FlashScan only.

NH-200R-IV: Low-profile 135°F fixed thermal sensor. Ivory. B300-6-IV base included, FlashScan and CLIP mode.

FST-951H: Low-profile intelligent 190°F/88°C fixed thermal sensor. FlashScan only.

FST-951H-IV: Low-profile intelligent 190°F/88°C fixed thermal sensor. Ivory. FlashScan and CLIP mode.

NH-200H: Low-profile intelligent 190°F/88°C fixed thermal sensor. B300-6 base included, FlashScan only.

NH-200H-IV: Low-profile intelligent 190°F/88°C fixed thermal sensor. Ivory. B300-6-IV base included, FlashScan and CLIP mode.

Legacy Devices

FSI-851: Addressable, intelligent smoke detector that incorporates an ionization sensing chamber.

NI-100: Addressable, intelligent smoke detector that incorporates an ionization sensing chamber.

FSP-851: Addressable low-profile photoelectric smoke detector.

NP-100: Addressable low-profile photoelectric smoke detector.

FSP-851T: Addressable low-profile photoelectric smoke detector with thermal sensor.

NP-100T: Addressable low-profile photoelectric smoke detector with thermal sensor.

FSP-851R: Remote test capable addressable photoelectric smoke detector for use with DNR(W) duct detector housing.

NP-100R: Remote test capable addressable photoelectric smoke detector for use with DNR(W) duct detector housing.

FST-851: Fast-response, low-profile heat detector.

NH-100: Fast-response, low-profile heat detector.

FST-851R: Fast-response, low-profile heat detector with rate-of-rise option.

NH-100R: Fast-response, low-profile heat detector with rate-of-rise option.

FST-851H: Fast-response, low-profile heat detector that activates at 190°F/88°C.

NH-100H: Fast-response, low-profile heat detector that activates at 190°F/88°C.

FAPT-851: Addressable low-profile multi-sensor detector.

NP-A100: Addressable low-profile multi-sensor detector.

B200S(-WH)(-IV): Programmable, addressable sounder base.

B200SR(-WH)(-IV): Addressable sounder base.

B200S-LF(-WH)(-IV): Programmable, addressable sounder base, low-frequency.

B200SR-LF(-WH)(-IV): Addressable sounder base, low-frequency.

DNR: InnovairFlex™ low-flow non-relay duct-detector housing. (Order FSP-851R, FSP-951R, or NP-100R separately.)

DNRW: InnovairFlex low-flow non-relay duct-detector housing, with NEMA-4 rating. Watertight. (Order FSP-851R, FSP-951R, or NP-100R separately.)

Addressable Modules

FMM-1: Addressable Monitor Module for one zone of normally-open dry-contact initiating devices. Mounts in standard 4.0" (10.16 cm.) box. Includes plastic cover plate and end-of-line resistor. Module may be configured for either a Class B or Class A IDC.

NMM-100: Addressable Monitor Module for one zone of normally-open dry-contact initiating devices. Mounts in standard 4.0" (10.16 cm.) box. Includes plastic cover plate and end-of-line resistor. Module may be configured for either a Class B or Class A IDC.

FDM-1: Dual Monitor Module. Same as NMM-100 except it provides two Class B-only IDCs.

NDM-100: Dual Monitor Module. Same as NMM-100 except it provides two Class B-only IDCs.

FMM-101: Miniature version of NMM-100. Excludes LED and Class A option. Connects with wire pigtailed. May mount in device backbox.

NMM-100P: Miniature version of NMM-100. Excludes LED and Style D option. Connects with wire pigtailed. May mount in device backbox.

FZM-1: Similar to NMM-100. Addressable Monitor Module for one zone of conventional two-wire detectors. Requires resettable 24 VDC power. Refer to the *Device Compatibility Document* for listed compatible devices and quantity limitation.

NZM-100: Similar to NMM-100. Addressable Monitor Module for one zone of conventional two-wire detectors. Requires resettable 24 VDC power. Refer to the *Device Compatibility Document* for listed compatible devices and quantity limitation.

FCM-1: Addressable Control Module for one Class B or Class A zone of supervised polarized Notification Appliances. Mounts directly to a 4.0" (10.16 cm.) electrical box. NAC option requires external 24 VDC to power notification appliances.

NC-100: Addressable Control Module for one Class B or Class A zone of supervised polarized Notification Appliances. Mounts directly to a 4.0" (10.16 cm.) electrical box. NAC option requires external 24 VDC to power notification appliances.

FRM-1: Addressable relay module containing two isolated sets of Form-C contacts, which operate as a DPDT switch. Mounts directly to a 4.0" (10.16 cm.) box, surface mount using the SMB500.

NC-100R: Addressable relay module containing two isolated sets of Form-C contacts, which operate as a DPDT switch. Mounts directly to a 4.0" (10.16 cm.) box, surface mount using the SMB500.

NBG-12LX: Addressable manual pull station with interface module mounted inside.

NOT-BG12LX: Addressable manual pull station with interface module mounted inside.

ISO-X: Fault Isolator Module (required for Class A or Class X operation).

N100-ISO: Fault Isolator Module (required for Class A or Class X operation).

ISO-6(A): Six-fault isolator module. Mount one or two modules in a BB-XP cabinet (optional). Mount up to six modules on a CHS-6 chassis in a CAB-3/CAB-4 series cabinet.

SMB500: Used to mount all modules except FMM-101/NMM-100P.

NMM-100-10: Ten-input monitor module. Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F cabinet.

NZM-100-6: Six-zone interface module. Mount one or two modules in a BB-XP cabinet (optional). Mount up to six modules on a CHS-6 chassis in a CAB-3/CAB-4 series cabinet.

SWIFT Wireless Devices

FWSG: Wireless Gateway

FWD-200P: intelligent, wireless photo detector.

FWH-200ROR135: LiteSpeed intelligent wireless rate of rise (135°) heat detector.

FWD-200ACCLIMATE: Wireless Acclimate Detector

FWH-200FIX135: intelligent wireless fixed-temperature (135°) heat detector.

FW-MM: Intelligent wireless monitor module.

FW-RM: Intelligent wireless relay module.

NBG-12LW: Intelligent wireless pull station.

WAV-RL, WAV-WL, WAV-CRL, WAV-CWL: Intelligent AV bases.

W-USB: Wireless USB radio/antenna dongle that plugs into the USB port of a PC running SWIFT Tools.

SWIFT Tools: Programming and diagnostic utility for the Wireless Gateway and devices. Available for download from www.notifier.com.

NOTE: For more information on Compatible Addressable Devices for use with the FireWarden-50X, see the following data sheets (document numbers): NP-200 (DN-60979), NH-200 (DN-60980), FSP-851 (DN-6935), FSP-951 (DN-60977), FST-851 (DN-6936), FST-951 (DN-60975), FAPT-851 (DN-6937), N100-ISO (DN-6994), NP-100 (DN-6995), NH-100/NH-100R (DN-6997), DNR/InnovairFlex (DN-60424, DN-60429), NP-A100 (DN-6998), NMM-100/NMM-100P/NDM-100/NZM-100 (DN-6999), NC-100 (DN-7000), NC-100R (DN-60383), NMM-100-10 (DN-6990), MM-1/FDM-1/FZM-1/FMM-101 (DN-6720), FCM-1/FRM-1 (DN-6724), NOT-BG12LX (DN-7001), NBG-12LX (DN-6726), and FireWarden SLC Manual (52304).

System Capacity

- Intelligent Signaling Line Circuits (Digital Comm. Loops)1
- Addressable device capacity50
- Programmable software zones50
- Annunciators16

Electrical Specifications

AC Power: Operates in either 120 or 240 VAC, 50/60 Hz, 3.25 A, auto-sensing- no switch required. Wire size: minimum 14 AWG (2.00 mm²) with 600 V insulation. Non-power-limited, supervised.

Battery: Two 12 V 18 AH lead-acid batteries. Battery Charger Capacity: 7-18 AH (FACP cabinet holds maximum of two 18 AH batteries.)

Communication Loop: Supervised and power-limited.

Notification Appliance Circuits: Terminal Block provides connections for two NACs, Class B or Class A. Special Application power. Power-limited, supervised circuitry. Maximum signaling current per circuit: 2.5 amps special application, 250mA regulated. End-of-Line Resistor: 4.7k ohm, ½ watt (P/N 71252 UL listed) for Class B NAC; system capable of 1.9 kΩ - 22 kΩ ELR range. Refer to the *NOTIFIER Device Compatibility Document* for listed compatible devices.

Two Programmable Relays and One Fixed Trouble Relay: Contact rating: 2.0 A @ 30 VDC (resistive), 0.5 A @ 30 VAC (resistive). Form-C relays, non-power-limited, non-supervised.

Cabinet Specifications

Door: 19.26" (48.92 cm.) high x 16.82" (42.73 cm.) wide x 0.72" (1.82 cm.) deep. **Backbox:** 19.00" (48.26 cm.) high x 16.65" (42.29 cm.) wide x 5.25" (13.34 cm.) deep. **Trim Ring (TR-CE/B):** 22.00" (55.88 cm.) high x 19.65" (49.91 cm.) wide.

Shipping Specifications

Weight: 26.9 lbs. (12.20 kg.) **Dimensions:** 20.00" (50.80 cm.) high x 22.5" (57.15 cm.) wide x 8.5" (21.59 cm.) deep.

Temperature and Humidity Ranges

This system meets NFPA requirements for operation at 0 – 49°C/32 – 120°F and at a relative humidity 93% ± 2% RH (noncondensing) at 32°C ± 2°C (90°F ± 3°F). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 15 – 27°C/60 – 80°F.

Addressable Device Accessories

End-of-Line Resistor Assembly (R-47K and R-3.9K): The 47k ohm assembly supervises the FMM-1/MMM-100-10, FDM-1/NDM-100, FMM-101/MMM-100P, and FCM-1/NC-100 module circuits. The 3.9k ohm assembly supervises the XP6-MA/NZM-100-6 module circuit. These resistors are included with each module.

Power Supervision Relay: Supervises the power to 4-wire smoke detectors and notification appliances.

Wiring Requirements

While shielded wire is not required, it is recommended that all SLC wiring be twisted-pair to minimize the effects of electrical interference. Refer to the panel manual for wiring details.

NFPA Standards

The FireWarden-50X complies with the following NFPA 72 Fire Alarm Systems requirements:

- **LOCAL** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **AUXILIARY** (Automatic, Manual and Waterflow) (requires 4XTM).
- **REMOTE STATION** (Automatic, Manual and Waterflow) (Where a DACT is not accepted, the alarm, trouble and supervisory relays may be connected to UL 864 listed transmitters. For reverse polarity signaling of alarm and trouble, 4XTM is required.)
- **PROPRIETARY** (Automatic, Manual and Waterflow).
- **CENTRAL STATION** (Automatic, Manual and Waterflow, and Sprinkler Supervised).
- **DAC, PSDN** (Digital Alarm Communicator, Packet-switched Data Network)
- **IBC 2021, IBC 2018, IBC 2015, IBC 2012, IBC 2009** (Seismic)
- **CBC 2019** (Seismic)

Agency Listings and Approvals

The listings and approvals below apply to the basic FireWarden-50X control panel. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult NOTIFIER for latest listing status.

- **UL:** S635
- **FM approved**
- **CSFM:** 7165-0028:0505
- **FDNY:** COA #2023-TMCOAP-001915-REN



This document is not intended to be used for installation purposes.

We try to keep our product information up-to-date and accurate.

We cannot cover all specific applications or anticipate all requirements.

All specifications are subject to change without notice.

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Country of Origin: USA

NOTIFIER

12 Clintonville Road
Northford, CT 06472
203.484.7161
www.notifier.com





CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No.:	7165-0028:0505
PARENT LISTING No.:	7165-0075:0500
CATEGORY:	7165 - FIRE ALARM CONTROL UNIT (COMMERCIAL)
LISTEE:	Notifier One Fire-Lite Place, Northford, CT, 06472 Contact: Brant, Lisa 2034846105 Email: lisa.brant@honeywell.com



**CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM**

LISTING SERVICE

<p>DESIGN:</p>	<p>Models FireWarden-50X (NFW-50X) and FireWarden-100X *(NFW-100X) Fire Alarm Control Units. Automatic, manual, waterfowl, sprinkler supervisory, local, remote station (PPU), and central station (PPU) services. The FireWarden-50X (NFW-50X) is a compact version of the FireWarden-100X *(NFW-100X). The FireWarden-50X (NFW-50X) has 50 addressable device capability and 2 Notification Appliance Circuits with a 3.0 amps total 24VDC output in Alarm. The FireWarden-100X *(NFW-100X) has 198 addressable device capability and 4 Notification Appliance Circuits with 3.0amps total 24VDC output in Alarm expandable to 6.0amps with Model PWRMOD24. The Model IPOTS-COM provides Phone and IP communication.</p> <p>Models FireWarden-50X (NFW-50X) and FireWarden-100X *(NFW-100X) system components are as follows:</p> <p>IPOTS-COM POTS and IP Communicator</p> <p>4XTMF Transmitter Module</p> <p>N-ANN-80 Remote Annunciator Module</p> <p>ANN-100 Remote Annunciator Module</p> <p>N-ANN-I/O LED Driver Module</p> <p>N-ANN-S/PG Serial/Parallel Interface Module</p> <p>N-ANN-RLY Form-C Relay Module</p> <p>N-ANN-LED Annunciator Module</p> <p>N-ANN-RLED Annunciator Module</p> <p>CELL-MOD GSM Communicator</p> <p>DP-ES-R Dress Panel</p> <p>Model FireWarden-100X *(NFW-100X) system components are as follows:</p> <p>PWRMOD24 NAC Power Expander Module</p> <p>Refer to the listee's data sheet for additional detailed product description and operational considerations.</p>
<p>RATING:</p>	<p>120/240Vac 50/60Hz</p>



**CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM**

LISTING SERVICE

INSTALLATION:	In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.
MARKING:	Listee's name, model number, electrical rating, and UL label.
APPROVAL:	Listed as fire alarm control units, emergency alarm system control units and process management equipment for use with separately listed compatible initiating and indicating devices. Refer to Manufacturers Installation Instruction Manual for details.
NOTES:	For Fire Alarm Verification Feature (Delay of fire alarm), the maximum Retard/Reset/Restart period must be adjusted to 30 seconds or less.

*Rev 09-03-19 gt



This listing is based upon technical data submitted by the applicant. OSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other suitable information sources.

Date Issued: 05/08/2024

Listing Expires: 06/30/2025

Authorized By: **David Castillo** , Program Coordinator
Fire Engineering & Investigations Division

PS-1270 12 Volt 7.0 AH

Rechargeable Sealed Lead Acid Battery



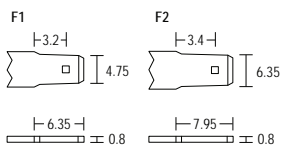
We've Got The Power.™



Terminals: (mm)

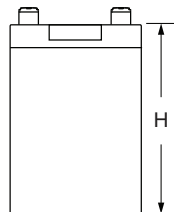
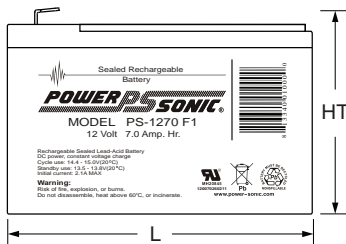
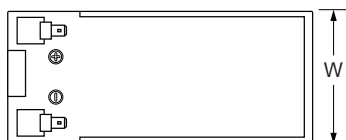
- F1 - Quick disconnect tabs, 0.187" x 0.032"- Mate with AMP. INC. FASTON "187" series

— OR —



- F2 - Quick disconnect tabs, 0.250" x 0.032" - Mate with AMP. INC FASTON "250" series

Physical Dimensions: in (mm)



L: 5.95 (151) W: 2.56 (65) H: 3.70 (94) HT: 3.86 (98)

Tolerances are +/- 0.04 in. (+/- 1mm) and +/- 0.08 in. (+/- 2mm) for height dimensions. All data subject to change without notice.

Features

- Absorbent Glass Mat (AGM) technology for superior performance
- Valve regulated, spill proof construction allows safe operation in any position
- Power/volume ratio yielding unrivaled energy density
- Rugged impact resistant ABS case and cover (UL94-HB)
- Approved for transport by air. D.O.T., I.A.T.A., F.A.A. and C.A.B. certified
- U.L. recognized under file number MH 20845

Performance Specifications

Nominal Voltage 12 volts (6 cells)

Nominal Capacity

20-hr. (350mA to 10.50 volts)	7.00 AH
10-hr. (650mA to 10.50 volts)	6.50 AH
5-hr. (1.2A to 10.20 volts)	6.00 AH
1-hr. (4.5A to 9.00 volts)	4.50 AH
15-min. (14A to 9.00 volts)	3.50 AH

Approximate Weight 4.80 lbs. (2.18 kg)

Energy Density (20-hr. rate) 1.49 W-h/in³ (90.95 W-h/l)

Specific Energy (20-hr. rate) 17.50 W-h/lb (38.58 W-h/kg)

Internal Resistance (approx.) 23 milliohms

Max Discharge Current (7 Min.) 21.0 amperes

Max Short-Duration Discharge Current (10 Sec.) 70.0 amperes

Shelf Life (% of nominal capacity at 68°F (20°C))

1 Month	97%
3 Months	91%
6 Months	83%

Operating Temperature Range

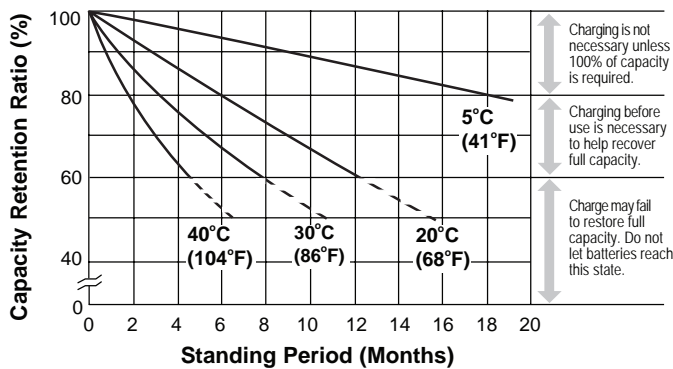
Charge -4°F (-20°C) to 122°F (50°C)

Discharge -40°F (-40°C) to 140°F (60°C)

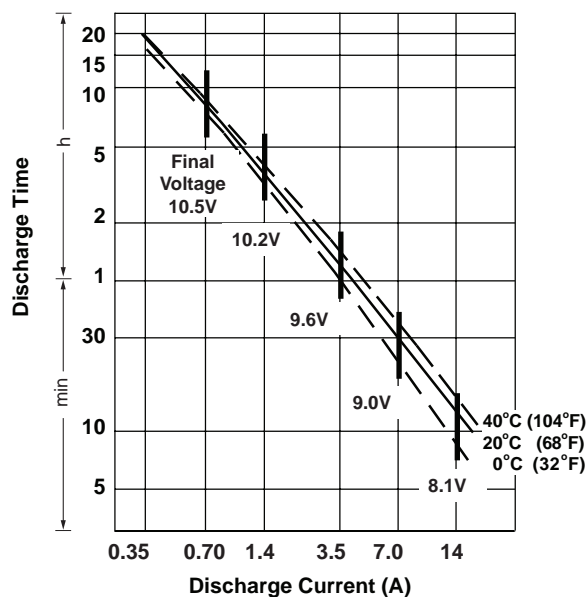
Case ABS Plastic

Power-Sonic Chargers.....PSC-12800A, 12800A-C

Shelf Life & Storage



Discharge Time vs. Discharge Current



Charging

Cycle Applications: Limit initial current to 2.1A. Charge until battery voltage (under charge) reaches 14.4 to 14.7 volts at 68°F (20°C). Hold at 14.4 to 14.7 volts until current drops to under 70mA. Battery is fully charged under these conditions, and charger should be disconnected or switched to "float" voltage.

"Float" or "Stand-By" Service: Hold battery across constant voltage source of 13.5 to 13.8 volts continuously. When held at this voltage, the battery will seek its own current level and maintain itself in a fully charged condition.

Note: Due to the self-discharge characteristics of this type of battery, it is imperative that they be charged within 6 months of storage, otherwise permanent loss of capacity might occur as a result of sulfation.

Chargers

Power-Sonic offers a wide range of chargers suitable for batteries up to 100AH. Please refer to the Charger Selection Guide in our specification sheets for "C-Series Switch Mode Chargers" and "Transformer Type A and F Series". Please contact our Technical department for advice if you have difficulty in locating suitable models.

Contact Information

DOMESTIC SALES

Tel: +1-619-661-2020
Fax: +1-619-661-3650
national-sales@power-sonic.com

CUSTOMER SERVICE

Tel: +1-619-661-2030
Fax: +1-619-661-3648
customer-service@power-sonic.com

TECHNICAL SUPPORT

Tel: +1-619-661-2020
Fax: +1-619-661-3648
support@power-sonic.com

INTERNATIONAL SALES

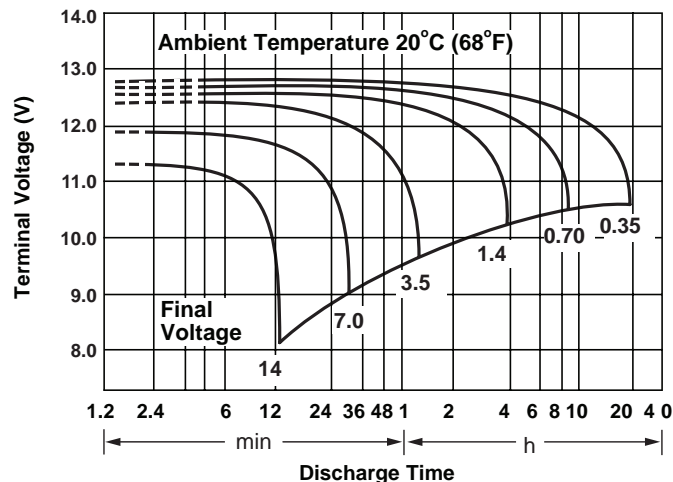
Tel: +1-650-364-5001
Fax: +1-650-366-3662
international-sales@power-sonic.com

CORPORATE OFFICE • 7550 Panasonic Way • San Diego, CA 92154 • USA • Tel: +1-619-661-2020 • Fax: +1-619-661-3650

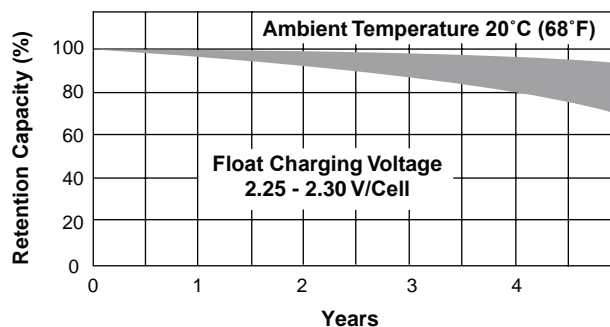
0816 1M

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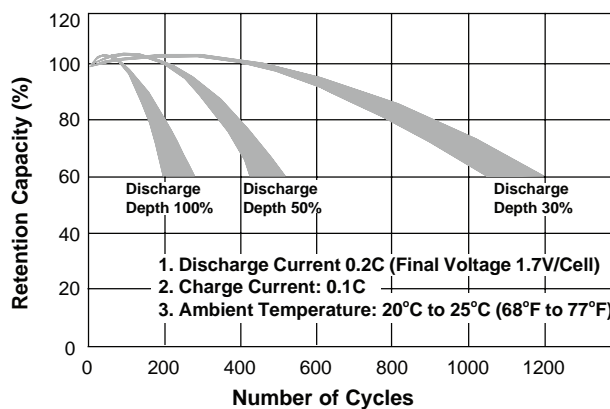
Discharge Characteristics



Life Characteristics in Stand-By Use



Life Characteristics in Cyclic Use



Further Information

Please refer to our website www.power-sonic.com for a complete range of useful downloads, such as product catalogs, material safety data sheets (MSDS), ISO certification, etc..

www.power-sonic.com

FSP-951 Series Addressable Photoelectric Smoke Detectors

The NOTIFIER® FSP-951 Series intelligent plug-in smoke detectors are designed for both performance and aesthetics, and are direct replacements for the FSP-851 Series. A new modern, sleek, contemporary design and enhanced optical sensing chamber is engineered to sense smoke produced by a wide range of combustion sources in accordance with more stringent code standards.

The FSP-951 Series detector sensitivity can be programmed in the control panel software. Sensitivity is continuously monitored and reported to the panel. Point ID capability allows each detector's address to be set with rotary, decimal address switches, providing exact detector location for selective maintenance when chamber contamination reaches an unacceptable level. Dual electronic thermistors add 135°F (57°C) fixed temperature thermal sensing on the FSP-951T. The FSP-951R is a remote test capable detector for use with DNR Series duct detector housings. FSP-951 series detectors are available for both FlashScan® and CLIP applications as designated.

Features

SLC LOOP:

- Two-wire SLC loop connection
- Unit uses base for wiring
- Compatible with FlashScan® and CLIP protocol systems
- Stable communication technique with noise immunity

ADDRESSING:

- Addressable by device
- Rotary, decimal addressing
(Refer to the *NOTIFIER panel manuals* for device capacity.)

ARCHITECTURE:

- Sleek, low-profile, stylish design
- Unique single-source design to respond quickly and dependably to a broad range of fires
- Integral communications and built-in device-type identification
- Built-in tamper resistant feature
- Remote test feature from the panel
- Walk test with address display (an address on 121 will blink the detector LED: 12-[pause]-1 (*FlashScan systems only*))
- Built-in functional test switch activated by external magnet
- Removable cover and insect-resistant screen for simple field cleaning
- Expanded color options

OPERATION:

- Designed to meet UL 268 7th Edition
- Factory preset at 1.5% nominal sensitivity for panel alarm threshold level
- LED "blinks" when the unit is polled (communicating with the fire panel) and latches in alarm.
- Low standby current

MECHANICALS:

- Sealed against back pressure
- SEMS screws for wiring of the separate base
- Designed for direct-surface or electrical-box mounting
- Plugs into separate base for ease of installation and maintenance



- Separate base allows interchange of photoelectric, ionization and thermal sensors

OPTIONS:

- Optional relay, isolator, and sounder bases

Installation

FSP-951 Series plug-in intelligent smoke detectors use a detachable base to simplify installation, service and maintenance. Installation instructions are shipped with each detector.

Mount detector base (all base types) on an electrical backbox which is at least 1.5" (3.81 cm) deep. For a chart of compatible junction boxes, see *DN-60054*.

NOTE: Because of the inherent supervision provided by the SLC loop, end-of-line resistors are not required. Wiring "T-taps" or branches are permitted for Class "B" wiring only.

When using relay or sounder bases, consult the ISO-X(A) installation sheet I56-1380 for device limitations between isolator modules and isolator bases.

Construction

These detectors are constructed of fire-resistant plastic. The FSP-951 Series plug-in intelligent smoke detectors are designed to commercial standards and offer an attractive appearance.

Operation

Each FSP-951 Series detector uses one of the panel's addresses (total limit is panel dependent) on the NOTIFIER Signaling Line Circuit (SLC). It responds to regular polls from the control panel and reports its type and the status. If it receives a test command from the panel (or a local magnet test), it stimulates its electronics and reports an alarm. It blinks its LEDs when polled and turns the LEDs on when commanded by the panel. The FSP-951 Series offers features and performance that represent the latest in smoke detector technology.

Product Line Information

NOTE: "-IV" suffix indicates CLIP and FlashScan device.

FSP-951: White, low-profile intelligent photoelectric sensor, FlashScan only

FSP-951A: Same as FSP-951 but with ULC listing

FSP-951-IV: Ivory, low-profile intelligent photoelectric sensor

FSP-951A-IV: Same as FSP-951-IV but with ULC listing

FSP-951T: White, same as FSP-951 but includes a built-in 135°F (57°C) fixed-temperature thermal device, FlashScan only

FSP-951TA: Same as FSP-951T but with ULC listing

FSP-951T-IV: Ivory, same as FSP-951T but includes a built-in 135°F (57°C) fixed-temperature thermal device

FSP-951TA-IV: Same as FSP-951T-IV but with ULC listing

FSP-951R: White, low-profile intelligent photoelectric sensor, remote test capable, for use with DNR/DNRW, FlashScan only

FSP-951RA: Same as FSP-951R but with ULC listing, for use with DNRA

FSP-951R-IV: Ivory, low-profile intelligent photoelectric sensor, remote test capable, for use with DNR/DNRW

FSP-951RA-IV: Same as FSP-951R-IV but with ULC listing, for use with DNRA

INTELLIGENT BASES

NOTE: For details on intelligent bases, see DN-60981.

B300-6: White, 6" base, standard flanged low-profile mounting base (CSFM: 7300-1653:0109)

B300-6-IV: Ivory, 6" base, standard flanged low-profile mounting base (CSFM: 7300-1653:0109)

B300A-6: Same as B300-6, ULC listed

B300A-6-IV: Ivory, 6" standard flanged low-profile mounting base, ULC listed

B300-6-BP: Bulk pack of B300-6, package contains 10

B501-WHITE: White, 4" standard European flangeless mounting base. UL/ULC listed (CSFM: 7300-1653:0109)

B501-BL: Black, 4" standard European flangeless mounting base. UL/ULC listed (CSFM: 7300-1653:0109)

B501-IV: Ivory color, 4" standard European flangeless mounting base. UL/ULC listed (CSFM: 7300-1653:0109)

B501-WHITE-BP: Bulk pack of B501-WHITE contains 10

B224RB-WH: White, relay base (CSFM: 7300-1653:0216)

B224RB-IV: Ivory, relay base (CSFM: 7300-1653:0216)

B224RBA-WH: White, relay base, ULC listing

B224RBA-IV: Ivory, relay base, ULC listing

B224BI-WH: White, isolator detector base (CSFM: 7300-1653:0216)

B224BI-IV: Ivory isolator detector base (CSFM: 7300-1653:0216)

B224BIA-WH: White, isolator detector base, ULC listing

B224BIA-IV: Ivory isolator detector base, ULC listing

B200S-WH: White, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan protocol. (CSFM: 7300-1653:0213)

B200S-IV: Ivory, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan protocol. (CSFM: 7300-1653:0213)

B200SA-WH: Same as B200S-WH, ULC listing

B200SA-IV: Same as B200S-IV, ULC listing

B200SCOA-WH: White, Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO Series detector applications)

B200SCOA-IV: Ivory Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO Series detector applications, ULC listing)

B200S-LF-WH: White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. (CSFM: 7300-1653:0238)

B200S-LF-IV: Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. (CSFM: 7300-1653:0238)

B200SR-WH: White, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications. (CSFM: 7300-1653:0213)

B200SR-IV: Ivory, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications. (CSFM: 7300-1653:0213)

B200SRA-WH: Same as B200SR-WH with, ULC listing

B200SRA-IV: Same as B200SR-IV in Ivory color, ULC listing

B200SR-LF-WH: White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications. (CSFM: 7300-1653:0238)

B200SR-LF-IV: Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications. (CSFM: 7300-1653:0238)

MOUNTING KITS AND ACCESSORIES

TR300: White, replacement flange for B210LP(A) base

TR300-IV: Ivory, replacement flange for B210LP(A) base

RA100Z(A): Remote LED annunciator. 3-32 VDC. Mounts to a U.S. single-gang electrical box. For use with B501(A) and B300-6(A).

M02-04-00: Test magnet

M02-09-00: Test magnet with telescoping handle

CK300: Color Kit (includes cover and trim ring), white, 10-pack

CK300-IV: Color Kit (includes cover and trim ring), ivory, 10-pack

CK300-BL: Color Kit (includes cover and trim ring), black, 10-pack

Sensitivity:

- UL Applications: 0.5% to 4.0% per foot obscuration.
- ULC Applications: 0.5% to 3.5% per foot obscuration

Size: 2.0" (51mm) high; base determines diameter

- **B300-6 series:** 6.1" (15.6 cm) diameter
- **B501 series:** 4" (10.2 cm) diameter

For a complete list of detector bases see DN-60981

Shipping weight: 3.4 oz. (95 g)

Operating temperature range:

- FSP-951 Series: 32°F to 122°F (0°C to 50°C)
- FSP-951T Series: 32°F to 100°F (0°C to 38°C)
- FSP-951R Series installed in DNR/DNRA/DNRW, -4°F to 158°F (-20°C to 70°C)

UL/ULC Listed Velocity Range: 0-4000 ft/min. (1219.2 m/min.), suitable for installation in ducts

Relative humidity: 10% – 93% non-condensing

Thermal ratings: fixed-temperature set point 135°F (57°C), rate-of-rise detection 15°F (8.3°C) per minute, high temperature heat 190°F (88°C)

ELECTRICAL SPECIFICATIONS

Voltage range: 15 - 32 volts DC peak

Standby current (max. avg.): 200µA @ 24 VDC (one communication every 5 seconds with LED enabled)

Max current: 4.5 mA @ 24 VDC ("ON")

DETECTOR SPACING AND APPLICATIONS

NOTIFIER recommends spacing detectors in compliance with NFPA 72. In low airflow applications with smooth ceiling, space detectors 30 feet (9.1m). For specific information regarding detector spacing, placement, and special applications refer to NFPA 72. A *System Smoke Detector Application Guide*, document SPAG91, is available at www.systemsensor.com.

Listings and Approvals

Listings and approvals below apply to the FSP-951 Series detectors. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- UL/ULC Listing: S1115
- FM Approved
- CSFM: 7272-0028:0503



This document is not intended to be used for installation purposes.
We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
All specifications are subject to change without notice.

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Country of Origin: Mexico

NOTIFIER

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203.484.7161
www.notifier.com





**CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM**

LISTING SERVICE

LISTING No.:	7272-0028:0503
CATEGORY:	7272 - SMOKE DETECTOR-SYSTEM TYPE-PHOTOELECTRIC
LISTEE:	Notifier One Fire-Lite Place, Northford, CT, 06472 Contact: Brant, Lisa 2034846105 Email: lisa.brant@honeywell.com
DESIGN:	<p>Models FSP-951, FSP-951-SELFT, FSP-951R, FSP-951T, FSP-951T-ISO, NP-200, NP-200R, and NP-200T analog addressable, photoelectric smoke detectors for open area and duct installations. Models FSP-951T, FSP-951T-SELFT, FSP-951T-ISO and NP-200T have complementary heat detectors. All models are similar except for population/depopulation of components on the Printed Wiring Board for the intended features. *All models may be followed by a two digit suffix, indicating the color of the detector's enclosure: no suffix for white, -IV for ivory, -BL for black.</p> <p>Refer to listee's Installation and Maintenance Instruction for additional detailed product description and operational considerations.</p>
RATING:	24 VDC
INSTALLATION:	In accordance with listee's printed installation instructions, applicable codes and ordinances, and in a manner acceptable to the authority having jurisdiction.
MARKING:	Listee's name, model number, electrical rating, and UL label.
APPROVAL:	Listed as photoelectric smoke detectors. Detectors are for use with separately listed bases: Model B710LP (CSFM No. 7300-0028:0173); System Sensor Models B224BI, B224RB (CSFM No. 7300-1653:0126); B200S, B200SR (CSFM No. 7300-1653:0213); B200S-LF, B200SR-LF (CSFM No. 7300-1653:0238); B501, B210LP, B300-6, B300-6-IS (CSFM No. 7300-1653:0109). System Sensor duct detector housings Models DNR and DNRW (CSFM No. 3240-1653:0209) and separately listed compatible fire alarm control units. The Models FSP-951-SELFT and FSP-951T-SELFT are not Listed for use in duct environments. Refer to manufacturer's Installation Manual for details. All models comply with the applicable requirements in ANSI/UL 268, Smoke Detectors for Fire Alarm Systems, 7th Edition.



**CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM**

LISTING SERVICE

NOTES:

The photoelectric type detectors are generally more effective at detecting slow, smoldering fires that smolder for hours before bursting into flame. Sources of these fire may include cigarettes burning in the couch or bedding. The ionization type detectors are generally more effective at detecting fast, flaming fires that consume combustible materials rapidly and spread quickly. Sources of these fires include paper burning in a waste container or a grease fire in the kitchen.

*Revision 10-10-22 VWW



This listing is based upon technical data submitted by the applicant. OSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other suitable information sources.

Date Issued: 05/01/2024

Listing Expires: 06/30/2025

Authorized By: **David Castillo**, Program Coordinator
Fire Engineering & Investigations Division

Intelligent Bases Standard, Relay, Isolator, Sounder, and Low-Frequency Sounder Bases

General

To meet local code and application requirements, NOTIFIER® offers standard 4" and 6" bases, as well as, specialty base designs including relay, isolator, sounder and low frequency sounder options for the new 900 Series of addressable detectors as well as previous generations.

The standard 4" and 6" bases offer a plug-in detector base intended for use in intelligent systems, with screw terminals identified with a (+ and -). The 4" base offers a compact design while the 6" base provides compatibility with a wider range of junction boxes.

The specialty bases support application driven requirements. These bases employ a separate mounting plate that installs on various junction box sizes to eliminate unsightly surface-mount boxes. The mounting plate enables pre-wiring of all connections to speed and simplify installation.

Relay bases provide one form-C contact relay for control of auxiliary functions, such as door closure and elevator recall. The relay can operate in two different modes (short and long delay). The activation time for the short delay is 60-100 milliseconds, while the activation time for the long delay is 6-10 seconds. A shunt with pin headers, located on the base PC board, is used to set the delay timing.

Isolator bases allow the Signaling Line Circuit (SLC) loop to operate under fault conditions created from a short circuit preventing an entire communication loop from being disabled. The base isolates the section of the loop containing the short circuit from the remainder of the circuit and automatically restores when the fault is corrected.

Sounder and low frequency sounder bases are designed for new and existing dwelling unit applications. They offer maximum flexibility in installation, configuration, and operation to meet or exceed UL 268 and UL 464 requirements. The low frequency sounder bases are designed to meet the NFPA 72 sleeping space requirement to produce a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent. Studies show that a lower frequency, centered around 520 Hz, is the most ideal to wake sleeping occupants, even those with mild to severe hearing loss.

The B200SR sounder and -LF sounder bases (B200SR-WH/B200SR-IV/B200SR-LF-WH/B200SR-LF-IV) are fully compatible with existing B501BH Series sounder base installations. The device enables users to select one of two B501-supported tones (ANSI Temporal 3 or Continuous) through a jumper.

The B200S sounder and -LF sounder bases (B200S-WH/B200S-IV/B200S-LF-WH/B200S-LF-IV) adopt the same address as the detector, but use a unique device type on the loop. The Fire Alarm Control Panel (FACP) can use that address to command an individual sounder — or a group of sounders — to activate. The command set from the FACP can be tailored to multiple event-driven tone outputs allowing selection of volume (75 or 85 dBA), tone (ANSI Temporal 3, ANSI Temporal 4, or March Time) and group. In addition, some FACP's will enable custom tone patterns. The B200S series sounder bases recognize the System Sensor synchronization protocol. This enables them to be used as a component of the general evacuation signal — along with other System Sensor AV appliances — when connected to a power supply or FACP output capable of generating the System Sensor synchronization pulses.



B300-6 Standard
6" Base (White)



B200S-WH
Sounder Base (White)



B501-WHITE Flangeless
4" Base (White)



B501-BL Flangeless
4" Base (Black)

Specifications

NOTE: Specifications applies to all model variants "A", "-BL", "-LF", "-IV", "-WH", "-WHITE". See Product Line Information for detailed model description.

Diameter

- B501-WHITE: 4" (10.16 cm) diameter.
- B300-6: 6.1" (15.49 cm) diameter.
- B224BI, B224RB: 6.2" (15.748 cm) diameter.
- B200S, B200SR, B200SCOA: 6.875" (17.46 cm) diameter.

Wire gauge:

- B224BI, B224RB: 14 to 24 AWG.
- B300-6, B210LP, B501, B200S, B200SR, B200SCOA: 12 to 24 AWG

Temperature range:

- B224BI, B224RB, B200S, B200SR, B200SCOA: 32°F to 120°F (0°C to 49°C).
- B300-6, B210LP, B501: -4°F to 150°F (-20°C to 66°C).

Humidity range: 10% to 93% RH, non-condensing.

System temperature and humidity ranges: This system meets NFPA requirements for operation at 0°C to 49°C (32°F to 120°F); and at a relative humidity (non-condensing) of 85% at 30°C (86°F) per NFPA, and 93% ± 2% at 32°C ± 2°C (89.6°F ± 1.1°F) per ULC. However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and all peripherals be installed in an environment with a nominal room temperature of 15°C to 27°C (60°F to 80°F).

Electrical Ratings

FOR B300-6 SERIES BASES:

Operating voltage: 15 to 32 VDC

Standby current: 170 µA maximum

FOR B501 SERIES BASES:

Operating voltage: 15 to 32 VDC

Standby current: 150 µA maximum

FOR B200 SERIES BASES:

External supply voltage: 16 to 33 VDC (FWR)

Standby current:

500 µA maximum.

Alarm current:

- B200S(A)(-IV)(-WH)
 - 35 mA maximum at high-volume setting
 - 15 mA maximum at low-volume setting
- B200S-LF(-IV)(-WH) High-volume setting:
 - 70 mA maximum @ 33.0 VDC
 - 90 mA maximum @ 24.0 VDC
 - 140 mA maximum @ 16.0 VDC
- B200S-LF(-IV)(-WH) Low-volume setting:
 - 15 mA maximum @ 33.0 VDC
 - 20 mA maximum @ 24.0 VDC
 - 25 mA maximum @ 16.0 VDC
- B200SR(A)(-IV)(-WH)
 - 35 mA maximum
- B200SR-LF(-IV)(-WH)
 - 65 mA maximum @ 33.0 VDC
 - 90 mA maximum @ 24.0 VDC
 - 125 mA maximum @ 16.0 VDC
- B200SCOA(-IV)(-WH)
 - 40mA Max (DC)
 - 70mA Max (FWR)

SLC operating voltage: 15 to 32 VDC

SLC standby current: See applicable sensor specification.

Sound output:

- B200S(A)(-LF)(-IV)(-WH), high-volume*: Greater than 85 dBA minimum.
- B200S(A)(-LF)(-IV)(-WH), low-volume*: Greater than 75 dBA minimum.
- B200SR(A)(-LF)(-IV)(-WH)*: Greater than 85 dBA minimum.
- B200SCOA(-IV)(-WH), high-volume**: Greater than 87 dBA minimum.
- B200SCOA(-IV)(-WH), low-volume**: Greater than 85 dBA minimum

**Measured in a UL reverberant room at 10 feet, 24 Volts (continuous tone)*

***Measured in a ULC anechoic room at 10 feet, 24 Volts continuous tone)*

FOR B224BI, B224RB (A) (-IV) (-WH):

Operating voltage: 15 to 32 VDC (powered by SLC)

Standby ratings: <450 µA maximum @ 24 VDC

Set time (B224RB(A)(-IV)(-WH) only): short delay 60-100 milliseconds; long delay 6-10 seconds

Reset time (B224RB(A)(-IV)(-WH) only): 20 milliseconds maximum

Relay characteristics (B224RB(A)(-IV)(-WH) only): two-coil latching relay; one Form-C contact; ratings (UL/CSA): 0.9 A @ 125 VAC, 0.9 A @ 110 VDC, and 3.0 A @ 30 VDC

Product Line Information

INTELLIGENT BASES

NOTE: "A" suffix indicates ULC Listed model.

NOTE: "-IV" suffix indicates Ivory color model.

NOTE: "-BL" suffix indicates Black color model.

NOTE: "-WH" and "-WHITE" suffix indicates White color model.

B210LP: Flanged mounted base.

B210LPA: Same as B210LP; ULC listed.

B210LPBP: Bulk pack of B210LP, contains 10.

B300-6: White, 6" base, standard flanged low-profile mounting base.

B300A-6: Same as B300-6, ULC listed.

B300-6-BP: Bulk pack of B300-6, package contains 10;.

B300-6-IV: Ivory, 6" base, standard flanged low-profile mounting base.

B300A-6-IV: Ivory, 6" standard flanged low-profile mounting base, ULC listed.

B501-WHITE: White, 4" standard European flangeless mounting base. UL/ULC listed.

B501-WHITE-BP: Bulk pack of B501-WHITE contains 10.

B501-BL: Black, 4" standard European flangeless mounting base. UL/ULC listed.

B501-IV: Ivory color, 4" standard European flangeless mounting base. UL/ULC listed.

B224RB-WH: White, relay base.

B224RB-IV: Ivory, relay base.

B224RBA-WH: White, relay base, ULC listed.

B224RBA-IV: Ivory, relay base, ULC listed.

B224BI-WH: White, isolator detector base.

B224BI-IV: Ivory isolator detector base.

B224BIA-WH: White, isolator detector base, ULC listed.

B224BIA-IV: Ivory isolator detector base, ULC listed.

B200S-WH: White, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan® protocol.

B200S-IV: Ivory, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan® protocol.

B200SA-WH: Same as B200S-WH, ULC listed.

B200SA-IV: Same as B200S-IV, ULC listed.

B200SCOA-WH: White, Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with SO Series detector applications).

B200SCOA-IV: Ivory Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with SO Series detector applications, ULC listing).

B200S-LF-WH: White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement.

B200S-LF-IV: Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement.

B200SR-WH: White, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications.

B200SR-IV: Ivory, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications.

B200SRA-WH: Same as B200SR-WH, ULC listed.

B200SRA-IV: Same as B200SR-IV in Ivory color, ULC listed.

B200SR-LF-WH: White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications.

B200SR-LF-IV: Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications.

MOUNTING KITS AND ACCESSORIES

TR300: White, replacement flange for B210LP(A), B300(A)-6 bases.

TR300-IV: Ivory, replacement flange for B210LP(A), B300(A)-6-IV bases.

RA100Z(A): Remote LED annunciator. 3 – 32 VDC. Mounts to a U.S. single-gang electrical box. For use with B501(A) and B300(A)-6.

M02-04-00: Test magnet.

M02-09-00: Test magnet with telescoping handle.

CK300: White, detector color kit. Pack of 10.

CK300-IR: White, detector color kit for use with FPTI and FCO Series detectors. Pack of 10.

CK300-IV: Ivory, detector color kit. Pack of 10.

CK300-IR-IV: Ivory, detector color kit for use with FPTI and FCO Series detectors. Pack of 10.

CK300-BL: Black, detector color kit. Pack of 10.

CK300-IR-BL: Black, detector color kit for use with FPTI and FCO Series detectors. Pack of 10.

Agency Listings and Approvals

The listings and approvals below apply to intelligent bases as noted. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL/ULC Listed:** S1115
- **FM Approved**
- **CSFM:** 7300-1653:0109, 7300-1653:0126, 7300-1653:0213, 7300-1653:0236

Junction Box Selection Guide

Base Models	Single Gang	Double Gang	3.5" Oct.	4.0" Oct.	4.0" Sq.	4.0" Sq. with 3.0" mud ring	50 mm	60 mm	70 mm	75 mm
B200S, B200SR, B200SCOA	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
B501	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No
B210LP, B300-6	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No
B224BI, B224RB	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No

NOTE: Box depth contingent on base and wire size.

Refer to National Electric Code or applicable local codes for appropriate recommendations.

NOTE: Applies to all model variants "A", "-BL", "-LF", "-IV", "-WH", and "-WHITE". See Product Line Information for detailed model description.



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We cannot cover all specific applications or anticipate all requirements.

All specifications are subject to change without notice.

NOTIFIER

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Country of Origin: Mexico



NBG-12LX

Addressable Manual Pull Station



Intelligent/Addressable Devices

General

The Notifier **NBG-12LX** is a state-of-the-art, dual-action (i.e., requires two motions to activate the station) pull station that includes an addressable interface for any Notifier intelligent control panel except FireWarden series panels, and the NSP-25 panel. Because the NBG-12LX is addressable, the control panel can display the exact location of the activated manual station. This leads fire personnel quickly to the location of the alarm.

Features

- Maintenance personnel can open station for inspection and address setting without causing an alarm condition.
- Built-in bicolor LED, which is visible through the handle of the station, flashes in normal operation and latches steady red when in alarm.
- Handle latches in down position and the word “ACTIVATED” appears to clearly indicate the station has been operated.
- Captive screw terminals wire-ready for easy connection to SLC loop (accepts up to 12 AWG/3.25 mm² wire).
- Can be surface mounted (with SB-10 or SB-I/O) or semi-flush mounted. Semi-flush mount to a standard single-gang, double-gang, or 4" (10.16 cm) square electrical box.
- Smooth dual-action design.
- Meets ADAAG controls and operating mechanisms guidelines (Section 4.1.3[13]); meets ADA requirement for 5 lb. maximum activation force.
- Highly visible.
- Attractive shape and textured finish.
- Key reset.
- Includes Braille text on station handle.
- Optional trim ring (BG12TR).
- Meets UL 38, Standard for Manually Actuated Signaling Boxes.
- Up to 99 NBG-12LX stations per loop on CLIP protocol loops.
- Up to 159 NBG-12LX stations per loop on FlashScan® protocol loops.
- Dual-color LED blinks green to indicate normal on FlashScan® systems.

Construction

Shell, door, and handle are molded of durable polycarbonate material with a textured finish.

Specifications

- **Shipping Weight:** 9.6 oz. (272.15 g)
- **Normal operating voltage:** 24 VDC.
- **Maximum SLC loop voltage:** 28.0 VDC.
- **Maximum SLC standby current:** 375 µA.
- **Maximum SLC alarm current:** 5 mA.
- **Temperature Range:** 32°F to 120°F (0°C to 49°C)
- **Relative Humidity:** 10% to 93% (noncondensing)
- **For use indoors in a dry location**



The NBG-12LX
Addressable Manual Pull Station

Installation

The NBG-12LX will mount semi-flush into a single-gang, double-gang, or standard 4" (10.16 cm) square electrical outlet box, or will surface mount to the model SB-10 or SB-I/O surface backbox. If the NBG-12LX is being semi-flush mounted, then the optional trim ring (BG12TR) may be used. The BG12TR is usually needed for semi-flush mounting with 4" (10.16 cm) or double-gang boxes (not with single-gang boxes).

Operation

Pushing in, then pulling down on the handle causes it to latch in the down/activated position. Once latched, the word “ACTIVATED” (in bright yellow) appears at the top of the handle, while a portion of the handle protrudes from the bottom of the station. To reset the station, simply unlock the station with the key and pull the door open. This action resets the handle; closing the door automatically resets the switch.

Each manual station, on command from the control panel, sends data to the panel representing the state of the manual switch. Two rotary decimal switches allow address settings (1 – 159 on FlashScan® systems, 1 – 99 on CLIP systems).

Architectural/Engineering Specifications

Manual Fire Alarm Stations shall be non-coded, with a key-operated reset lock in order that they may be tested, and so designed that after actual Emergency Operation, they cannot be restored to normal except by use of a key. An operated station shall automatically condition itself so as to be visually detected as activated. Manual stations shall be constructed of red-colored polycarbonate material with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in white letters, 1.00 inches (2.54 cm) or larger. Stations shall be suitable for surface mounting on matching backbox SB-10 or SB-I/O; or semi-flush mounting on a standard single-gang, double-gang, or

4" (10.16 cm) square electrical box, and shall be installed within the limits defined by the Americans with Disabilities Act (ADA) or per national/local requirements. Manual Stations shall be Underwriters Laboratories listed.

Manual stations shall connect with two wires to one of the control panel SLC loops. The manual station shall, on command from the control panel, send data to the panel representing the state of the manual switch. Manual stations shall provide address setting by use of rotary decimal switches.

The loop poll LED shall be clearly visible through the front of the station. The LED shall flash while in the normal condition, and stay steadily illuminated when in alarm.

Product Line Information

NBG-12LX: Dual-action addressable pull station. Includes key locking feature. (Listed for Canadian and non-Canadian applications.)

NBG-12LXSP: Spanish/English labelled version.

NBG-12LXP: Portuguese labelled version.

SB-10: Surface backbox; metal.

SB-I/O: Surface backbox; plastic.

BG12TR: Optional trim ring.

17021: Keys, set of two.

NY-Plate: New York City trim plate.

Agency Listings and Approvals

In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL/ULC Listed:** S692 (listed for Canadian and non-Canadian applications).
- **MEA:** 67-02-E.
- **CSFM:** 7150-0028:0199.
- **FDNY:** COA #6085 (NFS2-640), COA #6098 (NFS2-3030).
- **BSMI:** CI313066760047.
- **U.S. Coast Guard.**
- **Lloyd's Register.**
- **FM Approved.**

Patented: U.S. Patent No. D428,351; 6,380,846; 6,314,772; 6,632,108.

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This document is not intended to be used for installation purposes.
We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
All specifications are subject to change without notice.

For more information, contact Notifier. Phone: (203) 484-7161, FAX: (203) 484-7118.
www.notifier.com



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**CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM**

LISTING SERVICE

LISTING No.:	7150-0028:0199
CATEGORY:	7150 - FIRE ALARM PULL BOXES
LISTEE:	Notifier One Fire-Lite Place, Northford, CT, 06472 Contact: Brant, Lisa 2034846105 Email: lisa.brant@honeywell.com
DESIGN:	Models NBG-12, NBG-12S, NBG-12LR, NBG-12LRA, NBG-12LAO, NBG-12LAOB, NBG-12-LO, NBG-12LOB, NBG-12W, NBG-12LW, NBG-12NC, NBG-12WP, NBG-12LWP, NBG-12L, NBG-12LX , NBG-12LA, NBG-12PS, NBG-12LSP, NBG-12LPS, NBG-12LPSP, NBG-12SP, NOT-BG12LX, NBG-12LXSP, NBG-12LXBL and NBG-12LXP fire alarm pull boxes. All units except Model NBG-12S are dual action pull stations. Models NBG-12LR and NBG-12LRA are intended for agent releasing device. Refer to listee's data sheet for detailed product description and operational considerations.
RATING:	
INSTALLATION:	In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.
MARKING:	Listee's name, model number, rating, and UL label.
APPROVAL:	<p>Listed as fire alarm pull boxes for use with separately listed compatible fire alarm control units. Models NBG-12WP, NBG-12LW, NBG-12W, NBG-12LWP, NBG-12LAO, NBG-12LO, NBG-12LAOB and NBG-12LOB are intended for outdoor use when installed with Models WBB, SB-I/O, or WP-10 back box. Refer to listee's Installation Instruction Manual for details.</p> <p>These manual pull boxes meet the requirements of UL Standard 38, 1999 Edition and California amendments which the controls and operating mechanisms required to be operable at no more than 5lbs. force with one hand and shall not require tight grasping, pinching, or twisting of the wrist.</p>
NOTES:	

*Corrected 10-08-
12 bh



**CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM**

LISTING SERVICE



This listing is based upon technical data submitted by the applicant. OSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other suitable information sources.

Date Issued: 04/30/2024

Listing Expires: 06/30/2025

Authorized By: **David Castillo**, Program Coordinator
Fire Engineering & Investigations Division

FMM-1(A), FMM-101(A), FZM-1(A) & FDM-1(A)

Monitor Modules with FlashScan®



Intelligent/Addressable Devices

General

Four different monitor modules are available for Notifier's intelligent control panels for a variety of applications. Monitor modules supervise a circuit of dry-contact input devices, such as conventional heat detectors and pull stations, or monitor and power a circuit of two-wire smoke detectors (FZM-1(A)).

FMM-1(A) is a standard-sized module (typically mounts to a 4" [10.16 cm] square box) that supervises either a Style D (Class A) or Style B (Class B) circuit of dry-contact input devices.

FMM-101(A) is a miniature monitor module a mere 1.3" (3.302 cm) H x 2.75" (6.985 cm) W x 0.65" (1.651 cm) D that supervises a Style B (Class B) circuit of dry-contact input devices. Its compact design allows the FMM-101(A) to be mounted in a single-gang box behind the device it monitors.

FZM-1(A) is a standard-sized module that monitors and supervises compatible two-wire, 24 volt, smoke detectors on a Style D (Class A) or Style B (Class B) circuit.

FDM-1(A) is a standard-sized dual monitor module that monitors and supervises two independent two-wire Style B (Class B) dry-contact initiating device circuits (IDCs) at two separate, consecutive addresses in intelligent, two-wire systems.

FlashScan® (U.S. Patent 5,539,389) is a communication protocol developed by NOTIFIER that greatly increases the speed of communication between analog intelligent devices. Intelligent devices communicate in a grouped fashion. If one of the devices within the group has new information, the panel CPU stops the group poll and concentrates on single points. The net effect is response speed greater than five times that of other communication protocols.

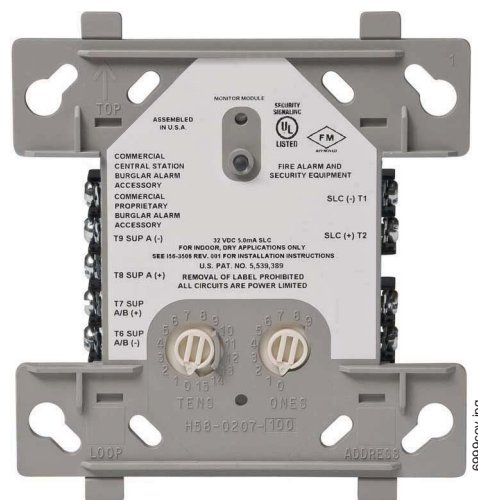
FMM-1(A) Monitor Module

- Built-in type identification automatically identifies this device as a monitor module to the control panel.
- Powered directly by two-wire SLC loop. No additional power required.
- High noise (EMF/RFI) immunity.
- SEMS screws with clamping plates for ease of wiring.
- Direct-dial entry of address: 01 – 159 on FlashScan loops; 01 – 99 on CLIP loops.
- LED flashes green during normal operation (programmable option) and latches on steady red to indicate alarm.

The FMM-1(A) Monitor Module is intended for use in intelligent, two-wire systems, where the individual address of each module is selected using the built-in rotary switches. It provides either a two-wire or four-wire fault-tolerant Initiating Device Circuit (IDC) for normally-open-contact fire alarm and supervisory devices. The module has a panel-controlled LED indicator. The FMM-1(A) can be used to replace MMX-1(A) modules in existing systems.

FMM-1(A) APPLICATIONS

Use to monitor a zone of four-wire smoke detectors, manual fire alarm pull stations, waterflow devices, or other normally-



FMM-1(A) (Type H)

open dry-contact alarm activation devices. May also be used to monitor normally-open supervisory devices with special supervisory indication at the control panel. Monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit. A 47K Ohm End-of-Line Resistor (provided) terminates the Style B circuit. No resistor is required for supervision of the Style D circuit.

FMM-1(A) OPERATION

Each FMM-1(A) uses one of the available module addresses on an SLC loop. It responds to regular polls from the control panel and reports its type and the status (open/normal/short) of its Initiating Device Circuit (IDC). A flashing LED indicates that the module is in communication with the control panel. The LED latches steady on alarm (subject to current limitations on the loop).

FMM-1(A) SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.0 mA (LED on).

Average operating current: 375 µA (LED flashing), 1 communication every 5 seconds, 47k EOL.

Maximum IDC wiring resistance: 1500 Ohms.

Maximum IDC Voltage: 11 Volts.

EOL resistance: 47K Ohms.

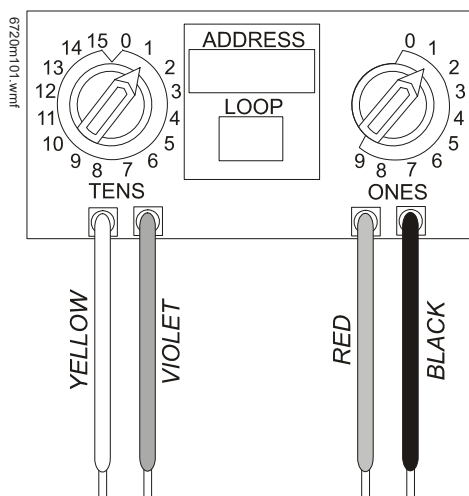
Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% noncondensing.

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 1.25" (3.175 cm) deep. Mounts to a 4" (10.16 cm) square x 2.125" (5.398 cm) deep box.

FMM-101(A) Mini Monitor Module

- Built-in type identification automatically identifies this device as a monitor module to the panel.
- Powered directly by two-wire SLC loop. No additional power required.
- High noise (EMF/RFI) immunity.
- Tinned, stripped leads for ease of wiring.
- Direct-dial entry of address: 01 – 159 on FlashScan loops; 01 – 99 on CLIP loops.



The FMM-101(A) Mini Monitor Module can be installed in a single-gang junction directly behind the monitored unit. Its small size and light weight allow it to be installed without rigid mounting. The FMM-101(A) is intended for use in intelligent, two-wire systems where the individual address of each module is selected using rotary switches. It provides a two-wire initiating device circuit for normally-open-contact fire alarm and security devices. The FMM-101(A) can be used to replace MMX-101(A) modules in existing systems.

FMM-101(A) APPLICATIONS

Use to monitor a single device or a zone of four-wire smoke detectors, manual fire alarm pull stations, waterflow devices, or other normally-open dry-contact devices. May also be used to monitor normally-open supervisory devices with special supervisory indication at the control panel. Monitored circuit/device is wired as an NFPA Style B (Class B) Initiating Device Circuit. A 47K Ohm End-of-Line Resistor (provided) terminates the circuit.

FMM-101(A) OPERATION

Each FMM-101(A) uses one of the available module addresses on an SLC loop. It responds to regular polls from the control panel and reports its type and the status (open/normal/short) of its Initiating Device Circuit (IDC).

FMM-101(A) SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Average operating current: 350 μ A, 1 communication every 5 seconds, 47k EOL; 600 μ A Max. (Communicating, IDC Shorted).

Maximum IDC wiring resistance: 1500 Ohms.

Maximum IDC Voltage: 11 Volts.

Maximum IDC Current: 450 μ A.

EOL resistance: 47K Ohms.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% noncondensing.

Dimensions: 1.3" (3.302 cm) high x 2.75" (6.985 cm) wide x 0.65" (1.651 cm) deep.

Wire length: 6" (15.24 cm) minimum.

FZM-1(A) Interface Module

- Supports compatible two-wire smoke detectors.
- Supervises IDC wiring and connection of external power source.
- High noise (EMF/RFI) immunity.
- SEMS screws with clamping plates for ease of wiring.
- Direct-dial entry of address: 01 – 159 on FlashScan loops, 01 – 99 on CLIP loops.
- LED flashes during normal operation; this is a programmable option.
- LED latches steady to indicate alarm on command from control panel.

The FZM-1(A) Interface Module is intended for use in intelligent, addressable systems, where the individual address of each module is selected using built-in rotary switches. This module allows intelligent panels to interface and monitor two-wire conventional smoke detectors. It transmits the status (normal, open, or alarm) of one full zone of conventional detectors back to the control panel. All two-wire detectors being monitored must be UL compatible with the module. The FZM-1(A) can be used to replace MMX-2(A) modules in existing systems.

FZM-1(A) APPLICATIONS

Use the FZM-1(A) to monitor a zone of two-wire smoke detectors. The monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit. A 3.9 K Ohm End-of-Line Resistor (provided) terminates the end of the Style B or D (class B or A) circuit (maximum IDC loop resistance is 25 Ohms). Install ELR across terminals 8 and 9 for Style D application.

FZM-1(A) OPERATION

Each FZM-1(A) uses one of the available module addresses on an SLC loop. It responds to regular polls from the control panel and reports its type and the status (open/normal/short) of its Initiating Device Circuit (IDC). A flashing LED indicates that the module is in communication with the control panel. The LED latches steady on alarm (subject to current limitations on the loop).

FZM-1(A) SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.1 mA (LED on).

Maximum IDC wiring resistance: 25 Ohms.

Average operating current: 270 μ A, 1 communication and 1 LED flash every 5 seconds, 3.9k eol.

EOL resistance: 3.9K Ohms.

External supply voltage (between Terminals T10 and T11):

- DC voltage: 24 volts power limited.
- Ripple voltage: 0.1 Vrms maximum.
- Current: 90 mA per module maximum.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% noncondensing.

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 1.25" (3.175 cm) deep. Mounts to a 4" (10.16 cm) square x 2.125" (5.398 cm) deep box.

FDM-1(A) Dual Monitor Module

The FDM-1(A) Dual Monitor Module is intended for use in intelligent, two-wire systems. It provides two independent two-wire initiating device circuits (IDCs) at two separate, consecutive addresses. It is capable of monitoring normally open contact fire alarm and supervisory devices; or either normally open or normally closed security devices. The module has a single panel-controlled LED.

NOTE: The FDM-1(A) provides two Style B (Class B) IDC circuits ONLY. Style D (Class A) IDC circuits are NOT supported in any application.

FDM-1(A) SPECIFICATIONS

Normal operating voltage range: 15 to 32 VDC.

Maximum current draw: 6.4 mA (LED on).

Average operating current: 750 µA (LED flashing).

Maximum IDC wiring resistance: 1,500 Ohms.

Maximum IDC Voltage: 11 Volts.

Maximum IDC Current: 240 µA

EOL resistance: 47K Ohms.

Temperature range: 32° to 120°F (0° to 49°C).

Humidity range: 10% to 93% (non-condensing).

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 1.25" (3.175 cm) deep. Mounts to a 4" (10.16 cm) square x 2.125" (5.398 cm) deep box.

FDM-1(A) AUTOMATIC ADDRESSING

The FDM-1(A) automatically assigns itself to two addressable points, starting with the original address. For example, if the FDM-1(A) is set to address "26", then it will automatically assign itself to addresses "26" and "27".

NOTE: "Ones" addresses on the FDM-1(A) are 0, 2, 4, 6, or 8 only. Terminals 6 and 7 use the first address, and terminals 8 and 9 use the second address.



CAUTION:

Avoid duplicating addresses on the system.

Installation

FMM-1(A), FZM-1(A), and FDM-1(A) modules mount directly to a standard 4" (10.16 cm) square, 2.125" (5.398 cm) deep, electrical box. They may also be mounted to the SMB500 surface-mount box. Mounting hardware and installation instructions are provided with each module. All wiring must conform to applicable local codes, ordinances, and regulations. These modules are intended for power-limited wiring only.

The FMM-101(A) module is intended to be wired and mounted without rigid connections inside a standard electrical box. All wiring must conform to applicable local codes, ordinances, and regulations.

Agency Listings and Approvals

In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL:** S635.
- **ULC:** S635.
- **FM Approved.**
- **CSFM:** 7300-0028:0219, 7165-0028:0224, 7165-0028:0243.
- **MEA:** 457-99-E.
- **U.S. Coast Guard:** 161.002/50/0 (NFS2-640, NFS2-320, NFS2-3030).
- **Lloyd's Register:** 11/600013 (NFS2-640, NFS2-320, NFS2-3030).
- **Fire Dept. of New York:** COA #6121 (NFS2-640, NFS-320), COA# 6114 (NFS2-3030).

Product Line Information

NOTE: "A" suffix indicates ULC-listed model.

FMM-1(A): Monitor module.

FMM-101(A): Monitor module, miniature.

FZM-1(A): Monitor module, two-wire detectors.

FDM-1(A): Monitor module, dual, two independent Class B circuits.

SMB500: Optional surface-mount backbox.

NOTE: See installation instructions and refer to the SLC Wiring Manual, PN 51253.

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**CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM**

LISTING SERVICE

LISTING No.:	7300-0028:0219
CATEGORY:	7300 - FIRE ALARM CONTROL UNIT ACCESSORIES/MISC. DEVICES
LISTEE:	Notifier One Fire-Lite Place, Northford, CT, 06472 Contact: Brant, Lisa 2034846105 Email: lisa.brant@honeywell.com
DESIGN:	Models XP6-R relay module, XP6-C, supervising control module, XP10-M input monitor module, XP6-MA six zone interface module, FMM-1, FMM-101, FZM-1, FSM-101, FDM-1 , FTM-1 monitor modules, FCM-1, FRM-1 control modules, and *FDRM-1 with 2 input/2 output relay module. All devices are intended to be connected between the signaling line circuit of a compatible fire alarm control panel. Refer to listee's data sheet for additional detailed product description and operational considerations.
RATING:	16-33 VDC Primary
INSTALLATION:	In accordance with listee's printed installation instructions, applicable codes & ordinances and in manner acceptable to the authority having jurisdiction.
MARKING:	Listee's name, product number and UL label.
APPROVAL:	Listed as control unit accessories for use with listee's separately listed compatible fire alarm control units. Model FTM-1 is intended to be used with Notifier Models NFS-640, NFS2-640 (CSFM Listing No. 7165-0028:214), NFS-3030, NFS2-3030 (CSFM Listing No. 7165-0028:224) Fire Alarm Control Units.
NOTES:	If an external power supply is used for Model XP6-MA, the negative of the external power supply is referenced to the negative of the auxiliary supply of the compatible control panel. This is done in order to detect ground faults on the initiating circuit.

*Rev. 10-24-11 mt



This listing is based upon technical data submitted by the applicant. OSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other suitable information sources.

Date Issued: 05/01/2024

Listing Expires: 06/30/2025



**CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM**

LISTING SERVICE

Authorized By: **David Castillo**, Program Coordinator
Fire Engineering & Investigations Division



Indoor Selectable-Output Horns, Strobes, and Horn Strobes for Wall Applications

System Sensor L-Series audible visible notification products are rich with features guaranteed to cut installation times and maximize profits with lower current draw and modern aesthetics.

Features

- Updated Modern Aesthetics
- Small profile devices for Horns and Horn Strobes
- Plug-in design with minimal intrusion into the back box
- Tamper-resistant construction
- Automatic selection of 12- or 24-volt operation at 15 and 30 candela
- Field-selectable candela settings on wall units: 15, 30, 75, 95, 110, 135, and 185
- Horn rated at 88+ dBA at 16 volts
- Rotary switch for horn tone and two volume selections
- Mounting plate for all standard and all compact wall units
- Mounting plate shorting spring checks wiring continuity before device installation
- Electrically compatible with legacy SpectrAlert and SpectrAlert Advance devices
- Compatible with MDL3 sync module
- Strobes and Horn Strobes listed for wall mounting only
- Horns listed for wall or ceiling use

Agency Listings



The System Sensor L-Series offers the most versatile and easy-to-use line of horns, strobes, and horn strobes in the industry with lower current draws and modern aesthetics. With white and red plastic housings, standard and compact devices, and plain, FIRE, and FUEGO-printed devices, System Sensor L-Series can meet virtually any application requirement.

The L-Series line of wall-mount horns, strobes, and horn strobes include a variety of features that increase their application versatility while simplifying installation. All devices feature plug-in designs with minimal intrusion into the back box, making installations fast and foolproof while virtually eliminating costly and time-consuming ground faults.

To further simplify installation and protect devices from construction damage, the L-Series utilizes a universal mounting plate for all models with an onboard shorting spring, so installers can test wiring continuity before the device is installed.

Installers can also easily adapt devices to suit a wide range of application requirements using field-selectable candela settings, automatic selection of 12- or 24-volt operation, and a rotary switch for horn tones with two volume selections.

L-Series Specifications

Architect/Engineer Specifications

General

L-Series standard horns, strobes, and horn strobes shall mount to a standard 2 x 4 x 1⁷/₈-inch back box, 4 x 4 x 1¹/₂-inch back box, 4-inch octagon back box, or double-gang back box. L-Series compact products shall mount to a single-gang 2 x 4 x 1⁷/₈-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products for all standard models and a separate universal mounting plate shall be used for mounting wall compact models. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, L-Series products, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 8.5 and 17.5 volts; 24-volt-rated notification appliance circuit outputs shall operate between 16.5 and 33 volts. Indoor L-Series products shall operate between 32 and 120 degrees Fahrenheit from a regulated DC or full-wave rectified unfiltered power supply. Strobes and horn strobes shall have field-selectable candela settings including 15, 30, 75, 95, 110, 135, and 185.

Strobe

The strobe shall be a System Sensor L-Series Model _____ listed to UL 1971 and shall be approved for fire protective service. The strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system.

Horn Strobe Combination

The horn strobe shall be a System Sensor L-Series Model _____ listed to UL 1971 and UL 464 and shall be approved for fire protective service. The horn strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The horn shall have two audibility options and an option to switch between a temporal three pattern and a non-temporal (continuous) pattern. These options are set by a multiple position switch. The horn on horn strobe models shall operate on a coded or non-coded power supply.

Synchronization Module

The module shall be a System Sensor Sync•Circuit model MDL3 listed to UL 464 and shall be approved for fire protective service. The module shall synchronize Strobes at 1 Hz and horns at temporal three. Also, while operating the strobes, the module shall silence the horns on horn strobe models over a single pair of wires. The module shall mount to a 4¹¹/₁₆ x 4¹¹/₁₆ x 2¹/₈-inch back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

Physical/Electrical Specifications

Standard Operating Temperature	32°F to 120°F (0°C to 49°C)
Humidity Range	10 to 93% non-condensing
Strobe Flash Rate	1 flash per second
Nominal Voltage	Regulated 12 DC or regulated 24 DC/FWR ¹
Operating Voltage Range²	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
Operating Voltage Range MDL3 Sync Module	8.5 to 17.5 V (12 V nominal) or 16.5 to 33 V (24 V nominal)
Input Terminal Wire Gauge	12 to 18 AWG
Wall-Mount Dimensions (including lens)	5.6" L x 4.7" W x 1.91" D (143 mm L x 119 mm W x 49 mm D)
Compact Wall-Mount Dimensions (including lens)	5.26" L x 3.46" W x 1.91" D (133 mm L x 88 mm W x 49 mm D)
Horn Dimensions	5.6" L x 4.7" W x 1.25" D (143 mm L x 119 mm W x 32 mm D)
Compact Horn Dimensions	5.25" L x 3.45" W x 1.25" D (133 mm L x 88 mm W x 32 mm D)

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.

2. Strobe products will operate at 12 V nominal only for 15 cd and 30 cd.

UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)				
	Candela	8–17.5 Volts	16–33 Volts	
		DC	DC	FWR
Candela Range	15	88	43	60
	30	143	63	83
	75	N/A	107	136
	95	N/A	121	155
	110	N/A	148	179
	135	N/A	172	209
	185	N/A	222	257

UL Max. Horn Current Draw (mA RMS)				
		8–17.5 Volts	16–33 Volts	
		DC	DC	FWR
Sound Pattern	dB			
Temporal	High	39	44	54
Temporal	Low	28	32	54
Non-Temporal	High	43	47	54
Non-Temporal	Low	29	32	54
3.1 KHz Temporal	High	39	41	54
3.1 KHz Temporal	Low	29	32	54
3.1 KHz Non-Temporal	High	42	43	54
3.1 KHz Non-Temporal	Low	28	29	54
Coded	High	43	47	54
3.1 KHz Coded	High	42	43	54

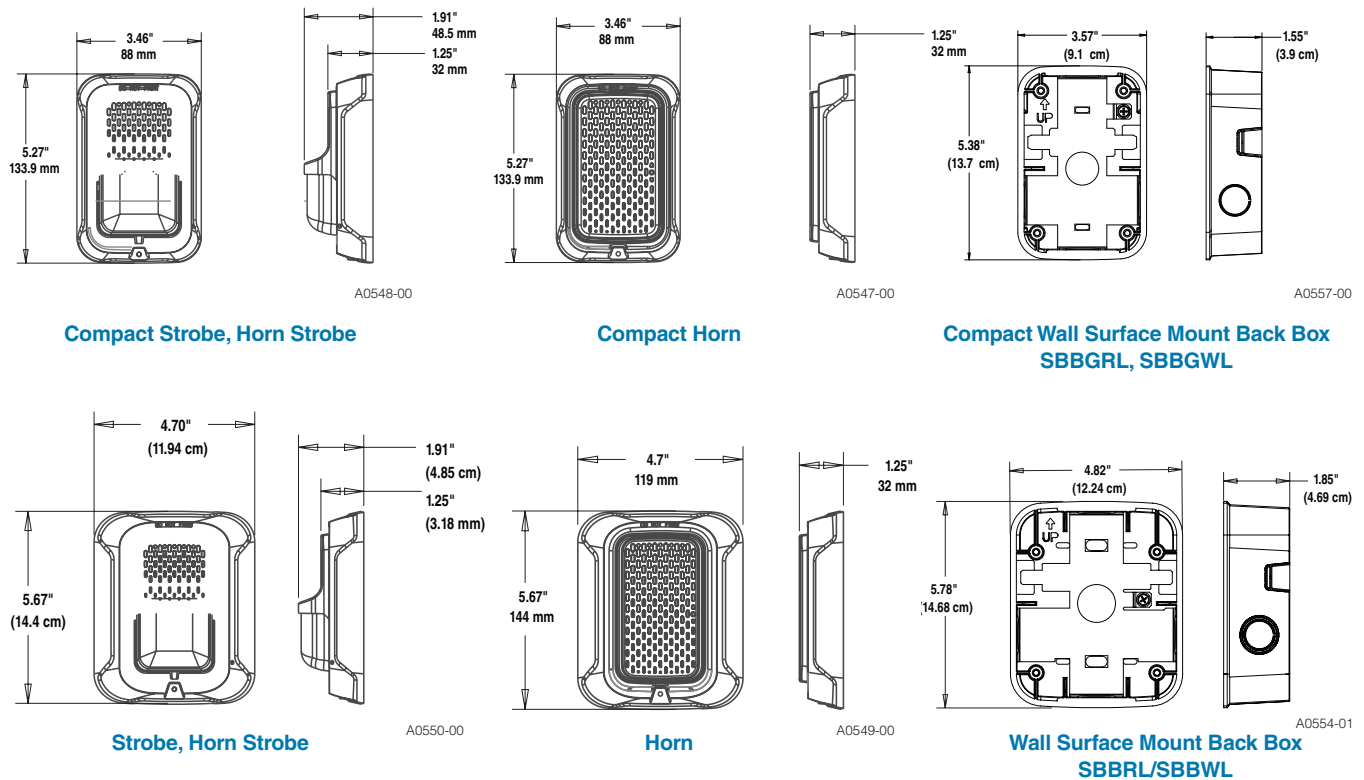
UL Max. Current Draw (mA RMS), Wall Horn Strobe, Candela Range (15–185 cd)									
DC Input	8–17.5 Volts		16–33 Volts						
	15cd	30cd	15cd	30cd	75cd	95cd	110cd	135cd	185cd
Temporal High	98	158	54	74	121	142	162	196	245
Temporal Low	93	154	44	65	111	133	157	184	235
Non-Temporal High	106	166	73	94	139	160	182	211	262
Non-Temporal Low	93	156	51	71	119	139	162	190	239
3.1K Temporal High	93	156	53	73	119	140	164	190	242
3.1K Temporal Low	91	154	45	66	112	133	160	185	235
3.1K Non-Temporal High	99	162	69	90	135	157	175	208	261
3.1K Non-Temporal Low	93	156	52	72	119	138	162	192	242
FWR Input	16–33 Volts								
	15cd	30cd	75cd	95cd	110cd	135cd	185cd		
Temporal High	83	107	156	177	198	234	287		
Temporal Low	68	91	145	165	185	223	271		
Non-Temporal High	111	135	185	207	230	264	316		
Non-Temporal Low	79	104	157	175	197	235	283		
3.1K Temporal High	81	105	155	177	196	234	284		
3.1K Temporal Low	68	90	145	166	186	222	276		
3.1K Non-Temporal High	104	131	177	204	230	264	326		
3.1K Non-Temporal Low	77	102	156	177	199	234	291		

Horn Tones and Sound Output Data

Horn and Horn Strobe Output (dBA)					
Switch Position	Sound Pattern	dB	8–17.5 Volts	16–33 Volts	FWR
			DC	DC	
1	Temporal	High	84	89	89
2	Temporal	Low	75	83	83
3	Non-Temporal	High	85	90	90
4	Non-Temporal	Low	76	84	84
5	3.1 KHz Temporal	High	83	88	88
6	3.1 KHz Temporal	Low	76	82	82
7	3.1 KHz Non-Temporal	High	84	89	89
8	3.1 KHz Non-Temporal	Low	77	83	83
9*	Coded	High	85	90	90
10*	3.1 KHz Coded	High	84	89	89

* Settings 9 and 10 are not available on 2-wire horn strobes. Temporal coding must be provided by the NAC. If the NAC voltage is held constant, the horn output remains constantly on.

L-Series Dimensions



L-Series Ordering Information

Model	Description
Wall Horn Strobes	
P2RL	2-Wire, Horn Strobe, Red
P2WL	2-Wire, Horn Strobe, White
P2GRL	2-Wire, Compact Horn Strobe, Red
P2GWL	2-Wire, Comp 2 fils act Horn Strobe, White
P2RL-P	2-Wire, Horn Strobe, Red, Plain
P2WL-P	2-Wire, Horn Strobe, White, Plain
P2RL-SP	2-Wire, Horn Strobe, Red, FUEGO
P2WL-SP	2-Wire, Horn Strobe, White, FUEGO
P4RL	4-Wire, Horn Strobe, Red
P4WL	4-Wire, Horn Strobe, White
Wall Strobes	
SRL	Strobe, Red
SWL	Strobe, White
SGRL	Compact Strobe, Red
SGWL	Compact Strobe, White
SRL-P	Strobe, Red, Plain
SWL-P	Strobe, White, Plain
SRL-SP	Strobe, Red, FUEGO
SWL-CLR-ALERT	Strobe, White, ALERT

Model	Description
Horns*	
HRL*	Horn, Red
HWL*	Horn, White
HGRL*	Compact Horn, Red
HGWL*	Compact Horn, White
Accessories	
TR-2	Universal Wall Trim Ring Red
TR-2W	Universal Wall Trim Ring White
SBBRL	Wall Surface Mount Back Box, Red
SBBWL	Wall Surface Mount Back Box, White
SBBGRL	Compact Wall Surface Mount Back Box, Red
SBBGWL	Compact Wall Surface Mount Back Box, White

Notes:

All -P models have a plain housing (no "FIRE" marking on cover).

All -SP models have "FUEGO" marking on cover.

All -ALERT models have "ALERT" marking on cover.

*Horn-only models are listed for wall or ceiling use.



3825 Ohio Avenue • St. Charles, IL 60174
 Phone: 800-SENSOR2 • Fax: 630-377-6495
www.systemsensor.com

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 Product specifications subject to change without notice. Visit systemsensor.com
 for current product information, including the latest version of this data sheet.
 AVDS865-05 • 2/22/2018



**CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM**

LISTING SERVICE

LISTING No.:	7135-1653:0503
CATEGORY:	7135 - AUDIBLE DEVICES
LISTEE:	System Sensor, Unincorporated Div of Honeywell Int'l Inc. 3825 Ohio Ave, St. Charles, IL, 60174 Contact: Brant,Lisa (203) 484-6105 (203) 484-7309 Email: lisa.brant@honeywell.com
DESIGN:	<p>System Sensor Indoor 2-wire and *4-wire Models:</p> <p>HWL, HRL, HGWL and HGRL Horns;</p> <p>CHWL and CHRL Chimes;</p> <p>P2RL, P2WL, P2GRL, P2GWL, P2RL-P, P2WL-P, P2RL-SP, P2WL-SP, *P4RL and *P4WL Wall Horn Strobes;</p> <p>PC2RL, PC2WL, *PC4RL and *PC4WL Ceiling Horn Strobes;</p> <p>CHSRL and CHSWL Wall Chime Strobes;</p> <p>CHSCRL and CHSCWL Ceiling Chime Strobes;</p> <p>Wall Bezel Parts:</p> <p>BZR-F, BZR-AL, BZR-AG, BZR-EV, BZR-P, BZR-SP, BZR-PG,</p> <p>BZW-F, BZW-AL, BZW-AG, BZW-EV, BZW-P, BZW-SP, BZW-PG,</p> <p>BZGR-F, BZGR-AL, BZGR-AG, BZGR-EV, BZGR-P, BZGR-SP, BZGR-PG,</p> <p>BZGW-F, BZGW-AL, BZGW-AG, BZGW-EV, BZGW-P, BZGW-SP and BZGW-PG,</p> <p>Ceiling Bezel Parts:</p> <p>BZRC-F, BZRC-AL, BZRC-AG, BZRC-EV, BZRC-P, BZRC-SP, BZRC-PG,</p> <p>BZWC-F, BZWC-AL, BZWC-AG, BZWC-EV, BZWC-P, BZWC-SP and BZWC-PG.</p> <p>Color Lens:</p> <p>LENS-A2, LENS-B2, LENS-G2, LENS-R2, LENS-AC2, LENS-BC2, LENS-GC2 and LENS-RC2.</p> <p>WallTrim Rings:</p> <p>*TR-2 and *TR-2W</p>



**CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM**

LISTING SERVICE

Ceiling Trim Rings:

*TRC-2 and *TRC-2W.

Wall Surface Mounted Back Boxes:

SBBRL, SBBGRL, SBBWL and SBBGWL,

Ceiling Surface Mounted Back Boxes:

SBBCRL and SBBCWL

MP120KL 120 VAC Adapter Mounting Plate

Refer to listee's data sheet for detailed product description and operational considerations.

RATING:

12 VDC regulated and 24 VDC/FWR

INSTALLATION:

In accordance with listee's printed installation instructions, NFPA 72, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING:

Listee's name, model number, electrical rating, and UL label.

APPROVAL:

Listed as audible devices when used with separately listed compatible fire alarm control units. Suitable for indoor use, wall or ceiling mounted. Authority having jurisdiction should be consulted prior to installation. Refer to listee's Installation Instruction Manual for details.

NOTES:

Revision 08-21-
2017 dcc



This listing is based upon technical data submitted by the applicant. OSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other suitable information sources.



**CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM**

LISTING SERVICE

Date Issued: 05/03/2024

Listing Expires: 06/30/2025

Authorized By: **David Castillo**, Program Coordinator
Fire Engineering & Investigations Division



**CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM**

LISTING SERVICE

LISTING No.:	7125-1653:0504
CATEGORY:	7125 - FIRE ALARM DEVICES FOR THE HEARING IMPAIRED
LISTEE:	System Sensor, Unincorporated Div of Honeywell Int'l Inc. 3825 Ohio Ave, St. Charles, IL, 60174 Contact: Brant,Lisa (203) 484-6105 (203) 484-7309 Email: lisa.brant@honeywell.com
DESIGN:	<p>System Sensor Indoor 2-wire Models:</p> <p>SRL, SWL, SGRL, SGWL, SRL-P SWL-P, SRL-SP, SWL-CLR-ALERT and SWL-ALERT Wall Strobes; SCRL, SCWL and SCWL-CLR-ALERT Ceiling Strobes.</p> <p>Wall Bezel Parts:</p> <p>BZR-F, BZR-AL, BZR-AG, BZR-EV, BZR-P, BZR-SP, BZR-PG, BZW-F, BZW-AL, BZW-AG, BZW-EV, BZW-P, BZW-SP, BZW-PG, BZGR-F, BZGR-AL, BZGR-AG, BZGR-EV, BZGR-P, BZGR-SP, BZGR-PG, BZGW-F, BZGW-AL, BZGW-AG, BZGW-EV, BZGW-P, BZGW-SP and BZGW-PG,</p> <p>Ceiling Bezel Parts:</p> <p>BZRC-F, BZRC-AL, BZRC-AG, BZRC-EV, BZRC-P, BZRC-SP, BZRC-PG, BZWC-F, BZWC-AL, BZWC-AG, BZWC-EV, BZWC-P, BZWC-SP and BZWC-PG.</p> <p>Color Lens:</p> <p>LENS-A2, LENS-B2, LENS-G2, LENS-R2, LENS-AC2, LENS-BC2, LENS-GC2 and LENS-RC2.</p> <p>WallTrim Rings:</p> <p>TR2 and TR2W</p> <p>CeilingTrim Rings:</p> <p>TRC2 and TRC2W.</p> <p>Wall Surface Mounted Back Boxes:</p>



**CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
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BUILDING MATERIALS LISTING PROGRAM**

LISTING SERVICE

	<p>SBBRL, SBBGRL, SBBWL and SBBGWL,</p> <p>Ceiling Surface Mounted Back Boxes:</p> <p>SBBCRL and SBBCWL</p> <p>Refer to listee's data sheet for detailed product description and operational considerations.</p>
RATING:	<p>Regulated 12 VDC setting: 8-17.5 VDC</p> <p>Regulated 24 VDC/fwr setting: 16-33 VDC</p>
INSTALLATION:	<p>In accordance with listee's printed installation instructions, NFPA 72, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.</p>
MARKING:	<p>Listee's name, model number, electrical rating, and UL label.</p>
APPROVAL:	<p>Listed as two wire strobe units used for synchronous application when used with separately listed compatible fire alarm control units. Suitable for indoor use, vertical wall or horizontal ceiling mounted.</p> <p>*Listed with software code, S05-0048-001 for low temperature compensation. Authority having jurisdiction should be consulted prior to installation. Refer to listee's Installation Instruction Manual for details.</p>
NOTES:	

*Rev 04-04-19 gt



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Date Issued: 05/03/2024

Listing Expires: 06/30/2025

Authorized By: **David Castillo**, Program Coordinator
Fire Engineering & Investigations Division



Outdoor Selectable-Output Horns, Strobes, and Horn Strobes for Wall Applications

SpectrAlert® Advance outdoor audible visible products are rich with features that cut installation times and maximize profits.

Features

- Weatherproof per NEMA 4X, IP56
- Listed to UL 1638 (strobe) and UL 464 (horn)
- Compatible with System Sensor synchronization protocol and legacy SpectrAlert products
- Field-selectable candela settings: 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185
- Automatic selection of 12- or 24-volt operation at 15 and 15/75 candela
- Rotary switch for horn tone and three volume selections
- Horn rated at 88+ dBA at 16 volts
- Rated from -40°F to 151°F
- Universal mounting plate with an onboard shorting spring that tests wiring continuity before devices are installed
- Plug-in design with minimal intrusion into the back box
- Tamper-resistant construction
- Listed for ceiling or wall mounting

Agency Listings



S4011 (chimes, horn strobes, horns)
S3593 (outdoor and alert strobes)



3023572



MEA452-05-E



7300-1653-187 (outdoor strobes)
7125-1653-188 (horn strobes,
chime strobes)
7135-1653-189 (horns, chimes)



SpectrAlert Advance offers the broadest line of outdoor horns, strobes, and horn strobes in the industry. With white or red plastic housings, wall or ceiling mounting options, and plain or FIRE-printed devices, SpectrAlert Advance can meet virtually any application requirement, including indoor, outdoor, wet, and dry applications in temperatures from -40°F to 151°F.

Like the entire SpectrAlert Advance line, outdoor horns, strobes, and horn strobes for wall applications include a variety of features that increase application flexibility and simplify installation. First, field-selectable settings, including candela, automatic selection of 12- or 24-volt operation, horn tones, and three volume options enable installers to easily adapt devices to meet requirements.

Next, SpectrAlert Advance devices use a universal mounting plate for both wall and ceiling applications. This mounting plate includes an onboard shorting spring that ensures wiring continuity before devices are installed, so installers can verify proper wiring without mounting the devices and exposing them to potential construction damage. Once the plates are mounted, all SpectrAlert Advance devices utilize a plug-in design with a single captured screw to speed installation and virtually eliminate costly ground faults.

Outdoor devices ship with weatherproof plastic back boxes (metal back boxes are available separately) that accommodate in-and-out wiring for daisy chaining devices. Plastic back boxes feature removable side flanges and improved resistance to saltwater corrosion. Knock-outs located on the back eliminate the need to drill holes for screw-in mounting. Plastic and metal weatherproof back boxes come with 3/4-inch top and bottom conduit entries and 3/4-inch knock-outs at the back. A screw-in NPT plug with an O-ring gasket for a watertight seal is included with each back box.

SpectrAlert Advance Outdoor Horn, Strobe, and Horn Strobe Specifications

Architect/Engineer Specifications

General

SpectrAlert Advance outdoor horns, strobes, and horn strobes shall mount to a weatherproof back box. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, SpectrAlert Advance products, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 8.5 and 17.5 volts; 24-volt-rated notification appliance circuit outputs shall operate between 16.5 and 33 volts. Outdoor SpectrAlert Advance products shall operate between –40 and 151 degrees Fahrenheit from a regulated DC or full-wave rectified unfiltered power supply. Strobes and horn strobes shall have field-selectable candela settings including 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185.

Strobe

The strobe shall be a System Sensor SpectrAlert Advance Model _____ listed to UL 1971 and shall be approved for fire protective service. The strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The strobe must be installed with its weatherproof back box in order to remain outdoor approved per UL. The strobe shall be suitable for use in wet environments.

Horn Strobe Combination

The horn strobe shall be a System Sensor SpectrAlert Advance Model _____ listed to UL 1971 and UL 464 and shall be approved for fire protective service. The horn strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The horn shall have three audibility options and an option to switch between a temporal three pattern and a non-temporal (continuous) pattern. These options shall be set by a multiple position switch. On four-wire products, the strobe shall be powered independently of the sounder. The horn or horn strobe models shall operate on a coded or non-coded power supply. The horn strobe must be installed with its weatherproof back box in order to remain outdoor approved per UL. The horn strobe shall be suitable for use in wet environments.

Physical/Electrical Specifications

Operating Temperature	–40°F to 151°F (–40°C to 66°C)
Strobe Flash Rate	1 flash per second
Nominal Voltage	Regulated 12 DC/FWR or regulated 24 DC/FWR ¹
Operating Voltage Range²	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
Operating Voltage with MLD3 Sync Module	8.5 to 17.5 V (12 V nominal) or 16.5 to 33 V (24 V nominal)
Input Terminal Wire Gauge	12 to 18 AWG
Wall-Mount Dimensions (including lens)	5.6" L x 4.7" W x 2.5" D (142 mm L x 119 mm W x 64 mm D)
Horn Dimensions	5.6" L x 4.7" W x 1.3" D (142 mm L x 119 mm W x 33 mm D)
Wall-Mount Weatherproof Back Box Dimensions (SA-WBB)	5.7" L x 5.1" W x 2.0" D (145 mm L x 130 mm W x 51 mm D)

Notes:

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. 2. P, S, PC, and SC products will operate at 12 V nominal only for 15 and 15/75 cd.

UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)						UL Max. Horn Current Draw (mA RMS)					
	Candela	8–17.5 Volts		16–33 Volts		Sound Pattern	dB	8–17.5 Volts		16–33 Volts	
		DC	FWR	DC	FWR			DC	FWR	DC	FWR
Standard Candela Range	15	123	128	66	71	Temporal	High	57	55	69	75
	15/75	142	148	77	81	Temporal	Medium	44	49	58	69
	30	NA	NA	94	96	Temporal	Low	38	44	44	48
	75	NA	NA	158	153	Non-Temporal	High	57	56	69	75
	95	NA	NA	181	176	Non-Temporal	Medium	42	50	60	69
	110	NA	NA	202	195	Non-Temporal	Low	41	44	50	50
	115	NA	NA	210	205	Coded	High	57	55	69	75
High Candela Range	135	NA	NA	228	207	Coded	Medium	44	51	56	69
	150	NA	NA	246	220	Coded	Low	40	46	52	50
	177	NA	NA	281	251						
	185	NA	NA	286	258						

UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, Standard Candela Range (15–115 cd)									
DC Input	8–17.5 Volts		16–33 Volts						
	15	15/75	15	15/75	30	75	95	110	115
Temporal High	137	147	79	90	107	176	194	212	218
Temporal Medium	132	144	69	80	97	157	182	201	210
Temporal Low	132	143	66	77	93	154	179	198	207
Non-Temporal High	141	152	91	100	116	176	201	221	229
Non-Temporal Medium	133	145	75	85	102	163	187	207	216
Non-Temporal Low	131	144	68	79	96	156	182	201	210
FWR Input									
Temporal High	136	155	88	97	112	168	190	210	218
Temporal Medium	129	152	78	88	103	160	184	202	206
Temporal Low	129	151	76	86	101	160	184	194	201
Non-Temporal High	142	161	103	112	126	181	203	221	229
Non-Temporal Medium	134	155	85	95	110	166	189	208	216
Non-Temporal Low	132	154	80	90	105	161	184	202	211

UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, High Candela Range (135–185 cd)									
DC Input	16–33 Volts				FWR Input	16–33 Volts			
	135	150	177	185		135	150	177	185
Temporal High	245	259	290	297	Temporal High	215	231	258	265
Temporal Medium	235	253	288	297	Temporal Medium	209	224	250	258
Temporal Low	232	251	282	292	Temporal Low	207	221	248	256
Non-Temporal High	255	270	303	309	Non-Temporal High	233	248	275	281
Non-Temporal Medium	242	259	293	299	Non-Temporal Medium	219	232	262	267
Non-Temporal Low	238	254	291	295	Non-Temporal Low	214	229	256	262

Candela Derating

For K series products used at low temperatures, listed candela ratings must be reduced in accordance with this table.

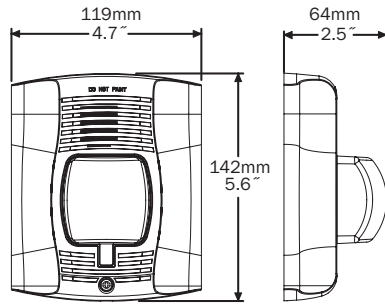
Strobe Output (cd)	
Listed Candela	Candela rating at –40°F
15	Do not use below 32°F
15/75	
30	
75	44
95	70
110	110
115	115
135	135
150	150
177	177
185	185

Horn Tones and Sound Output Data

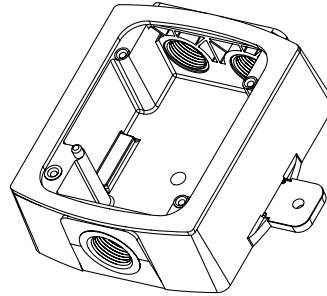
Horn and Horn Strobe Output (dBA)										
Switch Position	Sound Pattern	dB	8–17.5 Volts		16–33 Volts		24-Volt Nominal			
							Reverberant		Anechoic	
			DC	FWR	DC	FWR	DC	FWR	DC	FWR
1	Temporal	High	78	78	84	84	88	88	99	98
2	Temporal	Medium	74	74	80	80	86	86	96	96
3	Temporal	Low	71	73	76	76	83	80	94	89
4	Non-Temporal	High	82	82	88	88	93	92	100	100
5	Non-Temporal	Medium	78	78	85	85	90	90	98	98
6	Non-Temporal	Low	75	75	81	81	88	84	96	92
7†	Coded	High	82	82	88	88	93	92	101	101
8†	Coded	Medium	78	78	85	85	90	90	97	98
9†	Coded	Low	75	75	81	81	88	85	96	92

†Settings 7, 8, and 9 are not available on 2-wire horn strobe.

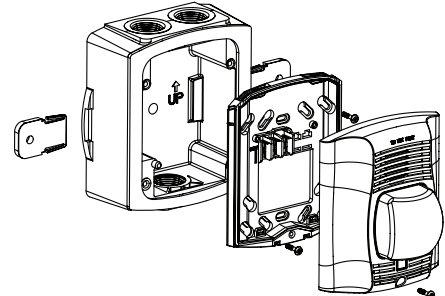
SpectrAlert Advance Diagrams



Wall-Mount Horn Strobes



Wall Plastic Weatherproof Back Box



Wall-Mount Horn Strobe with Plastic Weatherproof Back Box

SpectrAlert Advance Ordering Information

Model	Description	
Red	White	
Wall Horn Strobes		
P2RK	P2WK	2-Wire Horn Strobe, Standard cd, Outdoor (includes plastic weatherproof back box)
P2RK-P	P2WK-P	2-Wire Horn Strobe, Standard cd, Outdoor, Plain (includes plastic weatherproof back box)
P2RK-R	P2WK-R	2-Wire Horn Strobe, Standard cd, Outdoor (does not include plastic weatherproof back box)
P2RHK	P2WHK	2-Wire Horn Strobe, High cd, Outdoor (includes plastic weatherproof back box)
P2RHK-P	P2WHK-P	2-Wire Horn Strobe, High cd, Outdoor, Plain (includes plastic weatherproof back box)
P2RHK-R	P2WHK-R	2-Wire Horn Strobe, High cd, Outdoor (does not include plastic weatherproof back box)
P4RK	P4WK	4-Wire Horn Strobe, Standard cd, Outdoor (includes plastic weatherproof back box)
P4RK-R	—	4-Wire Horn Strobe, Standard cd, Outdoor (does not include plastic weatherproof back box)
P2RHK-120	—	2-Wire Horn Strobe, High cd, Outdoor, 120 V (includes plastic weatherproof back box)
Wall Strobes		
SRK	SWK	Strobe, Standard cd, Outdoor (includes plastic weatherproof back box)
SRK-P	SWK-P	Strobe, Standard cd, Outdoor, Plain (includes plastic weatherproof back box)
SRK-R	SWK-R	Strobe, Standard cd, Outdoor (does not include plastic weatherproof back box)
SRHK	SWHK	Strobe, High cd, Outdoor (includes plastic weatherproof back box)
SRHK-P	SWHK-P	Strobe, High cd, Outdoor, Plain (includes plastic weatherproof back box)
SRHK-R	SWHK-R	Strobe, High cd, Outdoor (does not include plastic weatherproof back box)
Horns		
HRK	—	Horn, Red, Outdoor (includes plastic weatherproof back box)
HRK-R	—	Horn, Red, Outdoor (does not include plastic weatherproof back box)
Accessories		
SA-WBB	SA-WBBW	Metal Weatherproof Back Box
WTP	WTPW	Metal Weatherproof Outdoor Flush-mounting Plate

Notes:

All -P models have a plain housing (no "FIRE" marking on cover). All -R models require metal weatherproof outdoor flush mounting plate or a metal weatherproof outdoor back box (order separately). "Standard cd" refers to strobes that include 15, 15/75, 30, 75, 95, 110, and 115 candela settings. "High cd" refers to strobes that include 135, 150, 177, and 185 candela settings. **When replacing standard outdoor units both the device and back box must be replaced.**



3825 Ohio Avenue • St. Charles, IL 60174
Phone: 800-SENSOR2 • Fax: 630-377-6495
www.systemsensor.com

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Product specifications subject to change without notice. Visit systemsensor.com
for current product information, including the latest version of this data sheet.
AVDS115-02 • 12/3/2019



**CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING & INVESTIGATIONS DIVISION
BUILDING MATERIALS LISTING PROGRAM**

LISTING SERVICE

LISTING No.:	7125-1653:0188
CATEGORY:	7125 - FIRE ALARM DEVICES FOR THE HEARING IMPAIRED
LISTEE:	System Sensor, Unincorporated Div of Honeywell Int'l Inc. 3825 Ohio Ave, St. Charles, IL, 60174 Contact: Brant,Lisa (203) 484-6105 (203) 484-7309 Email: lisa.brant@honeywell.com
DESIGN:	Models CHSR and CHSW Chime/Strobes. Models P2R , P2W, P2RH and P2WH Horn/Strobes two-wire type, rectangular enclosure. Models PC2R, PC2W, PC2RH and PC2WH Horn/Strobes two-wire type, round enclosure Models P4R, P4W, P4RH and P4WH Horn/Strobes four-wire type, rectangular enclosure. Models PC4R, PC4W, PC4RH and PC4WH Horn/Strobes* four-wire type, round enclosure. All models are intended for indoor use only unless other wise indicated. Models may be followed by the suffix " K " indicating indoor or outdoor use, or may be followed by suffix "P" for plain housing with no lettering. "K" suffix models are suitable for outdoor applications at temperatures from -40°F to +151°F (-40°C to +66°C) and are rated NEMA 4X when used with the System Sensor weather proof back boxes models SA-WBB (Wall), SA-WBBW (Wall), SA-WBBC (Ceiling) and *SA-WBBCW (Ceiling). Refer to listee's data sheet for additional detailed product description and operational considerations.
RATING:	Standard Horn/Strobes and Chime/Strobes 8 - 17.5 or 16-33 VDC/FWR Hi CD Horn/Strobes 16-33 VDC/FWR
INSTALLATION:	In accordance with listee's printed installation instructions, applicable codes and ordinances, and in a manner acceptable to the authority having jurisdiction.
MARKING:	Listee's name, model number, electrical rating, and UL label.
APPROVAL:	Listed as *horn/strobes or chime/strobes suitable for signaling appliances and equipment for the hearing impaired applications when used with separately listed compatible fire alarm control units. Horn/strobes with -K suffix are suitable for indoor or outdoor use, ceiling or wall mount. Chime section is suitable for private mode and indoor use only. Horn/Strobes or chime/strobes* can generate the distinctive three-pulse audible Temporal Pattern Fire Alarm Evacuation Signal (for total evacuation) in accordance with NFPA 72, 2010 Edition. Refer to listee's Installation Instruction Manual for details.
NOTES:	



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LISTING SERVICE

*Corrected 12-15-
11 bh



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Date Issued: 05/03/2024

Listing Expires: 06/30/2025

Authorized By: **David Castillo**, Program Coordinator
Fire Engineering & Investigations Division



BY SPACE AGE ELECTRONICS



FEATURES

- 18 gauge cold rolled steel construction with red or black powder coat and white lettering
- Dimensions are 12" wide x 13" tall and 3" deep
- Liftaway hinge
- Removable document holder with two key ring hooks and business card bracket
- Slide tab allows user to select USB-C or Micro USB connector to download from 8GB digital flash memory

FAD/SRD ACE-11

Document Boxes

Store important system documents in a secure location with a cabinet built specifically to meet the requirements of NFPA72 7.7.2.1, NFPA72 7.7.2.3, NFPA72 7.7.2.5, and NFPA72 23.2.2.1.

Select models include our innovative 8GB flash drive slide tab that allows the user to select a USB-C or Micro USB connector to access records electronically per NFPA72 7.5.6.7.1 and NFPA72 7.5.6.7.2.

SPECIFICATIONS

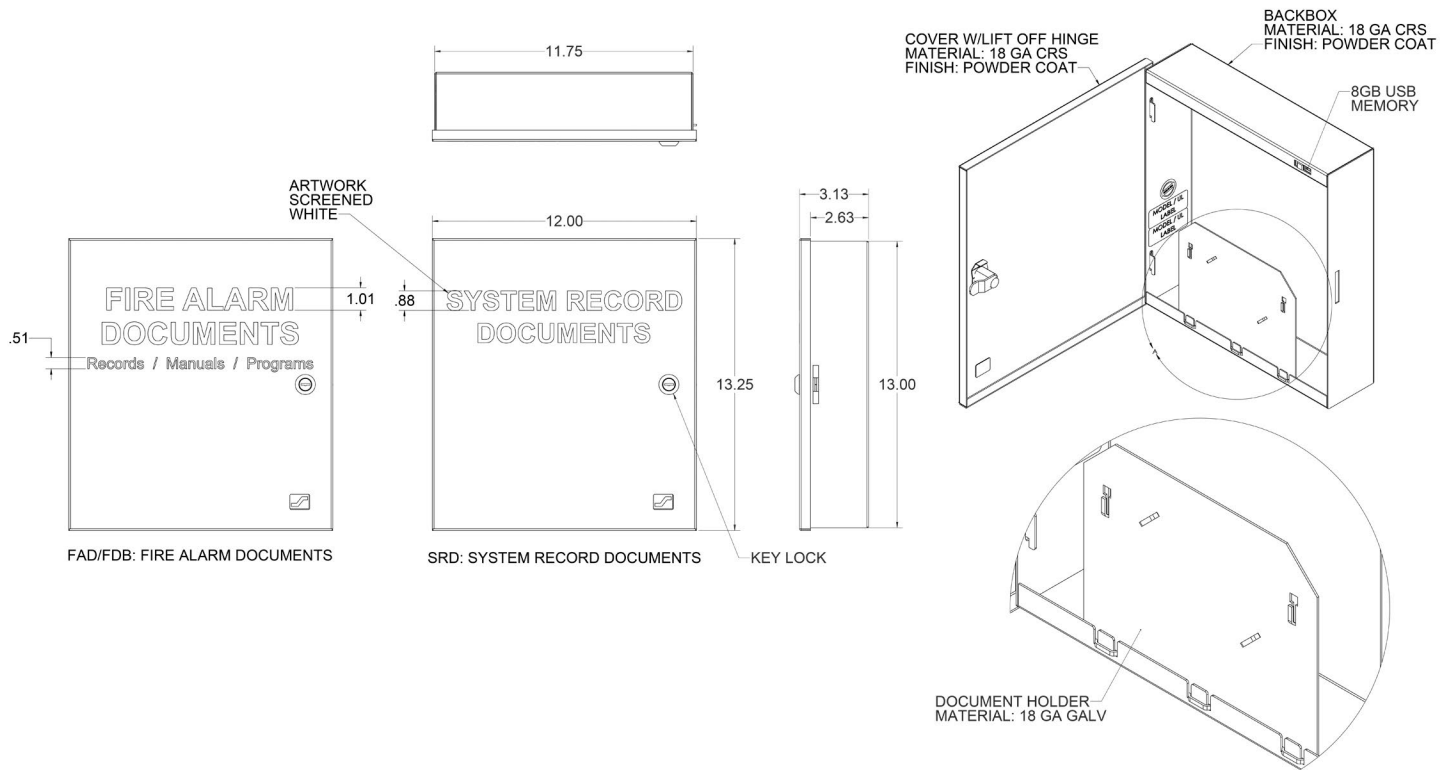
The FAD and SRD Documents Box shall be UL Listed, constructed of 18 gauge cold rolled steel. It shall have a powder coat finish. The cover shall be permanently screened with 1" high lettering "FIRE ALARM DOCUMENTS" or "SYSTEM RECORD DOCUMENTS" with white indelible ink. The access door shall be locked with a 3/4" barrel lock and there will be a liftaway hinge. Models with digital storage will have a minimum of 8 gigabyte digital flash memory drive with a slide tab that allows user to select USB-C or Micro USB connector for uploading and downloading information. The enclosure will supply 4 mounting holes. Inside will accommodate standard 8 1/2" x 11" manuals, three-ring binders, and document records. The enclosure shall also provide 2 key ring holders with a location to mount standard business cards for key contact personnel.

CUSTOM BRANDING AVAILABLE





DIMENSIONS



ORDERING INFORMATION

P/N#	Cover Text	Color	Custom Screening	USB Storage
SSU00672	Fire Alarm Documents	Red	No	No
SSU00673	Fire Alarm Documents	Red	Yes	No
SSU00685	Fire Alarm Documents	Red	No	Yes
SSU00686	Fire Alarm Documents	Red	Yes	Yes
SSU00689	System Record Documents	Red	No	Yes
SSU00690	System Record Documents	Red	Yes	Yes
SSU01672C	Fire Alarm Documents	Black	Yes	No
SSU01689	System Record Documents	Black	No	Yes
SSU01690	System Record Documents	Black	Yes	Yes



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LISTING SERVICE

LISTING No.:	7300-0553:0110
CATEGORY:	7300 - FIRE ALARM CONTROL UNIT ACCESSORIES/MISC. DEVICES
LISTEE:	SPACE AGE ELECTRONICS 58 Chockett Road, Sterling, MA, 01564 Contact: Scholl, Robert (508) 485-0966 (508) 485-4740 Email: bob.scholl@1sae.com
DESIGN:	Models TC2-32, TC1-18, TCX/A 64, TCX/D 128, ACE/A, AC2, ACE/D, IF-2, IF1, IFX/A and IFX/D enclosures. Models ACE-11 , ACE-12 and ACE-13, *ACE2424, *ACE 3036, *ACE 2436, *ACE 3048 document cabinets. Refer to listee's data sheet for detailed product description and operational considerations.
RATING:	
INSTALLATION:	In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.
MARKING:	Listee's name, model number and UL label.
APPROVAL:	Listed as fire alarm equipment enclosures and document cabinets for use with listee's fire alarm equipment. Refer to listee's Installation Instruction Manual for details.
NOTES:	

02-09-16 dc



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Date Issued: 04/10/2024

Listing Expires: 06/30/2025

Authorized By: **David Castillo**, Program Coordinator
Fire Engineering & Investigations Division



DTK-HW Series

Parallel Connected Surge Protective Device

DITEK's DTK-HW Series of surge protective devices are designed and manufactured to meet the standards of the life safety industry. These compact, parallel-mount SPD's are available for 120V, 240V and 120/240V systems; and are widely used to protect fire alarm panels and other dedicated branch circuit loads. Their small footprint enables installation in a variety of locations.



Product Features

- Approved for 20A circuit breakers
- NEMA 4X weatherproof enclosure allows for use in harsh environments
- Diagnostic LED provides positive indication of system power and SPD function
- Complies with ANSI/IEEE C62.41 and C62.45 Category B standards

Applications

- Fire Alarm Control Panels
- Residential Electrical Panels
- Equipment Panels
- Pumps, Motors, Lift Pump Stations

Accessories

- DIN Rail Mounting Kit, p/n DTK-DRK

Technical Specifications

Part Number:	DTK-120HW	DTK-240HW	DTK-120/240HW
Voltage Configuration:	Single Φ (2W +G) 120VAC	Single Φ (2W +G) 240VAC	Split Φ (3W +G) 120/240VAC
MCOV:	150V/300V	320V/640V	150V/300V
Voltage Protection Rating:	700V L-G, L-N 1500V N-G	1200V L-G, L-N 2000V N-G	700V L-G, L-N 1500V L-L, N-G
Surge Current Rating:	50,000A	50,000A	100,000A
SCCR:	100,000A		
Nominal Discharge Current Rating (I_n):	10kA		

Mechanical Specifications

Connection Method:	3/4" NPT Male, 18-inch 12 AWG Leads
Housing:	NEMA 4X Polycarbonate
Operating Temperature:	-31°F - 176°F (-35°C - 80°C)
Maximum Humidity:	95% non-condensing
Dimensions:	3.5" L x 1.89" W x 3.4" H (88.9 mm x 48.3 mm x 86.4 mm)
Weight:	0.55 lb (0.25 kg)

Quality Standards & Approvals

Certifications:	UL1449 4 th Edition, CSA C22.2 No. 269.1-17
SPD Type:	Type 1
Warranty:	10 Year Limited Warranty





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LISTING SERVICE

LISTING No.:	4945-2105:0102
CATEGORY:	4945 - CIRCUIT PROTECTORS/SURGE PROTECTIVE DEVICES
LISTEE:	DITEK Corporation 1720 Starkey Road, Largo, FL, 33771 Contact: Messinger, Lisa (800) 753-2345 (727) 812-5001 Email: lisa.messinger@ditekcorp.com
DESIGN:	Models DTK-120HW and DTK-120/240HW Surge protective devices. Refer to listee's data sheet for additional detailed product description and operational considerations.
RATING:	
INSTALLATION:	In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.
MARKING:	Listee's name, model number, rating, and UL label.
APPROVAL:	Listed as a surge protective device. For indoor use only.
NOTES:	*FORMERLY: 7300-2105:0102

05-10-24 MH

*Revised



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Date Issued: 03/18/2024

Listing Expires: 06/30/2025

Authorized By: **David Castillo**, Program Coordinator
Fire Engineering & Investigations Division