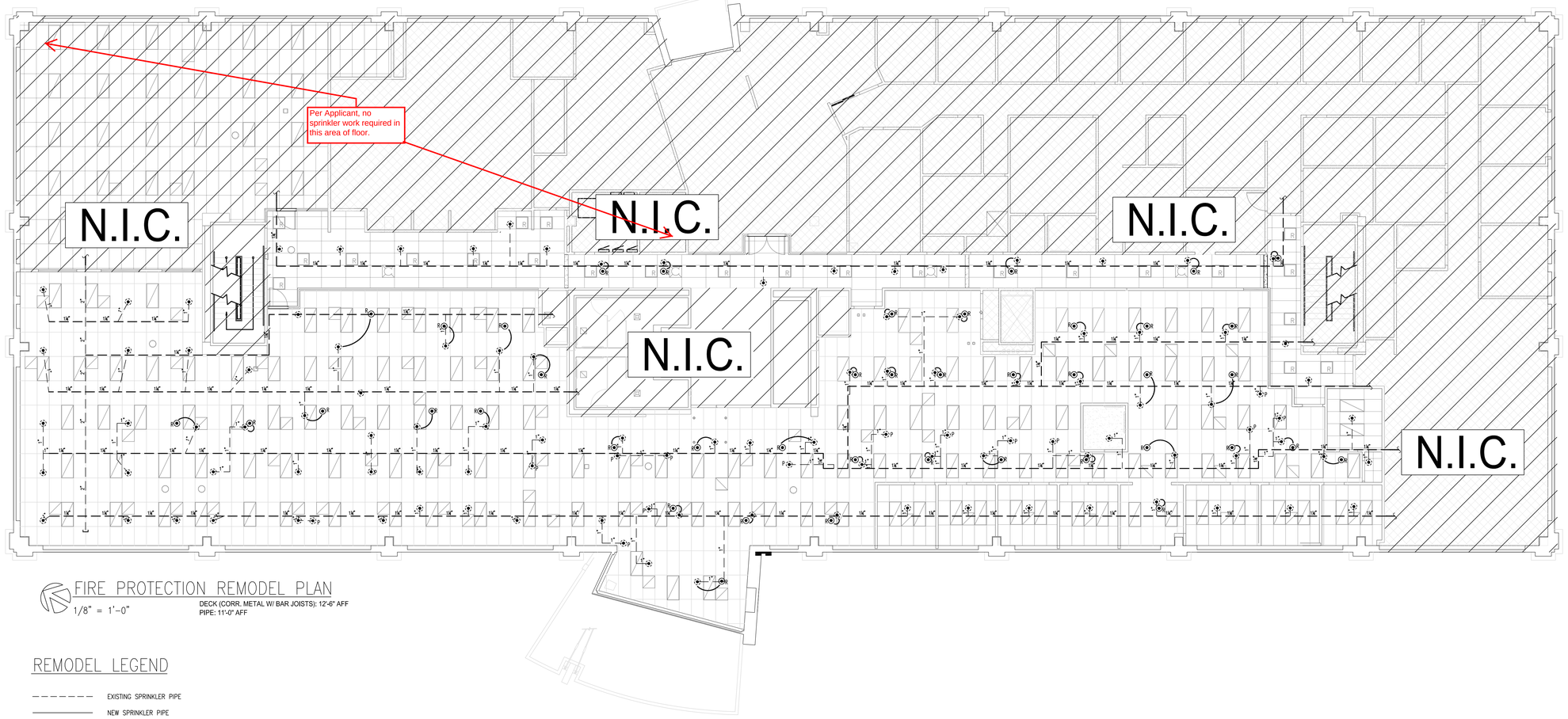
RSN 1194319
PERMIT NO. 2017 1268571 000 00 CT



FIRE PROTECTION REMODEL PLAN

1/8" = 1'-0"

DECK (CORR. METAL W/ BAR JOISTS): 12'-6" AFF
PIPE: 11'-0" AFF

REMODEL LEGEND

EXISTING SPRINKLER PIPE

NEW SPRINKLER PIPE

EXISTING QR SSP SPRINKLER

R RELOCATE EXISTING QR SSP SPRINKLER 39

P PLUG EXISTING QR SSP SPRINKLER 15

GENERAL NOTES

01. SEE THE FIRE PROTECTION EQUIPMENT DATA FOR ALL APPLICABLE MATERIALS AND EQUIPMENT INSTALLED UNDER THIS CONTRACT.

02. THIS SET OF FIRE PROTECTION PLANS AND HYDRAULIC CALCULATIONS HAVE BEEN DESIGNED BY ARAPAHOE FIRE PROTECTION IN THEIR ENTIRETY, AND HAVE BEEN SEALED BY A PROFESSIONAL ENGINEER OR MINIMUM NICET LEVEL III ENGINEER AS REQUIRED BY THE STATE OF COLORADO.

03. THESE FIRE PROTECTION PLANS AND CALCULATIONS HAVE BEEN DESIGNED PER NFPA 13, 2013, PROJECT SPECIFICATIONS, AND APPLICABLE STATE CODES AND REGULATIONS.

04. ALL MATERIALS AND DEVICES INSTALLED UNDER THIS CONTRACT SHALL BE UL LISTED AND/OR FACTORY MUTUAL APPROVED.

05. ALL MATERIALS, DEVICES, AND HANGERS SHALL BE INSTALLED IN ACCORDANCE WITH THEIR LISTINGS AND MINIMUM APPLICABLE NFPA 13, 2013 ENGINEERING STANDARDS.

06. SPRINKLERS TO BE INSTALLED IN ACCORDANCE WITH MINIMUM NFPA 13, 2013 REQUIREMENTS.

07. VALVES CONTROLLING WATER SUPPLY TO 20 OR MORE SPRINKLERS SHALL BE ELECTRICALLY SUPERVISED AND SHALL BE MONITORED BY AN APPROVED MONITORING AGENCY. ANY AND ALL ELECTRICAL AND/OR ALARM WIRING, CONNECTIONS AND TERMINATIONS, OR HORN AND STROBE(S) SHALL BE BY OTHERS. FIRE ALARM SYSTEMS (BY OTHERS) SHALL BE INTERCONNECTED WITH FIRE SPRINKLER SYSTEMS FLOW SWITCH AND HORN AND STROBE(S).

08. IT IS THE RESPONSIBILITY OF THE OWNER OR OTHERS TO PROVIDE, INSTALL AND MAINTAIN AN APPROVED MONITORING SYSTEM OF ALL FIRE PROTECTION SYSTEM COMPONENTS ELECTRICAL OR OTHERWISE INSTALLED UNDER THIS CONTRACT.

09. IT SHALL BE THE SOLE RESPONSIBILITY OF THE OWNER TO PROVIDE ADEQUATE HEAT THROUGHOUT THE FACILITY WHERE WET PIPE SPRINKLER SYSTEMS ARE PRESENT, TO PREVENT FREEZING OF SPRINKLER SYSTEM COMPONENTS (MIN 40° F).

10. THE OWNER SHALL MAINTAIN A CLEAR SPACE OF 18" BETWEEN THE TOP OF STORAGE AND STANDARD SPRAY SPRINKLERS.

11. ALL SPRINKLER PIPING PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL BE SEALED WITH AN APPROVED MATERIAL EQUAL TO THE RATING OF SUCH ASSEMBLY PENETRATED.

12. ALL NEW SPRINKLER PIPING UNDER THIS CONTRACT SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH ALL APPLICABLE NFPA ENGINEERING STANDARDS AND STATE AND LOCAL CODES.

13. UPON SUCCESSFUL INSTALLATION AND COMPLETION:
- A SPARE SPRINKLER HEAD BOX WITH SPRINKLERS AND WRENCHES AS NOTED WILL BE INSTALLED PER MINIMUM NFPA 13, 2013 REQUIREMENTS.
- HYDRAULIC PLACARDS, CARE AND MAINTENANCE CARDS, AND 24 HOUR EMERGENCY PHONE NUMBER SHALL BE POSTED.
- OPERATIONS AND MAINTENANCE MANUALS SHALL BE PROVIDED.
- CONTRACTORS MATERIALS AND TEST CERTIFICATES SHALL BE PROVIDED.
- ALL SYSTEM CONTROL VALVES SHALL BE ACCESSIBLE, LEFT OPEN, AND IN SERVICE.
- ALL SYSTEM DEVICES SHALL BE IDENTIFIED PER MINIMUM NFPA 13 REQUIREMENTS.

14. ADEQUATE DRAINAGE OF FIRE PROTECTION PIPING SHALL BE PROVIDED PER MINIMUM NFPA 13 REQUIREMENTS.

15. SEISMIC BRACING IS NOT PART OF THIS CONTRACT.

16. CHLORINATION OF FIRE PROTECTION PIPING IS NOT PART OF THIS CONTRACT.

17. PAINTING OF FIRE PROTECTION PIPING IS NOT PART OF THIS CONTRACT.

18. FIRE EXTINGUISHERS AND CABINETS ARE NOT PART OF THIS CONTRACT.

19. FIRE PROTECTION IDENTIFICATION, IS NOT PART OF THIS CONTRACT.

20. CENTERING OF SPRINKLER HEADS IN CEILING TILES IS PART OF THIS CONTRACT.

21. PROTECTION OF ELECTRICAL DEVICES, SUCH AS CIRCUIT BREAKER PANELS FROM WATER DISCHARGE, SHALL BE BY OTHERS.

22. ARAPAHOE FIRE PROTECTION, INC. SHALL NOT BE HELD RESPONSIBLE SHOULD THE NOTED WATER MODEL RESULTS NOT BE SUPPLIED AT THE POINT OF CONNECTION NOW, OR IN THE FUTURE, DUE TO THE POSSIBILITY OF DETERIORATING WATER SUPPLIES. SEE HYDRAULIC SOURCE NODE LOCATION.

23. ALL KNOX EQUIPMENT IS NOT PART OF THIS CONTRACT AND SHALL BE PROVIDED AND INSTALLED BY OTHERS.

24. ALL REQUIRED SIGNAGE NOT PER MINIMUM NFPA 13 REQUIREMENTS SHALL BE PROVIDED AND INSTALLED BY OTHERS.

25. PROVISIONS FOR FLUSHING FIRE SPRINKLER PIPING INSTALLED UNDER THIS CONTRACT WILL BE MADE BY ARAPAHOE FIRE PROTECTION, INC. ARAPAHOE FIRE PROTECTION WILL PERFORM ALL TESTING AND PROVIDE ALL REQUIRED TESTING EQUIPMENT REQUIRED BY THE LIFE SAFETY INSPECTOR.

26. ALL UNDERGROUND PIPING SHALL BE TESTED AND FLUSHED BY THE INSTALLING CONTRACTOR. UNDERGROUND TESTING CERTIFICATIONS SHALL BE PROVIDED TO ARAPAHOE FIRE PROTECTION, INC. PRIOR TO ANY ABOVEGROUND PIPING BEING CONNECTED TO THE UNDERGROUND FIRE LINE LEAD IN FLANGE.

27. PIPE AND FITTING NOTES:
- ALL PIPING SHALL BE IN ACCORDANCE WITH NFPA STANDARDS.
- ALL THREADABLE PIPING SHALL BE EDDYTHREAD 40 BLACK STEEL PIPING PER ASTM A135/A795 WITH COMPATIBLE DUCTILE IRON FITTINGS, UNLESS NOTED OTHERWISE.
- ALL GROOVABLE PIPING SHALL BE EDDYFLOW BLACK STEEL PIPING PER ASTM A135/A795 WITH WELDED OUTLET FITTINGS, AND ROLL GROOVED JOINTS, COMPATIBLE WITH FITTINGS USED.
- ALL SCREWED FITTINGS SHALL MEET ANSI B.16.4 REQUIREMENTS.
- ALL FLANGED FITTINGS SHALL MEET ANSI B.16.1 REQUIREMENTS.
- ALL GROOVED FITTINGS SHALL MEET ASTM A536 REQUIREMENTS.
- ALL METHODS OF JOINING PIPE SHALL BE IN ACCORDANCE WITH NFPA 13 SECTIONS 2-5.

28. SCOPE OF WORK IS TO MODIFY THE EXISTING HYDRAULICALLY CALCULATED FIRE SPRINKLER SYSTEM TO ACCOMMODATE THE NEW TENANT FINISH AREA. ARAPAHOE FIRE PROTECTION WORK SHOWN ON THESE PLANS WILL NOT ADVERSELY AFFECT THE CURRENT HYDRAULIC SPRINKLER SYSTEM.

29. SYSTEM DESIGN IS LIGHT HAZARD 225 SQ. FT. FOR MAXIMUM SPRINKLER COVERAGE AREA.

CURRENT HYDRAULIC PLACARD INFORMATION	
# OF HEADS	10
DENSITY/AREA	0.10 GPM/SQ. FT. / 1100 SQ. FT.
DESIGNED AREA OF DISCHARGE	222 SQ. FT.
GPM DISCHARGE	256 GPM
RESIDUAL PRESS. AT BASE OF RISER	38.1

CT
City of Aurora Building Division
Reviewed for Code Compliance
Approved as Noted: *Neil Wiegert*
Date: *May 28, 2017*
2015 I-CODES & 2014 NEC

PIPE SPECIFICATIONS

PER NFPA 13 2013 EDITION AND MANUFACTURERS MATERIAL DATA SHEETS

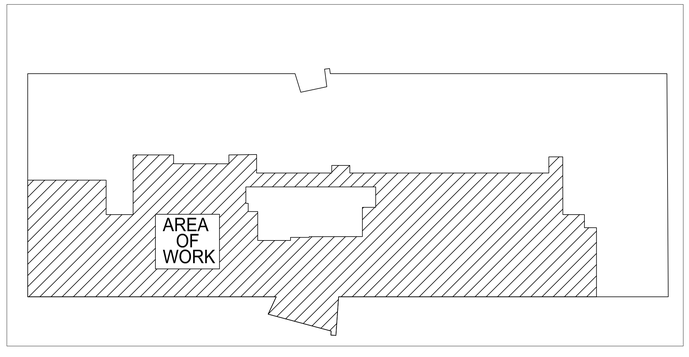
NOMINAL PIPE SIZE (IN.)	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"
INSIDE DIAMETER	I.D.	I.D.	I.D.	I.D.	I.D.	I.D.	I.D.	I.D.	I.D.	I.D.	I.D.
DYNA THREAD	N/A	1.080	1.408	1.639	2.104						
DYNA FLOW	N/A	N/A	1.536	1.728	2.203	2.703	3.314	4.310	N/A	N/A	N/A
MEGA THREAD	N/A	1.087	1.416	1.650	2.117						
MEGA FLOW	N/A	N/A	1.530	1.740	2.215	2.707	3.316	4.316	N/A	6.395	N/A
EDDYTHREAD	.0856	1.083	1.418	1.654	2.123						
EDDYFLOW	N/A	N/A	1.530	1.728	2.203	2.705	3.334	4.310	N/A	N/A	N/A
SCH 40	N/A	1.049	1.380	1.610	2.067	2.469	3.068	4.026	5.047	6.065	7.981
SCH 10	N/A	1.097	1.442	1.682	2.157	2.635	3.260	4.260	5.295	6.357	8.249
CPVC	0.874	1.101	1.394	1.598	2.003	N/A	N/A	N/A	N/A	N/A	N/A
COPPER (TYPE M)	0.811	1.055	1.291	1.527	2.009	2.495	2.981	3.935	N/A	N/A	N/A

HANGER SPACING LEGEND

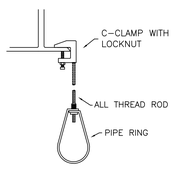
PER NFPA 13 TABLE 9.2.2.1 2013 EDITION

NOMINAL PIPE SIZE (IN.)	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
STEEL PIPE SCH 40, SCH 10, DF, EF	N/A	12-0	12-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0
THREADED LIGHTWALL	N/A	12-0	12-0	12-0	12-0	12-0	N/A	N/A	N/A	N/A
COPPER	8-0	8-0	10-0	10-0	12-0	12-0	12-0	15-0	15-0	15-0
CPVC	5-6	6-0	6-6	7-0	8-0	9-0	10-0	N/A	N/A	N/A

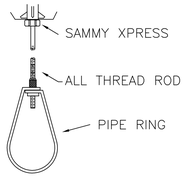
WHERE STATIC OR OPERATING PRESSURES EXCEED 100 PSI HANGERS SHALL BE PER NFPA 13 9.2.3.5.2.1 2013 EDITION



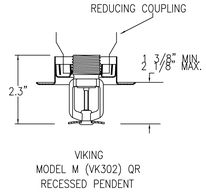
KEY PLAN
N.T.S



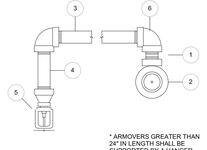
C-CLAMP HANGER



SAMMY XPRESS HANGER



VIKING
MODEL M (VK302) QR
RECESSED PENDENT



SCHEDULE
1. 1" X SH SCH. 40 NIPPLE
2. EXISTING BRANCHLINE.
3. 1" ARMOVER.*
4. 1" DROP.
5. NEW FIRE SPRINKLER HEAD
6. 1" C.I. 90° ELL

* ARMOVERS GREATER THAN 24" IN LENGTH SHALL BE SUPPORTED BY A HANGER.

SPRINKLER SCHEDULE & LEGEND

SYM	SPRINKLER MAKE, MODEL, TRM, NPT	ORIFICE	K	TEMP.	FINISH	QUANTITY
R	VIKING VK302 QR SSP SEMI-RECESSED	1/2"	5.6	155	CHR	39
	HEAD CAB'T & WRENCH(ES) PROVIDED			TOTAL COUNT THIS SHEET =		39
				TOTAL COUNT THIS JOB =		39

Prepared Under Supervision Of:
Ronald Lumsden
NICET Level IV
Registration # 118272
Signature:

Arapahoe FIRE PROTECTION INC
11901 East 14th Ave.
Aurora, Colorado 80010
Voice:(303)366-4905 Fax:(303)366-4966
Email: office@arapahoefire.com
Colorado State Registration #034

2nd FL WHITEBOX @MCA

1444 S POTOMAC ST AURORA, CO

AURORA, CO 80012

FIRE PROTECTION PLAN	
CONTRACT NO.	7026
DESIGNED BY	JO
SUBMIT REVIEW BY	RL
FAB. REVIEW BY	
SCALE	1/8" = 1'-0"
DATE	3/15/17
REVISED / PLOTTED	FP1 OF 1

RSN 1194319
PERMIT NO. 2017 1268571 000 00 CT

MATERIAL SUBMITTAL

Arapahoe FIRE PROTECTION INC
11901 East 14th Avenue
Aurora, Colorado 80010
Phone: (303) 366-4905
Fax:(303) 366-4966

FOR

2ND FLR WHITEBOX @ MCA
1444 S POTOMAC ST
AURORA, CO 80012

JOB 7026

JAKE OST

RSN 1194319
PERMIT NO. 2017 1268571 000 00 CT

Eddythread 40

A Lightweight Schedule 40 Replacement Pipe That Has a Corrosion Resistance Ratio of 1.0

Bull Moose Tube Company has been making pipe for a long time and is recognized as a producer of quality pipe products. Eddythread 40 is designed with the same thoroughness as our other fine pipe products and now our customers have an option to buy a carefully designed replacement for Schedule 40 that:

- Has a Corrosion Resistance Ratio of 1.0
- Has a Pressure Rating of 300 psi
- Is Lighter Weight Than Schedule 40
- Is Approved by Factory Mutual and Listed by Underwriters Laboratories
- Is Produced in Accordance to ASTM A-135 and A-795
- Can be Used With Standard Schedule 40 Threaded Fittings, Couplings and Valves
- Is Produced From Steel With Excellent Properties of Strength and Threadability
- Can be Used in Wet, Dry, Preaction, and Deluge Type Sprinkler Systems*
- Offers Lower Freight Costs

EDDYTHREAD 40 SPECIFICATIONS

NOMINAL PIPE SIZE (in)	WEIGHT (lbs/ft)	I.D. (in)	BUNDLE SIZE
1	1.461	1.083	70
1 1/4	2.070	1.418	51
1 1/2	2.547	1.654	44
2	3.308	2.123	30

CORROSION RESISTANCE RATIOS

NOMINAL PIPE SIZE (in)	SCHEDULE 40	EDDYTHREAD 40
1	1.00	1.00
1 1/4	1.00	1.00
1 1/2	1.00	1.00
2	1.00	1.00

** Eddythread 40 can be hot dipped galvanized to meet FM's requirement for dry systems*

BULL MOOSE TUBE COMPANY
A CAPARO company

1819 Clarkson Road
Chesterfield, MO 63017
(800) 325-4467
FAX: (636) 537-2645
www.bullmoosetube.com
e-mail:sales@bullmoosetube.com

For additional information, contact your salesperson today at (800) 325-4467 or (636) 537-2600 in the USA, or from Canada call (800) 882-4666

c UL us LISTED

FM APPROVED

All information contained herein is accurate as known at the time of publication. Bull Moose Tube reserves the right to change product specifications without notice and without incurring obligation.

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Eddy Flow

The Cost Effective Replacement for Schedule 10

Realizing the growing need of fire protection systems in commercial and residential construction, Bull Moose Tube has added Eddy Flow to its comprehensive line of sprinkler pipe products.

Eddy Flow is a specially engineered replacement for schedule 10, offering better flow characteristics while providing design flexibility. This product is FM approved, as well as UL listed (for U.S. and Canada) for roll grooving and welding for use in fire protection systems with a working pressure of 300 psi or less. Please check with appropriate sources for up-to-date listings and approval information.

As an added benefit, it is more economical to use than schedule 10 due to reduced delivery costs and ease of handling. Furthermore, Eddy Flow's larger ID provides an opportunity for downsizing and further cost savings.

COMPARISON

		INSIDE DIAMETER			C.R.R.*	
Nominal Pipe Size (in)	O.D. (in)	Eddy Flow (in)	Schedule 10 (in)	Schedule 40 (in)	Eddy Flow	Schedule 40
1 1/4	1.660	1.530	1.442	1.380	1.98	1.00
1 1/2	1.900	1.728	1.682	1.610	3.44	1.00
2	2.375	2.203	2.157	2.067	2.78	1.00
2 1/2	2.875	2.705	2.635	2.469	1.66	1.00
3	3.500	3.334	3.260	3.068	1.00	1.00
4	4.500	4.310	4.260	4.026	1.00	1.00

** Corrosion Resistance Ratio*

BENEFITS

- ***Dual Certified to ASTM A135 and A795.***
- ***FM Approved for roll grooved, and welded, and plain-end application in wet systems.***
- ***UL Listed (for U.S. and Canada) for joining by welding or by listed rubber gasketed fittings for use in wet, dry, preaction, and deluge type sprinkler systems.***
- ***UL Listed (for US and Canada) and FM Approved for use with Victaulic® FIT® Fittings in plain end applications.***
- ***Lightweight - saves shipping costs, and offers easier handling.***
- ***Can be used with roll grooved couplings or welded outlets for pressures up to 300 psi.***
- ***Floor stock available in various lengths produced in Casa Grande (AZ), Gerald (MO), and Masury (OH). Also can be ordered in custom lengths..***
- ***Can be used for wet and dry* systems.***

** Eddy Flow can be hot dipped galvanized to meet FM's requirement for dry systems.*

PIPE PREPARATION

For proper operation, all pipe surfaces should be cleaned prior to installation. In order to provide a leak-tight seat for the gasket, pipe surfaces should be free from indentations and projections from the end of the pipe to the groove. All loose paint, scale, dirt, chips, grease, and rust must be removed prior to installation. Failure to take these important steps may result in improper coupling assembly, causing leakage. Also, check the manufacturer's instructions for the specific fitting used.

BULL MOOSE TUBE COMPANY
A CAPARO company

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For additional information, contact your salesperson today at (800) 325-4467 or (636) 537-2600 in the USA, or from Canada call (800) 882-4666

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FM APPROVED

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RSN 1194319
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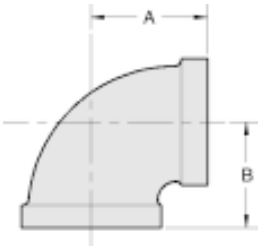
D.I. THREADED FITTINGS

S.P FITTINGS
A Division of Star Pipe Products

LISTED LISTED APPROVED

For fire protection services request submittal GRS 1.3

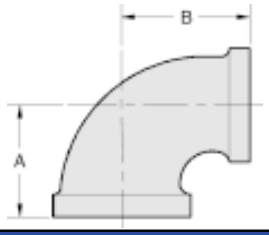


DUCTILE IRON THREADED FITTINGS ARE UL, ULC LISTED AND FACTORY MUTUAL APPROVED FOR 500 PSI SERVICE. DUCTILE IRON PER ASTM A 536 GRADE 65-45-12. DIMENSIONS CONFORM TO ANSI B16.3 CLASS 150. THREADS ARE NPT PER ANSI/ASME B1.20.1

NOTICE: DUCTILE IRON FITTINGS HAVE HIGHER TENSILE STRENGTH THEN THAT OF STEEL PIPE. THEREFORE, OVER TIGHTENING CAN CAUSE DAMAGE TO PIPE THREADS WHICH MAY CAUSE LEAKAGE. DUCTILE IRON FITTINGS SHOULD BE TIGHTENED THREE TURNS BEYOND HAND TIGHT, BUT NO MORE THAN FOUR TURNS.

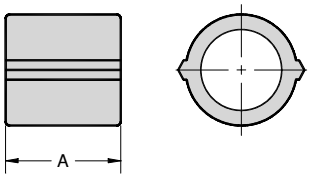
DUCTILE IRON 90 DEG. ELBOW

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSIONS A	DIMENSIONS B	WEIGHT EACH PIECE
1	DB90033	500	1.50	1.50	0.62
1 1/4	DB90044	500	1.75	1.75	0.90
1 1/2	DB90055	500	1.94	1.94	1.20
2	DB90066	500	2.25	2.25	1.85



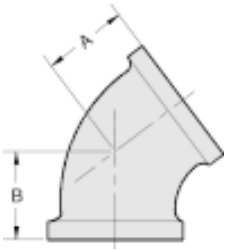
DUCTILE IRON RED.90 DEG. ELBOW

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSIONS A	DIMENSIONS B	WEIGHT EACH PIECE
1X1/2	DB90031	500	1.26	1.36	0.44
1X3/4	DB90032	500	1.37	1.45	0.52
1 1/4X1/2	DB90041	500	1.34	1.53	0.64
1 1/4X3/4	DB90042	500	1.45	1.62	0.72
1 1/4X1	DB90043	500	1.58	1.67	0.75
1 1/2X1	DB90053	500	1.65	1.80	0.92
1 1/2X1 1/4	DB90054	500	1.82	1.88	1.08
2X1/2	DB90061	500	1.49	1.88	1.08
2X3/4	DB90062	500	1.60	1.97	1.24
2X1	DB90063	500	1.73	2.02	1.40
2X1 1/4	DB90064	500	1.90	2.10	1.52
2X1 1/2	DB90065	500	2.02	2.16	1.65



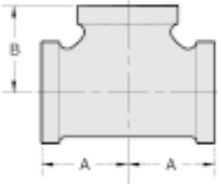
DUCTILE IRON COUPLING

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSION A	WEIGHT EACH PIECE
1	DCL033	500	1.67	0.40
1 1/4	DCL044	500	1.93	0.57
1 1/2	DCL055	500	2.15	0.75
2	DCL066	500	2.53	1.15



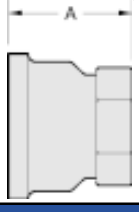
DUCTILE IRON 45 DEG. ELBOW

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSIONS A	DIMENSIONS B	WEIGHT EACH PIECE
1	DB45033	500	1.12	1.12	0.46
1 1/4	DB45044	500	1.29	1.29	0.73
1 1/2	DB45055	500	1.43	1.43	0.92
2	DB45066	500	1.68	1.68	1.50



DUCTILE IRON STRAIGHT TEE

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSIONS A	DIMENSIONS B	WEIGHT EACH PIECE
1	DT333	500	1.50	1.50	0.85
1 1/4	DT444	500	1.75	1.75	1.22
1 1/2	DT555	500	1.94	1.94	1.55
2	DT666	500	2.25	2.25	2.45



DUCTILE IRON RED. COUPLING

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSION A	WEIGHT EACH PIECE
1X1/2	DRC031	500	1.69	0.39
1X3/4	DRC032	500	1.69	0.53

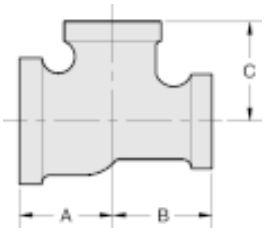
RSN 1194319
PERMIT NO. 2017 1268571-000 00 CT

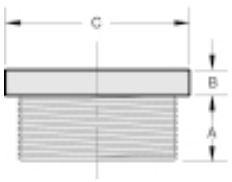
D.I. THREADED FITTINGS

S.P FITTINGS
A Division of Star Pipe Products

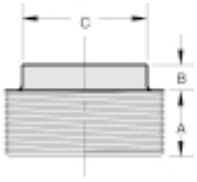
LISTED LISTED APPROVED

For fire protection services request submittal GRS 1.3





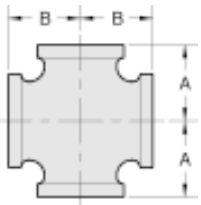
OUTSIDE HEAD



INSIDE HEAD

DUCTILE IRON BUSHINGS

NOMINAL SIZE (INCH)	ITEM CODE #	DIMENSIONS A	B	C	STYLE	WT. EACH
1x1/2	DBUSH31	0.75	0.25	1.42	OUT	0.22
1x3/4	DBUSH32	0.75	0.25	1.42	OUT	0.17
1 1/4x1	DBUSH43	0.80	0.28	1.76	OUT	0.28
1 1/2x1	DBUSH53	0.83	0.31	2.00	OUT	0.44
1 1/2x1 1/4	DBUSH54	0.83	0.31	2.00	OUT	0.30
2x1	DBUSH63	0.88	0.41	1.95	IN	0.66
2x1 1/4	DBUSH64	0.88	0.34	2.48	OUT	0.72
2x1 1/2	DBUSH65	0.88	0.34	2.48	OUT	0.61



DUCTILE IRON CROSS

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I	DIMENSIONS A	B	WEIGHT EACH PIECE
1	DX033	500	1.50	1.50	0.98
1 1/4	DX044	500	1.75	1.75	1.50
1 1/2	DX055	500	1.94	1.94	1.90
2	DX066	500	2.25	2.25	2.95
1 1/4X1	DX043	500	1.58	1.67	1.27
1 1/2X1	DX053	500	1.65	1.80	1.48
2X1	DX063	500	1.73	2.02	2.10

DUCTILE IRON REDUCING TEE

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSIONS A	B	C	WEIGHT EACH PIECE
1X1X1/2	DT331	500	1.26	1.26	1.36	0.64
1X1X3/4	DT332	500	1.37	1.37	1.45	0.73
1X1/2X1	DT313	500	1.50	1.36	1.50	0.71
1X3/4X1	DT323	500	1.50	1.45	1.50	0.76
1X1X1 1/4	DT334	500	1.67	1.67	1.58	0.98
1X1X1 1/2	DT335	500	1.80	1.80	1.65	1.16
1 1/4X1X1/2	DT431	500	1.34	1.26	1.53	0.82
1 1/4X1X3/4	DT432	500	1.45	1.37	1.62	0.90
1 1/4X1X1	DT433	500	1.58	1.50	1.67	1.00
1 1/4X1X1 1/4	DT434	500	1.75	1.67	1.75	1.08
1 1/4X1X1 1/2	DT435	500	1.88	1.80	1.82	1.42
1 1/4X1 1/4X1/2	DT441	500	1.34	1.34	1.53	0.86
1 1/4X1 1/4X3/4	DT442	500	1.45	1.45	1.62	0.92
1 1/4X1 1/4X1	DT443	500	1.58	1.58	1.67	0.95
1 1/4X1 1/4X1 1/2	DT445	500	1.88	1.88	1.82	1.45
1 1/4X1 1/4X2	DT446	500	2.10	2.10	1.90	1.75
1 1/2X1X1/2	DT531	500	1.41	1.34	1.66	0.95
1 1/2X1X3/4	DT532	500	1.52	1.37	1.75	1.14
1 1/2X1X1	DT533	500	1.65	1.50	1.80	1.17
1 1/2X1X1 1/4	DT534	500	1.82	1.67	1.88	1.34
1 1/2X1X1 1/2	DT535	500	1.94	1.80	1.94	1.45
1 1/2X1 1/4X1/2	DT541	500	1.41	1.34	1.66	1.05
1 1/2X1 1/4X3/4	DT542	500	1.52	1.45	1.75	1.15
1 1/2X1 1/4X1	DT543	500	1.65	1.58	1.80	1.25
1 1/2X1 1/4X2	DT546	500	2.16	2.10	2.02	1.90
1 1/2X1 1/2X1/2	DT551	500	1.41	1.41	1.16	1.15
1 1/2X1 1/2X3/4	DT552	500	1.52	1.52	1.75	1.24
1 1/2X1 1/2X1	DT553	500	1.65	1.65	1.80	1.30
1 1/2X1 1/2X1 1/4	DT554	500	1.82	1.82	1.88	1.48
1 1/2X1 1/2X2	DT556	500	2.16	2.16	2.02	1.98
2X1X2	DT636	500	2.25	2.02	2.25	2.15
2X1 1/4X2	DT646	500	2.25	2.10	2.25	2.30
2X1 1/2X1/2	DT651	500	1.49	1.41	1.88	1.50
2X1 1/2X3/4	DT652	500	1.60	1.52	1.97	1.62
2X1 1/2X1	DT653	500	1.73	1.65	2.02	1.64
2X1 1/2X1 1/4	DT654	500	1.90	1.82	2.10	1.80
2X1 1/2X1 1/2	DT655	500	2.02	1.94	2.16	2.00
2X1 1/2X2	DT656	500	2.25	2.16	2.25	2.35
2X2X1/2	DT661	500	1.49	1.49	1.88	1.60
2X2X3/4	DT662	500	1.60	1.60	1.97	1.68
2X2X1	DT663	500	1.73	1.73	2.02	1.85
2X2X1 1/4	DT664	500	1.90	1.90	2.10	2.04
2X2X1 1/2	DT665	500	2.02	2.02	2.16	2.18
2X2X2 1/2	DT667	500	2.60	2.60	2.39	3.61
2 1/2X2X3/4	DT762	500	1.74	1.60	2.32	2.28

DUCTILE IRON CAP

NOMINAL SIZE (INCH)	ITEM CODE #	MAX. WORKING P.S.I.	DIMENSION A	WEIGHT EACH PIECE
1	DCP003	500	1.16	0.32
1 1/4	DCP004	500	1.28	0.43
1 1/2	DCP005	500	1.33	0.60
2	DCP006	500	1.45	0.91

RSN 1194319
PERMIT NO. 2017 1268571 000 00 CT

FIG. MT-30 Threaded Mechanical Branch Tee

AnvilStar™
Fire Products Division of Anvil® International

SPF/ANVIL

Submittal Sheet

Model MT-30 mechanical tee serves the same function as MT-1 & MT-8 but uses a steel electro-plated U-Bolt to save space and for easier installation in tight places. It is ideal for direct connections with sprinkler heads and drop nipples.

UL FM ULC
APPROVED
For Listing / Approval details contact your AnvilStar™ Representative.

⚠ WARNING

For dry pipe systems and freezer applications lubrication of the gasket is required, Gruvlok® Xtreme™ Lubricant is recommended.

MATERIAL SPECIFICATIONS

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

U-BOLT & NUTS:
U-bolt is carbon steel SAE Grade 2, Zinc Plated with plated hex nuts carbon steel ASTM A-194, Zinc Plated.

THREADS:
MT-30 NPT per ANSI/ASME B1.20.1

COATINGS:
❑ Zinc Electroplated
❑ Other (Specify): _____ Example: RAL3000 or RAL9000 Series
For other Coating requirements contact an AnvilStar Representative.

GASKETS: Materials
Properties as designated in accordance with ASTM D-2000.
❑ **Grade "E" EPDM** (Green color code)
-40°F to 230°F (Service Temperature Range) (-40°C to 110°C)
Recommended for water service, diluted acids, alkalies solutions, salts, oil-free air and many chemical services not involving hydrocarbons, oils or gases.
NOT FOR USE WITH HYDROCARBONS.
❑ Other_____

PROJECT INFORMATION:		APPROVAL STAMP:
Project:		
Date:	**Phone:**	
Architect / Engineer:		
Contractor:		
Address:		
Notes 1:		
Notes 2:		

For the latest UL/ULC Listed and FM Approved pressure ratings, versus pipe schedule, go to **www.anvilstar.com** or contact your local AnvilStar representative

ANVIL INTERNATIONAL, INC.

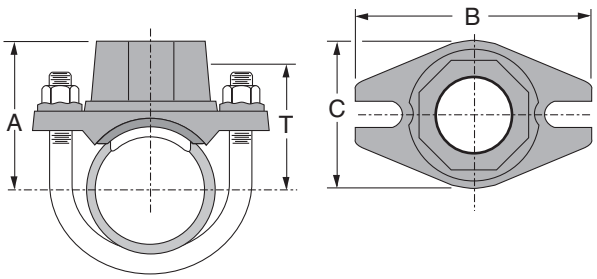
RSN 1194319
PERMIT NO. 2017 1268571 000 00 CT

FIG. MT-30 Threaded Mechanical Branch Tee

ANVILSTAR™ Fire Products Division of Anvil® International

SPF/ANVIL™

Submittal Sheet



MT-30 MECHANICAL TEES

Nominal Size	O.D.	Hole Diameter		Max. Wk. Pressure	Dimensions				Approx. Wt. Ea.
		Min. Diameter	Max. Diameter		A	B	C	T Take-Out	
In./DN(mm)	*In./mm*	*In./mm*	*In./mm*	*PSI/bar*	*In./mm*	*In./mm*	*In./mm*	*In./mm*	*Lbs./kg*
1¼ x ½	1.660 x 0.840	1 3/16	1 5/16	300	2⅛	3½	2¼	1⅝	0.8
32 x 12	*42.4 x 21.3*	*30*	*33*	*20.7*	*54*	*89*	*57.2*	*42*	*0.4*
1¼ x ¾	1.660 x 1.050	1 3/16	1 5/16	300	2⅛	3½	2¼	1⅝	0.8
32 x 19	*42.4 x 26.7*	*30*	*33*	*20.7*	*54*	*89*	*57.2*	*42*	*0.4*
1¼ x 1	1.660 x 1.315	1 3/16	1 5/16	300	2¼	3½	2¼	1⅝	1.1
32 x 25	*42.4 x 33.7*	*30*	*33*	*20.7*	*58*	*89*	*57.2*	*41*	*0.5*
1½ x ½	1.900 x 0.840	1 3/16	1 5/16	300	2¼	3½	2¼	1¾	0.8
40 x 12	*48.3 x 21.3*	*30*	*33*	*20.7*	*57*	*89*	*57.2*	*48*	*0.4*
1½ x ¾	1.900 x 1.050	1 3/16	1 5/16	300	2¼	3½	2¼	1¾	0.9
40 x 19	*48.3 x 26.7*	*30*	*33*	*20.7*	*57*	*89*	*57.2*	*48*	*0.4*
1½ x 1	1.900 x 1.315	1 3/16	1 5/16	300	2⅜	3½	2¼	1¾	1.1
40 x 25	*48.3 x 33.7*	*30*	*33*	*20.7*	*61*	*89*	*57.2*	*44*	*0.5*
2 x ½	2.375 x 0.840	1 3/16	1 5/16	300	2½	3¾	2¼	2	0.9
50 x 12	*60.3 x 21.3*	*30*	*33*	*20.7*	*64*	*95*	*57.2*	*51*	*0.4*
2 x ¾	2.375 x 1.050	1 3/16	1 5/16	300	2½	3¾	2¼	2	0.9
50 x 19	*60.3 x 26.7*	*30*	*33*	*20.7*	*64*	*95*	*57.2*	*51*	*0.4*
2 x 1	2.375 x 1.315	1 3/16	1 5/16	300	2⅝	3¾	2¼	2	1.1
50 x 25	*60.3 x 33.7*	*30*	*33*	*20.7*	*67*	*95*	*57.2*	*50*	*0.5*
2½ x ½	2.875 x 0.840	1 3/16	1 5/16	300	2¾	4¼	2¼	2¼	0.9
65 x 12	*73.0 x 21.3*	*30*	*33*	*20.7*	*70*	*108*	*57.2*	*57*	*0.4*
2½ x ¾	2.875 x 1.050	1 3/16	1 5/16	300	2¾	4¼	2¼	2¼	0.9
65 x 19	*73.0 x 26.7*	*30*	*33*	*20.7*	*70*	*108*	*57.2*	*57*	*0.4*
2½ x 1	2.875 x 1.315	1 3/16	1 5/16	300	2⅞	4¼	2¼	2¼	1.1
65 x 25	*73.0 x 33.7*	*30*	*33*	*20.7*	*73*	*108*	*57.2*	*56*	*0.5*

BSP equivalent is available as a MT-90.

NOTE: Tighten nuts alternatively to a recommended torque of 18 -22 ft-lbs (25 - 30 N-m) on pipe wall less than schedule 10 or 23 -27 ft-lbs (31 - 37 N-m) on pipe walls schedule 10 and above.

For the latest UL/ULC Listed and FM Approved pressure ratings, versus pipe schedule, go to **www.anvilstar.com** or contact your local AnvilStar representative

ANVIL INTERNATIONAL, INC.

Fig. 200 - "Trimline" Adjustable Band Hanger

Size Range — 1/2" thru 8" pipe

Material — Carbon Steel, Mil. Galvanized to G90 specifications

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

Features —

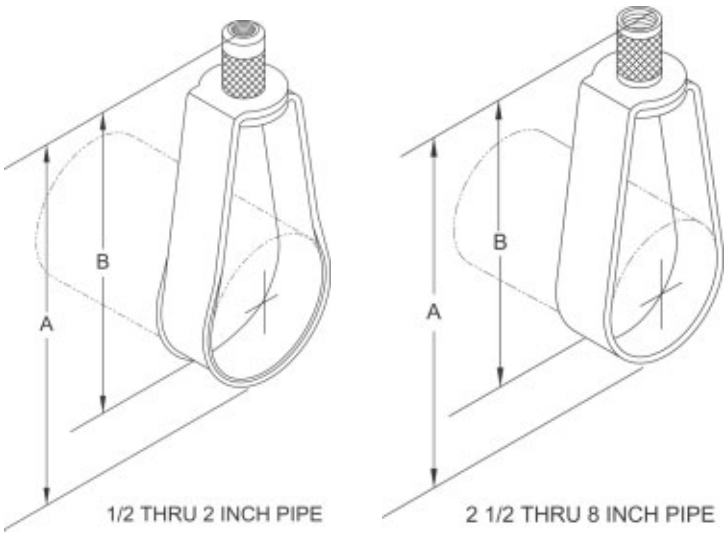
- (1/2" thru 2") Flared edges ease installation for all pipe types and protect CPVC plastic pipe from abrasion. Captured design keeps adjusting nut from separating with hanger. Hanger is easily installed around pipe.
- ($2^1/_2$" thru 8" Spring tension on nut holds it securely in hanger before installation. Adjusting nut is easily removed.

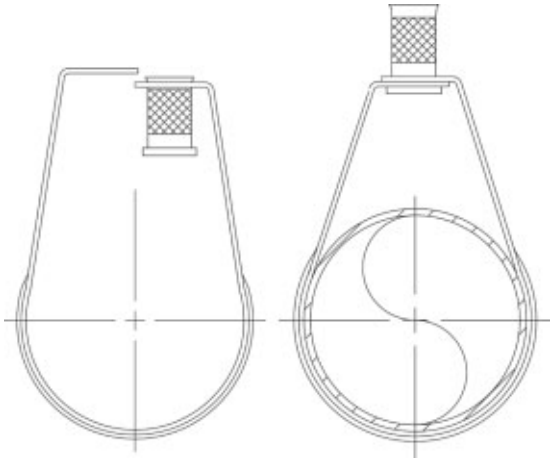
Approvals — Underwriters' Laboratories listed (1/2" thru 8") in the USA **(UL)** and Canada **(cUL)** for steel and CPVC plastic pipe and Factory Mutual Engineering Approved (3/4" thru 8"). Conforms to Federal Specifications WW-H-171E, Type 10 and Manufacturers Standardization Society SP-69, Type 10.

Maximum Temperature — 650°F

Finish — Mil. Galvanized. For Stainless Steel materials, order TOLCO™ Fig. 200WON.

Order By — Figure number and pipe size





Dimensions • Weights

Pipe Size	Rod Size Inch	Rod Size Metric	A	B	Max. Rec. Load Lbs.	Approx. Length
1/2	3/8	8mm or 10mm	$3^1/_8$	$2^5/_8$	400	11
3/4	3/8	8mm or 10mm	$3^1/_8$	$2^1/_2$	400	11
1	3/8	8mm or 10mm	$3^3/_8$	$2^5/_8$	400	12
$1^1/_4$	3/8	8mm or 10mm	$3^3/_4$	$2^7/_8$	400	13
$1^1/_2$	3/8	8mm or 10mm	$3^7/_8$	$2^7/_8$	400	14
2	3/8	8mm or 10mm	$4^1/_2$	3	400	15
$2^1/_2$	3/8	10mm	$5^5/_8$	$4^1/_8$	600	27
3	3/8	10mm	$5^7/_8$	4	600	29
$3^1/_2$	3/8	10mm	$7^3/_8$	$5^1/_4$	600	34
4	3/8	10mm	$7^3/_8$	5	1000	35
5	1/2	12mm	$9^1/_8$	$6^1/_4$	1250	66
6	1/2	12mm	$10^1/_8$	$6^3/_4$	1250	73
8	1/2	12mm	$13^1/_8$	$8^3/_4$	1250	136

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Fig. 65 and Fig. 66
Reversible C-Type Beam Clamps 3/4" and 1¼" Throat Openings

Component of State of California OSHPD Approved Seismic Restraints System

Size Range — (Fig. 65 and Fig. 66) 3/8", 1/2" and 5/8" rod

Material — Carbon Steel with hardened cup point set screw and jam nut

Function — Recommended for hanging from steel beam where flange thickness does not exceed 3/4" (Fig. 65) or 1¼" (Fig. 66).

Features — All steel construction eliminates structural deficiencies associated with casting type beam clamps. May be used on top or bottom flange of the 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)**. Factory Mutual Engineering approved. Conforms to Federal Specification WW-H-171E, Type 23 and Manufacturers Standardization Society SP-69, Type 19. Exceeds requirements of the National Fire Protection Association (NFPA), Pamphlet 13, 3/8" rod will support 1/2" thru 4" pipe, 1/2" rod will support 1/2" thru 8" pipe. Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development (OSHPD). For additional load, spacing and placement relating to OSHPD projects, please refer to the TOLCO Seismic Restraint Systems Guidelines.

Finish — Plain

Note — Available in Electro-Galvanized and HDG finish.

Order By — Figure number, rod size and finish

Fig. 65 Patent #4,570,885

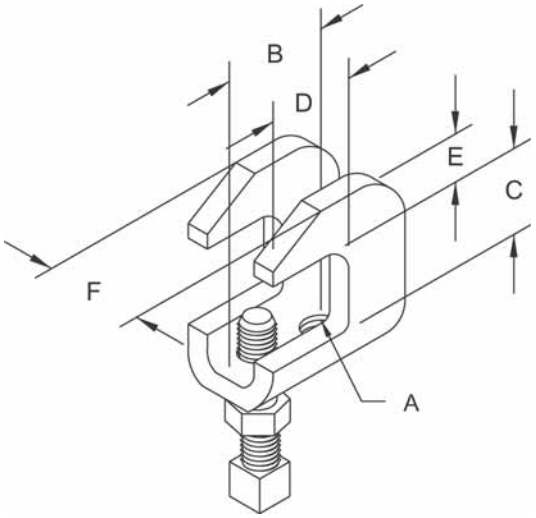

Fig. 65

Dimensions • Weights

Rod Size A	B	C	D	E	F	Max. Rec. Load Lbs.*	Approx. Wt./100
3/8	1 3/16	3/4	1	7/16	1	610	28
1/2	1 1/2	3/4	1	9/16	1 1/4	1130	55
5/8	1 1/2	3/4	1	9/16	1 1/4	1130	55

* Max. loads for clamp with set screw in up or down position.

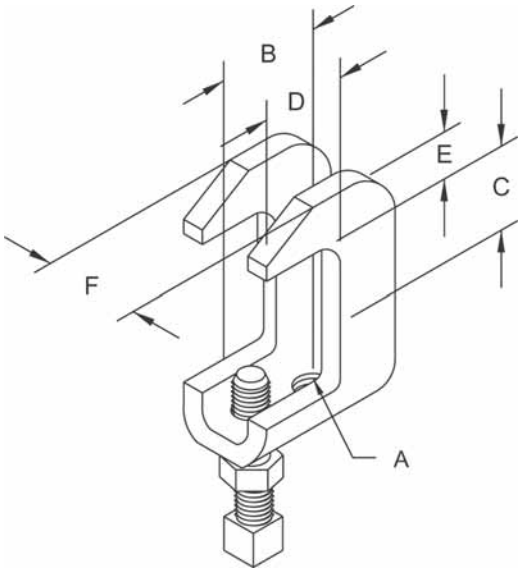

Fig. 66

Dimensions • Weights

Rod Size A	B	C	D	E	F	Max. Rec. Load Lbs.*	Approx. Wt./100
3/8	1 3/16	1 1/4	1	7/16	1	610	28
1/2	1 1/2	1 1/4	1	9/16	1 1/4	1130	55
5/8	1 1/2	1 1/4	1	9/16	1 1/4	1130	55

* Max. loads for clamp with set screw in up or down position.

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RSN 1194319
PERMIT NO. 2017 1268571 000 00 CT

SAMMY X-PRESS

ITW Buildex

XP 200 for 1/4" and
XP 20 & XP 35 for 3/8" Rod

Expands to provide direct vertical attachment in:

- Metal Deck (22-16 gauge)
- Purlin (18-16 gauge)

U.S. Patent No.
6,935,821

- Installs in seconds, saves time & installation costs.
- Use in applications where easy access to the back of the installed fastener is prohibited.
- No retaining nut required.

Pipe Hanger

Approvals	Min Steel Ga.	Part #	Model	Screw Description	Rod Size	Pipe Size	Test Load
FM	12 ga	8150922	XP 20	Sammy X-Press 20	3/8 - 16"	3/4 - 4"	1475 Lbs.
	12 ga	8153922	XP 35	Sammy X-Press 35	3/8 - 16"	3/4 - 4"	1475 Lbs.
UL 9R21	22 ga	8150922	XP 20	Sammy X-Press 20	3/8 - 16"	3/4 - 2"	750 Lbs.
	18 ga	8153922	XP 35	Sammy X-Press 35	3/8 - 16"	3/4 - 3-1/2"	1250 Lbs.

Luminaire Fitting

Approvals	Min Steel Ga.	Part #	Model	Screw Description	Rod Size	Load Rating
UL 25ES	22 ga	8150922	XP 20	Sammy X-Press 20	3/8 - 16"	185 Lbs.
		8153922	XP 35	Sammy X-Press 35	3/8 - 16"	185 Lbs.
		8181922	XP 200	Sammy X-Press 200	1/4 - 20"	185 Lbs.
	16 ga	8150922	XP 20	Sammy X-Press 20	3/8 - 16"	250 Lbs.
		8153922	XP 35	Sammy X-Press 35	3/8 - 16"	250 Lbs.
		8181922	XP 200	Sammy X-Press 200	1/4 - 20"	250 Lbs.
		8151910	XPIT	Sammy X-Press It® Installation Tool		
		8152910	XPDB	25/64" Drill Bit		

***Tool Includes: Sleeve, Bit Receiver, Hex Wrench and 25/64" Drill Bit.**

Ask your supplier or call us at 800-BUILDEX.

SSS05

VIKING®

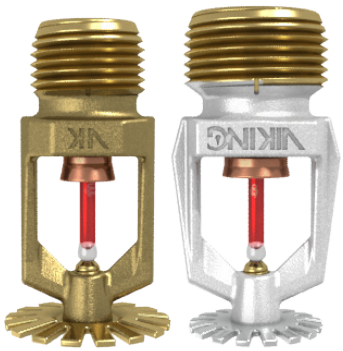
TECHNICAL DATA

MICROFAST® AND MicrofastHP® QUICK RESPONSE PENDENT SPRINKLERS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

1. DESCRIPTION

Viking Microfast® and MicrofastHP® Quick Response Pendent Sprinklers are small, thermosensitive, glass-bulb spray sprinklers available in several different finishes and temperature ratings and K-Factors to meet design requirements. The special Polyester,Polytetrafluoroethylene (PTFE), and Electroless Nickel PTFE (ENT) coatings can be used in decorative applications where colors are desired. In addition, these coatings have been investigated for installation in corrosive atmospheres and are listed/approved as corrosion resistant as indicated in the Approval Charts. (Note: **FM Global approves ENT finish as corrosion resistant.** FM Global has no approval classification for PTFE and Polyester coatings as corrosion resistant.)



PN 12979 **PN 06666B**

2. LISTINGS AND APPROVALS

cULus Listed: Category VNIV
FM Approved: Classes 2001, 2002, 2015, and 2017
NYC Approved: Calendar Number 219-76-SA and MEA 89-92-E, Volume 16
ABS Certified: Certificate 04-HS407984C-PDA
VdS Approved: Certificates G4040095, G4040097, G4060056, G4060057, G4880045, G4930038, and G4980021
LPC Approved: Ref. Nos. 096e/03 and 096e/04
CE Certified: Standard EN 12259-1, EC-certificates of conformity 0786-CPD-40130, 0786-CPD-40170 and 0786-CPD-40279, 0832-CPD-2001, and 0832-CPD-2003
MED Certified: Standard EN 12259-1, EC-certificate of conformity 0832-MED-1003 and 0832-MED-1008
NOTE: Other International approval certificates are available upon request.

Refer to Approval Chart 1 and Design Criteria on page 41d for cULus Listing requirements and refer to Approval Chart 2 and Design Criteria on page 41f for FM Approval requirements that must be followed.

3. TECHNICAL DATA

Specifications:
Available since 1987.
Minimum Operating Pressure: 7 psi (0.5 bar)*
Maximum Working Pressure: Sprinklers 12282 and 12290 are rated for use with water working pressures ranging from the minimum 7 psi (0.5 bar) up to 250 psi (17 bar) for high-pressure systems. High-pressure (HP) sprinklers can be identified by locating "250" stamped on the deflector. All other Part Nos. not mentioned above are rated to a maximum 175 psi (12 bar) wwp.
Factory tested hydrostatically to 500 psi (34.5 bar)
Thread size: Refer to the Approval Charts
Nominal K-Factor: Refer to the Approval Charts
Glass-bulb fluid temperature rated to -65 °F (-55 °C)
Overall Length: Refer to the Approval Charts

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

*cULus Listing, FM Approval, and NFPA 13 installs require a minimum of 7 psi (0.5 bar). The minimum operating pressure for LPCB and CE Approvals ONLY is 5 psi (0.35 bar).

Material Standards:
Frame Casting: Brass UNS-C84400 or QM Brass for Sprinklers 12979 and 12282. Brass UNS-C84400 for all other sprinklers.
Deflector: Phosphor Bronze UNS-C51000 or Copper UNS-C19500 for Sprinklers 12979, 06666B, and 06765B. Copper UNS-C19500 for Sprinkler 12282. Phosphor Bronze UNS-C51000, Copper UNS-C19500 or Brass UNS-C26000 for Sprinkler 06720B. Brass UNS-C26000 for all other Sprinklers.
Bushing (for Sprinklers 06718B, 06720B, and 12290): Brass UNS-C36000
Bulb: Glass, nominal 3 mm diameter
Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with PTFE Tape
Screw: Brass UNS-C36000
Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400
For PTFE Coated Sprinklers: Belleville Spring-Exposed, Screw-Nickel Plated, Pip Cap-PTFE Coated
For Polyester Coated Sprinklers: Belleville Spring-Exposed
For ENT Coated Sprinklers: Belleville Spring-Exposed, Screw and Pipcap - ENT coated.

VIKING®

TECHNICAL DATA

MICROFAST® AND MicrofastHP® QUICK RESPONSE PENDENT SPRINKLERS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Ordering Information: (Also refer to the current Viking price list.)
Order Microfast® and MicrofastHP® Quick Response Pendent Sprinklers by first adding the appropriate suffix for the sprinkler finish and then the appropriate suffix for the temperature rating to the sprinkler base part number.
Finish Suffix: Brass = A, Chrome = F, White Polyester = M-/W, Black Polyester = M-/B, Black PTFE = N, and ENT = JN
Temperature Suffix: 135 °F (57 °C) = A, 155 °F (68 °C) = B, 175 °F (79 °C) = D, 200 °F (93 °C) = E, and 286 °F (141 °C) = G
For example, sprinkler VK302 with a 1/2" thread, Brass finish and a 155 °F (68 °C) temperature rating = Part No. 12979AB

Available Finishes And Temperature Ratings:

Refer to Table 1.

Accessories: (Also refer to the "Sprinkler Accessories" section of the Viking data book.)

Sprinkler Wrenches:

A. Standard Wrench: Part No. 10896W/B (available since 2000).
B. Wrench for Recessed Pendent Sprinklers: Part No. 16036W/B* (available since 2011)
C. Optional Protective Sprinkler Cap Remover/Escutcheon Installer Tool** Part No. 15915 (available since 2010.)
*A ½" ratchet is required (not available from Viking).
**Allows use from the floor by attaching a length of 1" diameter CPVC tubing to the tool. Ideal for sprinkler cabinets. Refer to Bulletin F_051808.

Sprinkler Cabinets:

A. Six-head capacity: Part No. 01724A (available since 1971)
B. Twelve-head capacity: Part No. 01725A (available since 1971)

4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

5. OPERATION

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

6. INSPECTIONS, TESTS AND MAINTENANCE

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

7. AVAILABILITY

The Viking Microfast® and MicrofastHP® Quick Response Pendent Sprinklers are available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

8. GUARANTEE

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

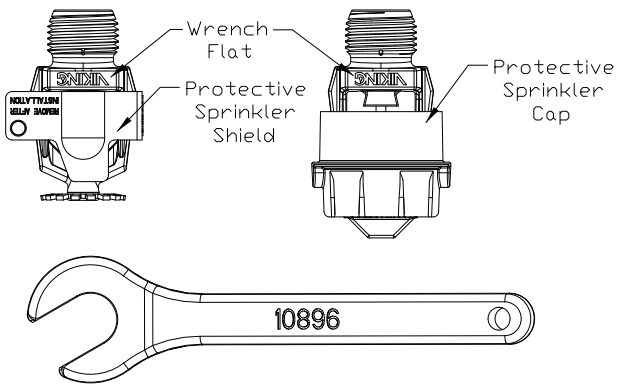


Figure 1: Standard Sprinkler Wrench 10896W/B

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TECHNICAL DATA

MICROFAST® AND MicrofastHP® QUICK RESPONSE PENDENT SPRINKLERS

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TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES

Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating[1]	Maximum Ambient Ceiling Temperature[2]	Bulb Color
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue

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

Corrosion-Resistant Coatings[3]: White Polyester, Black Polyester, and Black PTFE. ENT in all temperature ratings except 135 °F (57 °C).

Footnotes

[1] The sprinkler temperature rating is stamped on the deflector.

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

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

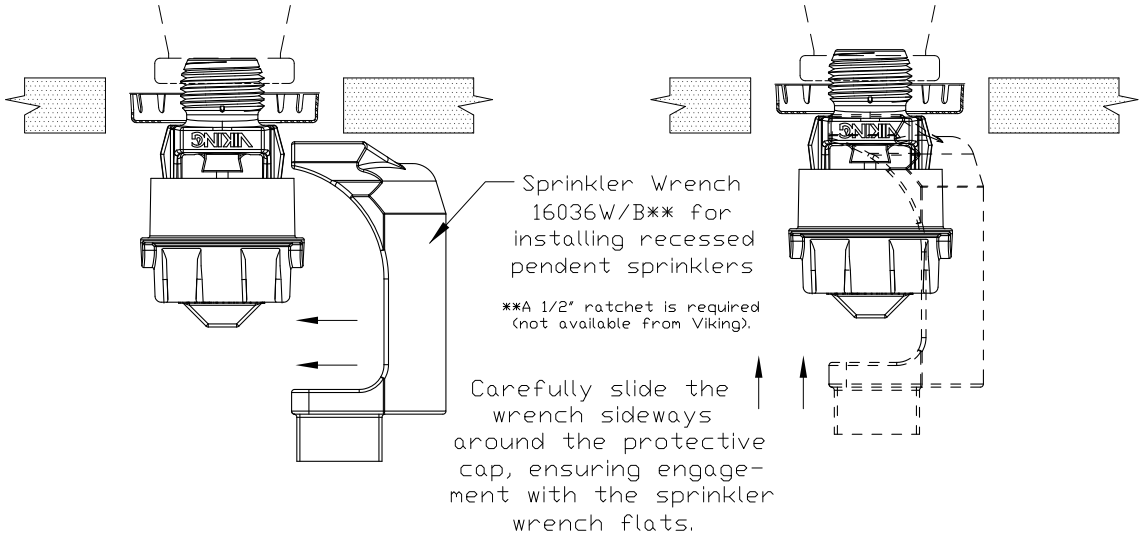

Figure 2: Wrench 16036W/B for Recessed Pendent Sprinklers

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TECHNICAL DATA

MICROFAST® AND MicrofastHP® QUICK RESPONSE PENDENT SPRINKLERS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
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Approval Chart 1 (UL)

Microfast® and MicrofastHP® Quick Response Pendent Sprinklers
Maximum 175 PSI (12 bar) WWP

KEY: A1X — Temperature, Finish, Escutcheon (if applicable)

Sprinkler Base Part No.[1]	SIN	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals[3] (Refer also to Design Criteria on page 41e.)					
		NPT	BSP	U.S.	metric[2]	Inches	mm	cULus[4]	NYC[5]	VdS	LPCB	CE	
Standard Orifice													
12979	VK302	1/2”	15 mm	5.6	80.6	2-1/4”	57	A1X, B1Y, C4, E4Z	A1X, B1Y	--	--	--	--
18021	VK302	1/2”	15 mm	5.6	80.6	2-1/4”	58	A1X, B1Y	A1X, B1Y	A2	A2X, B2Y	C2X, E2Y[11]	C2X, E2Y[14]
Large Orifice													
06666B	VK352	3/4”	20 mm	8.0	115.2	2-3/8”	60	A1X, B1Y, C4, E4Z	A1X, B1Y	A2	A2X	C2[11]	--
06765B[15]	VK352	1/2”	15 mm	8.0	115.2	2-3/8”	60	A1X, B1Y, C4, E4Z	A1X, B1Y	A2	--	A2[12]	--
Small Orifice[8]													
06718B[9]	VK329	1/2”	15 mm	2.8	40.3	2-3/16”	56	A1X, B1Y	A1X, B1Y	--	--	--	--
06720B[9]	VK331	1/2”	15 mm	4.2	57	2-1/4”	58	A1X, B1Y	A1X, B1Y	--	--	--	--
06932B	VK3311	--	10 mm	4.2	57	2-3/8”	60	--	--	A2	--	G3[13]	--
Maximum 250 PSI (17 bar) WWP Standard Orifice													
Sprinkler Base Part No[1]	**SIN**	**Thread Size**		**Nominal K-Factor**		**Overall Length**		**Listings and Approvals[3] (Refer also to Design Criteria on page 41e.)**					
		NPT	BSP	U.S.	metric[2]	Inches	mm	cULus[4]	NYC[10]	VdS	LPCB	CE	
12282	VK317	1/2”	15 mm	5.6	80.6	2-1/4”	58	A1X, B1Y	A1X	--	--	--	--
Maximum 250 PSI (17 bar) WWP Small Orifice[9]													
12290[10]	VK342	1/2”	15 mm	2.8	40.3	2-3/16”	56	A1X, B1Y	A1X	--	--	--	--

Approved Temperature Ratings

A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)
B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)
C - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)
D - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 286 °F (141 °C)
E - 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)
F - 155 °F (68 °C), 175 °F (79 °C), and 286 °F (141 °C)
G - 155 °F (68 °C)

Approved Finishes

1 - Brass, Chrome, White Polyester[6,7], Black Polyester[6,7], and Black PTFE[6]
2 - Brass, Chrome, White Polyester[7], and Black Polyester[7]
3 - Brass and Chrome
4 - ENT[6]

Approved Escutcheons

X - Standard surface-mounted escutcheon or the Viking Microfast® Model F-1 Adjustable Escutcheon
Y - Standard surface-mounted escutcheon or the Viking Microfast® Model F-1 Adjustable Escutcheon **or** recessed with the Viking Micromatic® Model E-1, E-2, or E-3 Recessed Escutcheon
Z - Standard surface-mounted escutcheon or recessed with the Viking Micromatic® Model E-1

Footnotes

[1] Base part number is shown. For complete part number, refer to Viking’s current price schedule.
[2] Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
[3] This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals.
[4] Listed by Underwriters Laboratories Inc. for use in the U.S. and Canada.
[5] Accepted for use, City of New York Board of Standards and Appeals, Calendar Number 219-76-SA.
[6] cULus Listed as corrosion resistant.
[7] Other colors are available on request with the same Listings and Approvals as the standard colors.
[8] Listings and Approvals limited to Light Hazard Occupancies where allowed by the installation standards being applied, with hydraulically calculated wet systems only. **Exception:** 4.2K sprinklers may be installed on hydraulically calculated dry pipe systems where piping is corrosion resistant or internally galvanized.
[9] The sprinkler orifice is bushed.
[10] Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 16.
[11] CE Certified, Standard EN 12259-1, EC-certificates of conformity 0832-CPD-2001 and 0832-CPD-2003.
[12] CE Certified, Standard EN 12259-1, EC-certificate of conformity 0786-CPD-40279.
[13] CE Certified, Standard EN 12259-1, EC-certificate of conformity 0786-CPD-40130 and 0786-CPD-40170.
[14] MED Certified, Standard EN 12259-1, EC-certificates of conformity 0832-MED-1003 and 0832-MED-1008.
[15] The 1/2” NPT Large Orifice Sprinkler is Listed and Approved for retrofit only.

VIKING®

TECHNICAL DATA

MICROFAST® AND MicrofastHP® QUICK RESPONSE PENDENT SPRINKLERS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

DESIGN CRITERIA - UL

(Also refer to Approval Chart 1 on page 41d)

cULus Listing Requirements:

Microfast® and MicrofastHP® Quick Response Pendent Sprinklers are cULus Listed as indicated in the Approval Chart for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers.

- Designed for use in Light and Ordinary Hazard occupancies *(exception: small orifice sprinklers are limited to Light Hazard where allowed by the installation standards being applied, with hydraulically calculated wet systems only).*
- The sprinkler installation rules contained in NFPA 13 for standard spray pendent sprinklers must be followed.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to page QR1-3 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.

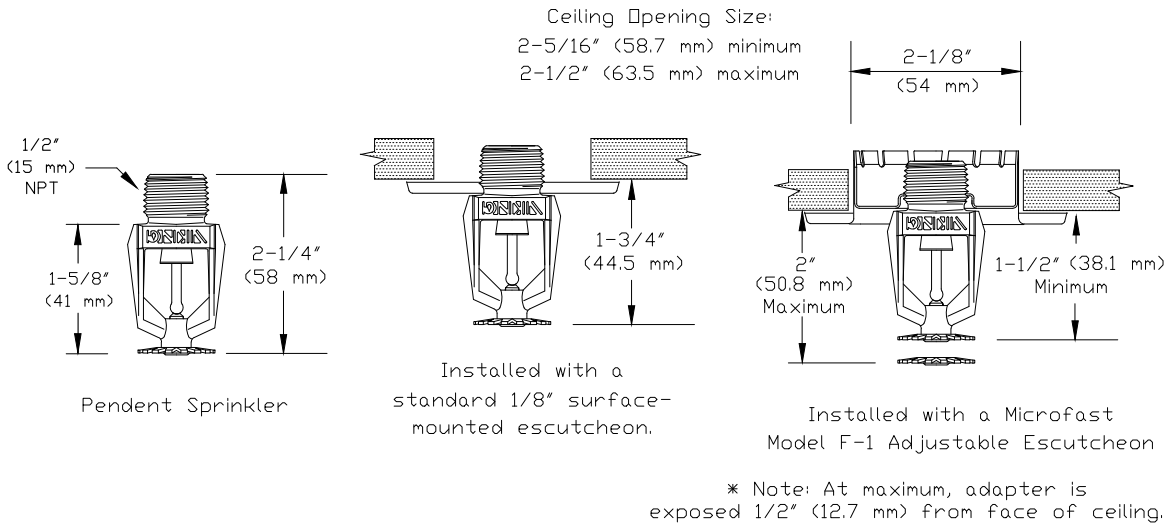

Figure 3: Sprinkler VK302 Dimensions with a Standard Escutcheon and the Model F-1 Adjustable Escutcheon

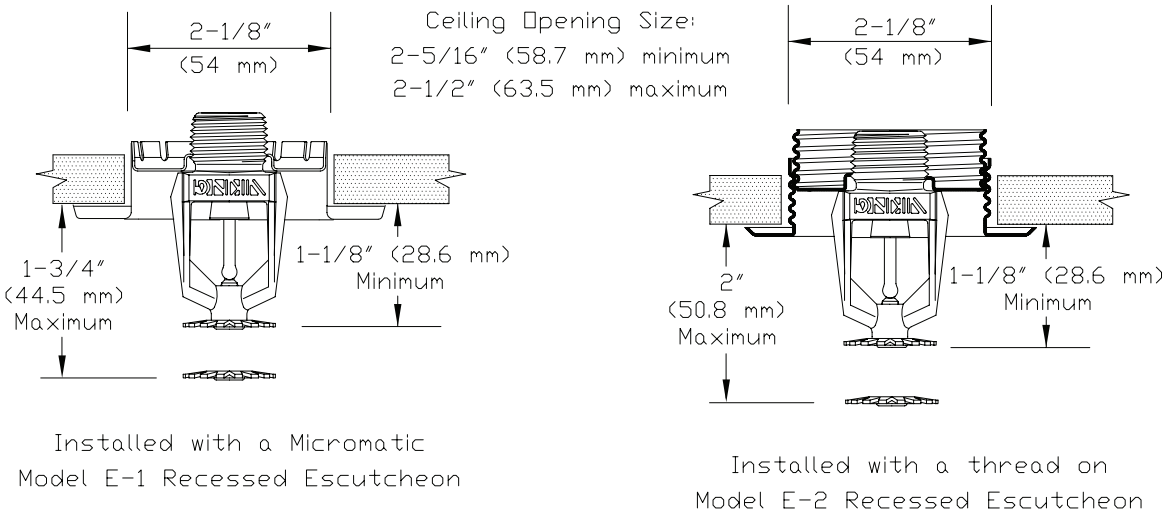

Figure 4: Sprinkler VK302 Dimensions with the Model E-1 and E-2 Recessed Escutcheons

VIKING®

TECHNICAL DATA

MICROFAST® AND MicrofastHP® QUICK RESPONSE PENDENT SPRINKLERS

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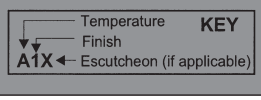
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Approval Chart 2 (FM)

Microfast® Quick Response Pendent Sprinklers
Maximum 175 PSI (12 bar) WWP



Sprinkler Base Part No.[1]	SIN	Thread Size		Nominal K-Factor		Overall Length		FM Approvals[3] (Refer also to Design Criteria below.)
		NPT	BSP	U.S.	metric[2]	Inches	mm	
Standard Orifice								
12979	VK302	1/2"	15 mm	5.6	80.6	2-1/4"	57	A2X, B2Y, C3, D3Z
18021	VK302	1/2"	15 mm	5.6	80.6	2-1/4"	58	A2X, B2Y
Large Orifice								
06666B	VK352	3/4"	20 mm	8.0	115.2	2-3/8"	60	A2X, B2Y, C3, D3Z
06765B[7]	VK352	1/2"	15 mm	8.0	115.2	2-3/8"	60	A2X, B2Y, C3, D3Z
Small Orifice[4]								
06718B[6]	VK329	1/2"	15 mm	2.8	40.3	2-3/16"	56	A1X

Approved Temperature Ratings

A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)
B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)
C- 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)
D - 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)

Approved Finishes

1 - Brass and Chrome
2 - Brass, Chrome, White Polyester[5], and Black Polyester[5]
3 - ENT[8]

Approved Escutcheons

X - Standard surface-mounted escutcheon or the Viking Microfast® Model F-1 Adjustable Escutcheon
Y - Standard surface-mounted escutcheon or the Viking Microfast® Model F-1 Adjustable Escutcheon **or** recessed with the Viking Micromatic® Model E-1, E-2, or E-3 Recessed Escutcheon
Z - Standard surface-mounted escutcheon or recessed with the Viking Micromatic® Model E-1

Footnotes

[1] Base part number is shown. For complete part number, refer to Viking's current price schedule.
[2] Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
[3] This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals.
[4] FM Approved as quick response control mode standard spray **Non-storage** sprinklers. For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including Data Sheet 2-0).
[5] Other colors are available on request with the same Listings and Approvals as the standard colors.
[6] The sprinkler orifice is bushed.
[7] The 1/2" NPT Large Orifice Sprinkler is Listed and Approved for retrofit only.
[8] FM approved as corrosion resistant.

DESIGN CRITERIA - FM

(Also refer to Approval Chart 2 above.)

FM Approval Requirements:

The sprinklers indicated in Approval Chart 2 are FM Approved as quick response **Non-storage** standard spray pendent sprinklers as indicated in the FM Approval Guide†. For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including Data Sheets 2-0 and 8-9). FM Global Loss Prevention Data Sheets contain guidelines relating to, but not limited to: minimum water supply requirements, hydraulic design, ceiling slope and obstructions, minimum and maximum allowable spacing, and deflector distance below the ceiling.

NOTE: The FM installation guidelines may differ from cULus and/or NFPA criteria.

†Sprinklers VK302 and VK352 are also FM Approved as quick response **Rack Storage** standard spray pendent sprinklers. Refer to technical data page 131a-e for Intermediate Level In-Rack Sprinklers.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to page QR1-3 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.