

SUBMITTAL REVIEW COMMENTS

PROJECT Verdad - The Grove
PROJECT NO 2150004838
DATE 1/11/2023
SUBMITTAL VRF Piping
SUBMITTAL NO 230000-2.1
REVIEWER MJW
HENDERSON NO M003R1

<input type="checkbox"/> Approved	Fabrication and/or installation may be undertaken. Approval does not authorize changes to the contract sum or contract time.
<input checked="" type="checkbox"/> Approved as Corrected	
<input type="checkbox"/> Revise and Resubmit	Fabrication and/or installation may not be undertaken. In resubmitting, limit corrections to items marked.
<input type="checkbox"/> Rejected	
<input type="checkbox"/> No Action Taken	Submittal either not required for this item or provided for information only. Contract requirements should be followed in all cases.

Review/approval neither extends nor alters any contractual obligations of the Engineer or Contractor. Checking of submittals is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Any action shown is subject to the general requirements of the plans and specifications. Contractor is responsible for dimensions, quantities, and coordination between trades and for coordinating approved items and accepted alternates.

HENDERSON ENGINEERS, INC.

ACTION CODES

1	2	3	4	5	6
Approved	Approved as Corrected	Revise & Resubmit Items Noted	Rejected	Not Reviewed	For Information Only

(Action Item Codes 1, 2, 5 or 6 are not to be resubmitted.)

COMMENT #	ACTION CODE	DESCRIPTION	COMMENTS
1	1	Ball Valves	-Approved per mech specifications.
2	1	Armaflex Adhesive	-Approved per mech specifications.
3	1	Copper Tube	-Approved per mech specifications.
4	1	Copper Fittings	-Approved per mech specifications.
5	4	Ball Valves (Pg 20 -21)	-These ball valves are superseded by the above ball valves.
6	1	Global Brazing Solutions	-Approved per mech specifications.
7	1	Solder	-Approved per mech specifications.
8	1	Armaflex Tube Insulation	-Approved per mech specifications.

COMMENT #	ACTION CODE	DESCRIPTION	COMMENTS
9	1	Armaflex Adhesive	-Approved per mech specifications.
10	1	Armaflex Protective Coating	-Approved per mech specifications.
11	1	Clevis Hanger	-Approved per mech specifications.
12	1	Riser Clamp	-Approved per mech specifications.
13	1	Pipe Support Stand	-Approved per mech specifications.
14	1	Pipe Shields & Saddles	-Approved per mech specifications.
15	1	Unistrut Pipe & Conduit Supports	-Approved per mech specifications.
16	1	Free Standing Single Pipe Support Stand	-Approved per mech specifications.
17	6	Sammy X-Press	-Retained for information. This submittal needs reviewed by the arch and structural.
18	6	Beam Clamp	-Retained for information. This submittal needs reviewed by the arch and structural.
19	6	Retainer Strap	-Retained for information. This submittal needs reviewed by the arch and structural.
20	6	Hardware, All thread, Hangers, Rod Coupling	-Retained for information. This submittal needs reviewed by the arch and structural.
21	6	Channel, Channel Nuts & Hardware	-Retained for information. This submittal needs reviewed by the arch and structural.
22	6	Grip Lock Nuts & Hardware	-Retained for information. This submittal needs reviewed by the arch and structural.
23	6	Superstrut Fittings & Brackets	-Retained for information. This submittal needs reviewed by the arch and structural.
24	6	Caddy Eristrut	-Retained for information. This submittal needs reviewed by the arch and structural.
25	6	Structural Attachments Beams	-Retained for information. This submittal needs reviewed by the arch and structural.
26	6	Caddy Rod Lock	-Retained for information. This submittal needs reviewed by the arch and structural.

Note: Henderson's processing of these submittals does not relieve other members of the design and construction team from reviewing submittals for coordination, compliance and performance or reviewing submittals as outlined in the contract documents or both.

ARCHITECTURAL & STRUCTURAL REVIEWS ARE NOT TYPICALLY PROVIDED FOR THIS SUBMITTAL. REVIEW ONLY PROVIDED BY MEP ENGINEER.



Submittal Transmittal

Aria Group Architects, Inc. | 830 North Blvd Oak Park IL 60301 United States

PROJECT: Perrys-Verdad The Grove 214735.000 DATE SENT: 1/10/2023
 RETURN BY: 1/12/2023

SUBJECT: 230000-2.1_VRF Piping Resubmittal SUBMITTAL ID: 032r01

TYPE: Submittal TRANSMITTAL ID: 00172

PURPOSE: For Review VIA: Info Exchange

SPEC SECTION: 230000

FROM

NAME	COMPANY	EMAIL	PHONE
SHELLIE HALKYARD	Aria Group Architects, Inc.	shalkyard@ariainc.com	(708) 445-8400

TO

NAME	COMPANY	EMAIL	PHONE
Rhonda Charlett	Henderson Engineers, Inc.	Rhonda.Charlett@hendersonengineers.com	(913) 742-5367
Coy Macy	Henderson Engineers, Inc.	Coy.Macy@hendersonengineers.com	(913) 742-5611

REMARKS: **Rhonda/Coy,**

Please see the enclosed VRF resubmittal. ICI is requesting that we return comments by 1/12.

Thank you,
Shellie Halkyard

Procure Due Date:
 01/12/2023

Workflow Comments from ICI:
 Resubmittal for your review. Thanks

Submittal Transmittal

DATE: 1/10/2023

ID: 00172

DESCRIPTION OF CONTENTS

QTY	DATED	TITLE	NUMBER	NOTES
1	1/10/2023	230000-2-1 - Submittal Form.pdf		
1	1/10/2023	230000-2.1_ Airco VRF Piping_Resubmittal.pdf		

COPIES:

BRIAN ZIELINSKI (Aria Group Architects, Inc.)
PAUL NAGTALON (Aria Group Architects, Inc.)
SHELLIE HALKYARD (Aria Group Architects, Inc.)



Submittal

International Contractors, Inc.
 1 Mid America Plaza, 7th Floor
 Oakbrook Terrace, Illinois 60181
 Phone: (630) 834-8043
 Fax: (630) 834-8046
 www.icibuilds.com

Project: 001223 - Verdad the Grove, Austin, TX
 2701 Perseverance Drive
 Austin, Texas 78731

230000-2.1_VRF Piping Resubmittal

SPEC SECTION: 230000 - HVAC	SUBMITTAL #: 230000-2
STATUS: Open	DATE CREATED: 01/10/2023
ISSUE DATE: 01/10/2023	REVISION: 1
RESPONSIBLE CONTRACTOR: AiRCO Mechanical	RECEIVED FROM: Shayne Terry
RECEIVED DATE: 01/09/2023	SUBMIT BY: 01/10/2023
FINAL DUE DATE: 01/12/2023	LOCATION:
TYPE: Product Information	COST CODE: 01-0011 - Project Engineer - Office
APPROVERS: Victor Baez (International Contractors, Inc.), Shellie Halkyard (Aria Group Architects, Inc.), Paul Nagtalon (Aria Group Architects, Inc.)	CREATED BY: Victor Baez (International Contractors, Inc.)

BALL IN COURT:
 Shellie Halkyard (**Aria Group Architects, Inc.**), Paul Nagtalon (**Aria Group Architects, Inc.**)

DISTRIBUTION:
 Ricardo Bustos (**International Contractors, Inc.**) , Jack Moore (**International Contractors, Inc.**) , Scott Leadbetter (**International Contractors, Inc.**) , Austin Darrell (**International Contractors, Inc.**)

DESCRIPTION:

ATTACHMENTS:

SUBMITTAL WORKFLOW

#	NAME	SUBMITTER/APPROVER	DUE DATE
1	Shayne Terry	Submitter	1/10/2023
2	Victor Baez	Approver	1/10/2023
3	Shellie Halkyard	Approver	1/12/2023
4	Paul Nagtalon	Approver	1/12/2023

INTERNATIONAL CONTRACTORS, INC.
 INTERNATIONAL CONTRACTORS REVIEW OF THIS SUBMITTAL IS FOR GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS. SUBCONTRACTOR IS RESPONSIBLE FOR DETAILS AND ACCURACY, FOR CONFIRMING AND VERIFYING ALL DIMENSIONS AND QUANTITIES, AND ASSURING COORDINATION WITH RESPECTIVE RELATED TRADES AND WORK.
 ICI REVIEWER: VICTOR BAEZ DATE: 1/10/2023
 TIME: _____



Submittal

International Contractors, Inc.
 1 Mid America Plaza, 7th Floor
 Oakbrook Terrace, Illinois 60181
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BALL IN COURT:
 Victor Baez (International Contractors, Inc.)

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 ICI REVIEWER: VICTOR BAEZ DATE: 1/10/2023
 TIME: _____



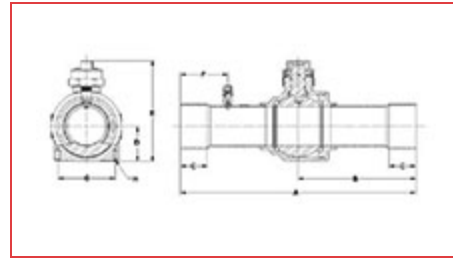
Mueller Streamline Co. Headquarters

150 Schilling Blvd
Suite 201
Collierville, Tennessee 38017
United States
Phone: 901 753 3200

Mueller Streamline Co. International

525 Okeechobee Blvd
Suite 860
West Palm Beach, FL 33401
United States
Phone: 561 273 8300

ITEM # AQ17860C, CYCLEMASTER® BALL VALVES - STANDARD WITH ACCESS PORT



[Specifications](#) | [Dimensions](#)

Specifications

Connection Size	3/8 in
Cv	4.30
Kv	4
Port	0.50 in
MAP	53 bar 775 psi
Weight	0.24 kg 0.52 lb
Seal Cap Kit	A 17842
Operating Temperature [Min]	-40 °C -40 °F

Operating Temperature [Max]	149 °C 300 °F
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Reference Indication	Standard product offering includes drilled/ tapped feature
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Dimensions

A	5.50 in 140 mm
B	2.98 in 76 mm
C Min	0.31 in 8 mm
D	0.54 in 14 mm
E	2.23 in 57 mm
F	1.16 in 29 mm
G	0.87 in 22 mm
H	M4 X 0.7

MUELLER REFRIGERATION, LLC.

BALL VALVE SPECIFICATIONS

STANDARD, STANDARD WITH ACCESS, THREADED

PERFORMANCE:

MAXIMUM WORKING PRESSURE-

1-5/8" and Below: 775 PSIG (5.3 MPa)

2-1/8" and Above: 700 PSIG (4.8 MPa)

BURST PRESSURE-

1-5/8" and Below: 3875 PSIG (26.4 MPa) Minimum Hydrostatic Strength Test, or 2325 PSIG (16.0 MPa) Minimum Hydrostatic Strength Test and Fatigue Test per UL207.

2-1/8" and Above: 3500 PSIG (24.1 MPa) Minimum Hydrostatic Strength Test, or 2100 PSIG (14.5 MPa) Minimum Hydrostatic Strength Test and Fatigue Test per UL207.

BALL SEAL-

VACUUM HOLD-
LEAK RATE-

29.0 IN/HG @ 1 HR
<10.0 OZ/YR @ 300 PSI

The vacuum hold and leak rate are based on the conditions that a valve would be exposed to in a refrigeration system. Oil may need to be applied to the ball of the valve to replicate this condition.

The ball valves are not designed to be used as permanent shutoff to atmosphere valves. The intended function of this ball valve is to temporarily isolate components or sections of a refrigeration system for repair.

ASSEMBLY SEAL TO ATMOSPHERE

VACUUM HOLD-
LEAK RATE-

29.0 IN/HG @ 24 HRS
< 0.1 OZ/YR

FLOW RATES BY CONNECTION SIZE (Cv)-

1/4"	1.0
3/8"	4.3
1/2"	6.2
5/8"	11.2
3/4"	19.0
7/8"	29.3
1-1/8"	59.6
1-3/8"	84.6
1-5/8"	225.0
2-1/8"	291.6
2-5/8"	423.5
3-1/8"	553.2
2-5/8"	230.4 (Reduced Port)
3-1/8"	143.5 (Reduced Port)

FLUID COMPATIBILITY-

ALL TYPES OF FLUORINATED REFRIGERANTS
AND OILS

RELIABILITY:

TEMPERATURE LIMITS-

-40°F / 300°F

LIFE EXPECTANCY-

> 50,000 CYCLES

MUELLER REFRIGERATION, LLC.
BALL VALVE SPECIFICATIONS
STANDARD, STANDARD WITH ACCESS, THREADED

MATERIALS OF CONSTRUCTION

<p>BODY, FORGED BRASS- TAILPIECE, ROD OR FORGED BRASS - TUBE ENDS, COPPER - BALL, BRASS OR STEEL- BALL SEALS- STEM, BRASS OR STEEL- STEM, "O" RING- SEAL CAP, TWO-PIECE, FORGED- SEAL CAP NUT, TWO-PIECE, BRASS ROD- SEAL CAP GASKET- SEAL CAP ANTI-FRICTION RING- STOP PIN- BRAZE RINGS, BODY&TAILPIECE/TUBE- KNURLED NUT (WHEN REQ) - LINE FLARE GASKET (WHEN REQ) - ACCESS FITTING, BRASS (WHEN REQ) - BRAZE RING, FITTING (WHEN REQ) - VALVE CORE (WHEN REQ) -</p>	<p>BRASS BRASS COPPER STAINLESS, PLATED BRASS, OR PLATED STEEL PTFE BRASS, STAINLESS, OR PLATED STEEL NEOPRENE BRASS BRASS PTFE NYLON STAINLESS OR PLATED STEEL BRAZING ALLOY BRASS NEOPRENE BRASS BRAZING ALLOY PLATED BRASS, PLATED STEEL, OR STAINLESS, PTFE OR NEOPRENE SEALS</p>
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CODE APPROVALS

<p>UL LISTED FILE NO. (US)- cUL LISTED FILE NO. (Canada)- CRN</p>	<p>SA 1392 VOL 2/SFJQ SA 1392 VOL 2/SFJQ7 0C1241.9</p>
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MARKED IN ACCORDANCE WITH PRESSURE EQUIPMENT DIRECTIVE

RoHs and REACH COMPLIANT

Fiber Free

Armaflex® 520 BLV Adhesive

A black, low VOC air-drying contact adhesive that is excellent for joining seams and butt joints of Armaflex Pipe and Sheet Insulations



- Formulated for Armaflex Insulations
- Developed to meet SCAQMD RULE 1168
- Hexane-free, Toulene-free, contact adhesive
- Proven: no gapping, no tape needed

 armacell®



Technical Data: Armaflex 520 BLV Adhesive

Description:

A black, low VOC air-drying contact adhesive that is excellent for joining seams and butt joints of Armaflex Pipe and Sheet Insulations

Specifications Compliance:

Meets South Coast Air Quality Management District (SCAQMD) Rule 1168

Approvals, Certifications, Compliances:

• All Armacell facilities in North America are ISO 9001:2008 certified.

Typical Properties

Specifications:	Values	
Color:	Black	
Net Weight:	6.9 pounds per gallon (828 g/l)	
Composition:	Synthetic rubber base with synthetic resins and fillers added; hydrocarbon- and ketone-type solvents.	
Volatile Organic Compounds (VOC) Content:	Zero V.O.C. g/l calculated SCAQMD 1168 and EPA Method 24	
Solids Content	Approximately 30% by weight	
Coverage	200 sq ft (5m ² /l) per gallon max, single coat (depending upon porosity of materials bonded and air temperature)	
Shelf Life	2 years in original sealed container; storage temperature 60°F to 80°F (16°C to 27°C)	
Temperature Limits	250°F (120°C) – Armaflex Pipe Insulation seams and joints	
Dry Time Before Bonding	3-5 minutes depending on ambient conditions	
Bond Time	3-6 minutes	
Full Cure Time	36 hours	
Container Sizes	Pint brush-top cans and gallon containers	
Wet Flash Point	Below -4°F (-20°C) (TOC)	ASTM E 84
Flame Spread and Smoke Developed Index:	25/50 rated	
Minimum Application Temperature:	40°F (4°C)	

ARMACELL LLC

TEL: 800.866.5638

FAX: 919.304.3847

info.us@armacell.com

www.armacell.us

7600 Oakwood Street Extension, Mebane, NC 27302



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1000 South IH-35, Round Rock, TX 78681
Phone | 512-906-3900 • Fax | 512-837-3112 • www.aircomechanical.com

Materials:

VRF Specific - Refrigerant / Condensate Piping & Accessories

Spec Section Reference:

Airco Contact:

Phone:

Email:

Sub-Sections:

- 1) Pipe, Valves, Fittings & Joining Materials
- 2) Insulation, Joining Materials & Outdoor Paint
- 3) Hangers, Supports & Accessories



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Sub-Section:

1) VRF Specific Pipe, Valves, Fittings & Joining Materials

Spec Section Reference:

Airco Contact:

Phone:

Email:

Special Conditions for VRF Piping Install:

Per piping installation training provided by [2] manufacturers, and Airco's install experience with factory rep inspections, the manufacturer insists that 36" of soft copper is used at connections to each VRF Fan Coil Unit and Branch Selector Boxes (if the system is Heat Recovery). This is due to the rapid reversing and exchange of heat that occurs when the systems experience change-over between heating and cooling modes.

The manufacturer also requires a minimum of 20" between any [2] 90 degree elbows to prevent cracking of refrigerant piping.

Please see special notes about clamping, supporting and hanging in the Hanger & Support sub-section.





REFERENCE INFORMATION*

COPPER TUBE

Size		Type K		Type L/ACR		Type M		DWV	
NOM	O.D.	HARD	COILS	HARD	COILS	HARD	COILS	HARD	
STANDARD LENGTHS		20' Lengths	60' thru 1-1/2 100' thru 1-1/4 40' and 60'-2" only	20' Lengths	60' thru 1-1/2 100' thru 1-1/4 40' - 2" only	20' Lengths	Consult	20' Lengths	
NOM	O.D.	WALL	WGT/FT	WALL	WGT/FT	WALL	WGT/FT	WALL	WGT/FT
1/4"	3/8"	0.035	0.145	N/A	0.126	0.025	0.106	—	—
3/8"	1/2"	0.049	0.269	0.035	0.198	0.025	0.145	—	—
1/2"	5/8"	0.049	0.344	0.040	0.285	0.028	0.204	—	—
5/8"	3/4"	0.049	0.418	0.042	0.362	0.030	0.263	—	—
3/4"	7/8"	0.065	0.641	0.045	0.455	0.032	0.328	—	—
1"	1-1/8"	0.065	0.839	0.050	0.655	0.035	0.465	—	—
1-1/4"	1-3/8"	0.065	1.04	0.055	0.884	0.042	0.682	0.040	0.650
1-1/2"	1-5/8"	0.072	1.36	0.060	1.14	0.049	0.940	0.042	0.809
2"	2-1/8"	0.083	2.06	0.070	1.75	0.058	1.46	0.042	1.07
2-1/2"	2-5/8"	0.095	2.93	0.080	2.48	0.065	2.03	—	—
3"	3-1/8"	0.109	4.00	0.090	3.33	0.072	2.68	0.045	1.69
3-1/2"	3-5/8"	0.120	5.12	0.100	4.29	0.083	3.58	—	—
4"	4-1/8"	0.134	6.51	0.110	5.38	0.095	4.66	0.058	2.87
5"	5-1/8"	0.160	9.67	0.125	7.61	0.109	6.66	0.072	4.43
6"	6-1/8"	0.192	13.90	0.140	10.20	0.122	8.92	0.083	6.10
8"	8-1/8"	0.271	25.90	0.200	19.30	0.170	16.46	—	—

FOR SPECIAL LENGTHS OR TEMPER CONSULT TUBE PRODUCTS DIVISION FOR PRICE AND AVAILABILITY

REFRIGERATION SERVICE TUBE

O.D. Size	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	7/8"	1-1/8"	1-3/8"	1-5/8"
WALL THICKNESS	0.030	0.030	0.030	0.032	0.032	0.032	0.035	0.035	0.045	0.050	0.055	0.060
WEIGHT PER FOOT	0.0347	0.0575	0.0804	0.109	0.134	0.182	0.251	0.305	0.455	0.655	0.884	1.14
WEIGHT PER COIL+	1.74	2.88	4.02	5.45	6.70	9.10	12.55	15.25	22.75	32.75	44.20	57.00
COIL DIAMETER	14-3/4"	14-3/4"	14-3/4"	16-1/2"	16-1/2"	20"	22"	25"	27-1/2"	34-1/2"	39-1/2"	42"
COILS PER MASTER	10	10	10	10	10	5	5	3	3	—	—	—
WEIGHT PER MASTER	17.4	28.80	40.20	54.50	67.00	45.50	62.75	45.75	22.75	32.75	44.20	57.00

+STANDARD 50 FT. COIL - 100 FT COILS ALSO AVAILABLE AS STANDARD STOCK ITEM

TEMPERATURE CONTROL TUBE

PACKED 2000 FT PER WOOD BOX

O.D.	WALL	WGT/FT
1/4"	0.025	0.0685

O.D.	WALL	WGT/FT
1/4"	0.032	0.0849

PLASTIC COATED COPPER TUBE

Polyethylene coating made from low density LDPE resin and is extruded at 0.025" minimum wall.

*REFERENCE WALL THICKNESS, WEIGHTS, AND WGT/FT ARE NOMINAL.

COPPER FITTINGS FOR HVACR APPLICATIONS

Job Name _____ **Contractor** _____

Job Location _____ **Wholesaler** _____

Engineer _____ **Streamline® Rep** _____

Product Description:

Streamline® Wrot Copper fittings for use in refrigeration applications. Available sizes ranging from 1/4" to 8-1/8" in outside diameter; all fittings should be manufactured in the United States. Product is designed to join ASTM B280 and ASTM B88 seamless copper tube.

Material:

Streamline® Wrot Copper fittings shall be made from material in compliance with ASTM B75 and of UNS C12200 grade of copper.


Key Specifications:

Streamline® Wrot Copper, solder-joint, pressure fittings shall conform to ASME B16.22 and MSS SP104. Streamline® Wrot Copper, solder-joint, pressure fittings are third party verified in select sizes¹ through Underwriters Laboratories (UL) for operating pressure of 700psi at 250°F.

Installation:

Installations shall comply with the latest applicable building codes for the local jurisdiction. For detailed installation instructions, consult the Copper Development Association at copper.org.

References:

Product Line	Product Type	Diameter
Copper Fittings  US 700 PSI R410A	Streamline® Wrot Solder-Joint Pressure	1/8" – 2-5/8"

*700PSI at 250°F

ASTM B75	Seamless Copper Tube
C12200	99.9% Pure Copper
ASME B16.22	Wrot Copper and Copper Alloy Solder Joint Pressure Fittings
MSS SP104	Wrot Copper Solder and Joint Pressure Fittings

Other Applicable Standards

ASTM B88	Seamless Copper Water and Gas Tube (Types K, L, M)
ASTM B280	Seamless Copper Tube for Air Conditioning and Refrigeration



COPPER FITTINGS - HVACR SOLDER JOINT PRESSURE WROT & CAST

NOTE: ALL SIZES ARE OD

ADAPTER

FEMALE WC-402 C x F

Part	Size	Box	Ctn	Wt
W 01204	1/4 x 1/2	100	300	0.1
W 01205	x 3/8	100	700	0.05
W 01206	x 1/4	100	900	0.04
W 01207	x 1/8	100	1,500	0.04
W 01214	3/8 x 3/8	50	750	0.06
W 01215	x 1/4	50	750	0.04
W 01216	x 1/8	100	1,500	0.03
W 01223	1/2 x 3/4	50	300	0.16
W 01224	x 1/2	50	500	0.1
W 01225	x 3/8	50	750	0.07
W 01226	x 1/4	50	750	0.06
W 01230	5/8 x 3/4	25	250	0.16
W 01231	x 1/2	50	500	0.1
W 01232	x 3/8	50	500	0.07
W 01233	x 1/4	50	500	0.06
W 01238	3/4 x 3/4	50	500	0.15
W 01239	x 1/2	50	500	0.09
W 01245	7/8 x 1	25	250	0.27
W 01246	x 3/4	25	250	0.14
W 01247	x 1/2	25	250	0.11
W 01261	1-1/8 x 1-1/4	10	100	0.28
W 01263	x 1	25	250	0.25
W 01264	x 3/4	25	250	0.22
W 01265	x 1/2	20	200	0.25
W 01270	1-3/8 x 1-1/2	10	100	0.5
W 01271	x 1-1/4	10	100	0.45
W 01272	x 1	10	100	0.33
W 01278	1-5/8 x 2	-	60	0.74
W 01279	x 1-1/2	10	100	0.53
W 01280	x 1-1/4	5	50	0.39
W 01287	2-1/8 x 2	-	50	0.57
W 01288	x 1-1/2	5	50	0.74
W 01296	2-5/8 x 2-1/2	-	25	1.22
W 01297	3-1/8 x 3	-	15	

ADAPTER

FITTING WC-405 FTG x F

Part	Size	Box	Ctn	Wt
W 01514	3/8 x 3/8	50	750	0.06
W 01524	1/2 x 1/2	50	350	0.1
W 01525	x 3/8	50	750	0.05
W 01526	x 1/4	50	750	0.06
W 01531	5/8 x 1/2	50	450	0.11
W 01532	x 3/8	50	750	0.07
W 01546	7/8 x 3/4	25	250	0.17
W 01547	x 1/2	50	500	0.11
W 01563	1-1/8 x 1	25	250	0.24
W 01564	x 3/4	25	250	0.18
W 01571	1-3/8 x 1-1/4	10	100	0.4
W 01579	1-5/8 x 1-1/2	10	100	0.46
W 01587	2-1/8 x 2	-	50	0.65
W 01596	2-5/8 x 2-1/2	-	25	1.2

ADAPTER

MALE WC-401 C x M

Part	Size	Box	Ctn	Wt
W 01105	1/4 x 3/8	50	750	0.06
W 01106	x 1/4	50	1,200	0.03
W 01107	x 1/8	50	2,400	0.02
W 01109	5/16 x 3/8	50	800	0.07
W 01110	x 1/4	50	1,200	0.03
W 01113	3/8 x 1/2	50	500	0.08
W 01114	x 3/8	50	750	0.06
W 01115	x 1/4	50	1,200	0.03
W 01116	x 1/8	50	2,000	0.02
W 01123	1/2 x 3/4	25	250	0.17
W 01124	x 1/2	50	500	0.09
W 01125	x 3/8	50	500	0.06

ADAPTER CONT.

W 01126	x 1/4	50	750	0.05
W 01129	5/8 x 1	15	150	0.3
W 01130	x 3/4	25	250	0.17
W 01131	x 1/2	50	500	0.06
W 01132	x 3/8	50	500	0.07
W 01133	x 1/4	25	600	0.06
W 01138	3/4 x 3/4	25	250	0.14
W 01139	x 1/2	25	250	0.12
W 01145	7/8 x 1	10	100	0.29
W 01146	x 3/4	25	250	0.13
W 01147	x 1/2	25	250	0.12
W 01161	1-1/8 x 1-1/2	10	100	0.48
W 01162	x 11/4	10	100	0.39
W 01163	x 1	10	100	0.24
W 01164	x 3/4	10	100	0.17
W 01165	x 1/2	10	100	0.18
W 01170	1-3/8 x 1-1/2	10	100	0.48
W 01171	x 1-1/4	10	100	0.41
W 01172	x 1	10	100	0.24
W 01173	x 3/4	10	100	0.21
W 01178	1-5/8 x 2	-	50	0.78
W 01179	x 1-1/2	10	100	0.51
W 01180	x 1-1/4	10	100	0.37
W 01181	x 1	10	100	0.38
W 01187	2-1/8 x 2	5	50	0.57
W 01188	x 1-1/2	-	50	0.64
W 01189	x 1-1/4	-	50	0.57
W 01196	2-5/8 x 2-1/2	-	20	1.26
W 01197	x 2	-	20	0.98
W 01198	x 1-1/2	-	22	0.98
W 01199	3-1/8 x 3	-	20	1.7
W 01150	4-1/8 x 4	-	16	3.71

ADAPTER

FITTING WC-404 FTG x M

Part	Size	Box	Ctn	Wt
W 01425	1/2 x 3/8	50	750	0.05
W 01431	5/8 x 1/2	50	500	0.09
W 01432	x 3/8	50	750	0.06
W 01446	7/8 x 3/4	50	500	0.15
W 01447	x 1/2	50	500	0.13
W 01463	1-1/8 x 1	25	250	0.23
W 01464	x 3/4	25	250	0.19
W 01471	1-3/8 x 1-1/4	10	100	0.41
W 01479	1-5/8 x 1-1/2	10	100	0.49
W 01487	2 1/8 x 2	-	50	0.76
W 01496	2-5/8 x 2-1/2	-	20	1.95

BUSHING

FLUSH WC-106 FTG x C

Part	Size	Box	Ctn	Wt
W 01706	3/8 x 1/4	100	4,000	0.01
W 01712	1/2 x 3/8	100	4,000	0.01
W 01714	x 1/4	100	2,400	0.02
W 01715	5/8 x 1/2	100	1,500	0.02
W 01717	x 3/8	100	1,500	0.04
W 01720	3/4 x 5/8	50	750	0.03
W 01721	x 1/2	50	750	0.06
W 01722	x 3/8	50	750	0.08
W 01725	7/8x 3/4	50	500	0.04
W 01726	x 5/8	50	500	0.07
W 01727	x 1/2	50	500	0.11
W 01737	1-1/8 x 7/8	50	500	0.12
W 01738	x 3/4	50	500	0.18
W 01739	x 5/8	25	250	0.22
W 01743	1-3/8 x 1-1/8	10	200	0.16
W 01745	x 7/8	10	200	0.3
W 01750	1-5/8 x 1-3/8	10	100	0.22
W 01751	x 1-1/8	10	100	0.41
W 01758	2-1/8 x 1-5/8	10	100	0.68
W 01759	x 1-3/8	5	50	0.94
W 01767	2-5/8 x 2-1/8	-	50	0.92

BUSHING

FLUSH WC-417 FTG x F

Part	Size	Box	Ctn	Wt
A 07812	5/8 x 1/8	100	1,600	0.04
A 07813	x 1/4	50	1,200	0.02
A 07814	7/8 x 3/8	50	450	0.08
A 07815	1-1/8 x 1/2	50	300	0.17
A 07816	1-3/8 x 3/4	10	160	0.25
A 07817	1-5/8 x 1	10	90	0.34
A 07819	2-1/8 x 1-1/2	10	90	0.48

CAP

FLUSH WC-415 C

Part	Size	Box	Ctn	Wt
W 07002	1/4	50	2,000	0
W 07004	3/8	50	2,000	0.01
W 07006	1/2	50	1,000	0.01
W 07007	5/8	100	1,000	0.02
W 07008	3/4	50	2,000	0.03
W 07009	7/8	50	500	0.04
W 07011	1-1/8	50	500	0.08
W 07012	1-3/8	25	250	0.11
W 07013	1-5/8	25	250	0.18
W 07014	2-1/8	-	100	0.3
W 07015	2-5/8	-	50	0.48
W 07016	3-1/8	-	50	0.73
W 07017	3-5/8	-	25	1.15
W 07018	4-1/8	-	20	1.5

COUPLING

NO STOP WC-400NS C x C

Part	Size	Box	Ctn	Wt
W 01900	1/4	100	4,000	0
W 01901	3/8	50	2,000	0.01
W 01902	1/2	50	1,700	0.01
W 01903	5/8	100	1,000	0.03
W 01904	3/4	25	375	0.04
W 01905	7/8	50	500	0.06
W 01906	1-1/8	25	250	0.11
W 01907	1-3/8	25	250	0.15
W 01908	1-5/8	10	100	0.25
W 01909	2-1/8	-	75	0.4
W 01910	2-5/8	-	50	0.66
W 01911	3-1/8	-	25	1.03
W 01913	4-1/8	-	15	2.15

COUPLING

ROLLED STOP WC-400 C x C

Part	Size	Box	Ctn	Wt
W 01000	1/8	100	4,000	0
W 01001	3/16	100	4,000	0
W 01003	1/4	100	4,000	0
W 01009	3/8	50	2,000	0.01
W 01017	1/2	50	1,700	0.01
W 01022	5/8	100	1,000	0.03
W 01028	3/4	50	500	0.05
W 01034	7/8	50	500	0.06
W 01040	1	25	250	0.09
W 01047	1-1/8	25	250	0.11
W 01055	1-3/8	25	250	0.15
W 01062	1-1/2	-	150	0.22
W 01063	1-5/8	10	100	0.21
W 01072	2-1/8	-	75	0.4
W 01082	2-5/8	-	50	0.66
W 01092	3-1/8	-	25	1.03
W 01000	3-5/8	-	20	1.18
W 10107	4-1/8	-	15	2.11

COUPLING

STACKED STOP WC-400S

C x C 

Part	Size	Box	Ctn	Wt
W 10141	1/4	100	3,400	0
W 10142	5/16	100	5,600	0.01
W 10143	3/8	50	2,000	0.01
W 10144	1/2	50	1,700	0.01
W 10145	5/8	100	1,000	0.03
W 10157	3/4	25	500	0.04
W 10146	7/8	50	500	0.06
W 10147	1-1/8	25	250	0.11
W 10148	1-3/8	25	250	0.15
W 10149	1-5/8	10	100	0.22
W 10150	2-1/8	-	75	0.41
W 10151	2-5/8	-	50	0.66
W 10152	3-1/8	-	25	1.02
W 10153	3-5/8	-	20	1.03
W 10154	4-1/8	-	15	2.15
W 10155	5-1/8	-	8	3.34
W 10156	6-1/8	-	3	4.61
W 10130	8-1/8	-	1	14.13

COUPLING

REDUCING WC-400R

C x C 

Part	Size	Box	Ctn	Wt
W 01004	1/4 x 3/16	50	2,000	0.01
W 01005	x 1/8	50	2,000	0
W 01010	3/8 x 5/16	50	1,700	0.01
W 01011	x 1/4	50	2,000	0.01
W 01019	1/2 x 3/8	50	1,700	0.01
W 01021	x 1/4	50	1,200	0.02
W 01023	5/8 x 1/2	100	1,000	0.03
W 01025	x 3/8	100	1,000	0.03
W 01027	x 1/4	100	1,000	0.03
W 01029	3/4 x 5/8	100	600	0.05
W 01030	x 1/2	100	600	0.04
W 01031	x 3/8	100	600	0.04
W 01035	7/8 x 3/4	100	1,000	0.06
W 01036	x 5/8	50	500	0.08
W 01037	7/8 x 1/2	50	500	0.06
W 01038	x 3/8	50	500	0.06
W 01049	1-1/8 x 7/8	25	250	0.13
W 01050	x 3/4	25	250	0.11
W 01051	x 5/8	25	250	0.11
W 01052	x 1/2	25	250	0.11
W 01056	1-3/8 x 1-1/8	10	100	0.2
W 01058	x 7/8	10	100	0.17
W 01060	x 5/8	10	100	0.17
W 01064	1-5/8 x 1-3/8	10	100	0.23
W 01065	x 1-1/8	10	100	0.23
W 01067	x 7/8	10	100	0.24
W 01069	x 5/8	10	100	0.22
W 01073	2-1/8 x 1-5/8	-	100	0.43
W 01074	x 1-3/8	-	100	0.43
W 01075	x 1-1/8	-	100	0.46
W 01077	x 7/8	-	100	0.4
W 01079	x 5/8	-	75	0.41
W 01083	2-5/8 x 2-1/8	-	50	0.65
W 01084	x 1-5/8	-	50	0.75
W 01085	x 1-3/8	-	50	0.7
W 01086	x 1-1/8	-	50	0.71
W 01093	3-1/8 x 2-5/8	-	25	1.06
W 01094	x 2-1/8	-	25	1.1
W 01095	x 1-5/8	-	25	1.01
W 10101	3-5/8 x 3-1/8	-	25	1.22
W 10108	4-1/8 x 3-5/8	-	20	1.87
W 10109	x 3-1/8	-	20	0.76
W 10110	x 2-5/8	-	15	1.88
W 10111	x 2-1/8	-	20	1.97

45° ELBOW

WE-504

C x C 

Part	Size	Box	Ctn	Wt
W 03005	1/4	50	2,000	0.01
W 03012	3/8	50	2,800	0.01
W 03021	1/2	50	850	0.03
W 03026	5/8	50	500	0.04
W 03030	3/4	50	500	0.06
W 03034	7/8	25	250	0.09
W 03044	1-1/8	25	250	0.16
W 03050	1-3/8	10	100	0.25
W 03055	1-5/8	10	100	0.36
W 03059	2-1/8	10	50	0.6
W 03063	2-5/8	5	25	1
W 03067	3-1/8	2	20	1.53
W 03070	3-5/8	2	10	2.81
W 03073	4-1/8	-	5	3.14

45° ELBOW

STREET WE-505

FTG x C 

Part	Size	Box	Ctn	Wt
W 03312	3/8	100	3,400	0.01
W 03321	1/2	100	1,500	0.03
W 03326	5/8	50	500	0.03
W 03330	3/4	50	500	0.06
W 03334	7/8	25	250	0.09
W 03344	1-1/8	25	250	0.15
W 03350	1-3/8	10	100	0.24
W 03355	1-5/8	10	100	0.33
W 03359	2-1/8	5	50	0.61
W 03363	2-5/8	2	20	1.05
W 03368	3-1/8	2	10	1.52
W 03373	4-1/8	-	5	3.11

45° ELBOW

WE-507

FTG x FTG 

Part	Size	Box	Ctn	Wt
W 03621	1/2	50	1,700	0.02
W 03626	5/8	50	750	0.04
W 03634	7/8	25	250	0.1
W 03644	1-1/8	10	100	0.18

90° ELBOW

SHORT RADIUS WE-500

C x C 

Part	Size	Box	Ctn	Wt
W 02003	1/4	50	2,000	0.01
W 02009	3/8	50	1,700	0.02
W 02017	1/2	50	1,000	0.03
W 02022	5/8	100	1,000	0.05
W 02028	3/4	50	500	0.08
W 02034	7/8	50	500	0.11
W 02040	1	20	200	0.22
W 02047	1-1/8	25	250	0.24
W 02084	1-3/8	10	100	0.3
W 02085	1-5/8	10	100	0.42
W 02086	2-1/8	10	50	0.76
W 02087	2-5/8	5	25	1.19
W 02088	3-1/8	5	25	1.88
W 02089	3-5/8	2	10	2.77
W 02090	4-1/8	2	10	4
W 02097	6-1/8	-	1	13.73

REDUCING

Part	Size	Box	Ctn	Wt
W 02011	3/8 x 1/4	50	750	0.02
W 02019	1/2 x 3/8	50	750	0.03
W 02023	5/8 x 1/2	50	500	0.05
W 02025	x 3/8	50	500	0.05
W 02029	3/4 x 5/8	50	500	0.06
W 02030	x 1/2	50	500	0.07
W 02035	7/8 x 3/4	50	500	0.11
W 02036	x 5/8	50	500	0.11
W 02037	x 1/2	50	500	0.11
W 02049	1-1/8 x 7/8	25	250	0.17
W 02050	x 3/4	25	250	0.16
W 02051	x 5/8	25	250	0.18
W 02052	x 1/2	25	150	0.2
W 02056	1-3/8 x 1-1/8	20	200	0.32
W 02077	1-5/8 x 1-3/8	5	100	0.33
W 02078	2-1/8 x 1-5/8	5	50	0.6

90° ELBOW

LONG RADIUS WE-500L

C x C 

Part	Size	Box	Ctn	Wt
W 02701	3/16	50	1,000	0
W 02715	1/4	50	2,000	0.01
W 02710	5/16	50	1,700	0.01
W 02716	3/8	50	1,700	0.02
W 02717	1/2	50	500	0.04
W 02722	5/8	50	500	0.06
W 02728	3/4	50	500	0.09
W 02734	7/8	25	250	0.13
W 02747	1-1/8	10	100	0.27
W 02055	1-3/8	10	100	0.42
W 02063	1-5/8	5	50	0.6
W 02072	2-1/8	5	25	1.23
W 02082	2-5/8	5	25	2.05
W 02092	3-1/8	2	10	3.13
W 02093	3-5/8	1	5	5.53
W 02095	4-1/8	-	1	7.98

REDUCING

Part	Size	Box	Ctn	Wt
W 02711	3/8 x 1/4	50	3,000	0.01
W 02719	1/2 x 3/8	50	2,000	0.03
W 02723	5/8 x 1/2	50	1,000	0.04
W 02725	x 3/8	50	1,000	0.03
W 02735	7/8 x 3/4	25	250	0.12
W 02736	x 5/8	50	500	0.09
W 02749	1-1/8 x 7/8	10	100	0.17
W 02756	1-3/8 x 1-1/8	10	100	0.31
W 02058	x 7/8	10	100	0.37
W 02060	x 5/8	10	100	0.37
W 02064	1-5/8 x 1-3/8	5	50	0.44
W 02065	x 1-1/8	5	50	0.52
W 02067	x 7/8	5	50	0.51
W 02073	2-1/8 x 1-5/8	2	20	0.98
W 02074	x 1-3/8	2	20	0.94
W 02075	x 1-1/8	2	20	0.97
W 02083	2-5/8 x 2-1/8	2	20	1.53

90° ELBOW

STREET SHORT RADIUS WE-503

FTG x C 

Part	Size	Box	Ctn	Wt
W 02305	1/4	50	2,000	0.01
W 02312	3/8	50	1,700	0.02
W 02321	1/2	50	750	0.03
W 02326	5/8	50	500	0.05
W 02330	3/4	25	250	0.09
W 02334	7/8	25	250	0.11
W 02344	1-1/8	25	250	0.22
W 02384	1-3/8	25	125	0.29
W 02385	1-5/8	10	100	0.44
W 02386	2-1/8	10	50	0.77
W 02387	2-5/8	5	25	1.23
W 02388	3-1/8	2	20	1.94
W 02389	3-5/8	1	10	2.78
W 02390	4-1/8	2	10	4.03

90° ELBOW

STREET LONG RADIUS WE-503L

FTG x C 

Part	Size	Box	Ctn	Wt
W 02809	3/8	50	1,700	0.02
W 02817	1/2	50	500	0.04
W 02822	5/8	50	500	0.06
W 02828	3/4	25	250	0.09
W 02834	7/8	25	250	0.13
W 02847	1-1/8	10	100	0.26
W 02350	1-3/8	10	100	0.42
W 02355	1-5/8	5	50	0.6
W 02359	2-1/8	5	25	1.23
W 02363	2-5/8	5	25	2.08
W 02368	3-1/8	2	10	3.12
W 02393	3-5/8	1	5	5.52
W 02395	4-1/8	-	1	8.07

90° ELBOW

SHORT RADIUS WE-506

FTG x FTG 

Part	Size	Box	Ctn	Wt
W 02612	3/8	50	2,800	0.02
W 02621	1/2	50	750	0.03
W 02626	5/8	50	500	0.05
W 02634	7/8	25	250	0.11
W 02644	1-1/8	10	100	0.22
W 02684	1-3/8	10	100	0.31
W 02685	1-5/8	5	50	0.43
W 02686	2-1/8	1	10	0.79
W 02687	2-5/8	1	10	1.25
W 02688	3-1/8	1	10	2.08
W 02689	3-5/8	1	10	2.63
W 02690	4-1/8	1	5	3.88

90° ELBOW

LONG RADIUS WE-506L

FTG x FTG 

Part	Size	Box	Ctn	Wt
W 02650	1-3/8	5	50	0.44
W 02655	1-5/8	5	50	0.63
W 02659	2-1/8	1	10	1.23

90° ELBOW

FORGED BRASS WE-502

C x F 

Part	Size	Box	Ctn	Wt
W 02206	1/4 x 1/4	50	450	0.1
W 02207	x 1/8	50	800	0.07
W 02214	3/8 x 3/8	50	600	0.1
W 02216	x 1/8	50	700	0.08
W 02225	x 3/8	25	300	0.11
W 02226	x 1/4	25	350	0.1

90° ELBOW

FORGED BRASS WE-501

C x M 

Part	Size	Box	Ctn	Wt
W 02106	x 1/4	50	700	0.07
W 02107	x 1/8	50	1,200	0.04
W 02115	x 1/4	50	800	0.06
W 02116	x 1/8	50	800	0.06
W 02125	x 3/8	25	400	0.1
W 02132	x 3/8	10	240	0.16

FITTING REDUCER

WC-403

FTG x C 

Part	Size	Box	Ctn	Wt
W 01302	1/4 x 1/8	50	2,000	0
W 01306	3/8 x 1/4	50	2,000	0.01
W 01312	1/2 x 3/8	50	2,000	0.02
W 01314	x 1/4	50	2,800	0.01
W 01315	5/8 x 1/2	50	750	0.03
W 01317	x 3/8	50	1,700	0.02
W 01320	3/4 x 5/8	100	1,000	0.04
W 01321	x 1/2	100	900	0.04
W 01322	x 3/8	100	900	0.04
W 01325	7/8 x 3/4	50	500	0.06
W 01326	x 5/8	50	500	0.06
W 01327	x 1/2	50	500	0.06
W 01337	1-1/8 x 7/8	25	250	0.11
W 01338	x 3/4	25	250	0.1
W 01339	x 5/8	25	250	0.1
W 01340	x 1/2	20	200	0.1
W 01343	1-3/8 x 1-1/8	10	100	0.17
W 01345	x 7/8	10	100	0.17
W 01347	x 5/8	10	100	0.16
W 01350	1-5/8 x 1-3/8	10	100	0.23
W 01351	x 1-1/8	10	100	0.24
W 01353	x 7/8	10	100	0.23
W 01355	x 5/8	10	100	0.22
W 01358	2-1/8 x 1-5/8	—	100	0.44
W 01359	x 1-3/8	—	100	0.43
W 01360	x 1-1/8	—	100	0.45
W 01362	x 7/8	—	100	0.43
W 01364	x 5/8	—	100	0.42

FITTING REDUCER (CONT.)

Part	Size	Box	Ctn	Wt
W 01367	2-5/8 x 2-1/8	—	50	0.62
W 01368	x 1-5/8	—	50	0.57
W 01369	x 1-3/8	—	50	0.62
W 01370	x 1-1/8	—	50	0.63
W 01376	3-1/8 x 2-5/8	—	25	1
W 01377	x 2-1/8	—	25	0.89
W 01379	x 1-3/8	—	50	1.01
W 01381	3-5/8 x 3-1/8	—	20	1.28
W 01382	x 2-5/8	—	20	1.37
W 01383	x 2-1/8	—	20	1.47
W 01386	4-1/8 x 3-5/8	—	20	1.74
W 01387	x 3-1/8	—	15	1.77
W 01388	x 2-5/8	—	15	1.83
W 01389	x 2-1/8	—	15	1.86

HANGER

HI-EAR W-124

C 

Part	Size	Box	Ctn	Wt
A 03167	5/8	100	10,000	0.03
A 03168	7/8	25	500	0.04
A 03171	1-1/8	25	250	0.04

P-TRAP

SUCTION LINE WE-554P

C x C 

Part	Size	Box	Ctn	Wt
W 60999	5/8	10	50	0.38
W 61008	3/4	10	50	0.51
W 61000	7/8	5	25	0.63
W 61001	1-1/8	3	15	0.87
W 61002	1-3/8	4	20	1.16
W 61003	1-5/8	4	4	2.28
W 61009	2-1/8	—	3	3.87

P-TRAP

SUCTION LINE LONG RADIUS WE-554PL

C x C 

Part	Size	Box	Ctn	Wt
W 60998	5/8	30	150	0.15
W 60997	3/4	20	100	0.3
W 60996	7/8	15	75	0.36
W 60995	1-1/8	15	75	0.58
W 60994	1-3/8	5	25	0.97
W 60993	1-5/8	—	5	1.84
W 60992	2-1/8	—	3	3.61

PLUG

FITTING WC-416

FTG 

Part	Size	Box	Ctn	Wt
A 01402	1/4	50	500	0.01
A 01422	3/8	100	4,000	0.01
A 01392	1/2	50	2,000	0.02
A 01504	5/8	50	1,200	0.03
A 01529	7/8	50	600	0.07
A 01556	1-1/8	25	375	0.12
A 01590	1-3/8	15	180	0.2
A 01628	1-5/8	10	120	0.28

RETURN BEND

WE-512

C x C 

Part	Size	Box	Ctn	Wt
W 06025	3/8 x 4-1/2	25	150	0.1
W 06020	x 1-1/2	25	850	0.02
W 06048	1/2 x 6	—	100	0.21
W 06045	x 4	—	200	0.14
W 06041	x 3	25	250	0.11
W 06036	x 2	50	300	0.06
W 06035	x 12-9/32	50	300	0.08
W 06032	x 1-1/2	50	500	0.06
W 06069	5/8 x 6	5	30	0.3
W 06062	x 3-3/8	10	100	0.18
W 06060	x 3	25	150	0.16

RETURN BEND (CONT.)

Part	Size	Box	Ctn	Wt
W 06058	x 2-1/2	25	250	0.14
W 06056	x 2-1/4	25	250	0.13
W 06053	x 1-7/8	25	250	0.11
W 06051	x 19/16	25	250	0.1
W 06084	3/4 x 4	—	120	0.25
W 06081	x 3-3/8	10	90	0.24
W 06077	x 2-1/2	10	100	0.17
W 06074	x 2-1/8	10	100	0.16
W 06073	x 2	10	100	0.15
W 06099	7/8 x 12	—	15	0.88
W 06095	x 3-3/8	10	100	0.29
W 06092	x 2-1/2	10	100	0.23
W 60111	1-1/8 x 3-1/4	5	50	0.49
W 60110	x 3	5	50	0.47
W 60121	1-3/8 x 3-3/4	5	50	0.65
W 60131	1-5/8 x 4-1/2	5	25	1
W 60140	2-1/8 x 5-1/2	5	25	1.92

TEE

WT-600

C x C x C 

Part	Size	Box	Ctn	Wt
W 40302	3/16	50	1,700	0.01
W 40306	1/4	100	2,400	0.01
W 40313	5/16	50	1,700	0.01
W 04000	3/8	50	1,700	0.02
W 04001	1/2	50	500	0.04
W 04006	5/8	50	500	0.07
W 04017	3/4	25	250	0.12
W 04031	7/8	25	250	0.16
W 04048	1-1/8	10	100	0.29
W 04068	1-3/8	5	50	0.42
W 04084	1-5/8	5	50	0.6
W 40102	2-1/8	5	25	1.14
W 40123	2-5/8	2	20	1.72
W 40152	3-1/8	2	10	2.77
W 40190	3-5/8	1	5	5.66
W 40200	4-1/8	1	5	5.99
W 40400	5-1/8	—	1	12.38
W 40500	6-1/8	—	1	20.85

REDUCING

Part	Size	Box	Ctn	Wt
W 40368	1/4x1/4x3/8	50	750	0.03
W 40308	x 3/16	50	2,000	0.01
W 40334	5/16x5/16x3/8	50	750	0.03
W 04016	3/8x3/8x5/8	50	500	0.08
W 04005	x 1/2	50	500	0.04
W 40324	x 1/4	50	1,700	0.02
W 40330	x 1/4 x 3/8	50	500	0.02
W 40332	x 1/4	50	1,700	0.02
W 04015	1/2x1/2x5/8	50	500	0.09
W 04002	x 3/8	50	500	0.04
W 40350	x 1/4	50	500	0.04
W 04003	x 3/8x1/2	50	500	0.05
W 04004	x 3/8	50	500	0.04
W 40358	x 1/4	50	750	0.04
W 40363	x 1/4x1/2	50	750	0.05
W 40364	x 3/8	50	750	0.04
W 40366	x 1/4	50	450	0.05
W 04067	5/8x5/8x1-1/8	10	100	0.35
W 04047	x 7/8	25	250	0.11
W 04029	x 3/4	25	250	0.1
W 04007	x 1/2	50	500	0.08
W 04008	x 3/8	50	500	0.06
W 04014	x 1/4	50	500	0.08
W 04009	x 1/2x5/8	50	500	0.09
W 04010	x 1/2	50	500	0.08
W 04011	x 3/8	50	500	0.08
W 04012	x 3/8x5/8	50	500	0.09
W 40367	x 1/2	50	500	0.08
W 04013	x 3/8	50	500	0.09
W 04046	3/4x3/4x7/8	25	250	0.15
W 04018	x 5/8	25	250	0.1
W 04019	x 1/2	25	250	0.1
W 04020	x 3/8	25	250	0.1
W 04021	x 5/8x3/4	25	225	0.13
W 04022	x 5/8	25	250	0.11
W 04023	x 1/2	25	225	0.11
W				



Tube • Fittings • Valves

TEE (CONT.)

Part	Size	Box	Ctn	Wt
W 04032	x 3/4	25	250	0.17
W 04033	x 5/8	25	250	0.12
W 04034	7/8x7/8x1/2	25	250	0.11
W 04035	x 3/8	25	250	0.11
W 04036	x 3/4 x 7/8	25	250	0.19
W 04037	x 3/4	25	250	0.17
W 04041	x 5/8 x 7/8	25	250	0.16
W 04042	x 3/4	25	150	0.17
W 04043	x 5/8	25	250	0.13
W 04044	x 1/2	25	250	0.12
W 04045	x 3/8	25	225	0.15
W 40101	1-1/8x1-1/8x1-5/8	5	50	0.47
W 04082	x 1-3/8	5	50	0.31
W 04049	x 7/8	10	100	0.24
W 04050	x 3/4	10	100	0.27
W 04051	x 5/8	10	100	0.21
W 04052	x 1/2	10	100	0.19
W 04055	x 7/8x1-1/8	10	100	0.3
W 04056	x 7/8	10	100	0.25
W 04057	x 3/4	10	90	0.43
W 04058	x 5/8	10	100	0.23
W 04059	x 1/2	10	100	0.21
W 40233	x 3/4x11/8	10	100	0.33
W 40234	x 7/8	10	90	0.3
W 40235	x 3/4	10	100	0.31
W 40236	x 5/8	10	90	0.35
W 40461	x 5/8x1-1/8	10	100	0.3
W 04062	x 7/8	10	100	0.28
W 04063	x 5/8	10	100	0.21
W 40122	1-3/8x1-3/8x2-1/8	2	20	0.89
W 40100	x 1-5/8	5	50	0.49
W 04069	x 1-1/8	5	50	0.41
W 04070	x 7/8	5	50	0.35
W 04071	x 5/8	5	50	0.32
W 04072	x 1/2	5	50	0.29
W 04073	x 1-1/8 x1-3/8	5	50	0.48
W 04074	x 1-1/8	5	50	0.46
W 04075	x 7/8	5	50	0.38
W 04076	x 5/8	5	50	0.36
W 04078	x 7/8 x 1-3/8	5	50	0.45
W 04079	x 1-1/8	5	50	0.46
W 04080	x 7/8	5	50	0.37
W 04081	x 5/8	5	50	0.34
W 04083	x 5/8 x 1-3/8	5	50	0.57
W 40121	1-5/8x1-5/8x2-1/8	2	20	1.21
W 04085	x 1-3/8	5	50	0.57
W 04086	x 1-1/8	5	50	0.52
W 04087	x 7/8	5	50	0.47
W 04088	x 5/8	5	50	0.42
W 04089	x 1/2	5	50	0.41
W 04090	x 1-3/8x1-5/8	5	50	0.68
W 04091	x 1-3/8	5	50	0.69
W 04092	x 1-1/8	5	50	0.57
W 04093	x 7/8	5	50	0.57
W 04094	x 5/8	5	50	0.45
W 04095	x 1-1/8x1-5/8	5	50	0.68
W 04096	x 1-3/8	5	50	0.65
W 04097	x 1-1/8	5	50	0.61
W 04098	x 7/8	5	50	0.56
W 40237	x 5/8	5	30	0.45
W 04099	x 7/8 x 1-5/8	5	50	0.67
W 40239	x 1-3/8	5	50	0.75
W 40240	x 1-1/8	5	50	0.52
W 40238	x 7/8	5	50	0.55
W 40243	x 5/8	5	50	0.47
W 40244	x 5/8 x 15/8	5	50	0.66
W 40153	2-1/8x2-1/8x3-1/8	1	10	2.55
W 40144	x 2-5/8	1	10	1.46
W 40103	x 1-5/8	5	50	0.99
W 40104	x 1-3/8	5	50	0.85
W 40105	x 1-1/8	5	50	0.88
W 40106	x 7/8	5	50	0.83
W 40107	x 5/8	5	50	0.67
W 40108	x 1/2	2	20	0.68
W 40109	x 1-5/8x2-1/8	2	20	1.31
W 40110	x 1-5/8	2	20	1.15
W 40111	x 1-3/8	2	20	0.86
W 40112	x 1-1/8	2	20	1.06
W 40113	x 7/8	2	20	0.75
W 40114	x 5/8	5	50	0.77
W 40115	x 1-3/8x2-1/8	2	20	1.3
W 40116	x 1-5/8	2	20	1.14
W 40117	x 1-3/8	2	20	1.09

TEE (CONT.)

Part	Size	Box	Ctn	Wt
W 40118	x 1-1/8	2	20	0.95
W 40119	x 7/8	5	50	0.76
W 40120	x 5/8	5	20	0.78
W 40245	x 1-1/8x2-1/8	5	25	1.64
W 40247	x 1-1/8	5	50	1.06
W 40248	x 7/8 x 2-1/8	5	25	1.71
W 40249	x 5/8 x 2-1/8	5	25	1.66
W 40124	2-5/8x2-5/8x2-1/8	2	20	1.59
W 40125	x 1-5/8	2	20	1.49
W 40126	x 1-3/8	2	20	1.87
W 40127	x 1-1/8	2	20	1.83
W 40128	x 7/8	1	10	1.83
W 40129	x 5/8	1	10	2.05
W 40130	x 21/8x2-5/8	4	20	2.3
W 40131	x2-1/8	2	20	1.84
W 40132	x 1-5/8	4	20	2.09
W 40133	x 1-3/8	4	20	2.12
W 40134	x 1-1/8	4	20	2.1
W 40135	x 7/8	4	20	2.06
W 40136	x 5/8	4	20	2.2
W 40137	x 1-5/8x2-5/8	4	20	2.32
W 40138	x 2-1/8	4	20	1.84
W 40139	x 1-5/8	4	20	2.11
W 40140	x 1-3/8	4	20	2.17
W 40141	x 1-1/8	4	20	1.83
W 40142	x 7/8	4	20	2.36
W 40143	x 5/8	4	20	2.36
W 40220	x 1-3/8x2-5/8	4	20	2.35
W 40250	x 2-1/8	4	20	1.82
W 40251	x 1-5/8	4	20	2.47
W 40252	x 1-3/8	4	20	1.96
W 40253	x 1-1/8	4	20	2.47
W 40254	x 7/8	4	20	2.18
W 40255	x 5/8	4	20	2.47
W 40221	x 1-1/8x2-5/8	4	20	2.39
W 40256	x 2-1/8	4	20	1.97
W 40257	x 1-5/8	4	20	2.15
W 40258	x 1-3/8	4	20	2.04
W 40259	x 1-1/8	4	20	2.27
W 40222	x 7/8x2-5/8	4	20	2.41
W 40151	3-1/8x3-1/8x2-5/8	2	10	2.45
W 40150	x 2-1/8	2	20	2.3
W 40149	x 1-5/8	2	10	2.18
W 40148	x 1-3/8	2	10	2.38
W 40147	x 1-1/8	2	20	1.96
W 40146	x 7/8	2	20	1.49
W 40145	x 5/8	2	20	1.38
W 40159	x 2-5/8x3-1/8	2	10	2.96
W 40158	x 2-5/8	2	10	4.52
W 40157	x 2-1/8	2	10	2.68
W 40156	x 1-5/8	2	10	2.63
W 40155	x 1-3/8	2	10	2.62
W 40154	x 1-1/8	2	20	2.02
W 40167	x 2-1/8x3-1/8	2	10	3.07
W 40165	x 2-5/8	2	10	4.64
W 40164	x 2-1/8	2	10	2.75
W 40163	x 1-5/8	2	10	2.57
W 40162	x 1-3/8	2	10	2.61
W 40161	x 1-1/8	2	20	2.04
W 40174	x 1-5/8x3-1/8	2	10	2.97
W 40181	x 1-3/8x3-1/8	2	10	3.14
W 40178	x 1-1/8x3-1/8	2	10	3.02
W 40179	x 7/8x3-1/8	2	10	3.03
W 40198	4-1/8x4-1/8x3-1/8	1	5	4.94
W 40197	x 2-5/8	1	5	5.16
W 40196	x 2-1/8	1	10	4.52
W 40195	x 1-5/8	1	10	4.47
W 40194	x 1-3/8	1	10	4.55
W 40193	x 1-1/8	1	10	3.05
W 40192	x 7/8	1	10	2.89
W 40191	x 5/8	1	10	2.89
W 40208	x 3-1/8x4-1/8	1	5	8.66
W 40206	x 3-1/8	1	5	5.12
W 40205	x 2-5/8	1	5	5.61
W 40204	x 2-1/8	1	5	4.76
W 40212	x 2-5/8x4-1/8	1	5	7.79
W 40216	x 2-1/8x4-1/8	1	5	8.95
W 40215	x 1-5/8x4-1/8	1	5	8.51
W 40214	4-1/8x1-3/8x4-1/8	1	5	8.57
W 40213	x 1-1/8x4-1/8	1	5	9.33
W 40503	6-1/8x6-1/8x3-1/8	-	1	11
W 40504	x 2-5/8	-	1	11.1
W 40505	x 2-1/8	-	1	9.54

TEE

FORGED BRASS
WT-602 **C x C x C**

Part	Size	Box	Ctn	Wt
W 04208	1/4x1/4x1/4	50	450	0.09
W 04209	x 1/8	50	1,200	0.04
W 04228	3/8x3/8x3/8	25	350	0.15
W 04229	x 1/4	25	400	0.1
W 04230	x 1/8	10	400	0.11
W 04259	1/2x1/2x3/8	10	240	0.15
W 04283	5/8x5/8x1/2	10	150	0.33

TEE

FITTING
WT-600F **C x FTG x**

Part	Size	Box	Ctn	Wt
W 04106	5/8	50	300	0.1
W 04131	7/8	25	150	0.19

UNION

WC-407 **C x C**

Part	Size	Box	Ctn	Wt
W 08001	3/8	25	250	0.12
W 08002	1/2	25	250	0.11
W 08003	5/8	25	250	0.16
W 08004	7/8	25	150	0.37
W 08005	1-1/8	10	100	0.52

COPPER TUBE STRAP

2-HOLE
WS-1100

Part	Size	Box	Ctn	Wt
A 01203	1/4	100	4,000	0.01
A 01278	3/8	100	5,600	0.01
A 01366	1/2	100	3,400	0.01
A 02529	5/8	100	1,500	0.01
A 01467	3/4	100	2,000	0.01
A 02574	7/8	50	750	0.01
A 02614	1-1/8	50	750	0.02
A 02650	1-3/8	50	500	0.04
A 02675	1-5/8	50	500	0.05
A 02708	2-1/8	50	500	0.06

PERFORATED COPPER STRAP

WS-1101

Part	Size	Box	Ctn	Wt
A 01211	25 Ft. Roll	1	10	1.63

COPPER FITTING DATA

TEMPERATURE - PRESSURE RATINGS OF SOLDER JOINTS					
ALLOYS USED FOR JOINTS	SERVICE TEMPERATURE °F	STANDARD TUBE SIZE, TYPES K, L, AND M			
		WATER AND NON-CORROSIVE LIQUIDS & GASES			
		1/4 to 1	1-1/4 to 2	2-1/2 to 4	5 to 8
50 / 50 Tin Lead Solder Not to be used in potable water systems	100	200	175	150	135
	150	150	125	100	90
	200	100	90	75	70
	250	85	75	50	45
95 / 5 Tin-Antimony Solder	100	1090	850	705	660
	150	625	485	405	375
	200	505	395	325	305
	250	270	210	175	165
Alloy E Solder	100	710	555	460	430
	150	475	370	305	285
	200	375	290	240	225
	250	320	250	205	195
Alloy HB Solder	100	1035	805	670	625
	150	710	555	460	430
	200	440	345	285	265
	250	430	335	275	260
Brazing Alloys (melting at or above 1000°F)	Pressure-temperature ratings is that of the tubing being used				

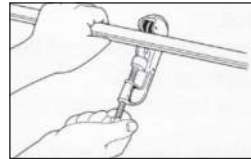
Note: Ratings are those given in ASME B 16.22 "Wrought Copper and Copper Alloy Solder Joint Pressure Fittings." (a) Solder alloys are covered by ASTM Standard Specification B32. The Safe Drinking Water Act Amendment of 1986 prohibits the use of any solder having a lead content in excess of 02% for potable water systems.

PRESSURE LOSS IN FITTINGS EXPRESSED AS EQUIVALENT LENGTH OF TUBE, FEET						
Normal or Standard in Inches	Wrot Copper Fittings					
	90 Degree Ell	45 Degree Ell	Tee Straight Run	Tee Side Branch	Coupling	180 Degree Bend
3/8	0.5	0.5	0.5	1	-	0.5
1/2	0.5	0.5	0.5	1	-	1
5/8	0.5	0.5	0.5	2	-	1
3/4	1	0.5	0.5	2	-	2
1	1	1	0.5	3	-	2
1-1/4	2	1	0.5	4	0.5	3
1-1/2	2	2	1	5	0.5	4
2	2	2	1	7	0.5	8
2-1/2	2	3	2	9	0.5	16
3	3	4	-	-	1	20

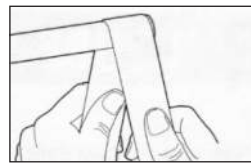
COPPER TUBE AND SOLDER TYPE FITTINGS

1. Cut tube square with the cutter or fine hack saw (32 tooth blade is recommended). Remove Burr.
2. Clean outside end of copper tube thoroughly with sand cloth or sandpaper equal depth of fitting. Leave no dark spots.
3. Clean inside of fitting carefully to tube stop with wire brush. Note: Sand cloth or sandpaper may also be used.
4. Using a brush, apply light uniform coat of soldering flux to the outside of the tube and inside of the fitting.
5. Slip tube into fitting to tube stop. Turn tube back and forth once or twice to distribute flux evenly.
6. Apply heat uniformly around the fitting with torch. When solder melts upon contact with heated fitting, the proper soldering temperature has been reached. Remove flame and feed solder slightly off center at the bottom of the joint. Proceed across the bottom of the fitting and up to the top center position. Return to the starting point, and then proceed up the incomplete side to the top, again, overlapping the solder metal. Wipe off surplus solder with a piece of cloth.

CAUTION: No not overheat the joint or direct the flame into the face of the fitting cup. Overheating could burn the flux, which will destroy its effectiveness and the solder will not enter the joint properly.



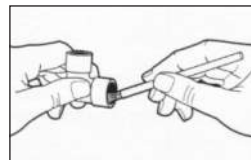
1. Cut tube to length & remove burr with file or scraper.



2. Clean outside of tube with sandpaper or sand cloth.



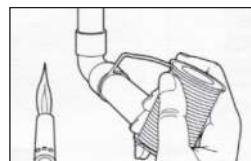
3. Clean inside of fitting with wire brush, sand cloth or sandpaper.



4. Apply flux thoroughly to inside of fitting.



5. Apply flux thoroughly to outside of tube - assemble tube and fitting.



6. Apply heat with torch. When solder melts upon contact with heated fitting, the proper temp for soldering has been reached. Remove flame & feed solder to the joint at one or two points until a ring of solder appears at the end of the fitting.



Mueller Streamline Co.
8285 Tournament Drive, Suite 150
Memphis, TN 38125
P 901.753.3200

Date: June 5, 2014
Subject: **Product Standards - Copper Fittings**

Mueller Fittings Co. Inc. manufactures or supplies product which are manufactured to meet the following specifications.

STANDARDS:

- ASME B16.22: Wrought Copper and Copper Alloy Solder Joint Pressure Fittings
- MSS SP-104: Wrought Copper Solder Joint Pressure Fittings
- ASME B16.29: Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings - DWV
- ASME/ANSI B16.18: Cast Copper Alloy Solder Joint Pressure Fittings
- ASME/ANSI B16.15: Cast Bronze Threaded Fittings
- ASME/ANSI B16.23: Cast Copper Alloy Solder Joint Drainage Fittings DWV
- ASME/ANSI B16.26: Cast Copper Alloy Fittings for Flared Copper Tube
- NSF/ANSI 61-G: Drinking Water System Components
- MSS SP-106: Class 150-Cast Copper Flanges shall meet the requirements of MSS SP-106 and/or the workmanship and dimensional of Federal Spec. VVV-F-406 ASME B16.24.
- MSS SP - 106: Class 125 Bronze Pipe Flanges and Flanged Fittings
- MSS SP - 109: Welded Fabricated Copper Solder Joint Pressure Fittings
- MSS SP - 123: Threaded and Solder Joint Copper Unions

The materials used to manufacture these fittings are also in compliance with the following specifications:

Products Made From Sheet:

- ASTM B152 Alloy C11000: Standard Specification for Copper Sheet, Strip, Plated Rolled Bar Cast Products
- ASTM B584 Alloy C84400: Standard Specification for Copper Alloy Sand Castings
 - Or Alloy C87850: General Applications: Federal Specification WW-U-516
 - Or Alloy C87600: Type III, Class A and B Copper Alloy Unions
 - Or Alloy C89836: General Applications

Copper Fittings:

- ASTM B75 Alloy C12200: Standard Specification for Seamless Round, Copper Tube*
 - Or Alloy C10200: General Engineering applications

*NSF 61 Restriction Statement: "Copper Tube (Alloy C12200) is certified by NSF to ANSI/NSF Standard 61 for public water supplies meeting or in the process of meeting the U.S. EPA Lead and Copper Rule (56FR 26460, June 7, 1991). Water supplies with pH less than 6.5 may require corrosion control to limit copper solubility in drinking water."



Elkhart Products Corporation

PRODUCT CERTIFICATION – SOLDER, BRAZED, AND THREADED COPPER AND COPPER ALLOY FITTINGS

Elkhart Products Corporation manufactures and supplies products which meet material, performance, and dimensional requirements defined in the latest version of the following standards.

MSS Standards:

- SP73 Brazing Joints for Copper and Copper Alloy Fittings
- SP104 Wrought Copper Solder Joint Pressure Fittings
- SP106 Cast Copper Alloy Flanges and Flanged Fittings; Classes 125, 150, and 300
- SP109 Welded Fabricated Copper Solder Joint Pressure Fittings
- SP123 Non-Ferrous Threaded and Solder-Joint Unions for use with Copper Water Tube

ASME/ANSI Standards:

- B16.15 Cast Bronze Threaded Fittings
- B16.18 Cast Copper Alloy Solder Joint Pressure Fittings
- B16.22 Wrought Copper and Copper Alloy Solder Joint Pressure Fittings
- B16.23 Cast Copper Alloy Solder Joint Fittings Drainage Fittings - DWV
- B16.24 Bronze Pipe Flanges and Flanged Fittings
- B16.26 Cast Copper Alloy Fittings for Flared Copper Tube
- B16.50 Wrought Copper and Copper Alloy Braze-Joint Pressure Fittings

Fittings produced per ASME/ANSI B16.22 and B16.50 comply with the European Union's RoHS Directive, 2002/95/E; Restrictions of Hazardous Substances.

Materials used to manufacture fittings per the standards listed above are in compliance with the current version of the following standards.

- | | |
|----------------------------------|---|
| Tubular Wrought Copper: | ASTM B75, Alloy C12200 (0% Pb) |
| Products Made from Copper sheet: | ASTM B152, Alloy C11000 (0% Pb) |
| Cast Products: | ASTM B584, Alloy C84400 (> .25% Pb) |
| | Or |
| | ASME B584, Alloy C89833 or C87700 (< .25% Pb) |

Elkhart Products Corporation

Dana F. Buccicone
Director of Technology

Subscribed and sworn to before me
on this 28th day of February 2012

Jessica Lee Long, Notary Public
State of Michigan, County of Berrien
My Commission Expires on 11/19/2018

ABV REFRIGERATION BALL VALVE

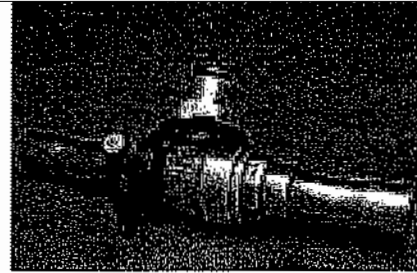
APPLICATIONS

- ☆ Isolate suction, discharge, and liquid line pipework during maintenance shutdown periods

FEATURES

- ☆ Forged brass body
- ☆ Hermetic design
- ☆ Compatible with new refrigerants/lubricants
- ☆ Full internal ports through 2-1/8"
- ☆ Bi-directional flow characteristics
- ☆ Valve stem cap retained by strap attached to main body
- ☆ Integrated access port available on all sizes

For use on Refrigerant Piping Only



NOMENCLATURE

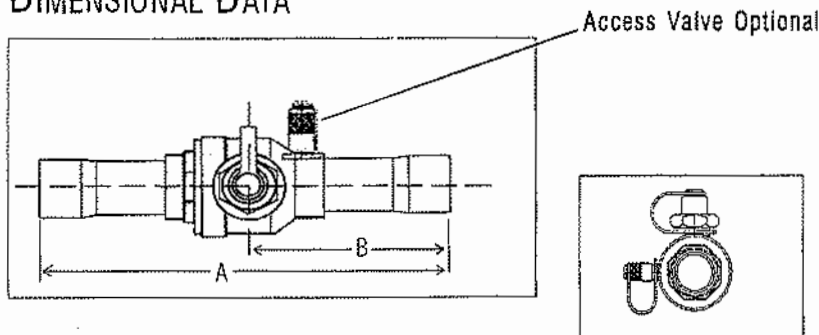
Example: ABV5A

A	BV	5	A
Series	Ball Valve	Connection Size (in 1/8")	Access Valve (optional)

SPECIFICATIONS

- ☆ Body: Forged Brass
- ☆ Extension Stubs: 100% Copper Connections
- ☆ Maximum working pressure: 500 psig
- ☆ Not for use with R-123
- ☆ Fluid temperature range: +300°F to -40°F
- ☆ UL File Number: SA 5312
- ☆ CSA File Number: LR 32462

DIMENSIONAL DATA



SELECTION AND ORDERING INFORMATION FOR ABV

PCN* without Access Valve	PCN* with Access Valve	Valve	Port Size	Connection Size	Dimensions (Inches)	
					A	B
064383	064384	ABV2	1/2	1/4 ODF	5.47	2.55
062104	062114	ABV3	1/2	3/8 ODF	5.47	2.55
062106	062115	ABV4	1/2	1/2 ODF	6.35	2.97
062106	062118	ABV5	1/2	5/8 ODF	6.35	2.97
064385	064386	ABV6	3/4	3/4 ODF	7.42	3.49
062107	062117	ABV7	3/4	7/8 ODF	7.42	3.49
062108	062118	ABV9	1	1 1/8 ODF	9.11	4.47
062109	062119	ABV11	1 1/4	1 3/8 ODF	9.97	4.84
062110	062120	ABV13	1 1/2	1 5/8 ODF	10.90	5.38
062111	062121	ABV17	2	2 1/8 ODF	11.72	5.77
062112	062122	ABV 21 [Ⓞ]	2	2 5/8 ODF	11.72	5.77
062113	062123	ABV 25 [Ⓞ]	2	3 1/8 ODF	11.81	5.82

Standard Product Offering

*Product Code Number

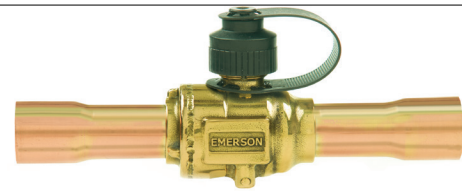
[Ⓞ]Reduced port

BV Series Refrigeration Ball Valves

Shut Off Valves

The BVE/BVS series welded refrigeration ball valves isolate suction, discharge, and liquid line pipework during maintenance shutdown periods.

For use on Refrigerant Piping Only



Features

- Forged brass body
- Compact, lightweight, hermetic welded design
- Compatible with HCFC and HFC refrigerants/lubricants including R-410A and CO₂
- Full flow design*
- Bi-directional flow characteristics
- Valve stem cap retained by strap attached to main body
- Integrated access port available on all sizes
- Low operating friction design

Specifications

- Body: Forged Brass
- Extended tubes: 100% Copper Connections
- Maximum working pressure: 650 psig
- Fluid temperature range: -40°F to 250°F (302°F short term)
- UL/CUL file number: SA 5312

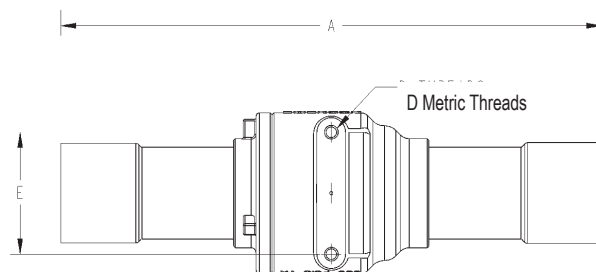
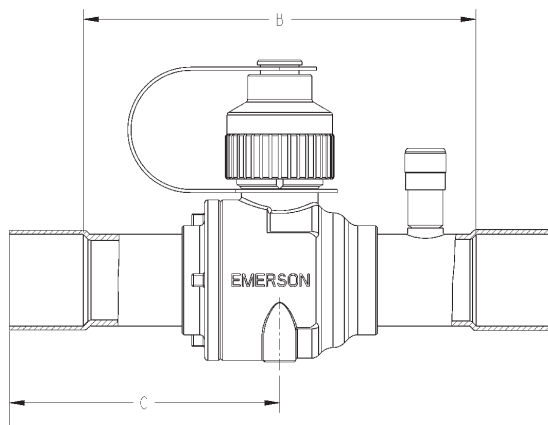
Nomenclature example: BVE 1 1/8

BV	E	1/8
Ball Valve	Access Valve E = without S = with	Connection Size (in 1/8")

Replacement Parts: Locking Seal Caps

BVE/BVS Valve Size (in.)	PCN	Quantity (per pack)
1/4 - 7/8	806770	10 pcs.
1 1/8 - 1 3/8	806771	10 pcs.
1 5/8 - 2 5/8	806772	10 pcs.

Dimensional Data



Selection & Ordering Information

Models Without Access Valve		Models With Access Valve		Connection Size (in.)	Dimensions					Port Size	Weight (lbs.)
Model	PCN	Model	PCN		A	B	C	D	E		
BVE 014	806730	BVS 014	806750	1/4 ODF	4.72	4.02	2.36	M3	0.59	Full Port	0.79
BVE 038	806732	BVS 038	806752	3/8 ODF	4.72	4.02	2.36		0.59	Full Port	0.79
BVE 012	806734	BVS 012	806754	1/2 ODF	5.00	4.21	2.50	M4	0.87	Full Port	0.79
BVE 058	806736	BVS 058	806756	5/8 ODF	5.00	3.98	2.50		0.87	Full Port	0.84
BVE 034	806737	BVS 034	806757	3/4 ODF	6.18	4.92	3.09		1.22	Full Port	1.45
BVE 078	806738	BVS 078	806758	7/8 ODF	6.18	4.65	3.09		1.22	Full Port	1.45
BVE 118	806739	BVS 118	806759	1 1/8 ODF	6.65	4.84	3.33		1.50	Full Port	2.29
BVE 138	806741	BVS 138	806761	1 3/8 ODF	9.09	7.17	4.55	M6	1.89	Full Port	3.61
BVE 158	806742	BVS 158	806762	1 5/8 ODF	10.91	8.66	5.45		2.17	Full Port	5.35
BVE 218*	806744	BVS 218*	806764	2 1/8 ODF	11.69	8.98	5.85		2.91	2" Port	10.48
BVE 258*	806745	BVS 258*	806765	2 5/8 ODF	11.69	8.74	5.85		2.91	2" Port	12.20
BVE 318*	806746	BVS 318*	806766	3 1/8 ODF	11.69	8.39	5.85		2.91	2" Port	12.60

* 2" port

SIL-FOS[®] 15
(SILVALOY[®] 15, SILVALOY[®] 15 EXCEL)

For use on Refrigerant Piping Only - Flux
not allowed per VRF Manufacturers

NOMINAL COMPOSITION

Silver	15.0% ± 0.5%
Copper	80.0% ± 1.0%
Phosphorus	5.0% ± 0.2%
Other Elements (Total)	0.15% Max

PHYSICAL PROPERTIES

Color	Gray
Melting Point (Solidus)	1190°F (643°C)
Flow Point ⁽¹⁾	1300°F (705°C)
Brazing Temperature Range	1300°F - 1500°F (705°C - 815°C)
Specific Gravity	8.44
Density (lbs/in ³)	0.31
Electrical Conductivity (%IACS) ⁽²⁾	9.90
Electrical Resistivity (Microhm-cm)	17.4

⁽¹⁾ The true liquidus for Sil-Fos is 1475°F (802°C). The alloy will flow freely and make strong joints at 1300°F (705°C).

⁽²⁾ IACS = International Annealed Copper Standard

PRODUCT USES

Sil-Fos 15 was developed primarily for use on copper, but its use has extended to other nonferrous copper base alloys. It is used extensively on refrigeration units, air conditioning apparatus, electrical conductors, copper and brass pipe fittings, and other copper and brass equipment.

BRAZING CHARACTERISTICS

Sil-Fos 15 is a copper rich, filler metal that is self-fluxing on copper by virtue of its phosphorus content. The self-fluxing property of this filler metals is effective on copper only. With copper-base alloys, such as brass or bronze, the joints should be fluxed with Handy Flux[®]. Sil-Fos 15 should not be used on nickel-base and iron-base alloys, as the phosphorus reacts with the nickel or iron to form brittle compounds at the interface of the joints.

Sil-Fos 15 has a strong tendency to liquate (i.e. to separate into low and high melting constituents) if heated slowly through its melting range, as normally occurs in furnace brazing. The results in leaving a “skull” of unmelted alloy behind may objectionable from the standpoint of appearance. In furnace brazing it is preferable to pre-place the alloys inside the joint where the skull is not visible.

PROPERTIES OF BRAZED JOINTS

The properties of a brazed joint are dependent upon numerous factors including base metal properties, joint design, metallurgical interaction between the base metal and the filler metal. The following information, however, should serve as a guide for estimating the results that can be achieved with either Sil-Fos 15 or Sil-Fos 5 on copper and copper base alloys.

Table 1. Brazed butt joints tested at room temperature

	<u>Tensile Strength</u> (lbs/in ²)	<u>Elongation % in</u> <u>2 in.</u>
Copper	30,000 - 35,000	15.0 - 20.0
Brass	35,000 - 40,000	20.0 - 25.0
Nickel-Silver	35,000 - 40,000	2.00 - 5.00

Table 2. Brazed butt joints tested at elevated temperatures gave the following average values (short time tests)

	<u>Test Temperature</u>		<u>Tensile Strength</u>	<u>Elongation % in</u>
	°F	°C	(lbs/in ²)	2 in.
Copper	200	95	32,050	32.8
	300	150	29,500	31.2
	400	205	28,100	28.1
	500	260	23,600	24.5
	600	315	22,700	24.2
	700	370	17,700	12.5
	800	425	15,800	9.40
Brass	200	95	34,000	19.2
	300	150	34,700	28.1
	400	205	30,700	28.1
	500	260	28,500	19.2
	600	315	22,500	13.0
	700	370	16,700	6.80
	800	425	11,600	2.90

CORROSION RESISTANCE

Normally the corrosion resistance of Sil-Fos 15 is of the same order as copper, but under certain conditions it may corrode more rapidly. Sil-Fos 15 should not be used where the joints are exposed to sulfur compounds, especially in gasses or oils at temperatures above normal room temperature. As the corrosion by sulfur is cumulative, even very small percentages will eventually cause failure of the joint by disintegration. Exposure to pressured steam can also result in accelerated corrosion.

Technical Data Sheet

The following table lists the results of corrosion tests on brazed copper joints in several media:

Solution	Test Temp.	Conditions	Loss in Weight Mgs./Day
10% Acetic Acid	Room	Constant Immersion	33.3
10% Acetic Acid	212°F (100°C)	Constant Immersion	243.0
5% Hydrochloric Acid	Room	Constant Immersion	50.6
5% Hydrochloric Acid	212°F (100°C)	Constant Immersion	395.0
5% Lactic Acid	Room	Alternate Immersion 22 times per minute	48.4
5% Lactic Acid	130°F (55°C)	Alternate Immersion 22 times per minute	381.0
Sodium Chloride (N/10)	Room	Constant Immersion	9.1
Sodium Chloride (N/10)	212°F (100°C)	Constant Immersion	143.0
5% Sulphuric Acid	Room	Constant Immersion	36.3
5% Sulphuric Acid	212°F (100°C)	Constant Immersion	178.0

AVAILABLE FORMS

Wire, strip, engineered preforms, specialty preforms per customer specification, powder and paste.

SPECIFICATIONS

Sil-Fos 15 alloy conforms to the following specifications:

- American Welding Society (AWS) A5.8/A5.8M BCuP-5
- ASME Boiler & Pressure Vessel Code, Sec II-C, SFA-5.8 BCuP-5

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 71-150, 7153, 29538, 35528.

Distribution P/N: 95150, 95161, 95168, 95177, 95166, 95162, 95151, 95152, 95154, 95158, 98700, 98701, 98702, 98703, 98704, 98705, 98706, 99710, 95090.

SAFETY INFORMATION

The operation and maintenance of brazing equipment or facility should conform to the provisions of American National Standard (ANSI) Z49.1, "Safety in Welding and Cutting". For more complete information refer to the Material Safety Data Sheet for Sil-Fos 15.

WARRANTY CLAUSE

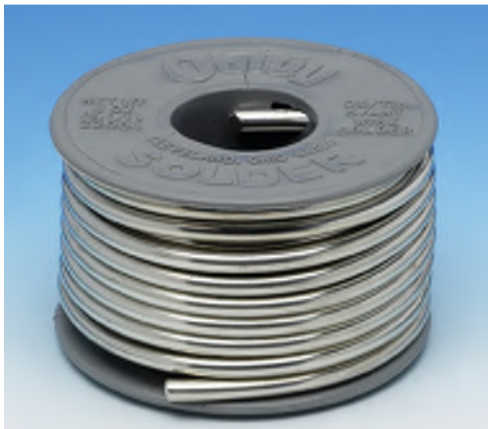
Lucas-Milhaupt, Inc. believes the information contained herein to be reliable. However, the information is given by Lucas-Milhaupt, Inc. without charge and the user shall use such information at its own discretion and risk. This information is provided on an "AS IS" AND "AS AVAILABLE" basis and Lucas-Milhaupt, Inc. specifically disclaims warranties of any kind, either express or implied, including, but not limited to, warranties of title or implied warranties of merchantability or fitness for a particular purpose. No oral advice or written or electronically delivered information given by Lucas-Milhaupt, Inc. or any of its officers, directors, employees, or agents shall create any warranty. Lucas-Milhaupt, Inc. assumes no responsibility for results obtained or damages incurred from the use of such information in whole or in part.

**95/5 LEAD FREE
PLUMBING SOLDER**

For use on Condensate
Piping Only



TECHNICAL SPECIFICATION: Oatey 95/5 Lead Free Plumbing Solder is a solid wire solder for use in plumbing applications where frequent and extreme temperature changes and vibrations occur. 95/5 Solder is commonly used for potable water applications, refrigeration lines and cooling equipment. 95/5 Solder complies with CA & VT lead content regulations.



PRECAUTIONS

Read all cautions and directions carefully before using this product. Apply flux with brush- do not apply with fingers. Wash hands thoroughly after use and before eating. Wear safety glasses with side shields and rubber gloves. EYE AND SKIN IRRITANT. HARMFUL IF SWALLOWED. VAPOR MAY BE HARMFUL. Use only in well ventilated area. Eye or skin contact may cause intense irritation and injury. In case of contact with eyes or skin, flush with water and seek medical attention immediately. If inhaled, get fresh air and seek medical attention if ill feelings persist. KEEP OUT OF REACH OF CHILDREN.

Refer to material safety data sheet for more information. For emergency first aid help, call 1-877-740-5015.

PHYSICAL/CHEMICAL PROPERTIES

Alloy composition Tin & Antimony
Appearance Silver Solid Wire
Melting Range 450° F to 464° F

DIRECTIONS FOR USE

Cut the pipe to the exact length required using a tube cutter. Be sure the pipe is cut square. Remove all burrs on the inside and outside of the pipe surface with a reamer tool. Remove all oil, grease and oxide corrosion from the surface of the piping to be joined using Oatey Abrasive Sandcloth, Utility Brushes or Nylon Grit Pads. The joining surfaces must be clean before soldering. Apply a small amount of approved flux to the pipe and fitting surface. Proper fluxing is important because the flux promotes the flow of the filler metal. Insert the pipe end into the fitting. Heat the joint area, using caution not to overheat the joint. Feed the solder wire into the joint. When the solder wire has drawn around the entire joint, remove the heat. When soldering process is complete, allow the joint to cool undisturbed. When joint is cool, remove any flux residual with a damp cloth.

COMMON APPLICATIONS

Oatey 95/5 is commonly used for potable water applications, refrigeration lines and cooling equipment.

Consult Oatey Technical Department for applications not specifically referenced above.

INGREDIENTS (CAS Number)

Tin (7440-31-5)
Antimony (7440-36-0)

COMPLIANCE & LISTINGS



IAPMO Listed.



Maximum weighted average 0.25% lead
Complies with CA & VT lead legislation

PRODUCT NUMBER	DESCRIPTION	GAUGE	PACK	CARTON WEIGHT
29031	1 oz. 95/5 Solid Wire Solder – Bulk	.081	20	12 lbs.
53026	1 oz. 95/5 Solid Wire Solder – Display	.081	12	1 lb.
53181	1 oz. 95/5 Solid Wire Solder – Carded	.081	12	1 lb.
53027	4 oz. 95/5 Solid Wire Solder – Display	.081	12	4 lbs.
53189	4 oz. 95/5 Solid Wire Solder – Carded	.081	12	4 lbs.
22004	8 oz. 95/5 Solid Wire Solder – Bulk	.117	10	5 lbs.
22017	1 lb. 95/5 Solid Wire Solder – Bulk	.117	25	25 lbs.
22018	1 lb. 95/5 Solid Wire Solder – Bulk	.117	10	11 lbs.

For use on Condensate
Piping Only



Dutch Boy® 95/5 Lead-Free Solder

Issued: 05/07/01

Certificate of Conformance

This is to certify that Dutch Boy® 95/5 Tin-Antimony solder is lead-free. Meets or exceeds the requirements for lead-free plumbing solder set forth in the Federal Safe Drinking Water Act Amendments of June 19, 1986. ASTM B-32/SB5 specified.

Composition

Tin	95.0%	Melting Temperature	455°F
Antimony	4.5-5.0%	Tensile Strength	5500psi
		Shear Strength	6000psi



DB 95/5 CofC
Rev. 001
Date: 09/17/03



1000 South IH-35, Round Rock, TX 78681
Phone | 512-906-3900 • Fax | 512-837-3112 • www.aircomechanical.com

Sub-Section:

2) Refrigerant & Condensate Piping Insulation, & Joining Materials

(Please see insulation submittals for aluminum jacketing of outdoor piping)

Spec Section Reference:

Airco Contact:

Phone:

Email:

Fiber Free

AP/Armaflex®

White and Black
Tube Insulation

AIRCO Standard is Black
AP/Armaflex.

The original, fiber-free, flexible elastomeric pipe insulation for reliable protection against condensation and energy loss.

White AP/Armaflex available
at additional cost



- Fiber-free, formaldehyde-free, low VOC and non-particulating formulation protects indoor air quality
- Closed-cell structure provides excellent condensation control
- Built-in vapor barrier eliminates need for additional vapor retarder
- Microban® antimicrobial product protection inhibits the growth of mold and mildew in the insulation
- 25/50 rated for use in air plenums up to 2" wall
- Available up to 2" wall

armacell®



GREENGUARD Certified products are certified to GREENGUARD standards for low chemical emissions into indoor air during product usage. For more information, visit ul.com/gg.

Microban antimicrobial product protection is limited to the product itself and is not designed to protect the users of these products from disease causing microorganisms, or as a substitute for normal cleaning and hygiene practices.*

Technical Data: AP Armaflex® Tube Insulation

Description:

Black or white flexible closed-cell elastomeric thermal insulation in a tubular form

Specifications Compliance:

ASTM C 534, Type I — Grade 1 ASTM D 1056, 2B1 ASTM E 84, NFPA 255, UL723	ASTM G21/C1338 ASTM G22 CAN/ULC S102 ① MEA 107-89M	MIL-P-15280J, FORM T ② MIL-C-3133C (MIL STD 670B) Grade SBE 3 ② NFPA 90A, 90B	UL 181 UL 94 5V-A, V-0, File E55798 City of LA – RR 7642
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Approvals, Certifications, Compliances:

- Key physical properties are approved by Factory Mutual.
- GREENGUARD® Children & Schools Indoor Air Quality certified.
- Manufactured without CFCs, HFCs, HCFCs, PBDEs, or Formaldehyde.
- Made with EPA registered Microban® antimicrobial product protection.
- All Armacell facilities in North America are ISO 9001:2008 certified.

Typical Properties

Specifications:	Values:		Test Method:
	Through 1" Wall	1-1/2" & 2" Walls	
Thermal Conductivity: Btu • in./h • ft ² • °F (W/mK)			
75°F Mean Temperature [24°C]	0.245 [0.0353]	0.28 [0.040]	ASTM C 177 or C 518
90°F Mean Temperature [32°C]	0.254 [0.0366]	0.286 [0.041]	
Water Vapor Permeability: Perm-in. [Kg/[s • m • Pa]]	0.05 [0.725 x 10 ⁻¹³]	0.08 [1.16 x 10 ⁻¹³]	ASTM E 96, Procedure A
Flame Spread and Smoke Developed Index:	25/50 rated	25/50 rated	ASTM E 84 CAN/ULC S102 ①
Water Absorption, % by Volume:	0.2%	0.2%	ASTM C 209
Mold Growth: Fungi Resistance: Bacterial Resistance:	Passed	Passed	UL181 ASTM G21/C1338 ASTM G22
Upper Use Limit:	220°F (105°C) ③	300°F (149°C) ④	ASTM C534
Lower Use Limit: ⑤	-297°F (-183°C) ⑥	-297°F (-183°C) ⑥	ASTM C534
Ozone Resistance:	GOOD	GOOD	Ozone Chamber Test

Sizes:

Wall Thickness (nominal)	3/8", 1/2", 3/4", 1", 1-1/2", 2" (10, 13, 19, 25, 38, 50mm)
Inside Diameter, Tubular	3/8" ID to 8" ID (10mm ID to 203mm)
Length of Sections, Feet, Tubular	6' (1.8m)

Outdoor Use

Painting with WB Finish or other protective jacketing is required for exterior applications.

- ① AP Armaflex meets CAN/ULC S102 through 1" wall. AP Armaflex Black tested. AP Armaflex White determined to be comparable through 1" wall.
- ② AP Armaflex meets MIL-P-15280J and MIL-C-3133C (MIL STD 670B) Grade SBE through 1" wall.
- ③ AP Armaflex Pipe Insulation can withstand temperatures as high as 250°F for 96 hour time periods when tested according to ASTM C411 - Standard Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation.
- ④ 1-1/2" and 2" AP Armaflex tubes are formulated with EPDM rubber giving them a higher upper use temperature than AP Armaflex tubes less than 1-1/2" wall thickness.
- ⑤ At temperatures below -20°F (-29°C), elastomeric insulation starts to become less flexible. However, this characteristic does not affect thermal efficiency and resistance to water vapor permeability of Armaflex insulation.
- ⑥ For applications of -40°F to -297°F (-40°C to -183°C), contact Armacell.

ARMACELL LLC
TEL: 800.866.5638
FAX: 919.304.3847

info.us@armacell.com
www.armacell.us
7600 Oakwood Street Extension, Mebane, NC 27302



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AP Armaflex	Tube	Submittal	017	Eng/USA	11/2015
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Armaflex® WB Finish

Protective Coating

Fiber Free

The durable, white, protective finish formulated for use over all Armaflex insulations for protection against ultraviolet radiation, weather and ozone damage



- Suitable for both indoor and outdoor applications
- Provides a clean, white, protective finish which guards against UV and ozone damage
- Formulated for cold weather flexibility to resist cracking
- Water-based latex is fast drying without solvent fumes. Cleans up with soap and water.
- Outdoor surfaces should be recoated every 2-4 years

 **armacell**®



Technical Data: Armaflex® WB Finish

Description:

White, water-based latex

Typical Properties

Properties:	Values
Color:	Available in Standard White. Tinting possible for indoor use only. No tinting for outdoor applications.
Net Weight:	11.3 lbs. per gallon (1.35 kg/l)
Composition :	Pigmented latex V.O.C. Less than 10 g/l (calculated)
Solid Content:	Approximately 50% by weight
Viscosity:	Heavy-bodied, easy brushing
Application:	Brush or roller. Apply at temperatures above 50°F (10°C)
Coverage:	Up to 400 sq. ft. (37 sq.m.) per gallon per single brush coat, depending on temperature and location
Shelf Life:	One year in original sealed container. Storage temperature 60° to 80°F (16° to 27°C). Keep from freezing.
Minimum Drying Time:	Four hours minimum for application of second coat
Container Sizes:	One-gallon or quart containers
Flammability:	Not flammable; water-based
Surface-Burning Characteristics:	Dry: ASTM E 84 Method Applied on fiber-reinforced board Flame-Spread Index 0 Smoke Developed Index 0

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Sub-Section:

3) Hangers, Supports & Accessories

Spec Section Reference:

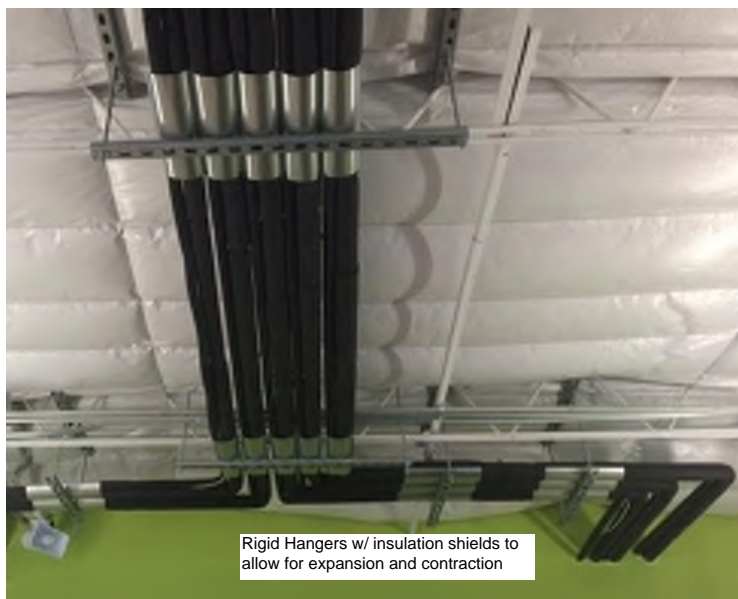
Airco Contact:

Phone:

Email:

Special Conditions for VRF Piping Install:

Cush-Clamps and other rigid means can only be used with floating supports. If hangers and supports are rigid the attachments must be loose to allow for expansion and contraction due to rapid heat exchange and heating to cooling mode change over. Any piping on roof supports will be sandwiched between [2] pieces of unistrut rather than rigid individual pipe clamps



Pipe Expansion

Precautions for securing refrigerant piping

- Due to the variations in temperature that can be experienced with the refrigerant pipe work on VRV Heat pump and VRV Heat Recovery systems, in particular when a normal change of operational mode is required, care should be taken not to strap refrigerant pipe work rigidly.
- As an example, the temperature difference of the copper may vary from 32°F to 176°F, during this change. The linear expansion caused by this difference is 0.3"(0.85mm) movement per 40".
- Example if you have 65ft. of piping (65x0.3) you can expect up to 5.85" of expansion/contraction.
- When clamping down, please do not over tighten and install expansion loops.
- Failure to pay attention to the above may result in physical damage (cracks) occurring to the elbows, REFNET & header joints. We have seen 45° elbows fail often when these recommendations are not followed.
- Preferably on long pipe runs install refrigerant pipe work on cable tray and or secure over the insulation instead of on the piping directly.

For use on Condensate
Piping & Single Unit &/or
Unit Connections Only

Model #400 Clevis Hanger - Standard

Model #400FL Clevis Hanger - Felt Lined

Model #401 Clevis Hanger - Galvanized

Model #406 Clevis Hanger - Stainless Steel

SIZE RANGE: 1/2" thru 30" pipe size

MATERIAL:

#400 - carbon steel

#400FL - carbon steel with felt lining

#401 - carbon steel with zinc electroplate finish

#406 - 304 stainless steel

ALTERNATE MATERIAL OR FINISH: Model #400, HDG, RO

APPROVED BY: Factory Mutual (2-1/2" thru 8" pipe size only)

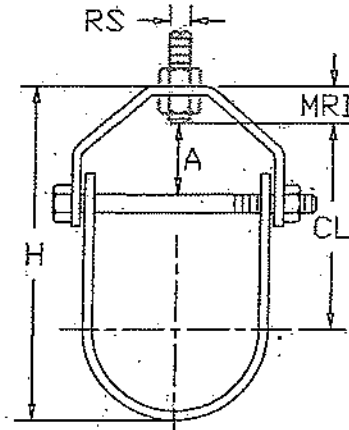
LISTED BY: Underwriters Laboratories Inc. to U. S. and Canadian safety standards (2-1/2" thru 8" pipe size only)

CONFORMS WITH: Federal Specification WW-H-171 (Type 1),
Manufacturer's Standardization Society ANSI/MSS-SP-58 (Type 1);
Install in accordance with ANSI/MSS-SP-69.

SERVICE: Recommended for the support of stationary, non-insulated pipe lines.

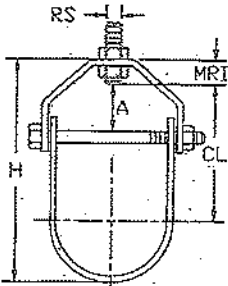
ORDERING: Specify pipe size, model number and name

NOTE: #406 may be manufactured from other stainless steels, such as Type 316.



Pipe size	H	CL	RS	MRI	A	Max. recom. load lbs.
1/2"	3-1/16"	1-15/16"	3/8"	9/16"	1"	610
3/4"	3-3/16"	1-15/16"	3/8"	9/16"	13/16"	610
1"	3-15/16"	2-9/16"	3/8"	9/16"	1-1/16"	610
1-1/4"	4-1/4"	2-11/16"	3/8"	9/16"	1-3/8"	610
1-1/2"	4-1/2"	2-11/16"	3/8"	9/16"	1-7/16"	610
2"	5-1/16"	3-1/8"	3/8"	9/16"	1-7/16"	610
2-1/2"	5-9/16"	3-1/8"	1/2"	3/4"	1"	1130
3"	6-3/16"	3-7/16"	1/2"	3/4"	1"	1130
3-1/2"	6-11/16"	3-11/16"	1/2"	3/4"	1-7/16"	1130
4"	8-1/16"	4-5/8"	5/8"	15/16"	1-13/16"	1430
5"	9-3/8"	5-5/16"	5/8"	15/16"	1-13/16"	1430
6"	10"	5-5/16"	3/4"	1-1/16"	1-3/4"	1940
8"	13-1/8"	7-3/16"	7/8"	1-3/16"	2"	2000
10"	15-3/4"	8-5/8"	7/8"	1-5/16"	2-1/8"	3600
12"	18-7/8"	10-15/16"	7/8"	1-5/16"	2-1/2"	3800
14"	19-3/4"	10-15/16"	1"	1-9/16"	2-3/8"	4200
16"	22"	12-3/16"	1"	1-9/16"	2-7/16"	4600
18"	25-1/2"	14-1/2"	1-1/8"	1-3/4"	3-7/16"	4800
20"	28-1/4"	15-15/16"	1-1/4"	1-15/16"	3-11/16"	4800
24"	30-1/4"	17-13/16"	1-1/4"	1-15/16"	3-13/16"	4800
30"	39-5/16"	22"	1-1/4"	1-15/16"	4-13/16"	6000

Model #402 Clevis Hanger Copper Tubing



SIZE RANGE: 1/2" thru 6" copper tubing sizes.

MATERIAL: Carbon steel with copper electroplate finish

CONFORMS WITH: Federal Specification WW-H-171 (Type 12),
Manufacturers Standardization Society ANSI/MSS SP-58 (Type 1);
install in accordance with ANSI/MSS-SP-69.

SERVICE: Recommended for the support of stationary,
non-insulated copper tubing lines.

ORDERING: Specify tubing size, model number and name.

NOTE: This hanger is not designed for corrosion or electrolysis
resistance. Copper plating is for identification purposes only.

Tubing size	H	CL	RS	MRI	A	Max. recom. load lbs.
1/2"	3"	2-1/16"	3/8"	9/16"	1"	150
3/4"	2-7/8"	1-13/16"	3/8"	9/16"	1"	250
1"	3-3/16"	1-13/16"	3/8"	9/16"	7/8"	250
1-1/4"	3-15/16"	2-5/8"	3/8"	9/16"	1-5/16"	250
1-1/2"	3-15/16"	2-1/2"	3/8"	9/16"	1-5/16"	250
2"	4-13/16"	3-1/8"	3/8"	9/16"	1-7/16"	250
2-1/2"	5-1/4"	3-13/16"	1/2"	3/4"	1-1/8"	350
3"	5-11/16"	3-1/4"	1/2"	3/4"	1-3/16"	350
3-1/2"	6-1/8"	3-7/16"	1/2"	3/4"	1-3/16"	350
4"	6-5/8"	3-11/16"	1/2"	3/4"	1-1/8"	400
5"	9-1/8"	5-7/16"	5/8"	15/16"	1-15/16"	550
6"	10-3/16"	5-7/8"	3/4"	1-1/16"	1-15/16"	550

Clevis Hangers

401 Clevis Hanger

- Recommended for the suspension of stationary non-insulated pipe lines
- Also commonly used for the suspension of insulated pipe lines
- Flared edges help prevent sharp surfaces from coming into contact with the pipe (1/2" to 2" pipe sizes)
- Clevis bottom pivots to allow pipe to be fed from either direction
- Conforms with U.S. Federal Specification WW-H-171 (Type 1), Manufacturers Standardization Society (MSS) SP-58 (Type 1)



Material: Steel



Part Number	Description	F	Certifications
Finish: Electrogalvanized; Pregalvanized			
4010050EG	EG, PG, 1/2" Pipe, 0.84" OD, 3/8" Rod	610 lb	cULus
4010075EG	EG, PG, 3/4" Pipe, 1.05" OD, 3/8" Rod	610 lb	cULus, FM
4010100EG	EG, PG, 1" Pipe, 1.315" OD, 3/8" Rod	610 lb	cULus, FM
4010125EG	EG, PG, 1 1/4" Pipe, 1.66" OD, 3/8" Rod	610 lb	cULus, FM
4010150EG	EG, PG, 1 1/2" Pipe, 1.9" OD, 3/8" Rod	610 lb	cULus, FM
4010200EG	EG, PG, 2" Pipe, 2.375" OD, 3/8" Rod	610 lb	cULus, FM
4010250EG	EG, PG, 2 1/2" Pipe, 2.875" OD, 1/2" Rod	1,130 lb	cULus, FM
4010300EG	EG, PG, 3" Pipe, 3.5" OD, 1/2" Rod	1,130 lb	cULus, FM
4010350EG	EG, PG, 3 1/2" Pipe, 4" OD, 1/2" Rod	1,130 lb	cULus, FM
4010400EG	EG, PG, 4" Pipe, 4.5" OD, 5/8" Rod	1,130 lb	cULus, FM
4010500EG	EG, PG, 5" Pipe, 5.563" OD, 5/8" Rod	1,430 lb	cULus, FM
4010600EG	EG, PG, 6" Pipe, 6.625" OD, 3/4" Rod	1,940 lb	cULus, FM
4010800EG	EG, PG, 8" Pipe, 8.625" OD, 3/4" Rod	2,000 lb	cULus, FM
4011000EG	EG, PG, 10" Pipe, 10.75" OD, 7/8" Rod	3,600 lb	-
4011200EG	EG, PG, 12" Pipe, 12.75" OD, 7/8" Rod	3,800 lb	-
4011400EG	EG, PG, 14" Pipe, 14" OD, 1" Rod	4,200 lb	-
4011600EG	EG, PG, 16" Pipe, 16" OD, 1" Rod	4,600 lb	-
4011800EG	EG, PG, 18" Pipe, 18" OD, 1 1/8" Rod	4,800 lb	-
4012000EG	EG, PG, 20" Pipe, 20" OD, 1 1/4" Rod	4,800 lb	-
4012400EG	EG, PG, 24" Pipe, 24" OD, 1 1/4" Rod	4,800 lb	-
Finish: Hot-Dip Galvanized			
4010050HD	HD, 1/2" Pipe, 0.84" OD, 3/8" Rod	610 lb	cULus
4010075HD	HD, 3/4" Pipe, 1.05" OD, 3/8" Rod	610 lb	cULus, FM
4010100HD	HD, 1" Pipe, 1.315" OD, 3/8" Rod	610 lb	cULus, FM
4010125HD	HD, 1 1/4" Pipe, 1.66" OD, 3/8" Rod	610 lb	cULus, FM

A shield is recommended for insulated pipe applications to effectively distribute the load.



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Ph: 1-800-25-CADDY
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Clevis Hangers

427 CADDY® SLOT LOCK Clevis Hanger

- Recommended for the suspension of stationary non-insulated pipe lines
- Slotted crossbeam design is easier to assemble than conventional nut and bolt style clevis hangers
- Eliminates the need to install additional parts to control deflection
- Installation up to 20% faster than other standard clevis hangers
- Conforms with U.S. Federal Specification WW-H-171 (Type 1), Manufacturers Standardization Society (MSS) SP-58 (Type 1)



Material: Steel
Finish: Electrogalvanized



Part Number	Description	F	Certifications
4270050EG	1/2" Pipe, 0.84" OD, 3/8" Rod	610 lb	cULus
4270075EG	3/4" Pipe, 1.05" OD, 3/8" Rod	610 lb	cULus, FM
4270100EG	1" Pipe, 1.315" OD, 3/8" Rod	610 lb	cULus, FM
4270125EG	1 1/4" Pipe, 1.66" OD, 3/8" Rod	610 lb	cULus, FM
4270150EG	1 1/2" Pipe, 1.9" OD, 3/8" Rod	610 lb	cULus, FM
4270200EG	2" Pipe, 2.375" OD, 3/8" Rod	610 lb	cULus, FM
4270250EG	2 1/2" Pipe, 2.875" OD, 1/2" Rod	1,130 lb	cULus, FM
4270300EG	3" Pipe, 3.5" OD, 1/2" Rod	1,130 lb	cULus, FM
4270400EG	4" Pipe, 4.5" OD, 5/8" Rod	1,130 lb	cULus, FM
4270500EG	5" Pipe, 5.563" OD, 5/8" Rod	1,430 lb	cULus, FM
4270600EG	6" Pipe, 6.625" OD, 3/4" Rod	1,940 lb	cULus, FM
4270800EG	8" Pipe, 8.625" OD, 3/4" Rod	2,000 lb	cULus, FM



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Clevis Hangers

Part Number	Description	F	Certifications
4010150HD	HD, 1 1/2" Pipe, 1.9" OD, 3/8" Rod	610 lb	cULus, FM
4010200HD	HD, 2" Pipe, 2.375" OD, 3/8" Rod	610 lb	cULus, FM
4010250HD	HD, 2 1/2" Pipe, 2.875" OD, 1/2" Rod	1,130 lb	cULus, FM
4010300HD	HD, 3" Pipe, 3.5" OD, 1/2" Rod	1,130 lb	cULus, FM
4010400HD	HD, 4" Pipe, 4.5" OD, 5/8" Rod	1,130 lb	cULus, FM
4010500HD	HD, 5" Pipe, 5.563" OD, 5/8" Rod	1,430 lb	cULus, FM
4010600HD	HD, 6" Pipe, 6.625" OD, 3/4" Rod	1,940 lb	cULus, FM
4010800HD	HD, 8" Pipe, 8.625" OD, 3/4" Rod	2,000 lb	cULus, FM
4011000HD	HD, 10" Pipe, 10.75" OD, 7/8" Rod	3,600 lb	-
4011200HD	HD, 12" Pipe, 12.75" OD, 7/8" Rod	3,800 lb	-

410 Clevis Hanger, Light Duty

- Recommended for the suspension of stationary non-insulated pipe lines
- Also commonly used for the suspension of insulated pipe lines
- Flared edges help prevent sharp surfaces from coming into contact with the pipe (1/2" to 8" pipe sizes)
- Clevis bottom pivots to allow pipe to be fed from either direction
- Conforms with U.S. Federal Specification WW-H-171 (Type 1), Manufacturers Standardization Society (MSS) SP-58 (Type 1)



Material: Steel

Finish: Electrogalvanized, Pregalvanized



Part Number	Description	F
4100050EG	1/2" Pipe, 0.84" OD, 3/8" Rod	150 lb
4100075EG	3/4" Pipe, 1.05" OD, 3/8" Rod	150 lb
4100100EG	1" Pipe, 1.315" OD, 3/8" Rod	250 lb
4100125EG	1 1/4" Pipe, 1.66" OD, 3/8" Rod	250 lb
4100150EG	1 1/2" Pipe, 1.9" OD, 3/8" Rod	250 lb
4100200EG	2" Pipe, 2.375" OD, 3/8" Rod	250 lb
4100250EG	2 1/2" Pipe, 2.875" OD, 1/2" Rod	350 lb
4100300EG	3" Pipe, 3.5" OD, 1/2" Rod	350 lb
4100350EG	3 1/2" Pipe, 4" OD, 1/2" Rod	400 lb
4100400EG	4" Pipe, 4.5" OD, 5/8" Rod	500 lb
4100500EG	5" Pipe, 5.563" OD, 5/8" Rod	600 lb
4100600EG	6" Pipe, 6.625" OD, 3/4" Rod	800 lb
4100800EG	8" Pipe, 8.625" OD, 3/4" Rod	1,200 lb

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ERICO

Clevis Hangers

402 Clevis Hanger for Copper Tube, Light Duty

- Recommended for the suspension of stationary non-insulated copper tube lines
- Conforms with U.S. Federal Specification WW-H-171 (Type 12), Manufacturers Standardization Society (MSS) SP-58 (Type 1)



Material: Steel
Finish: Copper Electroplated

Part Number	Description	F
4020050CP	1/2" Pipe, 0.625" OD, 3/8" Rod	215 lb
4020075CP	3/4" Pipe, 0.745" OD, 3/8" Rod	215 lb
4020100CP	1" Pipe, 1.125" OD, 3/8" Rod	215 lb
4020125CP	1 1/4" Pipe, 1.375" OD, 3/8" Rod	215 lb
4020150CP	1 1/2" Pipe, 1.625" OD, 3/8" Rod	215 lb
4020200CP	2" Pipe, 2.125" OD, 3/8" Rod	215 lb
4020250CP	2 1/2" Pipe, 2.625" OD, 1/2" Rod	250 lb
4020300CP	3" Pipe, 3.125" OD, 1/2" Rod	300 lb
4020400CP	4" Pipe, 4.125" OD, 1/2" Rod	440 lb
4020500CP	5" Pipe, 5.125" OD, 1/2" Rod	600 lb
4020600CP	6" Pipe, 6.125" OD, 5/8" Rod	760 lb
4020800CP	8" Pipe, 8.125" OD, 3/4" Rod	1,160 lb

405 Clevis Hanger for Cast Iron Pipe

- Conforms with U.S. Federal Specification WW-H-171 (Type 1), Manufacturers Standardization Society (MSS) SP-58 (Type 1)
- Recommended for the suspension of ductile or non-insulated cast iron pipe lines



Material: Steel
Finish: Plain

Part Number	Description	F
4050300PL	3" Pipe, 3.96" OD, 1/2" Rod	1,130 lb
4050400PL	4" Pipe, 4.8" OD, 5/8" Rod	1,430 lb
4050600PL	6" Pipe, 6.9" OD, 3/4" Rod	1,940 lb
4050800PL	8" Pipe, 9.05" OD, 7/8" Rod	2,000 lb
4051000PL	10" Pipe, 11.1" OD, 7/8" Rod	3,600 lb
4051200PL	12" Pipe, 13.2" OD, 7/8" Rod	3,800 lb
4051400PL	14" Pipe, 15.3" OD, 1" Rod	4,200 lb



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Clevis Hangers

406 Clevis Hanger, Stainless Steel

- Recommended for the suspension of stationary non-insulated stainless steel pipe lines
- Conforms with U.S. Federal Specification WW-H-171 (Type 1), Manufacturers Standardization Society (MSS) SP-58 (Type 1)



Material: Stainless Steel 304

Part Number	Description	F	Certifications
406005054	1/2" Pipe, 0.84" OD, 3/8" Rod	610 lb	—
406007554	3/4" Pipe, 1.05" OD, 3/8" Rod	610 lb	—
406010054	1" Pipe, 1.315" OD, 3/8" Rod	610 lb	—
406012554	1 1/4" Pipe, 1.66" OD, 3/8" Rod	610 lb	—
406015054	1 1/2" Pipe, 1.9" OD, 3/8" Rod	610 lb	—
406020054	2" Pipe, 2.375" OD, 3/8" Rod	610 lb	—
406025054	2 1/2" Pipe, 2.875" OD, 1/2" Rod	1,130 lb	FM
406030054	3" Pipe, 3.5" OD, 1/2" Rod	1,130 lb	FM
406035054	3 1/2" Pipe, 4" OD, 1/2" Rod	1,130 lb	FM
406040054	4" Pipe, 4.5" OD, 5/8" Rod	1,130 lb	FM
406050054	5" Pipe, 5.563" OD, 5/8" Rod	1,430 lb	FM
406060054	6" Pipe, 6.625" OD, 3/4" Rod	1,940 lb	FM
406080054	8" Pipe, 8.625" OD, 3/4" Rod	2,000 lb	FM
406100054	10" Pipe, 10.75" OD, 7/8" Rod	3,600 lb	—
406120054	12" Pipe, 12.75" OD, 7/8" Rod	3,800 lb	—

Clevis Hangers

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Split Ring Hangers

For Use w/ Condensate Only

456 Malleable Split Ring Hanger for Copper Tube

- Recommended for the suspension of stationary non-insulated copper tube lines
- Allows for piping runs close to ceiling or walls
- Conforms with Federal Specification WW-H-171 (Type 25), Manufacturers Standardization Society (MSS) SP-58 (Type 12)



Material: Cast Iron
Finish: Copper Electroplated

Part Number	Description	F
4560037CP	3/8" Pipe, 0.675" OD, 3/8" Rod	180 lb
4560050CP	1/2" Pipe, 0.84" OD, 3/8" Rod	180 lb
4560075CP	3/4" Pipe, 1.05" OD, 3/8" Rod	180 lb
4560100CP	1" Pipe, 1.315" OD, 3/8" Rod	180 lb
4560125CP	1 1/4" Pipe, 1.66" OD, 3/8" Rod	180 lb
4560150CP	1 1/2" Pipe, 1.9" OD, 3/8" Rod	180 lb
4560200CP	2" Pipe, 2.375" OD, 3/8" Rod	180 lb
4560250CP	2 1/2" Pipe, 2.875" OD, 1/2" Rod	180 lb
4560300CP	3" Pipe, 3.5" OD, 1/2" Rod	180 lb
4560400CP	4" Pipe, 4.5" OD, 1/2" Rod	180 lb

Bolt and rivet are carbon steel.

Split Ring Hangers



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Ph: 1-800-25-CADDY
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Clevis Hangers

420 Clevis Hanger, Epoxy Coated

- Recommended for the suspension of stationary non-insulated pipe and copper tubing lines where it is undesirable to have direct contact with the steel of the hanger
- Conforms with U.S. Federal Specification WW-H-171 (Type 1), Manufacturers Standardization Society (MSS) SP-58 (Type 1)



Material: Steel
Finish: Epoxy Powder Coated; Electrogalvanized

Part Number	Description	F	Certifications
4200050EP	1/2" Pipe, 0.84" OD, 3/8" Rod	610 lb	cULus
4200075EP	3/4" Pipe, 1.05" OD, 3/8" Rod	610 lb	cULus, FM
4200100EP	1" Pipe, 1.315" OD, 3/8" Rod	610 lb	cULus, FM
4200125EP	1 1/4" Pipe, 1.66" OD, 3/8" Rod	610 lb	cULus, FM
4200150EP	1 1/2" Pipe, 1.9" OD, 3/8" Rod	610 lb	cULus, FM
4200200EP	2" Pipe, 2.375" OD, 3/8" Rod	610 lb	cULus, FM
4200250EP	2 1/2" Pipe, 2.875" OD, 1/2" Rod	1,130 lb	cULus, FM
4200300EP	3" Pipe, 3.5" OD, 1/2" Rod	1,130 lb	cULus, FM
4200400EP	4" Pipe, 4.5" OD, 5/8" Rod	1,130 lb	cULus, FM
4200500EP	5" Pipe, 5.563" OD, 5/8" Rod	1,430 lb	cULus, FM
4200600EP	6" Pipe, 6.625" OD, 3/4" Rod	1,940 lb	cULus, FM
4200800EP	8" Pipe, 8.625" OD, 3/4" Rod	2,000 lb	cULus, FM

Clevis Hangers



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For use on Condensate
Piping Only

Model #510
Riser Clamp

Model #520
Riser Clamp PVC Coated

SIZE RANGE: 1/2" thru 24" pipe sizes

MATERIAL:

#510: Carbon steel

#520: Carbon Steel with PVC coating, Grade 2 hardware

ALTERNATE MATERIAL OR FINISH: EG, SS, HDG

SERVICE:

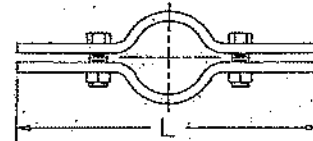
#510: For supporting vertical steel pipe risers, utilizing the structure to support the legs on each end of the clamp. Normally rests on the floor through which riser passes. Designed to hold utilizing clamping action alone with no more than 10' of water filled steel pipe. Use welded lugs on pipe above clamp for greater loads.

#520: For supporting piping risers where pipe to metal contact is not desirable, utilizing the structure to support the legs on each end of the clamp. Normally rests on the floor through which it passes.

CONFORMS WITH: Federal Specification **WW-H-171** (Type 8).

Manufacturers Standardization Society **ANSI/MSS-SP-58** (Type 8); install in accordance with **ANSI/MSS-SP-69**.

ORDERING: Specify pipe size, model number and name.



Pipe size	L	Max. recom. load lbs.
1/2"	9-3/8"	220
3/4"	9-1/4"	220
1"	9-7/8"	220
1-1/4"	9-3/4"	250
1-1/2"	9-5/8"	250
2"	10-7/8"	300
2-1/2"	10-3/4"	400
3"	11-3/4"	500
3-1/2"	13-3/16"	600
4"	12-15/16"	750
5"	14-1/4"	1500
6"	15-1/2"	1600
8"	18-1/4"	2500
10"	20-1/8"	2500
12"	22-3/8"	2700
14"	24-1/8"	2700
16"	27-7/8"	2900
18"	29-13/16"	2900
20"	34-1/4"	2900
24"	36-1/8"	2900

Riser Clamps

510 CADDY® EZ RISER

Riser Clamps

- Recommended for suspending vertical steel pipe risers
- Slotted holes make assembly easy, eliminating loose hardware
- Serrated flange-head bolts eliminate need for wrenches on both bolt and nut
- Conforms with Federal Specification WW-H-171 (Type 8), Manufacturers Standardization Society (MSS) SP-58 (Type 8)



Patent No.: 8,276,854
8,573,543



Part Number	Description	F	Certifications
Material: Stainless Steel 304			
510005054	S304, 1/2" Pipe, 0.84" OD	255 lb	-
510007554	S304, 3/4" Pipe, 1.05" OD	255 lb	-
510010054	S304, 1" Pipe, 1.315" OD	255 lb	-
510012554	S304, 1 1/4" Pipe, 1.66" OD	255 lb	-
510015054	S304, 1 1/2" Pipe, 1.9" OD	255 lb	-
510020054	S304, 2" Pipe, 2.375" OD	255 lb	-
510025054	S304, 2 1/2" Pipe, 2.875" OD	390 lb	-
510030054	S304, 3" Pipe, 3.5" OD	530 lb	-
510040054	S304, 4" Pipe, 4.5" OD	810 lb	-
510050054	S304, 5" Pipe, 5.563" OD	1,160 lb	-
510060054	S304, 6" Pipe, 6.625" OD	1,570 lb	-
510080054	S304, 8" Pipe, 8.625" OD	2,500 lb	-
510100054	S304, 10" Pipe, 10.75" OD	2,500 lb	-
Material: Steel — Finish: Electrogalvanized			
5100050EG	EG, 1/2" Pipe, 0.84" OD	255 lb	-
5100075EG	EG, 3/4" Pipe, 1.05" OD	255 lb	-
5100100EG	EG, 1" Pipe, 1.315" OD	255 lb	-
5100125EG	EG, 1 1/4" Pipe, 1.66" OD	255 lb	-
5100150EG	EG, 1 1/2" Pipe, 1.9" OD	255 lb	-
5100200EG	EG, 2" Pipe, 2.375" OD	255 lb	cULus
5100250EG	EG, 2 1/2" Pipe, 2.875" OD	390 lb	cULus
5100300EG	EG, 3" Pipe, 3.5" OD	530 lb	cULus
5100350EG	EG, 3 1/2" Pipe, 4" OD	670 lb	cULus
5100400EG	EG, 4" Pipe, 4.5" OD	810 lb	cULus
5100500EG	EG, 5" Pipe, 5.563" OD	1,160 lb	cULus
5100600EG	EG, 6" Pipe, 6.625" OD	1,570 lb	cULus
5100800EG	EG, 8" Pipe, 8.625" OD	2,500 lb	cULus
5101000EG	EG, 10" Pipe, 10.75" OD	2,500 lb	-
5101200EG	EG, 12" Pipe, 12.75" OD	2,700 lb	-
5101400EG	EG, 14" Pipe, 14" OD	2,700 lb	-
5101600EG	EG, 16" Pipe, 16" OD	2,900 lb	-
5101800EG	EG, 18" Pipe, 18" OD	2,900 lb	-



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Riser Clamps

512 CADDY® EZ RISER for Close Quarters

Riser Clamps

- Innovative design eliminates loose hardware, simplifying installation
- Serrated flange-head bolts eliminate need for wrenches on both bolt and nut
- Short ears allow for use in spaces where full-sized risers do not fit
- Conforms with Federal Specification WW-H-171 (Type 8), Manufacturers Standardization Society (MSS) SP-58 (Type 8)



Patent No.: 8,276,854
8,573,543



Part Number	Description	F
5120100EG	1" Pipe, 1.315" OD	255 lb
5120125EG	1 1/4" Pipe, 1.66" OD	255 lb
5120150EG	1 1/2" Pipe, 1.9" OD	255 lb
5120200EG	2" Pipe, 2.375" OD	255 lb
5120250EG	2 1/2" Pipe, 2.875" OD	390 lb
5120300EG	3" Pipe, 3.5" OD	530 lb
5120400EG	4" Pipe, 4.5" OD	810 lb
5120500EG	5" Pipe, 5.563" OD	1,160 lb
5120600EG	6" Pipe, 6.625" OD	1,570 lb

518 Riser Clamp

- Recommended for suspending vertical steel pipe risers
- Conforms with Federal Specification WW-H-171 (Type 8), Manufacturers Standardization Society (MSS) SP-58 (Type 8)



Material: Steel
Finish: Plain



Part Number	Description	F	Certifications
5180050PL	1/2" Pipe, 0.84" OD	255 lb	-
5180075PL	3/4" Pipe, 1.05" OD	255 lb	-
5180100PL	1" Pipe, 1.315" OD	255 lb	-
5180125PL	1 1/4" Pipe, 1.66" OD	255 lb	-



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Riser Clamps

Part Number	Description	F	Certifications
5102000EG	EG, 20" Pipe, 20" OD	2,900 lb	-
5102400EG	EG, 24" Pipe, 24" OD	2,900 lb	-
Material: Steel — Finish: Hot-Dip Galvanized			
5100050HD	HD, 1/2" Pipe, 0.84" OD	255 lb	-
5100100HD	HD, 1" Pipe, 1.315" OD	255 lb	-
5100125HD	HD, 1 1/4" Pipe, 1.66" OD	255 lb	-
5100150HD	HD, 1 1/2" Pipe, 1.9" OD	255 lb	-
5100200HD	HD, 2" Pipe, 2.375" OD	255 lb	cULus
5100250HD	HD, 2 1/2" Pipe, 2.875" OD	390 lb	cULus
5100300HD	HD, 3" Pipe, 3.5" OD	530 lb	cULus
5100400HD	HD, 4" Pipe, 4.5" OD	810 lb	cULus
5100500HD	HD, 5" Pipe, 5.563" OD	1,160 lb	cULus
5100600HD	HD, 6" Pipe, 6.625" OD	1,570 lb	cULus
5100800HD	HD, 8" Pipe, 8.625" OD	2,500 lb	cULus

Clamp is fitted for steel pipe and should be installed below a coupling or shear lug, with bolts torqued to recommended value. Slotted holes and bolts for pipe sizes up to 12" only.

511 CADDY® EZ RISER for Copper Tube

- Recommended for suspending vertical type K or L copper tubing risers
- Conforms with Federal Specification WW-H-171 (Type 8), Manufacturers Standardization Society (MSS) SP-58 (Type 8)
- Slotted holes make assembly easy, eliminating loose hardware
- Bolts are accessible from the front, serrated washer head design means no wrench required on back side for tightening



Patent No.: 8,276,854
8,573,543

Material: Steel
Finish: Copper Electroplated

Part Number	Description	F
5110050CP	1/2" Pipe, 5/8" OD	75 lb
5110075CP	3/4" Pipe, 7/8" OD	75 lb
5110100CP	1" Pipe, 1 1/8" OD	120 lb
5110125CP	1 1/4" Pipe, 1 3/8" OD	150 lb
5110150CP	1 1/2" Pipe, 1 5/8" OD	150 lb
5110200CP	2" Pipe, 2 1/8" OD	150 lb
5110250CP	2 1/2" Pipe, 2 5/8" OD	300 lb
5110300CP	3" Pipe, 3 1/8" OD	300 lb
5110400CP	4" Pipe, 4 1/8" OD	300 lb
5110500CP	5" Pipe, 5 1/8" OD	500 lb
5110600CP	6" Pipe, 6 1/8" OD	600 lb

Clamp is fitted for copper tube and should be installed below a coupling or shear lug, with bolts torqued to recommended value.

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Riser Clamps

Part Number	Description	F	Certifications
5180150PL	1 1/2" Pipe, 1.9" OD	255 lb	-
5180200PL	2" Pipe, 2.375" OD	255 lb	cULus
5180250PL	2 1/2" Pipe, 2.875" OD	390 lb	cULus
5180300PL	3" Pipe, 3.5" OD	530 lb	cULus
5180350PL	3 1/2" Pipe, 4" OD	670 lb	cULus
5180400PL	4" Pipe, 4.5" OD	810 lb	cULus
5180500PL	5" Pipe, 5.563" OD	1,160 lb	cULus
5180600PL	6" Pipe, 6.625" OD	1,570 lb	cULus
5180800PL	8" Pipe, 8.625" OD	2,500 lb	cULus
5181000PL	10" Pipe, 10.75" OD	2,500 lb	-

519 Riser Clamp for Copper Pipe

- Recommended for suspending vertical type K or L copper tubing risers
- Conforms with Federal Specification WW-H-171 (Type 8), Manufacturers Standardization Society (MSS) SP-58 (Type 8)



Material: Steel
Finish: Copper Electroplated

Part Number	Description	F
5190050CP	1/2" Pipe, 5/8" OD	75 lb
5190075CP	3/4" Pipe, 7/8" OD	75 lb
5190100CP	1" Pipe, 1 1/8" OD	120 lb
5190125CP	1 1/4" Pipe, 1 3/8" OD	150 lb
5190150CP	1 1/2" Pipe, 1 5/8" OD	150 lb
5190200CP	2" Pipe, 2 1/8" OD	150 lb
5190250CP	2 1/2" Pipe, 2 5/8" OD	300 lb
5190300CP	3" Pipe, 3 1/8" OD	300 lb
5190400CP	4" Pipe, 4 1/8" OD	300 lb
5190500CP	5" Pipe, 5 1/8" OD	500 lb
5190600CP	6" Pipe, 6 1/8" OD	600 lb

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For Roof Piping, additional all thread and strut can be installed above pipe to loosely sandwich the roof piping w/ a 1/4" gap to allow for expansion/contraction

Engineering Submittal Form – MS-12SA7

CERTIFIED FOR:

Job Name:	Customer Name:
Location:	Customer P.O.:

Recommended Usage:

Use as a free standing; non-penetrating pipe support stand for conduit installed on single ply and built-up roofs. The addition of the optional neoprene pad adhered to the base provides additional protection for the roof during installation. All supports are available with optional MWP Series- 1/2" Walk Pad and adhesive for "in the field" application.



Standard Composition:

Support Base is injection molded 33% Fiberglass Reinforced 6/6 Nylon with highly dispersed carbon black providing weathering resistance and UV stabilization.

MAPA Products Supports are designed and manufactured in accordance with MSS SP-58-2002 and MSS SP-69-2002.

Refer to MAPA Products "Recommended Installation Guidelines" for standard installation and spacing recommendations.

Composition:

Strut Assembly	12" – 1 5/8" Aluminum Shallow Strut
Threaded Rod Assembly	1/2" X 7" Grade 304 SS ATR
Maximum Adjustability	3" – 7"
Base Dimensions	6" X 12"
Footprint	72 sq in.
Weight Limit	165 lbs
Typical Pipe & Size	2" or Larger Condensates / Single or Multiple EMT/Rigid Conduit

** When used for conduit; specific consideration should be given to the size and number of conduits and the supports recommended weight limit so that maximum support load is not exceeded.*

Optional Accessories:

- Add Suffix "P" .125 neoprene pad.
- MWP914- 1/2" thick rubber walk pad
- Snap-N-Strut Clamps (Refer to SNS selection chart for sizing)

Warranty:

ISIMET / MAPA, LLC will repair or replace any defective parts or workmanship of this product for a period of three years from date of delivery. Rusting that is not detrimental to the integrity of the support is not warranted. Damage caused by incorrect installation, alteration or improper usage is not warranted. Recovery rights shall be limited to the total sum of the amounts paid for the product by the purchaser.

Limits of Liability:

ISIMET / MAPA, LLC liability shall be limited to costs of repair or replacement parts. Supports are not intended for usage other than those expressly described in this brochure. **ISIMET / MAPA, LLC** shall not be liable for damage or injury caused by the improper use of the product.

Certification Data							
Support Pad Options							
QTY	NP	P	WP	SNS Selection	Pipe Size	Service	Notes & Options
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

DRAWN	CHECKED	DATE	DWG.NO.

Fig. 167

Size Range: 1/2" through 24" pipe with up to 2" thick insulation

Material: Carbon steel

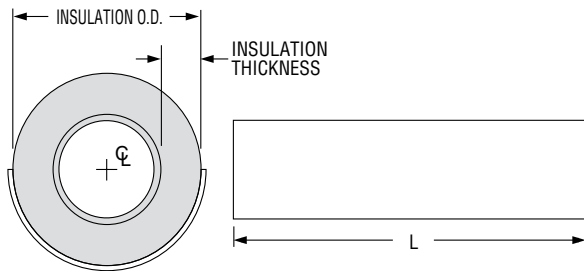
Finish: Pre-Galvanized Material

Service: Recommended for outside of foam or fiber glass insulation for distribution of loads to preclude crushing of insulation without breaking the vapor barrier.

Approvals: Complies with Federal Specification A-A-1192A (Type 40), WW-H-171-E (Type 41), ANSI/MSS SP-69 and MSS SP-58 (Type 40).

How to size: Refer to "shield size selection table" below.

Ordering: Specify size, figure number and name. Data applicable to shields for thicker insulation or larger pipe sizes is available upon request.



Note: As actual foam or fiber glass insulation thicknesses vary, verify that the radius of the selected shield is suitable for the required application. Shields are designed for a maximum span of ten feet on 15 P.S.I. compressive strength insulation. For compressive strengths greater than 15 P.S.I., spans may be increased proportionately up to maximum allowable for steel pipe. Refer to MSS-SP-69 for specific guidelines on compressive strength and maximum span.

Insulation Protection Shield



FIG. 167: WEIGHT (LBS) • DIMENSIONS (IN)

Shield Size	Weight	Stock Size	L	Insulation OD	Fig. 260
X1A	0.5	18 Ga.	12	1.90	1 1/2
1A	0.7			2.38	2
2A	0.8			2.88	2 1/2
3A	1.0			3.50	3
4A	1.1			4.00	3 1/2
5A	1.3			4.50	4
6A	1.4			5.00	5
7A	1.6			5.56	5
8A	1.9	16 Ga.	18	6.64	6
9A	2.7			7.64	8
10A	3.1	16 Ga.	18	8.64	8
9B	4.0			7.64	8
10B	4.6			8.64	8
11B	5.1			9.64	10
12B	5.6	14 Ga.	24	10.76	10
13C	10.2			11.76	12
14C	11.1			12.76	12
15C	12.3			14.00	14
16C	12.7			15.00	16
17C	13.6			16.00	16
18C	14.5			17.00	18
19C	21.2			18.00	18
20C	22.4	12 Ga.	24	19.00	20
21C	23.6			20.00	20
22C	24.8			21.00	24
23C	25.9			22.00	24
24C	27.1			23.00	24
25C	28.3			24.00	24
26C	31.0			26.00	30
27C	31.8			27.00	30
28C	33.0	28.00	30		

Shading in gray indicates this shield fits loosely inside the Fig. 260. To be used properly, the Fig. 260 requires a spacer.

Continued on Following Page.

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. 167

Insulation Protection Shield (cont.)

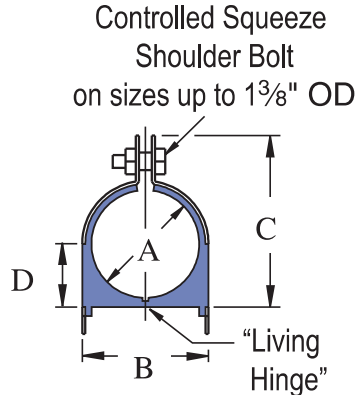
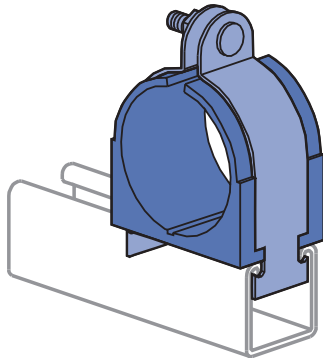
SHIELD SIZE SELECTION FOR NOMINAL PIPE SIZE					
Pipe Size	Insulation Thickness (in)				
	1/2	3/4	1	1 1/2	2
1/2	1A	1A	–	–	–
3/4		2A	3A	4A	6A
1				5A	7A
1 1/4	2A	3A	4A	6A	7A
1 1/2				8A	
2	3A	4A	5A	7A	8A
2 1/2	4A	5A	6A	8A	9A
3	5A	6A	7A		
3 1/2	–	–	8A	9A	10A
4	–	–			
5	–	–	9B	10B	11B
6	–	–	10B	11B	12B
8	–	–	12B	13C	14C
10	–	–	14C	15C	16C
12	–	–	16C	17C	18C
14	–	–	17C	18C	19C
16	–	–	19C	20C	21C
18	–	–	21C	22C	23C
20	–	–	23C	24C	25C
24	–	–	26C	27C	28C

SHIELD SIZE SELECTION FOR COPPER TUBING					
Tube Size	Insulation Thickness (in)				
	1/2	3/4	1	1 1/2	2
3/8	X1A	1A	2A	3A	5A
1/2, 5/8, 3/4				4A	6A
1, 1 1/4	1A	2A	3A	5A	7A
1 1/2	2A	3A	4A	6A	8A
2	3A	4A	5A	7A	
2 1/2	4A	5A	6A	8A	9A
3	5A	6A	7A		
3 1/2	6A	7A	8A	9A	10A
4	7A	8A		9A	10A
5	8A		9A	10A	11B
6	9A	9A	10A	11B	12B
8	11B	11B	12B	13C	14C



004T008 THRU 098N106, 009N012 THRU 106N114

CUSH-A-CLAMP® ASSEMBLY



Materials:

Clamp: Electro-galvanized or stainless steel.
 Cushion: Thermoplastic elastomer. (UV Resistant)

Includes cushion, clamp and hardware.

Temperature Rating:
 -50°F to +275°F (-45°C to +135°C)

Insert Width: 1.56" (39.6)

Patent Numbers: 4,516,296; 4,934,635

Part Numbers are "coded" to designate cushion size and clamp size. Examples:

- 004T008** 004 - Cushion Size 1/16" (6.4)
 T - With Controlled Squeeze Shoulder Bolt
 Available on sizes up to 1 3/8"
- 008 - Clamp Size 9/16" (12.7)

- 009N012** 009 - Cushion Size 3/16" (14.3)
 N - With Standard Bolt
- 012 - Clamp Size 1 1/4" (19.1)

Pipe Series Assembly

Part No.	Nominal Pipe Size	Dimensions				Wt/100 pcs Lbs(kg)
		"A" In(mm)	"B" In(mm)	"C" In(mm)	"D" In(mm)	
009N012	1/4	0.54 14	0.98 25	1.34 34	0.43 11	13 5.9
011N014	3/8	0.67 17	1.13 29	1.54 39	0.49 12	14 6.4
014N018	1/2	0.84 21	1.29 33	1.82 46	0.58 15	15 6.8
017N022	3/4	1.05 27	1.50 38	1.95 50	0.70 18	17 7.7
021N026	1	1.31 33	1.76 45	2.34 59	0.81 21	19 8.6
027N032	1 1/4	1.66 42	2.17 55	2.73 69	0.99 25	35 15.9
030N034	1 1/2	1.90 48	2.35 60	2.86 73	1.09 28	39 17.7
038N044	2	2.37 60	2.82 72	3.67 93	1.41 36	49 22.2
046N052	2 1/2	2.87 73	3.32 84	4.17 106	1.66 42	57 25.9
056N062	3	3.50 89	3.95 100	4.79 122	1.97 50	55 24.9
064N072	3 1/2	4.00 102	4.45 113	5.42 138	2.28 58	88 39.9
072N080	4	4.50 114	4.95 126	5.92 150	2.53 64	110 49.9
089N096	5	5.56 141	6.01 153	6.92 176	3.06 78	130 59.0
106N114	6	6.62 168	7.07 180	8.23 209	3.59 91	140 63.5

MATERIAL

Unistrut pipe clamps, unless noted, are punch-press made from hot-rolled, pickled and oiled steel plates, strip or coil, and conform to ASTM specifications A1008, A575, A576, A635, or A36. The fitting steel also meets the physical requirements of ASTM A1011 SS GR 33. The pickling of the steel produces a smooth surface free from scale.

Many items are also available in stainless steel.

Consult factory for ordering information.

FINISHES

Pipe supports are available in:

- Electro-galvanized (EG), conforming to ASTM B633 Type III SC1
- Hot-dipped galvanized (HG), conforming to ASTM A123 or A153 (hardware)
- Perma-Green III (GR), and plain (PL).

IMPORTANT NOTE:

This product can only be used w/ VRF Systems when Floating Hanger systems are possible, can not be used with rigid hanger systems.



Tube Series Assembly

Part Number	Copper & Steel Tube O. D. Size	Copper Water Pipe (Nominal)	Dimensions				Wt/100 pcs Lbs/(kg)
			"A" In(mm)	"B" In(mm)	"C" In(mm)	"D" In(mm)	
004T008	1/4		0.25 6	0.62 16	0.98 29	0.27 7	10 4.5
006T010	3/8	1/4	0.37 9	0.82 21	1.13 29	0.33 8	11 5.0
008T012	1/2	3/8	0.50 13	0.94 24	1.34 34	0.40 10	13 5.9
010T014	5/8	1/2	0.62 16	1.06 27	1.54 39	0.46 12	14 6.4
012T016	3/4	5/8	0.75 19	1.20 31	1.68 43	0.52 13	14 6.4
014T018	7/8	3/4	0.87 22	1.31 33	1.82 46	0.58 15	15 6.8
016T020	1		1.00 25	1.44 37	1.95 50	0.65 17	17 7.7
018T022	1 1/8	1	1.12 28	1.57 40	2.08 53	0.70 18	18 8.2
020T024	1 1/4		1.25 32	1.70 43	2.21 56	0.77 20	18 8.2
022T026	1 3/8	1 1/4	1.37 35	1.82 46	2.34 59	0.83 21	20 9.1
024N028	1 1/2		1.50 38	1.95 50	2.47 63	0.90 23	33 15.0
026N030	1 5/8	1 1/2	1.62 41	2.07 53	2.60 66	0.96 24	35 15.9
028N032	1 3/4		1.75 45	2.20 56	2.73 69	1.02 26	37 16.8
030N034	1 7/8		1.90 48	2.35 60	2.86 73	1.09 28	39 17.7
032N036	2		2.00 51	2.45 62	3.04 77	1.15 29	46 20.9
034N040	2 1/8	2	2.12 54	2.57 65	3.23 82	1.27 32	47 21.3
038N044	2 3/8		2.37 60	2.82 72	3.67 93	1.41 36	49 22.2
040N046	2 1/2		2.50 64	2.94 75	3.79 96	1.46 37	51 23.1
042N048	2 5/8		2.62 67	3.07 78	3.92 100	1.53 39	55 24.9
046N052	2 7/8		2.87 73	3.32 84	4.17 106	1.66 42	57 25.9
050N054	3		3.00 76	3.57 91	4.42 112	1.78 45	60 27.2
050N056	3 1/8		3.12 79	3.57 91	4.42 112	1.78 45	60 27.2
053N060	3 5/16		3.31 84	3.96 101	4.75 121	1.90 48	62 28.1
056N062	3 1/2		3.50 89	3.95 100	4.79 122	1.97 50	55 24.9
058N064	3 5/8		3.62 92	4.20 107	4.99 127	2.03 52	70 31.8
064N072	4		4.00 102	4.45 113	5.42 138	2.28 58	88 39.9
066N074	4 1/8		4.12 105	4.57 116	5.54 141	2.34 59	94 42.6
069N076	4 5/16		4.34 110	4.96 126	5.84 148	2.40 61	100 45.4
072N080	4 1/2		4.50 114	4.95 126	5.92 150	2.53 64	110 49.9
082N090	5 1/8		5.12 130	5.57 142	6.54 166	2.84 72	125 56.7
098N106	6 1/8		6.12 155	6.57 167	7.54 192	3.34 85	130 59.0



Engineering Submittal Form – MS-1-(X)-A(X)

CERTIFIED FOR:

JOB NAME _____
LOCATION _____
CUSTOMER _____
CUSTOMER P.O. _____



Recommended Usage:

For piping installed on single ply and built-up roofs; use as a non-penetrating, free standing pipe support stand recommended for condensate piping and conduit within the recommended weight limit. The telescoping rod can be adjusted to allow piping to be installed level over tapered roof. When used with condensate piping, rods can be adjusted to ensure proper flow. Use for natural gas piping only when thermal expansion is not a concern.

Typical Piping Applications and Sizes

	MS-1-(X)-A10	MS-1-(X)-A14	MS-1-(X)-A20
Condensates	2" Copper	2" Copper	2" Copper
Natural Gas Piping	1" Sch 40	1" Sch 40	Not Recommended
Conduits	1 1/2" EMT or Rigid	1 1/2" EMT or Rigid	Not Recommended

Standard Composition:

Support Base is injection molded 33% Fiberglass Reinforced 6/6 Nylon with highly dispersed carbon black providing weathering resistance and UV stabilization. The standard threaded rod assembly on the MS-1(X)-A10 and A14 – Series is attached to either a Nylon Snap N Strut Clamp or a SS clamp w/ UV Stabilized Rubber Cushion providing vibration isolation and separation of dissimilar metals. The nature of the nylon material utilized, combined with the uniquely engineered design, absorbs vibration and acts as a cushion between the piping and its supporting structure. The ATR is red tipped to indicate maximum extension. The addition of the optional neoprene pad adhered to the base provides additional protection for the roof during installation. All supports are available with optional MWP Series- 1/2" Walk Pad and adhesive for "in the field" application. (See Accessories Section of List Price Guide)

MAPA Products Supports are designed and manufactured in accordance with MSS SP-58-2002 and MSS SP-69-2002. Refer to MAPA Products "Recommended Installation Guidelines" for standard installation and spacing recommendations.

Nylon Based Single Post Support Models	Maximum Load	Base Dimension	Adj. Rod Assembly (304 SS ATR)	Nylon SNS Clamp Sizes Available	Maximum Adjustability
MS-1-X-A10	75 lbs	8"x 8" (Octagon)	3/8"x5"	12-16, 21-24, 25-29,30-34, 35-38, 40-44, 48-54	6"-10"
MS-1-X-A14	75 lbs	8"x 8" (Octagon)	3/8"x9"	12-16, 21-24, 25-29,30-34, 35-38, 40-44, 48-54	10"-14"
MS-1-X-A20	75 lbs	8"x 8" (Octagon)	3/8"x15"	12-16, 21-24, 25-29,30-34, 35-38, 40-44, 48-54	14"-20"

NOTE: Mandatory Walk Pad MWP16 - 16" Square x 1/2" for MS-1-A20

Optional: (See Accessories in Catalog and specify desired model.)

- Add Suffix "P" .125 neoprene pad. (Standard on MS-1)
- Add MWP12 – 12" octagonal x 1/2" Walk Pad recommended w/ MS-1(X) A14

Warranty:

ISIMET / MAPA, LLC will repair or replace any defective parts or workmanship of this product for a period of three years from date of delivery. Rusting that is not detrimental to the integrity of the support is not warranted. Damage caused by incorrect installation, alteration or improper usage is not warranted. Recovery rights shall be limited to the total sum of the amounts paid for the product by the purchaser.

Limits of Liability:

ISIMET / MAPA, LLC liability shall be limited to costs of repair or replacement parts. Supports are not intended for usage other than those expressly described in this brochure. **ISIMET / MAPA, LLC** shall not be liable for damage or injury caused by the improper use of the product.

Certification Data									
Support Pad Options									
Model	QTY	NP	P	WP	Pipe Size	Pipe Type (Copper/PVC)	Service	SNS Clamp Size	Adjustment Requirements
DRAWN		CHECKED			DATE		DWG.NO.		

Doc. #: M-13704



Engineering Submittal Form – MT-1(X)A8

CERTIFIED FOR:

Job Name:	Customer Name:
Location:	Customer P.O.:

Recommended Usage:

For piping installed on single ply and built-up roofs; use as a non-penetrating, free standing pipe support stand recommended for condensate piping and conduit within the recommended weight limit. The telescoping rod can be adjusted to allow piping to be installed level over tapered roof. When used with condensate piping, rods can be adjusted to ensure proper flow. Use for natural gas piping only when thermal expansion is not a concern.

Standard Composition:

Support Base is injection molded 33% Fiberglass Reinforced 6/6 Nylon with highly dispersed carbon black providing weathering resistance and UV stabilization. The standard threaded rod assembly on the MT-1(X)A8 Series is attached to a Nylon Snap N Strut Clamp providing vibration isolation and separation of dissimilar metals. The nature of the nylon material utilized, combined with the uniquely engineered design, absorbs vibration and acts as a cushion between the piping and its supporting structure. The ATR is red tipped to indicate maximum extension. The addition of the optional neoprene pad adhered to the base provides additional protection for the roof during installation. All supports are available with optional MWP Series- 1/2" Walk Pad and adhesive for "in the field" application. (See Accessories Section of List Price Guide)



MAPA Products Supports are designed and manufactured in accordance with MSS SP-58-2002 and MSS SP-69-2002.

Refer to MAPA Products "Recommended Installation Guidelines" for standard installation and spacing recommendations.

Nylon Based Single Post Support Models	Maximum Load	Base Dimension	Adj. Rod Assembly (304 SS ATR)	Multiple Clamp Sizes Available	Maximum Adjustability
				Nylon SNS	
MT-1-X-A8	75 lbs	6"x 6"	3/8"x4"	12-16, 21-24, 25-29, 30-34, 35-38, 40-44, 48-54, 56-63, 66-76	5"-8"

Optional: (See Accessories in Catalog and specify desired model.)

- Add Suffix "P" .125 neoprene pad. (Standard on MS-1)
- Add MWP1010 - 1/2" Walk Pad

Warranty:

ISIMET / MAPA, LLC will repair or replace any defective parts or workmanship of this product for a period of three years from date of delivery. Rusting that is not detrimental to the integrity of the support is not warranted. Damage caused by incorrect installation, alteration or improper usage is not warranted. Recovery rights shall be limited to the total sum of the amounts paid for the product by the purchaser.

Limits of Liability:

ISIMET / MAPA, LLC liability shall be limited to costs of repair or replacement parts. Supports are not intended for usage other than those expressly described in this brochure. **ISIMET / MAPA, LLC** shall not be liable for damage or injury caused by the improper use of the product.

Certification Data								
Support Pad Options								
QTY	NP	P	WP	SNS Selection	Pipe Size	Pipe Type	Service	Notes & Options

DRAWN	CHECKED	DATE	DWG.NO.
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Doc. #:M-13703



Engineering Submittal Form

CERTIFIED FOR:			
Job Name		Customer Name	
Location		Customer P.O.	

Curbed Support Series: MX-1-(XXX)SA

Recommended Usage:

Single post pipe support models are designed specifically to comply with MSS SP-127-2001 Section 4.1c for the support of single pipes 4" IPS and smaller a maximum of 12" from bottom of pipe to roof deck. Accessory pipe clamp assemblies from 1/2" through 2" secured to 6" ATR are available for the MX-1.375-SA for use as condensate supports. Anchorage of equipment in seismic and high winds zones is a vital part of restraining rooftop piping systems. The MX-1.XXS-SA base may be used in conjunction with SCB-Seismic Cable Bracing as an attachment point for rooftop supports manufactured by MAPA Products. Multiple MX-1.XXX-SA units may be utilized for bridging systems and roof equipment curb applications.



**MAPA Products Supports are designed and manufactured in accordance with
MSS SP-58-2002 and MSS SP-69-2002.**

**Structural series supports are manufactured to conform also to
MSS SP-127-2001.**

**Refer to MAPA Products "Recommended Installation Guidelines" for standard installation and
spacing recommendations.**

Base Model	MX-1-375-SA	MX-1-500-SA	MX-1-700-SA
Support Base:	3/8" ATR	1/2" ATR	3/4" ATR
Base Dimensions	18 gauge / grade 304 stainless Steel		
Recommended Weight Limit	4" diameter X 6" H continuously welded to 10" flashing		
Under deck attachment hardware	75 lbs		
	14" ATR and 14 gauge 10" X 10" primed steel plate		

Features:

Grade 304 SS with continuously welded seams and rounded edges to prevent incidental damage to the roof surface and a 3" perimeter deck flange provides flashing to the roof deck.

Optional Accessories

Provide as specified:
Available with single post adjustable assemblies and clamp sizes
5/8", 7/8", 1 1/8" 1 3/8", 1 5/8", 2 1/8"

Warranty:

ISIMET / MAPA, LLC will repair or replace any defective parts or workmanship of this product for a period of three years from date of delivery. Rusting that is not detrimental to the integrity of the support is not warranted. Damage caused by incorrect installation, alteration or improper usage is not warranted. Recovery rights shall be limited to the total sum of the amounts paid for the product by the purchaser.

Limits of Liability:

ISIMET / MAPA, LLC liability shall be limited to costs of repair or replacement parts. Supports are not intended for usage other than those expressly described in this brochure. **ISIMET / MAPA, LLC** shall not be liable for damage or injury caused by the improper use of the product.

CERTIFICATION DATA				
QTY	Base Model	Service	Size	Notes

DRAWN	CHECKED	DATE	DWG.NO.
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Doc. #: M-13701



Engineering Submittal Form – MT-1V

CERTIFIED FOR:

Job Name:	Customer Name:
Location:	Customer P.O.:

Recommended Usage:

Use as a pipe support stand for single piping runs installed on single ply and built-up roofs where thermal expansion is not a concern.

Standard Composition:

Support Base is injection molded 33% Fiberglass Reinforced 6/6 Nylon with highly dispersed carbon black providing weathering resistance and UV stabilization.



MAPA Products Supports are designed and manufactured in accordance with MSS SP-58-2002 and MSS SP-69-2002.

Refer to MAPA Products "Recommended Installation Guidelines" for standard installation and spacing recommendations.

Nylon Based Single Post Support Models	Maximum Load	Base Dimension	Assembly	Maximum Adjustability
MT-1V	75 lbs	6"x 6"	Pipe Cradle for 1 1/2" OD	Fixed Height 4"

Optional: (See Accessories in Catalog and specify desired model.)

- Add Suffix "P" .125 neoprene pad.
- Add MPS-7 SS Pipe Strap
- Add MWP1010 – 1/2" Walk Pad

Warranty:

ISIMET / MAPA, LLC will repair or replace any defective parts or workmanship of this product for a period of three years from date of delivery. Rusting that is not detrimental to the integrity of the support is not warranted. Damage caused by incorrect installation, alteration or improper usage is not warranted. Recovery rights shall be limited to the total sum of the amounts paid for the product by the purchaser.

Limits of Liability:

ISIMET / MAPA, LLC liability shall be limited to costs of repair or replacement parts. Supports are not intended for usage other than those expressly described in this brochure. **ISIMET / MAPA, LLC** shall not be liable for damage or injury caused by the improper use of the product.

Certification Data								
Support Pad Options								
QTY	NP	P	WP	Pipe Strap	Pipe Size	Pipe Type	Service	Notes & Options

DRAWN	CHECKED	DATE	DWG.NO.

Doc. #: M-13702



Engineering Submittal Form – MT-8SA6

CERTIFIED FOR:

Job Name:	Customer Name:
Location:	Customer P.O.:

Recommended Usage:

Use as a free standing; non-penetrating pipe support stand for conduit installed on single ply and built-up roofs. The addition of the optional neoprene pad adhered to the base provides additional protection for the roof during installation. All supports are available with optional MWP Series- 1/2" Walk Pad and adhesive for "in the field" application.



Standard Composition:

Support Base is injection molded 33% Fiberglass Reinforced 6/6 Nylon with highly dispersed carbon black providing weathering resistance and UV stabilization.

MAPA Products Supports are designed and manufactured in accordance with MSS SP-58-2002 and MSS SP-69-2002.

Refer to MAPA Products "Recommended Installation Guidelines" for standard installation and spacing recommendations.

Composition:

- Strut Assembly 8" – 1 5/8" Aluminum Shallow Strut
- Threaded Rod Assembly 5/16" X 6" Grade 304 SS ATR
- Maximum Adjustability 4" – 6"
- Base Dimensions 5" X 8"
- Footprint 40 sq in.
- Weight Limit 110 lbs
- Typical Pipe & Size 2" or Smaller Condensates / Single or Multiple EMT/Rigid Conduit

** When used for conduit; specific consideration should be given to the size and number of conduits and the supports recommended weight limit so that maximum support load is not exceeded.*

Optional Accessories:

- Add Suffix "P" .125 neoprene pad.
- MWP812- 1/2" thick rubber walk pad
- Snap-N-Strut Clamps (Refer to SNS selection chart for sizing)

Warranty:

ISIMET / MAPA, LLC will repair or replace any defective parts or workmanship of this product for a period of three years from date of delivery. Rusting that is not detrimental to the integrity of the support is not warranted. Damage caused by incorrect installation, alteration or improper usage is not warranted. Recovery rights shall be limited to the total sum of the amounts paid for the product by the purchaser.

Limits of Liability:

ISIMET / MAPA, LLC liability shall be limited to costs of repair or replacement parts. Supports are not intended for usage other than those expressly described in this brochure. **ISIMET / MAPA, LLC** shall not be liable for damage or injury caused by the improper use of the product.

Certification Data							
Support Pad Options							
QTY	NP	P	WP	SNS Selection	Pipe Size	Service	Notes & Options

DRAWN	CHECKED	DATE	DWG.NO.

Doc. #: M-13813



P.O. Box 129, Naples, Texas
 Phone: 877-897-2371 / Fax: 903-897-2781

Engineering Submittal Form – MS-10SA10

CERTIFIED FOR:

Job Name:	Customer Name:
Location:	Customer P.O.:

Recommended Usage:

Use as a free standing; non-penetrating pipe support stand for multiple piping systems installed on single ply and built-up roofs. The addition of the optional neoprene pad adhered to the base provides additional protection for the roof during installation. All supports are available with optional MWP Series- 1/2" Walk Pad and adhesive for "in the field" application.



Standard Composition:

Support Base is injection molded 33% Fiberglass Reinforced 6/6 Nylon with highly dispersed carbon black providing weathering resistance and UV stabilization.

MAPA Products Supports are designed and manufactured in accordance with MSS SP-58-2002 and MSS SP-69-2002.

Refer to MAPA Products "Recommended Installation Guidelines" for standard installation and spacing recommendations.

Composition:

Strut Assembly 10" – 1 5/8" Aluminum Shallow Strut
 Threaded Rod Assembly 3/8" X 10" Grade 304 SS ATR
 Maximum Adjustability 3" to 10"
 Base Dimensions 5" X 10"
 Footprint 50 sq in.
 Weight Limit 140 lbs
 Typical Pipe & Size Single 1 1/2" Conduit or a Pair of 1" or smaller conduits

** When used for conduit; specific consideration should be given to the size and number of conduits and the supports recommended weight limit so that maximum support load is not exceeded.*

Optional Accessories:

- Add Suffix "P" .125 neoprene pad.
- MWP914- 1/2" thick rubber walk pad
- Snap-N-Strut Clamps (Refer to SNS selection chart for sizing)

Warranty:

MAPA will repair or replace any defective parts or workmanship of this product for a period of three years from date of delivery. Rusting that is not detrimental to the integrity of the support is not warranted. Damage caused by incorrect installation, alteration or improper usage is not warranted. Recovery rights shall be limited to the total sum of the amounts paid for the product by the purchaser.

Limits of Liability:

MAPA's liability shall be limited to costs of repair or replacement parts. Supports are not intended for usage other than those expressly described in this brochure. MAPA shall not be liable for damage or injury caused by the improper use of the product.

Certification Data							
Support Pad Options							
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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
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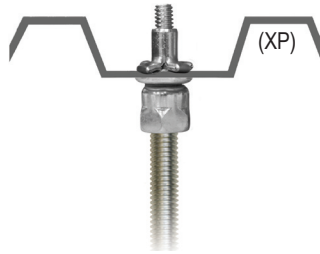
DRAWN	CHECKED	DATE	DWG.NO.

SAMMY X-PRESS® *Installs into Metal Deck, Purlin, or Tubular Steel*

SAMMY X-PRESS® - Vertical Application



Application

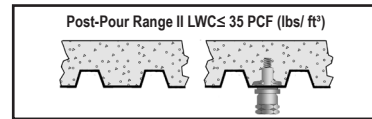
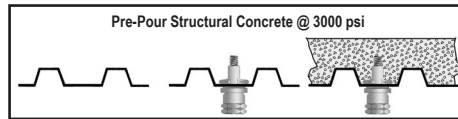
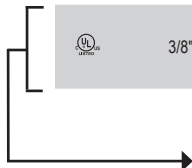


Product Features

- The **Sammy X-Press** expands to provide direct vertical attachment in:
 - light gauge steel deck or purlin (22 ga. - 1/8").
- Installs in seconds with Sammy X-Press It® Tool, saving time & installation costs.
- Use in applications where access to the back of the installed fastener is prohibited, i.e. metal roof deck, tubular steel, or vapor barrier fabric.
- Less jobsite material needed.
- No retaining nut required.
- Provides design flexibility.
- Made in the U.S.A.



Approvals	Rod Size	Part Number	Model	Description	Ultimate Pullout (lbs)	UL Test Load (lbs)	UL Min Thick	FM Test Load (lbs)	FM Min Thick	Max Thick	Box Qty	Case Qty	Application
VERTICAL MOUNT													
UL	1/4"	8181922	XP 200	Sammy X-Press 200	1146 (22 ga)	185 (Luminaire) 250 (Luminaire)	.027" .056"			.125"	25	125	Metal Deck
UL FM	3/8"	8150922	XP 20	Sammy X-Press 20	1146 (22 ga)	850 (2 1/2" Pipe) 185 (Luminaire) 250 (Luminaire) 283 (Conduit & Cable)	.027" .027" .056" .029"	940 (2" Pipe) 1475 (4" Pipe)	.029" .104"	.125"	25	125	Metal Deck
UL FM	3/8"	8153922	XP 35	Sammy X-Press 35	1783 (16 ga)	1500 (4" Pipe) 185 (Luminaire) 250 (Luminaire) 416 (Conduit & Cable)	.060" .029" .056" .059"	940 (2" Pipe) 1475 (4" Pipe)	.029" .104"	.125"	25	125	Purlin
UL	3/8"	8150922	XP 20	Sammy X-Press 20	1146 (22 ga)	850 (2 1/2" Pipe)		Pre-Pour Structural Concrete @ 3000 psi			25	125	Metal Deck (Pre-Pour) Metal Deck (Post-Pour)
								Post-Pour Range II LWC ≤ 35 PCF (lbs/ft³)					



SIDEWINDER X-PRESS™ - Horizontal Application



Application



Product Features

- The **Sidewinder X-Press** expands to provide horizontal attachment in:
 - 16 ga - 3/16" steel - purlin, tubular steel.
- Installs in seconds with Sammy X-Press It® Tool, saving time & installation costs.
- Use in applications where access to the back of the installed fastener is prohibited; i.e. metal roof deck, tubular steel, or vapor barrier fabric.
- Less jobsite material needed.
- No retaining nut required.
- Provides design flexibility.
- Made in the U.S.A.



Approvals	Rod Size	Part Number	Model	Description	Ultimate Pullout (lbs)	UL Test Load (lbs)	UL Min Thick	FM Test Load (lbs)	Max Thick	Box Qty	Case Qty	Application
HORIZONTAL MOUNT												
UL	3/8"	8293957	SWXP 35	Sidewinder X-Press 35	1798 (16 ga)	1250 (3 1/2" Pipe) 80 (Luminaire) 416 (Conduit & Cable)	.059"		.125"	25	125	Purlin

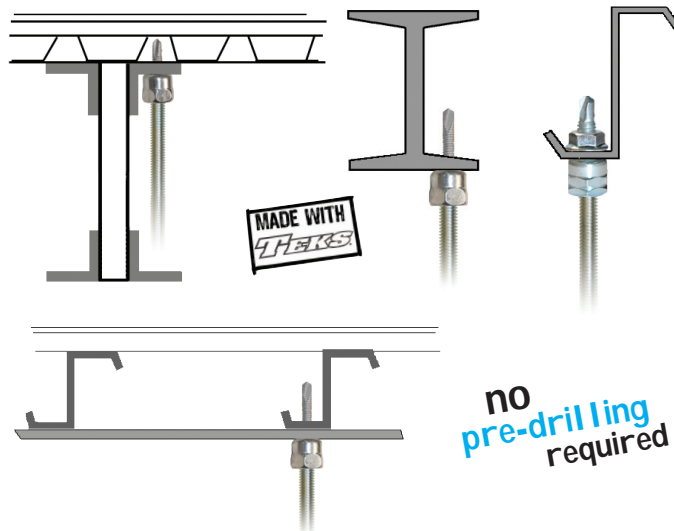


SAMMYS® FOR STEEL

SAMMYS® FOR STEEL - Vertical Application



Application



Product Features

- Made with TekS® self-drilling fasteners - no pre-drilling required.
- Installs into steel range from 20 gauge - 1/2" thicknesses.
- Saves time from traditional methods.
- Reduces installation costs.
- Quick to install using the Sammys Nut Driver with an 18V cordless drill/driver.
- A standard screwgun with a depth sensitive nosepiece should be used to install TekS. For optimal fastener performance, the screwgun should be a minimum of 6 amps and have an RPM range of 0-2500.
- Made in the U.S.A.

Watch a video demonstration at www.itwbuildex.com



#14 Black Nut Driver Part # 8113910



#14 SW Red Nut Driver Part # 8114910

Approvals	Rod Size	Part Number	Model	Screw Descriptions	Ultimate Pullout (lbs)	UL Test Load (lbs)	FM Test Load (lbs)	Min Thick	Max Thick	Box Qty	Case Qty
VERTICAL MOUNT											
	1/4"	8024957	DSTR 100 *	1/4-20 x 1" TEKS 3	1510 (20 ga.)			.036"-20 ga	3/16"	25	125
	1/4"	8025957	DST 100	1/4-14 x 1" TEKS 3	446 (20 ga.)			.036"-20 ga	3/16"	25	125
	1/4"	8026957	DST 150	1/4-14 x 1-1/2" TEKS 3	970 (16 ga.)			.036"-20 ga	3/16"	25	125
	1/4"	8027957	DST 200	1/4-14 x 2" TEKS 3	446 (20 ga.)			.036"-20 ga	3/16"	25	125
	1/4"	8030957	TEK 500	12-24 x 1-1/2" TEKS 5	3125 (3/16")			.188"-3/16"	1/2"	25	125
	3/8"	8038957	DSTR 1 *	1/4-20 x 1" TEKS 3	1510 (20 ga.)	1500	1475	.036"-20 ga	3/16"	25	125
	3/8"	8037957	DSTR 1-1/2 *	12-24 x 1-1/2" TEKS 5	1510 (3/16")	1500	1475	.060"-16 ga.	1/2"	25	125
	3/8"	8039957	DSTR 516 *	5/16-18 x 1-1/4" TEKS 3	2200 (20 ga.)	1500	1475	.036"-20 ga	3/16"	25	125
	3/8"	8040957	DST 10	1/4-14 x 1" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125
	3/8"	8077925	DST 10-SS	1/4-14 x 1" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125
	3/8"	8041957	DST 15	1/4-14 x 1-1/2" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125
	3/8"	8078925	DST 15-SS	1/4-14 x 1-1/2" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125
	3/8"	8042957	DST 20	1/4-14 x 2" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125
	3/8"	8043957	DST 25	1/4-14 x 2-1/2" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125
	3/8"	8044957	DST 30	1/4-14 x 3" TEKS 3	446 (20 ga.) 970 (16 ga.)			.036"-20 ga	3/16"	25	125
	3/8"	8045957	DST 516	5/16-18 x 1-1/4" TEKS 3	1500 (3/16")	1500	1475	.125"-1/8"	3/16"	25	125
	3/8"	8046957	TEK 50	12-24 x 1-1/2" TEKS 5	3125 (3/16")	1500	1475	.250"-1/4"	1/2"	25	125
	1/2"	8031925	DST 2.0	1/4-14 x 2" TEKS 3	446 (20 ga.) 970 (16 ga.)			.188"-3/16"	1/4"	25	125
	1/2"	8033925	DSTR 1.0 *	1/4-20 x 1" TEKS 3	1510 (20 ga.)			.036"-20 ga	3/16"	25	125
	1/2"	8034925	DSTR 5.16 *	5/16-18 x 1-1/4" TEKS 3	2220 (20 ga.)			.036"-20 ga	3/16"	25	125
	1/2"	8035925	DST 5.16	5/16-18 x 1-1/4" TEKS 3	1500 (3/16")			.125"-1/8"	3/16"	25	125
	1/2"	8036925	TEK 5.0	12-24 x 1-1/2" TEKS 5	3125 (3/16")			.188"-3/16"	1/2"	25	125

*Includes retaining nut



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

Model #300 Domestic Beam Clamp

Model #300 I Import Beam Clamp Universal/Reversible (Double Rod Hole)

SIZE RANGE: #300 -- 3/8" thru 7/8" rod sizes
#300I -- 3/8" rod size only

MATERIAL: Malleable iron casting with a hardened cup point set screw and locknut

ALTERNATE MATERIAL OR FINISH: EG, HDG

APPROVED BY: Factory Mutual

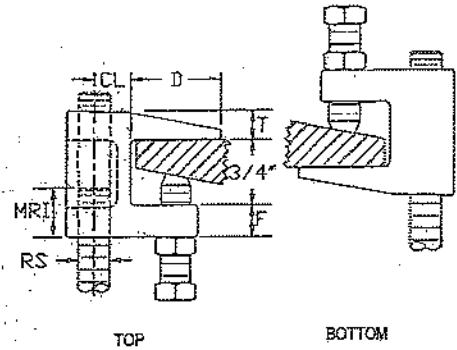
LISTED BY: Underwriters Laboratories Inc. to U. S. and Canadian safety standards

CONFORMS WITH: Federal Specification WW-H-171 (Type 23), Manufacturers Standardization Society ANSI/MSS-SP-58 (Type 19 & 23); install in accordance with ANSI/MSS-SP-69.

SERVICE: Structural attachment (with *infinite adjustment*) to *top* or *bottom* of metal beams, purlins, channel or angle iron to support hanger rod.

ORDERING: Specify size, model number and name

NOTE: Set screw must be tightened onto the sloped side of the I-Beam, channel or angle iron flange and torqued to 60 inch pounds.



May be mounted in either position



RS	Max. pipe size	CL	D	MRI	F	T	Max. recom. load lbs.	
							Top	Bottom
3/8"	4"	7/16"	1-1/8"	1/2"	3/8"	3/8"	500	250
1/2"	8"	9/16"	1-1/16"	11/16"	1/2"	1/2"	950	760
5/8"	8"	9/16"	1-1/16"	11/16"	1/2"	1/2"	950	760
3/4"	8"	9/16"	1-1/8"	13/16"	5/8"	3/8"	950	760
7/8"	8"	9/16"	1-1/8"	13/16"	5/8"	3/8"	950	760

For corresponding Retainer strap see page 36

Model # 200C Retainer Strap

SIZE RANGE: 3/8" thru 7/8" rod sizes (RS); 4-1/2", 6", 8", 10" and 14" lengths (L)

MATERIAL: Pre-galvanized carbon steel

ALTERNATE MATERIAL OR FINISH: HDG

SERVICE: To be utilized when a retainer strap is specified with Model #200 C Clamp.

ORDERING: Specify rod size, length (L) (order 2" longer than beam flange width), model number and name.

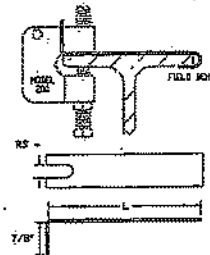


Fig. 292: Right-Hand Thread
Fig. 292L: Left-Hand Thread

Universal Forged Steel (UFS) Beam Clamp With Weldless Eye Nut

Material: Forged steel

Finish: Plain or Galvanized

Service: For suspension of heavy loads from beams with flange widths to 15' and flange thickness to 1.031.

Approvals: Complies with Federal Specification
 A-A-1192A (Type 28 without links; Type 29 with links)
 WW-H-171-E (Type 28 without links; Type 29 with links) and
 MSS-SP-69 (Type 28 without links; Type 29 with links).

Installation: Fit jaws over edges of lower beam flange and tighten nuts on tie rod to lock clamp in place.

Features:

- Weldless eye nut provides for horizontal pipe movement without binding.
- Weldless eye nut is furnished tapped to any specified rod size up to the maximum rod size.
- Tie rod assures a tight non-slip fit to the beam.

Ordering: Specify clamp size, figure number, name, rod size and finish.

Note: The application of a load to a structural beam by means of a beam clamp produces a transverse stress, perpendicular to the axis of the beam, in the flange to which the load is applied.

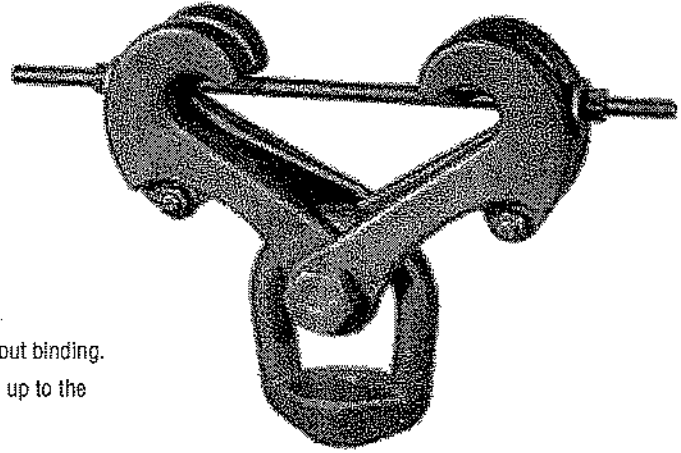
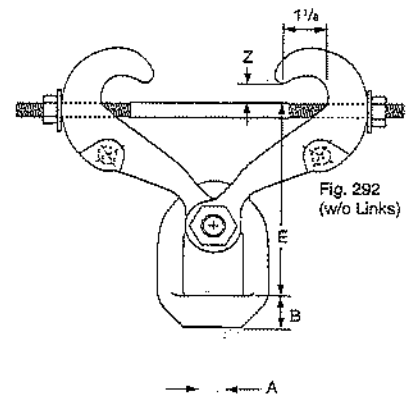
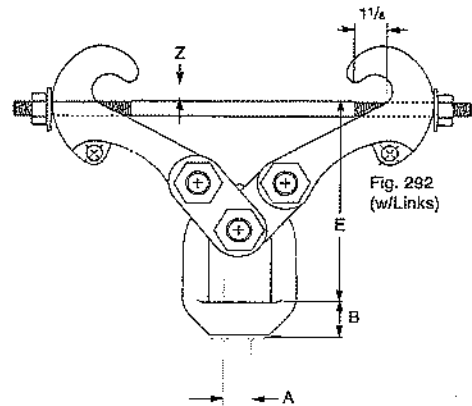


Fig. 292, Fig. 292L: Loads (lbs) • Weight (lbs) • Dimensions (in)

Clamp Size No.	Max Rod Size A	Max Load ■	Weight	Z Max †	B	Jaw and Eye Nut Size ▲
1	3/4	3,230	3.9	0.60	1 1/4	292 - 1 / 1
2	1		9.2		1 11/16	292 - 2 / 2
3 •			13.0		1 1/2	292 - 3 / 2
4			21.7			
5 •		33.9				
6	1 1/2	11,500	23.9	1.031	2 1/8	292 - 3 / 3
7 •			35.8		4 9/16	292 - 3 / 4
8			36.8			

▲ For reference only, order by clamp size.
 • Furnished with links.
 ■ Note: Load capacity based on rod sizes shown. For load capacity of other rod sizes see page PH-207
 † For actual "Z" dimensions see table on page PH-209



Clamp Size No.	Width of Beam Flange (in)												
	Rod Take Out - E (in)												
	3	4	5	6	7	8	9	10	11	12	13	14	15
1	4 1/2	4 5/16	4 1/16	3 5/8	2 7/8	-	-	-	-	-	-	-	-
2	-	4 3/4	4 7/16	4 1/16	3 3/8	-	-	-	-	-	-	-	-
3 •	-	-	-	-	5 15/16	6	5 5/16	5	-	-	-	-	-
4	-	6 13/16	6 3/8	6 3/8	5 7/8	5 3/8	4 13/16	-	-	-	-	-	-
5 •	-	-	-	-	-	-	-	-	8 1/8	7 3/4	7 1/8	6 5/8	6 1/16
6	-	7 3/16	7	6 3/4	6 1/4	6 5/16	5 13/16	5 3/16	-	-	-	-	-
7 •	-	-	-	-	-	-	-	-	8 1/2	8 1/8	7 1/2	7	6 7/16
8	-	8 5/8	8 7/16	8 3/16	7 3/4	7 3/4	7 1/4	6 5/8	-	-	-	-	-

Beam Clamps

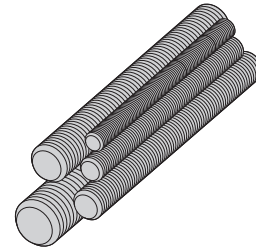
Hardware

ATR

All Threaded Rod

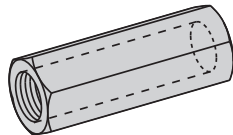
- Available in 36" (91.4 cm), 72" (182.9 cm), 120" (304.8 cm), 144" (365.7 cm) lengths
- Safety Factor of 5 on recommended load
- Standard finish: Zinc-Plated, Stainless Steel Type 304

Part No. & Size	Threads Per Inch	Recommended Load		Wt./C Ft. (3048.0 cm)	
		Lbs.	kN	Lbs.	kg
ATR 1/4"	20	240	(1.07)	12	(5.44)
ATR 5/16"	18	400	(1.78)	19	(8.62)
ATR 3/8"	16	730	(3.24)	29	(13.15)
ATR 1/2"	13	1350	(6.00)	53	(24.04)
ATR 5/8"	11	2160	(9.60)	89	(40.37)
ATR 3/4"	10	3230	(14.37)	123	(55.79)
ATR 7/8"	9	4480	(19.93)	170	(77.11)
ATR 1"	8	5900	(26.24)	225	(102.06)

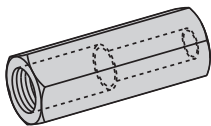


B655 Rod Coupling B656 Reducer Rod Coupling

- Load rating for each coupler meets All Threaded Rod value
- Standard finish: Zinc-Plated, Stainless Steel Type 304



Part No.	Size	Recommended Load		Length		Wt./C	
		Lbs.	kN	In.	mm	Lbs.	kg
B655-1/4	1/4"-20	240	(1.07)	7/8"	(22.2)	1.9	(.86)
B655-5/16	5/16"-18	380	(1.69)	7/8"	(22.2)	1.8	(.81)
B655-3/8	3/8"-16	730	(3.24)	1 1/8"	(28.6)	3.6	(1.63)
B655-1/2	1/2"-13	1350	(6.00)	1 3/4"	(44.4)	11.3	(5.12)
B655-5/8	5/8"-11	1810	(8.05)	2 1/8"	(54.0)	17.6	(7.98)
B655-3/4	3/4"-10	2710	(12.05)	2 1/4"	(57.1)	28.1	(12.74)
B655-7/8	7/8"-9	3770	(16.77)	2 1/2"	(63.5)	57.2	(25.94)
B655-1	1"-8	4960	(22.06)	2 3/4"	(69.8)	73.7	(33.43)



Part No.	Size	Recommended Load		Length		Wt./C	
		Lbs.	kN	In.	mm	Lbs.	kg
B656-3/8 x 1/4	3/8"-16 & 1/4"-20	240	(1.07)	1"	(25.4)	3.7	(1.68)
B656-1/2 x 3/8	1/2"-13 & 3/8"-16	730	(3.24)	1 1/4"	(31.7)	6.6	(2.99)
B656-5/8 x 1/2	5/8"-11 & 1/2"-13	1350	(6.00)	1 1/4"	(31.7)	11.6	(5.26)
B656-3/4 x 5/8	3/4"-10 & 5/8"-11	1810	(8.05)	1 1/2"	(38.1)	20.6	(9.34)
B656-7/8 x 3/4	7/8"-9 & 3/4"-10	2710	(12.05)	1 3/4"	(44.4)	39.4	(17.87)

BHR Series Hot Rods for Trapeze Hangers

- 12" length of threaded rod completely assembled with rod coupling, locking hex nuts, square washer, and channel nut.
- Standard finish: Zinc-Plated

Part No.	Rod Size	Recommended Load		Wt./C	
		Lbs.	kN	Lbs.	kg
BHR1225ZN	1/4"-20	240	(1.07)	41	(18.6)
BHR1238ZN	3/8"-16	730	(3.24)	63	(28.6)
BHR1250ZN	1/2"-13	1350	(6.00)	98	(44.4)
BHR1262ZN	5/8"-11	1500	(6.67)	148	(67.1)

Note: Based on use with 12 ga. channel.

(BHR1225, BHR1238, and BHR1250 use combo nut washers instead of square washers and channel nuts)



SC228 Hanger Rod Stiffener

- For $\frac{3}{8}$ " thru $\frac{5}{8}$ " ATR
- Strut ordered separately
- Standard finish: ZN
- Wt./C 21 Lbs. (9.5 kg)

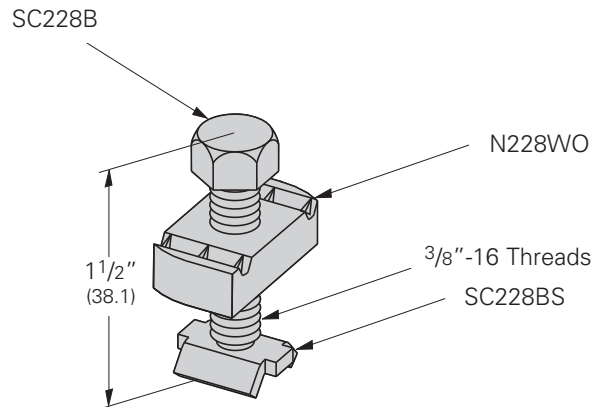
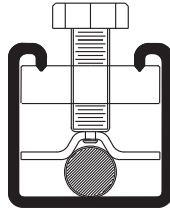


Fig. 98 Rod Stiffener

- For $\frac{3}{8}$ " thru $\frac{7}{8}$ " ATR
- Use with 12 ga. strut only, ordered separately
- Secures channel to hanger rod for vertical seismic bracing
- Standard finish: ZN
- Wt./C 11 Lbs. (5.0 kg)

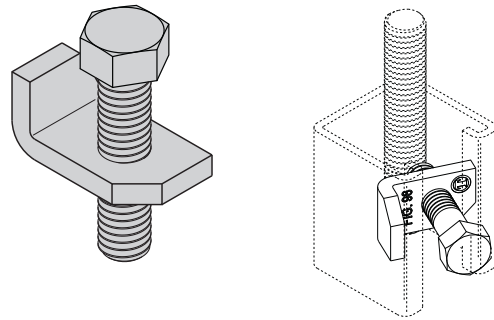
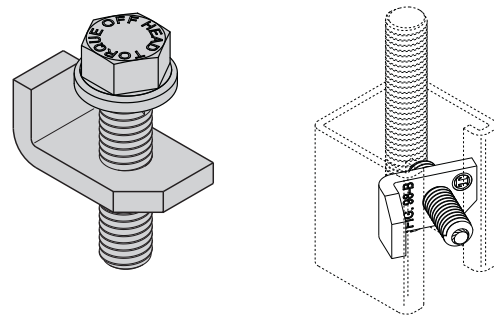


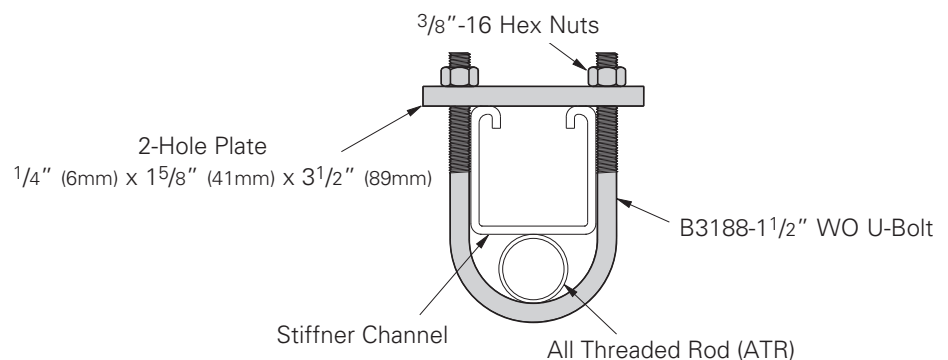
Fig. 98B Rod Stiffener with Break-Off Bolt Head

- For $\frac{3}{8}$ " thru $\frac{7}{8}$ " ATR
- Use with 12 ga. strut only, ordered separately
- Secures channel to hanger rod for vertical seismic bracing
- Uses a snap-off bolt head
- Standard finish: ZN
- Wt./C 13 Lbs. (5.9 kg)



SC-UB Hanger Rod Stiffener

- For $\frac{3}{4}$ " thru $\frac{7}{8}$ " ATR
- Strut ordered separately
- Includes: (1) B3188-1 $\frac{1}{2}$ WO U-Bolt
(2) $\frac{3}{8}$ "-16 Hex Nuts
(1) 2-Hole Plate
- Standard finish: ZN
- Wt./C 50 Lbs. (22.7 kg)

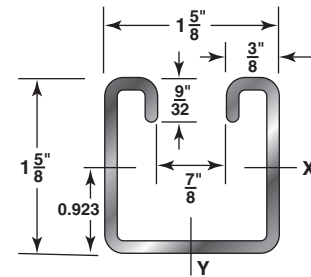
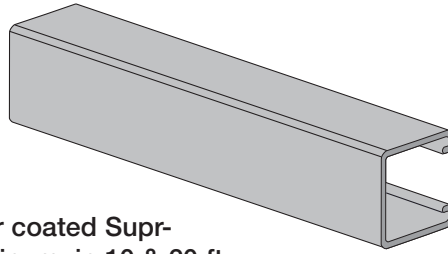


CHANNEL

H-132

1⁵/₈" X 1⁵/₈"
12 Gauge Channel
wt./100 ft. - 194#

Channel



Stocked in pre-galvanized, plain, powder coated Supr-Green, zinc trivalent, PVC coated & aluminum, in 10 & 20 ft. lengths. Note: Also available in Stainless Steel 304 & 316 Alloys. Other materials, finishes & lengths are available upon request.

SECTION PROPERTIES

Catalog No.	Wt./Ft. Lbs.	Area of Section Sq. In.	X-X Axis			Y-Y Axis		
			I in ⁴	S in ³	r in.	I in ⁴	S in ³	r in.
H-132	1.94	0.552	0.188	0.208	0.584	0.236	0.290	0.654

I = Moment of Inertia S = Section Modulus r = Radius of Gyration

Span or Unbraced Height (In)	Static Beam Load (X-X Axis)						Max. Allowable Load at Slot Face (Lbs)	Column Loading Data			
	Max Allowable Uniform Load (Lbs)	Deflection at Uniform Load (In)	Uniform Load at Deflection					Max. Column Load Applied at C.G.			
			Span/180 Deflection (Lbs)	Span/240 Deflection (Lbs)	Span/360 Deflection (Lbs)	Weight of Channel (Lbs)		k=.65 (Lbs)	k=.80 (Lbs)	k=1.0 (Lbs)	k=1.2 (Lbs)
12	3,480	0.01	3,480	3,480	3,480	1.9	3,850	12,240	11,940	11,480	10,960
18	2,320	0.03	2,320	2,320	2,320	2.9	3,710	11,540	10,960	10,130	9,290
24	1,740	0.06	1,740	1,740	1,740	3.9	3,530	10,690	9,850	8,740	7,710
30	1,390	0.09	1,390	1,390	1,310	4.9	3,330	9,780	8,740	7,470	6,380
36	1,160	0.13	1,160	1,160	910	5.8	3,120	8,880	7,710	6,380	5,310
42	990	0.17	990	990	670	6.8	2,910	8,020	6,800	5,470	4,430
48	870	0.23	870	770	510	7.8	2,710	7,240	6,000	4,690	3,810
60	700	0.35	660	490	330	9.7	2,340	5,910	4,690	3,630	2,960
72	580	0.51	460	340	230	11.6	2,040	4,840	3,810	2,960	2,400
84	500	0.69	340	250	170	13.6	1,800	4,040	3,200	2,480	1,980
96	430	0.90	260	190	130	15.5	1,600	3,480	2,750	2,110	1,670
108	390	1.14	200	150	100	17.5	1,440	3,050	2,400	1,820	**
120	350	1.41	160	120	80	19.4	1,290	2,700	2,110	**	**
144	290	2.03	110	90	60	23.3	1,060	2,180	1,670	**	**
168	250	2.77	80	60	40	27.2	**	1,790	**	**	**
180	230	3.18	70	50	40	29.1	**	**	**	**	**
192	220	3.61	60	50	NR	31.0	**	**	**	**	**
216	190	4.57	50	40	NR	34.9	**	**	**	**	**
240	170	5.65	40	NR	NR	38.8	**	**	**	**	**

Bearing Load may limit load

NR = Not Recommended

** Not recommended - KL/r exceeds 200

Notes

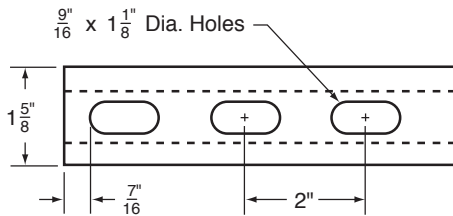
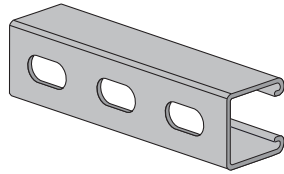
- The beam capacities shown above include the weight of the strut beam. The beam weight must be subtracted from these capacities to arrive at the net beam capacity.
- Allowable beam loads are based on a uniformly loaded, simply supported beam. For capacities of a beam loaded at midspan at a single point, multiply the beam capacity by 50% and deflection by 80%.

3. The above chart shows beam capacities for strut without holes. For strut with holes, multiply by the following:

- OS by 88%, OS3 by 90%,
- RS (1/16 holes) by 88%, RS-MOD (3/4 holes) by 85%,
- RS3 (1/16 holes) by 88%, RS-MOD2 (1/16 holes) by 88%,
- KO by 82%.

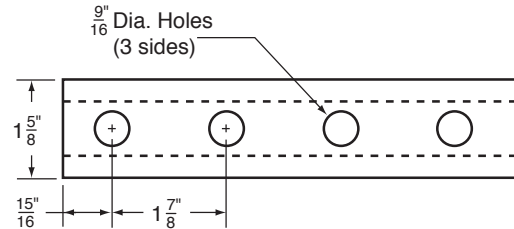
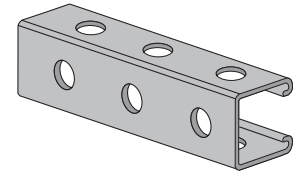
4. Refer to page 52 for reduction factors for unbraced lengths

H-132-OS



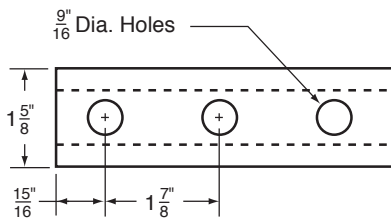
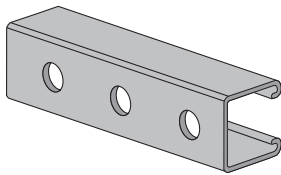
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H-132-RS3



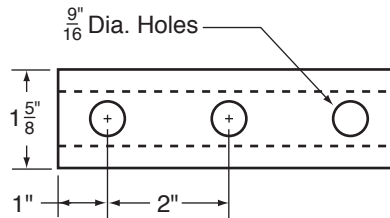
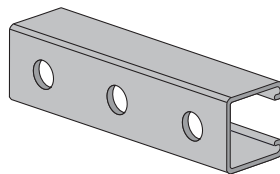
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H-132-RS



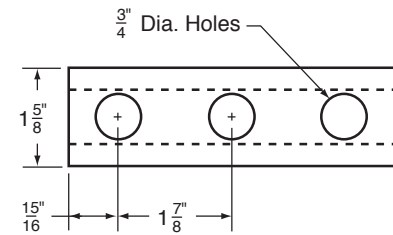
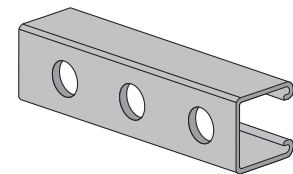
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H-132-RS-MOD2



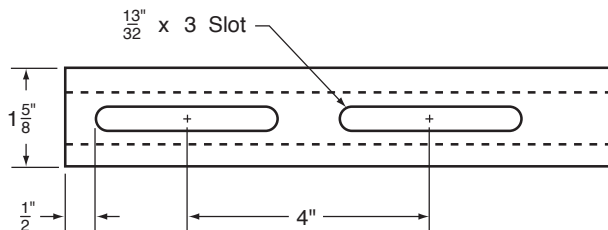
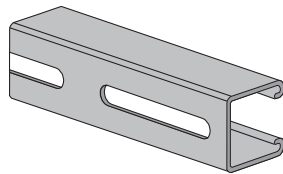
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H-132-RS-MOD



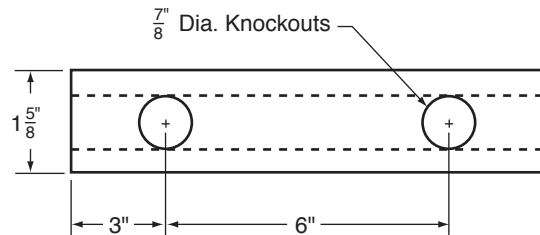
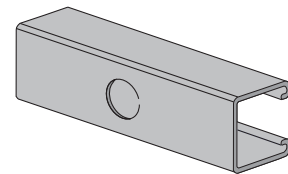
Wt./100 Ft.: 187

H-132-OS3



Wt./100 Ft.: 179

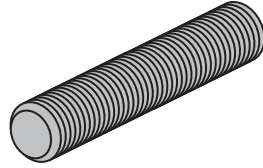
H-132-KO



Wt./100 Ft.: 194

THREADED FASTENERS

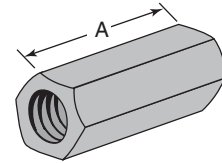
All-Thread Rod



Diameter	Thd.	Wt./100 Ft.
1/4"	20	12
3/8"	16	30
1/2"	13	54
5/8"	11	85
3/4"	10	125

FINISH: Electro-Galvanized/Plain
LENGTH: 6', 10' & 12'

Rod Couplers

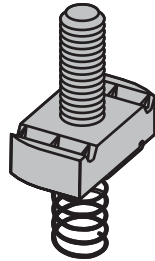


Hole Size	Thd.	"A" Length	Wt./100 Pcs.
1/4"	20	7/8"	2
3/8"	16	1 3/4"	11
1/2"	13	1 3/4"	11
5/8"	11	2 1/8"	16
3/4"	10	2 1/4"	28

FINISH: Electro-Galvanized/Plain

SN

Stud Nut with RS Spring



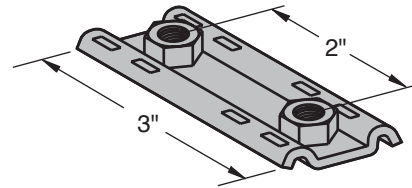
Part No.	Size	Std. Pkg.	Wt./100 Pcs.
SN	1/4" x 1"	100	8.1
SN	1/4" x 1 1/4"	100	8.3
SN	1/4" x 1 1/2"	100	8.6
SN	1/4" x 2"	100	9.1
SN	3/8" x 1"	100	13.0
SN	3/8" x 1 1/4"	100	14.0
SN	3/8" x 1 1/2"	100	14.0
SN	3/8" x 2"	100	15.0
SN	1/2" x 1"	100	15.0
SN	1/2" x 1 1/4"	100	16.0
SN	1/2" x 1 1/2"	100	17.0
SN	1/2" x 2"	100	19.0

Page Notes:

All items UNC
Coarse Thread

N-8771

Double Nut



Cat. No.	Size	Thread	Wt./100 Pcs.
N-8771	3/8"	16	175

FINISH: Electro-Galvanized

GRIP LOCK NUTS & HARDWARE

THREADED FASTENERS

Hardware

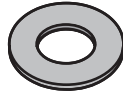
Lock Washers



Size	Wt./100 Pcs.
1/4"	0.3
3/8"	0.7
1/2"	1.5

FINISH: Electro-Galvanized

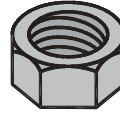
Flat Washers



Size	Wt./100 Pcs.
1/4"	0.7
3/8"	1.5
1/2"	3.5

FINISH: Electro-Galvanized

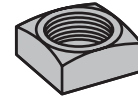
Hex Nuts



Size	Wt./100 Pcs.
1/4"	0.6
5/16"	1.2
3/8"	1.6
1/2"	4.8

FINISH: Electro-Galvanized

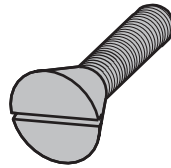
Square Nuts



Size	Wt./100 Pcs.
1/4"	0.9
5/16"	1.6
3/8"	2.7
1/2"	5.8

FINISH: Electro-Galvanized

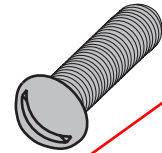
Flat Head Machine Screws



Diameter	Length	Wt./100 Pcs.
1/4"	1/2"	1.2
5/16"	1"	2.6
3/8"	2"	6.5
3/8"	2 1/4"	7.1
3/8"	2 1/2"	7.7

FINISH: Electro-Galvanized

Round Head Machine Screws



Diameter	Length	Wt./100 Pcs.	Diameter	Length	Wt./100 Pcs.
1/4"	3/4"	1.2	5/16"	1 1/2"	3.6
1/4"	1"	1.5	3/8"	1"	4.1
1/4"	1 1/4"	1.8	3/8"	1 1/4"	4.7
5/16"	1"	2.6	3/8"	1 1/2"	5.3
5/16"	1 1/4"	3.0	3/8"	2 1/2"	7.7

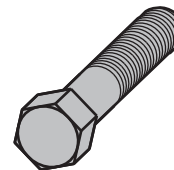
FINISH: Electro-Galvanized

Hex Head Cap Screws

Diameter	Length	Wt./100 Pcs.	Diameter	Length	Wt./100 Pcs.
1/4"	1/2"	1.0	3/8"	2 1/4"	8.5
1/4"	3/4"	1.3	1/2"	1"	9.1
1/4"	1"	1.7	1/2"	1 1/4"	10.0
3/8"	3/4"	4.0	1/2"	1 1/2"	11.6
3/8"	1"	4.5	1/2"	1 3/4"	13.2
3/8"	1 1/4"	5.3	1/2"	2"	14.7
3/8"	1 1/2"	6.1	1/2"	2 1/4"	16.0
3/8"	2"	7.6	1/2"	2 1/2"	17.5

FINISH: Electro-Galvanized

For use with H-Grip Lock Nuts to secure fittings to channels.



Page Notes:
All items UNC
Coarse Thread

THREADED ROD LOAD RATINGS

Threaded Rod Load Rating			
Nominal Rod Diameter, In.	Root Area Thread, In.	Maximum Safe Load, Lbs Rod Temperatures	
		650°F	750°F
3/8"	0.068	610	540
1/2"	0.128	1,130	1,010
5/8"	0.202	1,810	1,610
3/4"	0.302	2,710	2,420
7/8"	0.419	3,770	3,360
1"	0.552	4,960	4,420
1-1/8"	0.693	6,230	5,560
1-1/4"	0.889	8,000	7,140
1-1/2"	1.293	11,630	10,370
1-3/4"	1.744	15,700	14,000
2"	2.300	20,700	18,460

Rod Size as Determined by Pipe Size	
Pipe Size	Rod Size
3/4" to 2" Inclusive	3/8"
2-1/2" to 3-1/2"	1/2"
4" and 5"	5/8"
6"	3/4"
8" to 12" Inclusive	7/8"

WATER FILLED PIPE WEIGHTS

WATER FILLED PIPE WEIGHTS FOR PIPE HANGERS LOCATED ON 6 FT CENTERS AT 1/4 SPAN FROM EACH END									
SIZE	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"
SCH 40 PIPE WEIGHT PER FT (LBS)	3.65	5.79	7.57	10.78	14.60	18.95	28.52	40.44	53.47
WATER WEIGHT PER FT (LBS)	1.45	2.07	3.20	5.51	8.67	12.52	21.67	34.16	48.49
TOTAL WEIGHT PER FT (LBS)	5.10	7.86	10.77	16.29	23.27	31.47	50.20	74.60	101.96
PIPE HANGER CENTERS (FT)	6	6	6	6	6	6	6	6	6
TOTAL WEIGHT PER 6 FT CENTER - ONE PIPE (LBS)	31	47	65	98	140	189	301	448	612
TOTAL WEIGHT PER 6 FT CENTER - TWO PIPES (LBS)	61	94	129	196	279	378	602	895	1,223
RECOMMENDED 3 FT SPAN PIPE HANGER TOP BEAM	H-132	H-132	H-132	H-132	H-132	H-132	H-122	H-112	H-112
RECOMMENDED 4 FT SPAN PIPE HANGER TOP BEAM	H-132	H-132	H-132	H-132	H-132	H-122	H-112	H-112	H-122A
RECOMMENDED 5 FT SPAN PIPE HANGER TOP BEAM	H-132	H-132	H-132	H-132	H-122	H-122	H-112	H-122A	H-122A
RECOMMENDED 6 FT SPAN PIPE HANGER TOP BEAM	H-132	H-132	H-132	H-132	H-122	H-122	H-112	H-122A	H-112A

WATER FILLED PIPE WEIGHTS FOR PIPE HANGERS LOCATED ON 8 FT CENTERS AT 1/4 SPAN FROM EACH END									
SIZE	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"
SCH 40 PIPE WEIGHT PER FT (LBS)	3.65	5.79	7.57	10.78	14.60	18.95	28.52	40.44	53.47
WATER WEIGHT PER FT (LBS)	1.45	2.07	3.20	5.51	8.67	12.52	21.67	34.16	48.49
TOTAL WEIGHT PER FT (LBS)	5.10	7.86	10.77	16.29	23.27	31.47	50.20	74.60	101.96
PIPE HANGER CENTERS (FT)	8	8	8	8	8	8	8	8	8
TOTAL WEIGHT PER 8 FT CENTER - ONE PIPE (LBS)	41	63	86	130	186	252	402	597	816
TOTAL WEIGHT PER 8 FT CENTER - TWO PIPES (LBS)	82	126	172	261	372	504	803	1,194	1,631
RECOMMENDED 3 FT SPAN PIPE HANGER TOP BEAM	H-132	H-132	H-132	H-132	H-132	H-122	H-112	H-112	H-122A
RECOMMENDED 4 FT SPAN PIPE HANGER TOP BEAM	H-132	H-132	H-132	H-132	H-132	H-122	H-112	H-112	H-122A
RECOMMENDED 5 FT SPAN PIPE HANGER TOP BEAM	H-132	H-132	H-132	H-122	H-122	H-112	H-122A	H-122A	H-112A
RECOMMENDED 6 FT SPAN PIPE HANGER TOP BEAM	H-132	H-132	H-132	H-122	H-122	H-112	H-122A	H-112A	H-112A

MAXIMUM SPACING BETWEEN SUPPORTS

Nominal Tube Size, In.	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"
Maximum Span, Ft.	5	6	6	8	9	10	10	11	12

Nominal Pipe Size, In.	Maximum Span, Ft.	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
		Water	5	6	7	9	10	11	12	13	14	16	17	19	22	23	25	27	28	30
Air & Steam	-	-	9	11	13	14	15	16	17	19	21	24	28	30	32	35	37	39	42	

Technical Data

Model #10 Regular Hexagon Nut

SIZE RANGE: 1/4" thru 1-1/2" UNC thread
MATERIAL: Carbon steel
ALTERNATE MATERIAL OR FINISH: EG, SS
ORDERING: Specify size, model number and name.



Model #10-H Heavy Duty Hexagon Nut

SIZE RANGE: 1/4" thru 1-1/2" UNC thread
MATERIAL: Carbon steel
ALTERNATE MATERIAL OR FINISH: EG, SS
ORDERING: Specify size, model number and name.



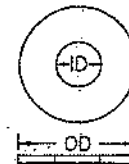
Model #11 Round Flat Washer

SIZE RANGE: 1/4" thru 1-1/2" sizes
MATERIAL: Carbon steel
ALTERNATE MATERIAL OR FINISH: EG, SS
ORDERING: Specify size, model number and name.



Size	IO	OO
1/4"	5/16"	3/4"
5/16"	3/8"	7/8"
3/8"	7/16"	1"
1/2"	9/16"	1-3/8"
5/8"	11/16"	1-3/4"
3/4"	13/16"	2"
7/8"	15/16"	2-1/4"
1"	1-1/16"	2-1/2"
1-1/8"	1-1/4"	2-3/4"
1-1/4"	1-3/8"	3"
1-1/2"	1-5/8"	3-1/2"

SIZE RANGE: 1/4" thru 1/2" sizes
MATERIAL: Carbon steel
ALTERNATE MATERIAL OR FINISH: EG, SS
ORDERING: Specify size, model number and name.



Size	IO	OD
1/4"	5/16"	1-1/16"
3/8"	7/16"	1-1/2"
1/2"	9/16"	2"

Superstrut®

Fittings & Brackets (Series 200)



Material

Superstrut fittings and brackets are manufactured from hot rolled carbon steel.

Dimensions

The following standard dimensions apply to all fittings except as indicated on the individual drawings.

Hole spacing $1\frac{3}{8}$ " from end of fittings

Hole spacing $1\frac{7}{8}$ " centers

Hole size $\frac{9}{16}$ " diameter

Material $1\frac{1}{2}$ " wide

Material $\frac{1}{4}$ " thickness

Application Instructions

Parts drawings illustrate a typical use for the fitting, and in many cases other uses for the part are appropriate.

Design Data

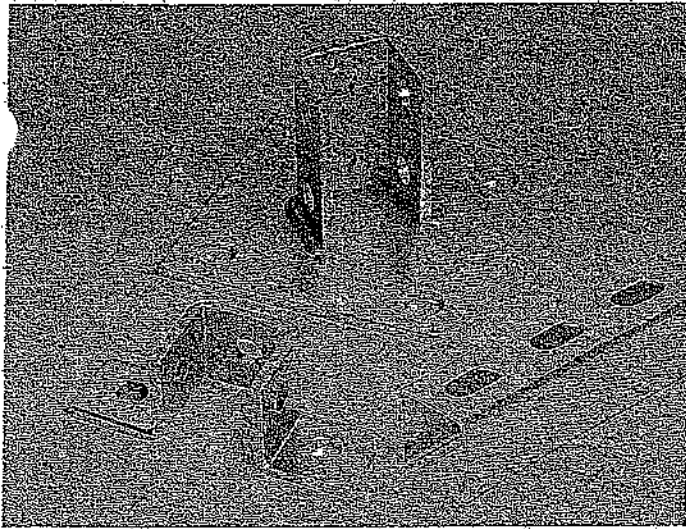
Ratings vary when used with 12 or 14 gauge channel and are shown for each channel material.

GoldGalv® hardware finish is standard for all Superstrut products. This is a multi-process finish of electro-plated zinc, followed by gold colored zinc dichromate to give excellent corrosion resistance and a superior paint base. See page 2 for complete description of the GoldGalv® hardware finish. GoldGalv® hardware will be furnished if no other finish is specified.

Nuts and Bolts Required

Unless otherwise noted, nuts and bolts for use with fittings and brackets should be ordered separately.

The standard bolt for the $\frac{9}{16}$ " hole is a $\frac{1}{2}$ " hex head cap screw $\frac{5}{8}$ " long. The $\frac{5}{8}$ " length may be used with all series channel.

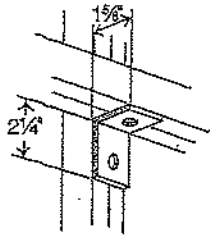


Standard Finish — GoldGalv®, unless otherwise stated.

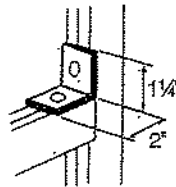
Thomas & Betts

Superstrut®

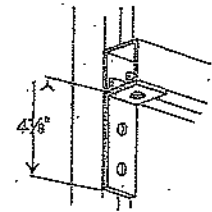
Fittings & Brackets (Series 200)



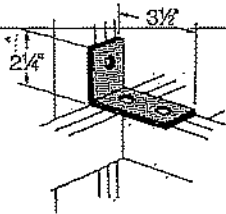
AB-201



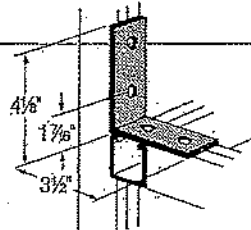
AB-202



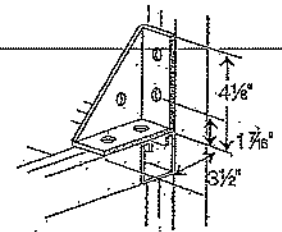
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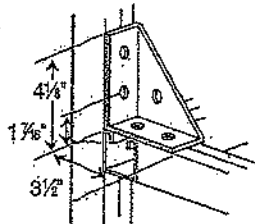
AB-204



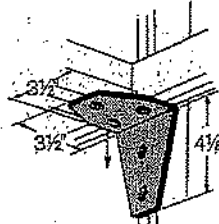
AB-205



AB-213



AB-214

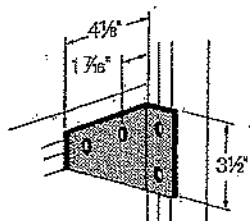


AB-216

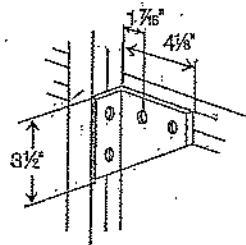


AB-252

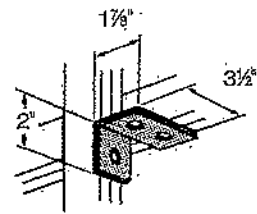
Cat No.	A	Std Ctn.
AB-252-1	1 7/8"	10
AB-252-2	5 7/8"	10
AB-252-3	7 1/2"	10
AB-252-4	9 1/2"	10



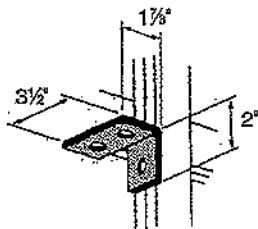
AB-254-R



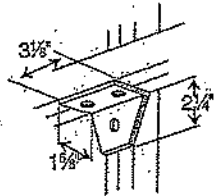
AB-254-L



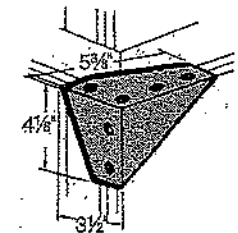
AB-260-R



AB-260-L



AB-274



AB-284-R

Standard Dimensions

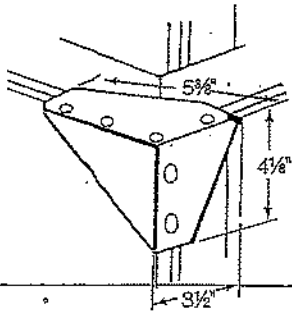
Hole Spacing	5/8" From End
Hole Spacing	1 1/4" Centers
Hole Size	5/8" Diam.
Material	1 1/2" Width
Material	1/4" Thick

Standard Finish — GoldGalv®, unless otherwise stated.

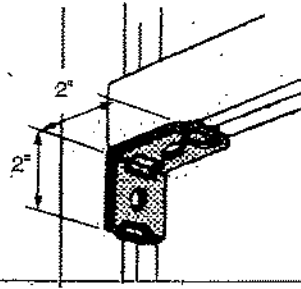
Thomas & Betts

Superstrut®

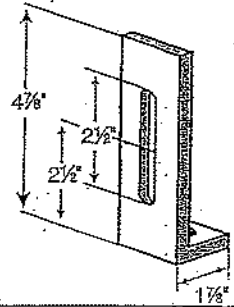
Fittings & Brackets (Series 200)



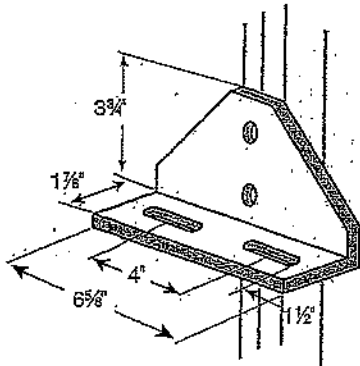
AB-284-L



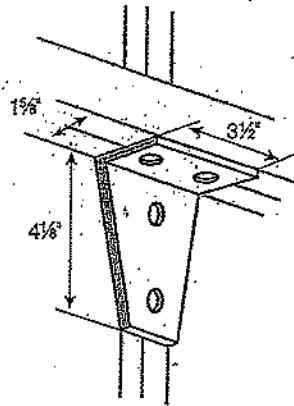
AB-299



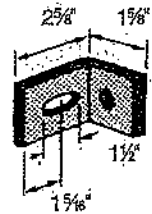
X-201



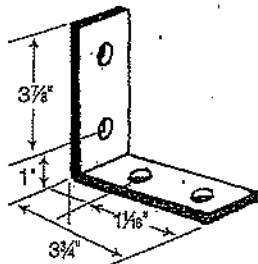
X-204



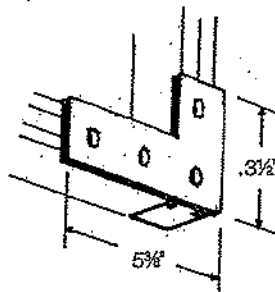
X-289



X-299



N-205



N-219

Standard Dimensions

Hole Spacing	3/4" From End
Hole Spacing	1 1/2" Centers
Hole Size	5/8" Diam.
Material	1 5/8" Width
Material	1/4" Thick

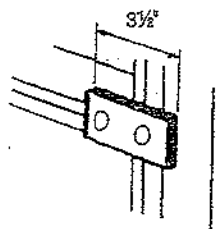
Standard Finish — GoldGalv®, unless otherwise stated.

Thomas & Betts

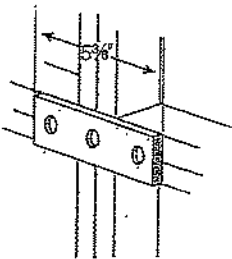
Superstrut®

Fittings & Brackets (Series 200)

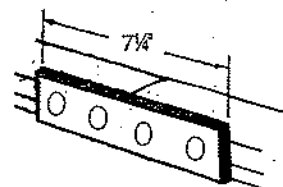
Flat Plate Fittings



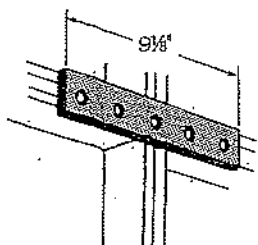
AB-205



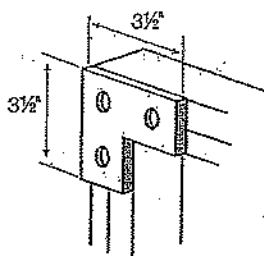
AB-207



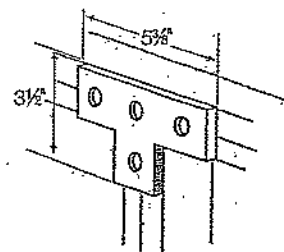
X-207



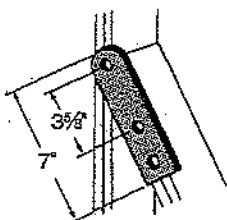
X-208



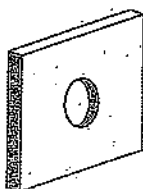
AB-219



AB-220

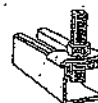


AB-240



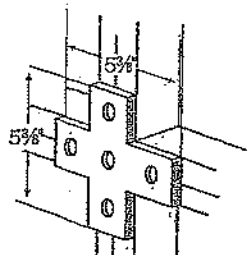
AB-241

Square Washer		
Cat. No.	Bolt Size	Std. Ctn.
AB-241-1/4	1/4"	100
AB-241-3/8	3/8"	100
AB-241-1/2	1/2"	100
AB-241-5/8	5/8"	100
AB-241-3/4	3/4"	50

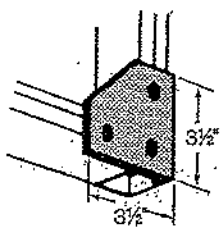


AB-242

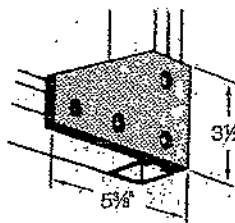
For use with either 3/8" or 1/2" hanger rod



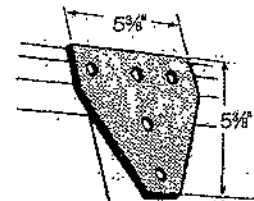
AB-253



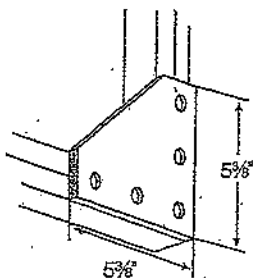
AB-255



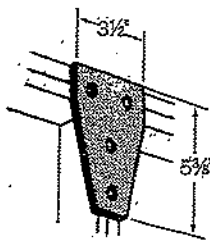
AB-257



AB-261



AB-263



AB-265

Standard Dimensions

Hole Spacing	3/8" From End
Hole Spacing	1 1/2" Centers
Hole Size	3/8" Diarn.
Material	1 1/2" Width
Material	1/4" Thick

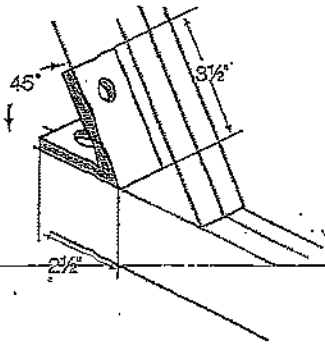
Standard Finish – GoldGalv®, unless otherwise stated.

Thomas & Betts

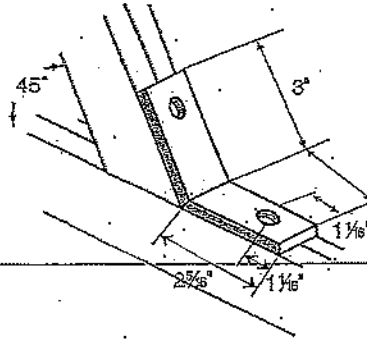
Superstrut®

Fittings & Brackets (Series 200)

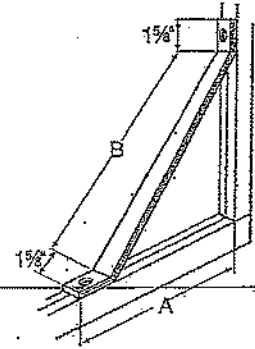
Angular Fittings



AB-225



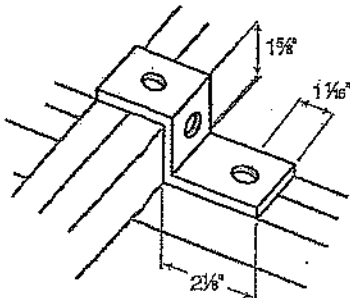
AB-227



AB-239

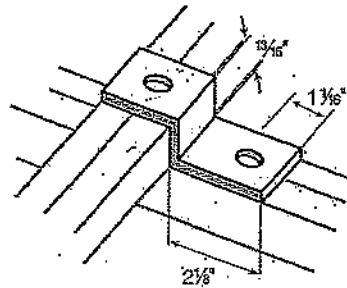
Cat. No.	A	B	Std. Ctn.
AB-239-1			
AB-239-2	13 3/4"	17"	10
AB-239-3			

"Z" Shape Fittings



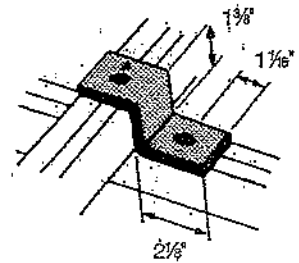
A-209

For attaching "A" series channel.



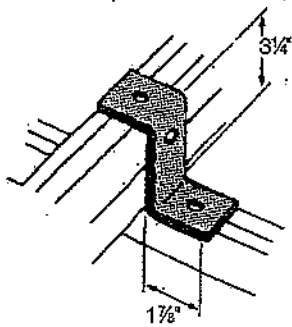
B-209

For attaching "B" series channel.



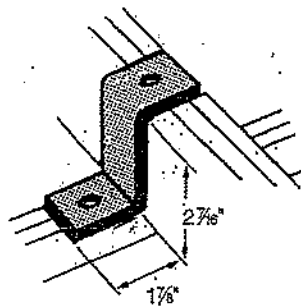
C-209

For attaching "C" series channel.



CZ-209

For attaching "A" back to back.



EZ-209

For attaching "E" series channel.

Standard Dimensions

Hole Spacing	3/4" From End
Hole Spacing	1 7/8" Centers
Hole Size	3/8" Diam.
Material	1 1/2" Width
Material	1/4" Thick

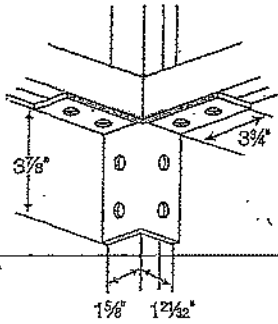
Standard Finish -- GoldGalv®, unless otherwise stated.

Thomas & Betts

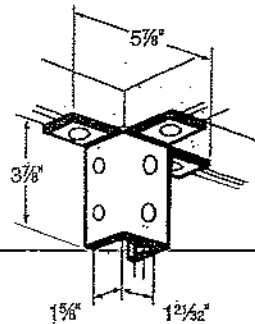
Superstrut®

Fittings & Brackets (Series 200)

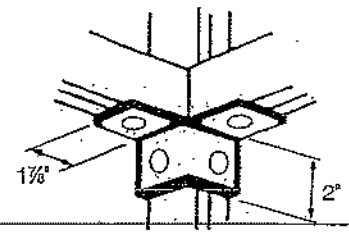
Wing Shape Fittings



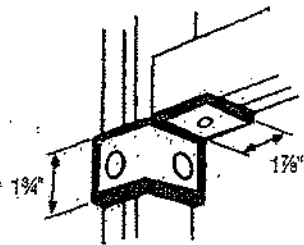
A-217



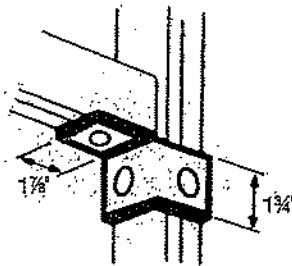
A-218



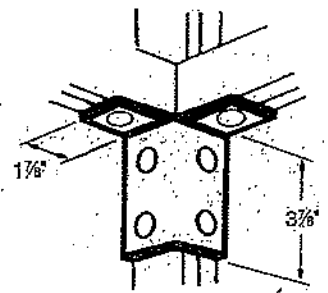
AW-204



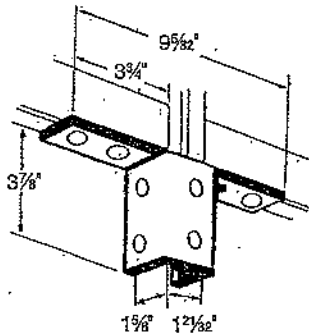
AW-205-L



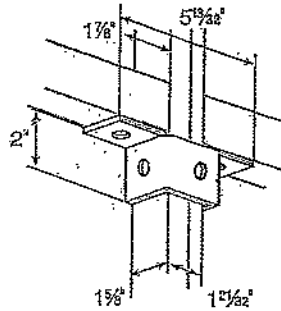
AW-205-R



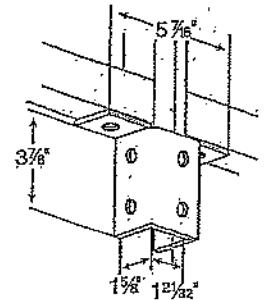
AW-214



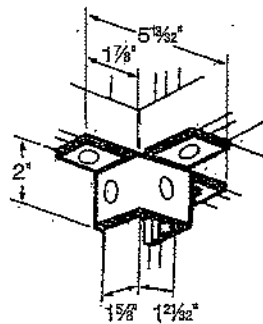
AW-219



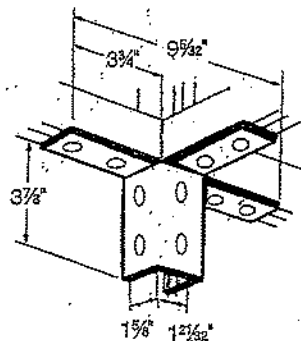
AW-220



AW-224



AW-226



AW-228

Standard Dimensions

Hole Spacing	3/8" From End
Hole Spacing	1 7/8" Centers
Hole Size	3/8" Diam.
Material	1 3/8" Width
Material	1/4" Thick

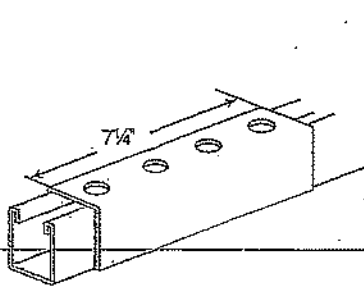
Standard Finish — GoldGalv®, unless otherwise stated.

Thomas & Betts

Superstrut®

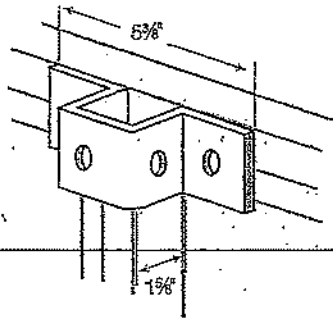
Fittings & Brackets (Series 200)

"U" Shape Fittings



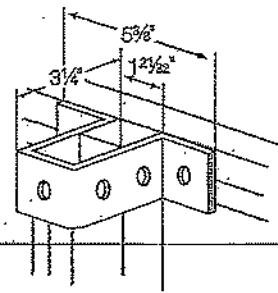
A-208

Does not include strut nut or bolts.
For "A" series channel.



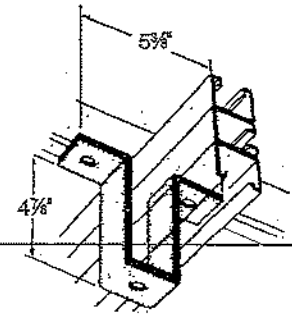
A-210

For attaching "A" series channel

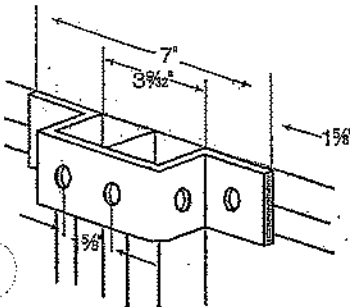


A-211

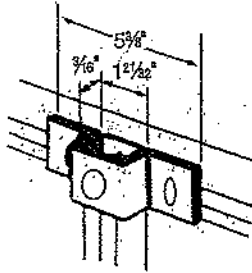
For attaching "A" series channel



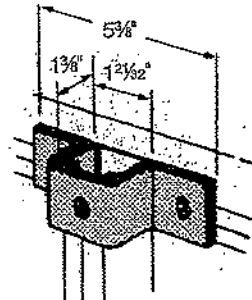
AN-211



A-212

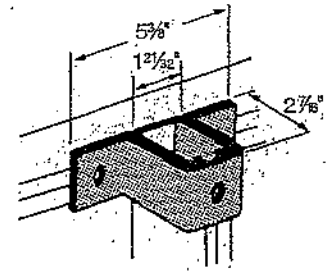


B-210



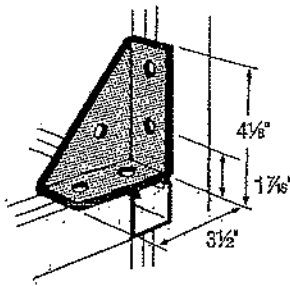
C-210

For attaching "C" series channel.

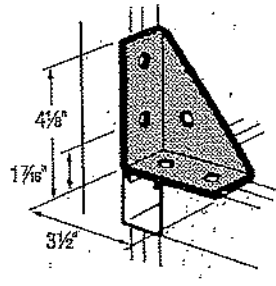


E-210

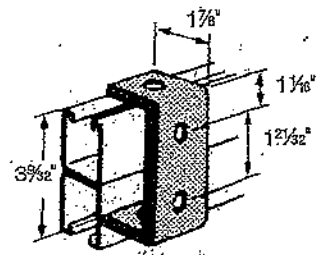
For attaching "E" series channel.



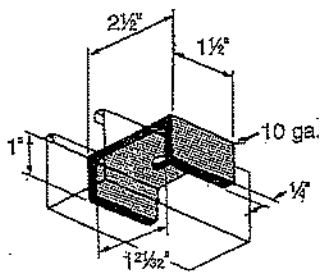
AB-213



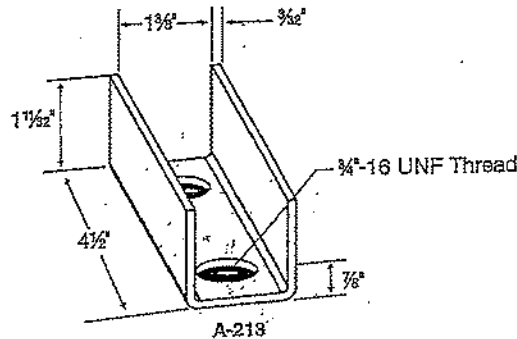
AB-214



AB-245



AB-288



A-213

Standard Dimensions

Hole Spacing	3/8" From End
Hole Spacing	1 1/2" Centers
Hole Size	3/8" Diam.
Material	1 5/8" Width
Material	1/4" Thick

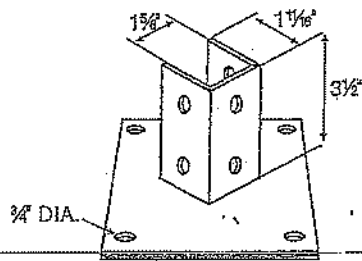
Standard Finish — GoldGalv®, unless otherwise stated.

Thomas & Betts

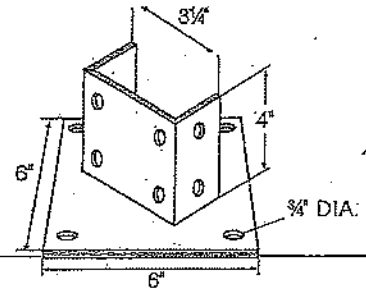
Superstrut®

Fittings & Brackets (Series 200)

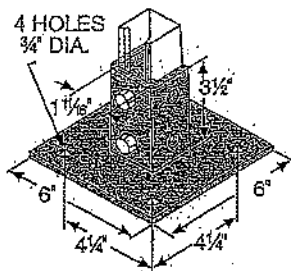
Post Bases



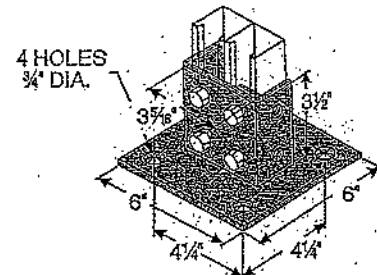
AP-232
Available GoldGalv®, HDG, EG (Silver), Stainless Steel, and White Painted.



AP-235
Available GoldGalv®, HDG, EG (Silver), Stainless Steel, and White Painted.

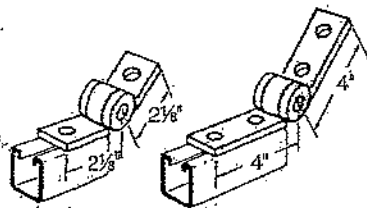


AP-232SQ
Available GoldGalv®, HDG, EG (Silver), Stainless Steel, and White Painted.



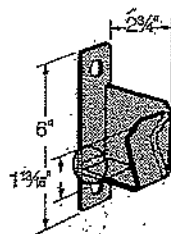
AP-235SQ
Available GoldGalv®, HDG, EG (Silver), Stainless Steel, and White Painted.

Special Application Fittings

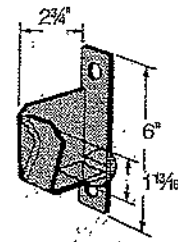


Q-202

Q-205

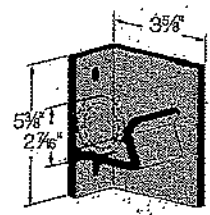


Q-253



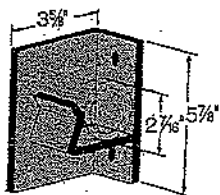
Q-254

For 1 1/4" standard pipe.
Load 1500 lbs.



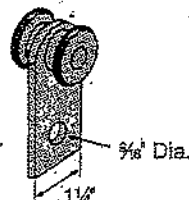
Q-255

For 2" standard pipe.
Load 1500 lbs.



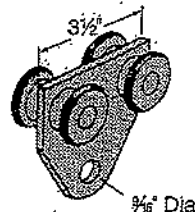
Q-256

For 2" standard pipe.
Load 1500 lbs.



TR-292

Frictionless needle bearings.
Design load: 500 lbs.
Safety factor of 5.



TR-294

Frictionless needle bearings.
Design load: 1000 lbs.
Safety factor of 5.

Standard Dimensions

Hole Spacing	3/8" From End
Hole Spacing	1 7/8" Centers
Hole Size	3/8" Diam.
Material	1 5/8" Width
Material	1/4" Thick

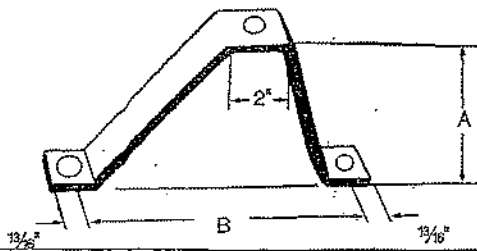
Standard Finish -- GoldGalv®, unless otherwise stated.

Thomas & Betts

Superstrut®

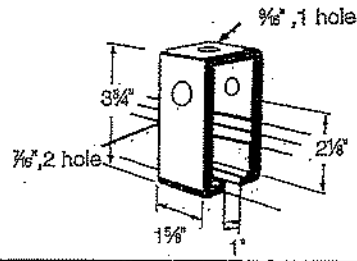
Fittings & Brackets (Series 200)

Special Application Fittings



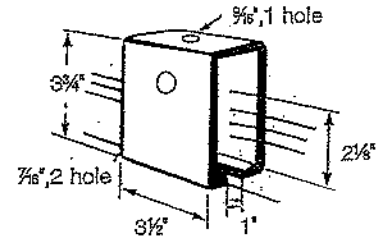
AN-270

Cat No.	A	B	Std. Ctn.
AN-270-1			
AN-270-2	4 3/4"	8	10
AN-270-3			
AN-270-4	8 3/4"	12	15
AN-270-5			



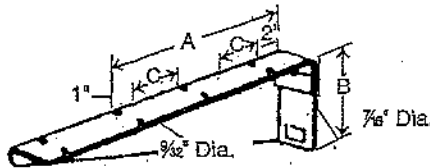
TS-272

Track Support
Requires 3/8" x 2 1/2" bolt and nut (not included).
Design load: 1000 lbs.



TS-273

Track Support
For uses over channel splice.
Requires 3/8" x 2 1/2" bolt and nut (not included).
Design load: 2000 lbs.

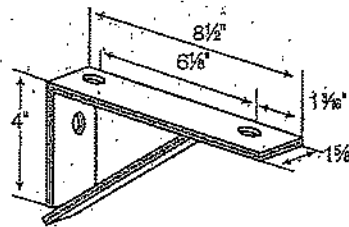


S-201-L and R
R as shown - L opposite hand.
12 ga. steel
Design Uniform Load/lbs.
A-1200 250
A-1400 200

Cat. No.	A	B	C	Std Ctn.
S201-L6 or R6				
S201-L8 or R8	8	2 7/16"	5	25
S201-L10 or R10				
S201-L12 or R12	12	3 7/16"	3	5
S201-L14 or R14				
S201-L16 or R16	16	4 7/16"	5	15
S201-L18 or R18				
S201-L20 or R20	20	5 7/16"	7	10

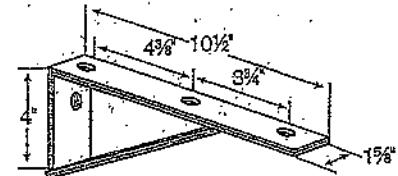
Standard Dimensions

Hole Spacing	3/4" From End
Hole Spacing	1 1/2" Centers
Hole Size	3/8" Diam.
Material	1 1/2" Width
Material	1/4" Thick



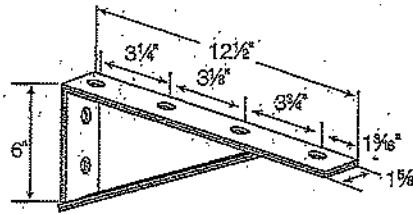
S-204

Design Uniform Load/lbs.
A-1200 650
A-1400 500



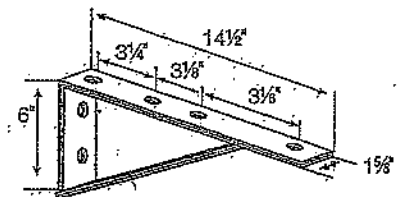
S-205

Design Uniform Load/lbs.
A-1200 650
A-1400 500



S-217

Design Uniform Load/lbs.
A-1200 750
A-1400 650



S-218

Design Uniform Load/lbs.
A-1200 750
A-1400 650

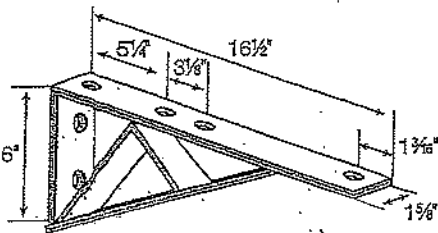
Standard Finish -- GoldGalv®, unless otherwise stated.

Thomas & Betts

Superstrut®

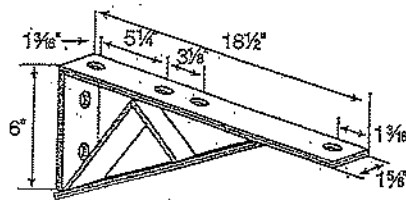
Fittings & Brackets (Series 200)

Brackets



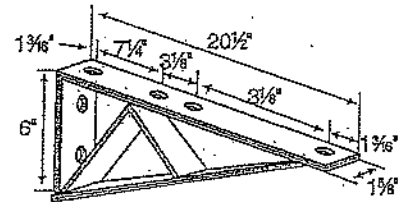
S-222

Design Uniform Load/lbs.	
A-1200	1000
A-1400	750



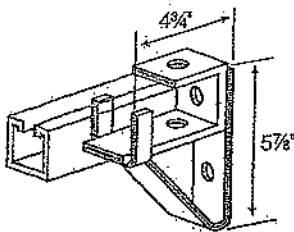
S-226

Design Uniform Load/lbs.	
A-1200	1000
A-1400	750



S-236

Design Uniform Load/lbs.	
A-1200	800
A-1400	650



S-247

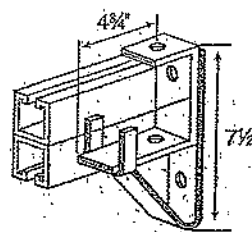
Design Moment
(channel upright as shown)
When supported By

A-1200	5250 inch lbs.
A-1400	3650 inch lbs.

Applies to fitting only, not to the arm.

For

A-1200	B-1202
A-1400	B-1402



S-248

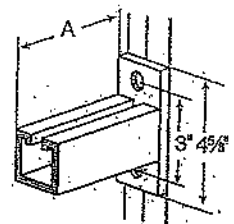
Design Moment
(channel upright as shown)
When supported By

A-1200	10800 inch lbs.
A-1400	7550 inch lbs.

Applies to fitting only, not to the arm.

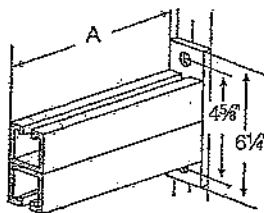
For

A-1200	
A-1400	



S-250

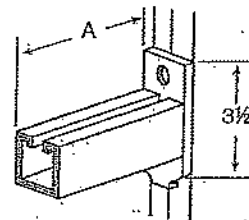
May be installed inverted with no change in load ratings. Strut section made from half slot channel
Sizes: 6", 12", 18", & 24"



S-251

Strut section made from half slot channel.

Sizes: 12", 18", 24", 30", & 36"



S-256

When installed in inverted position reduce load rating 40%. Strut section made from half slot channel.
Sizes: 6", 12", 18", & 24"

Cat. No.	A	Design Load lbs.	Std. Ctn.
S-251-12	12	1050	1
S-251-18	18	1050	1
S-251-30	30	650	1
S-251-36	36	650	1

Cat. No.	A	Design Load lbs.	Std. Ctn.
S-256-6	6	250	1
S-256-12	12	500	1
S-256-18	18	250	1
S-256-24	24	250	1

Standard Dimensions

Hole Spacing	3/4" From End
Hole Spacing	1 7/8" Centers
Hole Size	3/8" Diam.
Material	1 1/2" Width
Material	1/4" Thick

Standard Finish — GoldGalv®, unless otherwise stated.

Thomas & Betts

CADDY® SLICK NUT

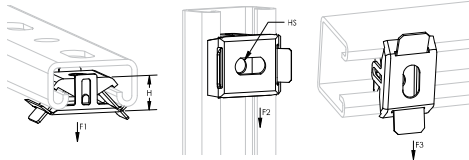
- Provides fast universal attachment of threaded rod and hardware to standard strut profiles



Material:
Finish: CADDY® ARMOUR

Part Number	Description	F1	F2	F3
SLICK250	1/4" Hole, Threaded	400 lb	100 lb	250 lb
SLICK375	3/8" Hole, Threaded	600 lb	100 lb	250 lb
SLICK500	1/2" Hole, Threaded	600 lb	100 lb	250 lb

Indicated loads are independent of the threaded stud or rod.
Indicated loads are applicable on 14 GA and 12 GA (2 mm and 2.5 mm) strut channels only.



CADDY® ERISTRUT

Strut Nut with Spring, Channel Type A



Material: Steel
Finish: Electrogalvanized

Part Number	Description	Torque
SPRA0025EG	EG, 1/4" Rod	6 ft lb
SPRA0037EG	EG, 3/8" Rod	19 ft lb
SPRA0050EG	EG, 1/2" Rod	50 ft lb
SPRA0062EG	EG, 5/8" Rod	50 ft lb

Part Number	Pull-Out Strength	
	Channel Thickness	
	12 GA	14 GA
SPRA0025EG	450 lb	450 lb
SPRA0037EG	1,100 lb	1,000 lb
SPRA0050EG	2,000 lb	1,400 lb
SPRA0062EG	2,000 lb	1,400 lb

Strut Nut with Spring, Channel Type C



Material: Steel
Finish: Electrogalvanized

Part Number	Description	Torque
SPRC0025EG	EG, 1/4" Rod	6 ft lb
SPRC0037EG	EG, 3/8" Rod	19 ft lb

Part Number	Pull-Out Strength	
	Channel Thickness	
	12 GA	14 GA
SPRC0025EG	450 lb	450 lb
SPRC0037EG	1,100 lb	1,000 lb

Strut Nut with Top Spring



Material: Steel
Finish: Electrogalvanized

Part Number	Description	Torque
TSNT0025EG	EG, 1/4" Rod	6 ft lb
TSNT0037EG	EG, 3/8" Rod	19 ft lb
TSNT0050EG	EG, 1/2" Rod	50 ft lb

Part Number	Channel Type	Pull-Out Strength	
		Channel Thickness	
		12 GA	14 GA
TSNT0025EG	A, C	450 lb	450 lb
	D, E	450 lb	-
TSNT0037EG	A, C	1,100 lb	1,000 lb
	D, E	1,100 lb	-
TSNT0050EG	A	2,000 lb	1,400 lb
	D, E	1,500 lb	-



CADDY® ERISTRUT

Strut Nut without Spring



Part Number	Description	Torque
Material: Stainless Steel 316		
NUT003756	S316, 3/8" Rod	19 ft lb
NUT005056	S316, 1/2" Rod	50 ft lb
Material: Steel — Finish: Electrogalvanized		
NUT0025EG	EG, 1/4" Rod	6 ft lb
NUT0037EG	EG, 3/8" Rod	19 ft lb
NUT0050EG	EG, 1/2" Rod	50 ft lb
NUT0062EG	EG, 5/8" Rod	50 ft lb
NUT0075EG	EG, 3/4" Rod	50 ft lb

Part Number	Channel Type	Pull-Out Strength	
		Channel Thickness	
		12 GA	14 GA
NUT0025xx	A, C	450 lb	450 lb
	D, E	450 lb	-
NUT0037xx	A, C	1,100 lb	1,000 lb
	D, E	1,100 lb	-
NUT0050xx	A	2,000 lb	1,400 lb
	D, E	1,500 lb	-
NUT0062xx	A	2,000 lb	1,400 lb
	D, E	1,500 lb	-
NUT0075xx	A	2,000 lb	1,400 lb
	D, E	1,500 lb	-

Strut to Strut Connector



- Consists of two half castings, nut and bolt
- Allows for bolting two strut channels back to back through the slots

Material: Steel
Finish: Electrogalvanized

Part Number	Description	F
STS	Strut to Strut Connector	1,000 lb

Minimum of 2 required. Maximum spacing 1 foot (300mm).

Clip-On Strut Nut

- Easily snaps into strut using a screwdriver



Material: Spring Steel
Finish: CADDY® ARMOUR



Part Number	Description	F1	F2
MFA4I	1/4" Hole, Threaded	100 lb	40 lb
MFA625	1/4" Hole, w/Screw, 5/8" Screw Length	100 lb	40 lb

Strut Cantilever Arm Type A, Slotted

- Slotted channel
- Welded on flat mounting plate



Material: Steel
Finish: Electrogalvanized

Part Number	Description
KA25H0150EG	EG, 6" x 1 5/8" x 1 5/8" x 0.098"
KA25H0300EG	EG, 11 7/8" x 1 5/8" x 1 5/8" x 0.098"
KA25H0450EG	EG, 17 3/4" x 1 5/8" x 1 5/8" x 0.098"
KA25H0600EG	EG, 23 5/8" x 1 5/8" x 1 5/8" x 0.098"



Square Channel Washer



Material: Steel
Finish: Electrogalvanized

Part Number	Description
F130000EG	EG, 5/16" Rod, 3/8" Hole
F140000EG	EG, 3/8" Rod, 7/16" Hole
F150000EG	EG, 1/2" Rod, 9/16" Hole
F160000EG	EG, 5/8" Rod, 1 1/16" Hole
F170000EG	EG, 3/4" Rod, 13/16" Hole
F180000EG	EG, 7/8" Rod, 15/16" Hole

Two Hole Flat Bracket



Material: Steel
Finish: Electrogalvanized

Part Number	Description
F090000EG	EG, 3 1/2"
F220000EG	EG, 3 1/4"

Three Hole Flat Bracket



Material: Steel
Finish: Electrogalvanized

Part Number	Description
F200000EG	EG, 5 3/8"

Three Hole Flat Corner Bracket



Material: Steel
Finish: Electrogalvanized

Part Number	Description
F360000EG	EG, 3 1/2" x 3 1/2"



Four Hole Flat Bracket



Material: Steel
Finish: Electrogalvanized

Part Number	Description
F230000EG	EG, 7 1/4"

Four Hole Flat Corner Bracket



Material: Steel
Finish: Electrogalvanized

Part Number	Description
F370000EG	3 1/2" x 5 3/8"

Four Hole Flat Tee Plate



Material: Steel
Finish: Electrogalvanized

Part Number	Description
F250000EG	EG, 5 3/8" x 3 1/2"

1-1 Hole Angle Bracket



Part Number	Description
Material: Stainless Steel 304	
L11000S4	S304, 2" x 1 7/8"
Material: Steel — Finish: Electrogalvanized	
L10000EG	EG, 2 1/4" x 1 5/8"
L11000EG	EG, 2" x 1 7/8"

1-1 Hole Unequal Long Angle Bracket



Material: Steel
Finish: Electrogalvanized

Part Number	Description
L120300EG	3" x 1 7/8"

2-2 Hole Corner Angle Bracket



Material: Steel
Finish: Electrogalvanized

Part Number	Description
L220000EG	EG, 4 1/8" x 3 1/2"

3-3-1 Hole Corner Gusset



Material: Steel
Finish: Electrogalvanized

Part Number	Description
L23U0000EG	4 1/8" x 4 1/8"



CADDY® ERISTRUT

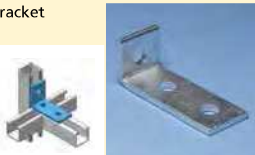
1-2 Hole Corner Short Angle Bracket



Material: Steel
Finish: Electrogalvanized

Part Number	Description
L190000EG	EG, 3 7/8" x 1 7/8"
L200000EG	EG, 4 1/8" x 1 5/8"

1-2 Hole Corner Angle Bracket



Material: Steel
Finish: Electrogalvanized

Part Number	Description
L180000EG	EG, 3 1/2" x 2 1/2"



CADDY® ERISTRUT

1-1 Hole Open Corner Angle Bracket



Material: Steel
Finish: Electrogalvanized

Part Number	Description
L460450EG	EG, 3 5/32" x 2 1/4"

1-1 Hole Closed Corner Angle Bracket



Material: Steel
Finish: Electrogalvanized

Part Number	Description
L470450EG	EG, 45° Angle, 3 1/2" x 2 1/2"

2 Hole 45° Angle Brace



Material: Steel
Finish: Electrogalvanized

Part Number	Description
L441200EG	EG, 12" x 10 1/2"
L441600EG	EG, 16" x 13 5/16"

Six Hole Corner Connector, 3-Way



Material: Steel
Finish: Electrogalvanized

Part Number	Description
W190000EG	1 5/8" x 5 7/16" x 2"

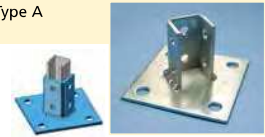
Eight Hole Double Corner Connector, 3-Way



Material: Steel
Finish: Electrogalvanized

Part Number	Description
W170000EG	EG, 1 5/8" x 5 1/2" x 4"

45° Post Base for Strut Type A



- Post base to create metal frames for attachment to CADDY® ERISTRUT or CADDY® PYRAMID

Material: Steel
Finish: Electrogalvanized

Part Number	Description
P110000EG	EG, 6" x 6" x 3 1/2"

45° Post Base for Strut Type AA



- Post base to create metal frames for attachment to CADDY® ERISTRUT or CADDY® PYRAMID

Material: Steel
Finish: Electrogalvanized

Part Number	Description
P130000EG	EG, 6" x 3 1/2"

Strut Beam Clamp with U-Bolt



- Square U-bolt type beam clamp
- Complete with U-bolt and nuts
- Requires installation in pairs

Material: Steel
Finish: Electrogalvanized

Part Number	Description	F ↓
BC17A000EG	EG, A, C Strut	1,200 lb
BC17D000EG	EG, AA, D, E Strut	1,200 lb

Static Load is based on one pair of Strut Beam Clamps.



Nine Hole Corner Connector, 3-Way



Material: Steel
Finish: Electrogalvanized

Part Number	Description
W200000EG	EG, 3 1/2" x 5 7/16" x 3 3/4"

Four Hole External Coupler



Material: Steel
Finish: Electrogalvanized

Part Number	Description
U24A0000EG	EG, A Strut

Rectangular Post Base Plate



Material: Steel
Finish: Hot-Dip Galvanized

Part Number	Description
ZGA512	3.94" x 6.3" x 3.15"

Strut Beam Clamp with Bolt, Window Shape



- Complete with bolt
- Requires installation in pairs

Material: Steel
Finish: Electrogalvanized

Part Number	Description	F ↓
BC16A000EG	EG, A, CC Strut	740 lb

Strut Beam Clip



- Beam Clip for clamping the open side of strut to a beam
- Suitable for all strut channels
- Requires installation in pairs
- Structural attachment to beams to support CADDY® ERISTRUT

Material: Steel
Finish: Electrogalvanized

Part Number	Description	F ↓
BC200000EG	EG, 1/2" Flange, 9/16" Hole	460 lb

Indicated loads are based on installation with 1/2" (M12) hardware and strut channel type A.

Strut Beam Clamp with Bolt



- Beam clip for mounting on open side of strut
- Bolt included
- Requires installation in pairs

Material: Steel
Finish: Electrogalvanized

Part Number	Description	F ↓
BC210000EG	1" Flange, 9/16" Hole	460 lb

Internal Strut Beam Clamp with Bolt

- U-shaped clip for clamping the back of strut channel to a beam
- Hex bolt included
- Requires installation in pairs



Material: Steel
Finish: Electrogalvanized

Part Number	Description	F
BC180037EG	EG, 3/8" Screw	660 lb
BC180050EG	EG, 1/2" Screw	660 lb

Static Load is based on one pair of Strut Beam Clamps.
Include strut channel thickness when calculating flange thickness.

Strut and Rod Beam Clamp

- Multifunctional beam clamp suitable for strut channel or threaded rod
- Bolt included
- Requires installation in pairs



Material: Steel
Finish: Electrogalvanized



Part Number	Description	F
STCB6	EG, 3/8" Rod, 2" Max Flange	400 lb



BC23 Internal Strut Beam Clamp

- Kit of two inserts for A type channel
- Complete with pointed head hex bolts for easy installation



Material: Steel
Finish: Electrogalvanized

Part Number	Description	F
BC23A000EG	A Strut	800 lb

INC8 Internal Strut Beam Clamp

- Mounts strut within vertical beams



Material: Spring Steel
Finish: CADDY® ARMOUR

Part Number	Description	F	pc
INC8T5	A Strut	100 lb	100 pc

Strut Trapeze Attachment Plate

- Creates fast install trapeze brackets
- Includes hex bolt and strut nut



Material: Steel
Finish: Electrogalvanized

Part Number	Description
J5SP375	3/8" Rod

Strut Trapeze Attachment Kit

- Kit includes 2 strut trapeze attachment plates and 4 SN series nuts
- Creates fast install trapeze brackets



Material: Steel
Finish: Electrogalvanized

Part Number	Description	F
J5SPK	3/8" Rod	220 lb

Static Load is based on one pair of strut trapeze attachment plates.

Strut Trolley, One Axle

- Fits in A channel or higher



Material: Steel
Finish: Electrogalvanized

Part Number	Description
ROL10000EG	Strut Trolley, One Axle



Strut Trolley, Two Axles

- Fits in A channel or higher



Material: Steel
Finish: Electrogalvanized

Part Number	Description
ROL11000EG	Strut Trolley, Two Axles

SAA Slotted Framing Angle, Equal Leg

- Cold formed, slotted



Material: Steel
Finish: Electrogalvanized

Part Number	Description
SAA1400EG	10'

SAD Slotted Framing Angle, Unequal Leg

- Cold formed, slotted



Material: Steel
Finish: Electrogalvanized

Part Number	Description
SAD1400EG	10'

Structural Attachments – Wall/Ceiling

365 Steel Wall or Ceiling Plate

- Structural attachment to support hanger rod from a ceiling or a wall



Material: Steel

Part Number	Description	F
Finish: Copper Electroplated		
3650037CP	CP, 3/8" Rod	100 lb
Finish: Electrogalvanized		
3650037EG	EG, 3/8" Rod	100 lb
Finish: Plain		
3650037PL	3/8" Rod	100 lb

Follow fastener manufacturer's recommended shear and pull-out strength when fastening to the structure. Fastener not included.

365M Malleable Iron Wall or Ceiling Plate

- Structural attachment to support hanger rod from a ceiling or a wall



Material: Cast Iron

Part Number	Description	F
Finish: Copper Electroplated		
365M0037CP	CP, 3/8" Rod	180 lb
365M0050CP	CP, 1/2" Rod	180 lb
Finish: Electrogalvanized		
365M0037EG	EG, 3/8" Rod	180 lb
365M0050EG	EG, 1/2" Rod	180 lb
Finish: Plain		
365M0037PL	3/8" Rod	180 lb
365M0050PL	1/2" Rod	180 lb

Follow fastener manufacturer's recommended shear and pull-out strength when fastening to the structure. Fastener not included.



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Structural Attachments – Wall/Ceiling

348 Light Duty Welded Wall Bracket

- Wall attachment to suspend 2" or smaller static piping



Material: Steel
Finish: Plain

Part Number	Description	F
3480100PL	1/2" Rod, 9"	750 lb
3480200PL	1/2" Rod, 13"	750 lb
3480300PL	1/2" Rod, 19"	750 lb

Follow fastener manufacturer's recommended shear and pull-out strength when fastening to the structure. Fastener not included.

352 Standard Duty Welded Wall Bracket

- Wall attachment to support or suspend static piping
- Conforms with Federal Specification WW-H-171 (Type 32), Manufacturers Standardization Society ANSI/MSS-SP-58 (Type 32)



Material: Steel
Finish: Plain

Part Number	Description	F
3520100PL	18"	1,500 lb
3520200PL	24"	1,500 lb
3520300PL	30"	1,500 lb

Follow fastener manufacturer's recommended shear and pull-out strength when fastening to the structure. Fastener not included.
Install in accordance with applicable code.



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Structural Attachments – Wall/Ceiling

Angle Bracket

- Permits wire or chain drops from concrete or wood



Material: Steel
Finish: Pregalvanized



Part Number	Description	F
AB	PG, 1/4" Hole 1, 1/4" Hole 2	160 lb
AB375	PG, 1/4" Hole 1, 3/8" Hole 2	160 lb

Pin Driven Angle Bracket

- Longer leg angle bracket for tool clearance
- Designed to fit a variety of pin drivers
- Improved for easier installation with pin drivers
- Preassembly options available for rod, wire, strap and cable applications



Structural Attachments – Wall/Ceiling

Material: Steel
Finish: Pregalvanized



Part Number	Description	F
AFAB3	3/16" Hole	160 lb
AFAB4	1/4" Hole	350 lb
AFAB6	3/8" Hole	350 lb

Load limits apply to CADDY® Fasteners only.
Pin must be evaluated separately.

Structural Attachments – Wall/Ceiling

353 Heavy Duty Welded Wall Bracket

- Wall attachment to support or suspend static piping
- Conforms with Federal Specification WW-H-171 (Type 33), Manufacturers Standardization Society ANSI/MSS-SP-58 (Type 33)



Material: Steel
Finish: Plain

Part Number	Description	F
3530100PL	18"	3,000 lb
3530200PL	24"	3,000 lb
3530300PL	30"	3,000 lb
3530400PL	36"	3,000 lb

Follow fastener manufacturer's recommended shear and pull-out strength when fastening to the structure. Fastener not included.
Install in accordance with applicable code.

Triangular Wall Bracket, Four/Three Hole

- Triangular shaped welded bracket manufactured from hot rolled steel
- Perforated on two sides
- Suitable for installation in two directions



Structural Attachments – Wall/Ceiling

Material: Steel
Finish: Hot-Dip Galvanized

Part Number	Description	F1	F2
SCT02	9.45" x 12.4"	899 lb	1,798 lb

Structural Attachments – Wall/Ceiling

Triangular Wall Bracket, Four/Two Hole

- Triangular shaped welded bracket manufactured from hot rolled steel
- Perforated on two sides
- Suitable for installation in two directions



Material: Steel
Finish: Hot-Dip Galvanized

Part Number	Description	F1	F2
SCT03	13.78" x 21.65"	899 lb	1,798 lb

Structural Attachments – Wall/Ceiling



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Structural Attachments – Beam

BC09 Retainer Strap for BC13/14 Series

- Retainer strap for BC13/BC14 beam clamps



Structural Attachments – Beam

Material: Steel
Finish: ElectroGalvanized

Part Number	Description
BC090900EG	9"
BC091200EG	12"
BC091500EG	15"

360 Adjustable Center-Load Beam Clamp

- Beam clamp without extension piece
- Use with Series 26 Beam Clamp Extension Piece, Series 35 Heavy Duty Eye Nut or Series 40 Eye Rod (not included)



Material: Steel

Part Number	Description
Finish: ElectroGalvanized	
3600000EG	EG
Finish: Plain	
3600000PL	Plain

Install in accordance with applicable code.

Structural Attachments – Beam

360 Adjustable Center-Load Beam Clamp Kit

- Includes Series 26 Beam Clamp Extension Piece



Material: Steel
Finish: Plain

Part Number	Description	F
3600037PL	3/8" Rod, 2" Max Pipe	610 lb
3600050PL	1/2" Rod, 3 1/2" Max Pipe	1,130 lb
3600062PL	5/8" Rod, 5" Max Pipe	1,365 lb
3600075PL	3/4" Rod, 6" Max Pipe	1,365 lb
3600087PL	7/8" Rod, 12" Max Pipe	1,365 lb

Reduced hanger spacing is required when supporting 10" and 12" pipe. Install in accordance with applicable code.

363 Adjustable Center-Load Beam Clamp with J-Bolt

- Adjustable beam clamp
- Conforms with Federal Specification WW-H-171 (Type 54), Manufacturers Standardization Society ANSI/MSS-SP-58 (Type 27)



Material: Steel
Finish: Plain

Part Number	Description	F
3630037PL	3/8" Rod	300 lb
3630050PL	1/2" Rod	700 lb
3630062PL	5/8" Rod	1,000 lb
3630075PL	3/4" Rod	1,000 lb



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Structural Attachments – Beam

SBC Stamped Beam Clamp, Top Mount

- Allows structural attachment to metal beams, bar joist, channel, or angle iron in top mount position only unless used on a parallel flange
- Lightweight, one-piece stamped body provides superior strength and eliminates deficiencies associated with castings
- Spins onto threaded rod and allows for easy adjustment
- Conforms with Federal Specification WW-H-171 (Type 23), Manufacturers Standardization Society ANSI/MSS-SP-58 (Type 19)



Material: Steel
Finish: Pregalvanized



Part Number	Description	F
SBC037	3/8" Rod, 3/4" Max Flange	500 lb

Set screw must be tightened and torqued onto the sloped side of the I-beam, channel, or angle iron flange. Recognizing that torque wrenches are generally not used or available on many job sites, the setscrew should be tightened so it contacts the I-beam and then an additional 1/4 to 1/2 turn added.

300 Universal Beam Clamp

- Conforms with Federal Specification WW-H-171 (Type 23), Manufacturers Standardization Society ANSI/MSS-SP-58 (Type 19 and 23)



Material: Steel



Part Number	Description	F1	F2	Certifications
Finish: ElectroGalvanized				
3000037EG	EG, 3/8" Rod, 13/16" Max Flange	500 lb	250 lb	100 pc --
3000050EG	EG, 1/2" Rod, 13/16" Max Flange	950 lb	760 lb	50 pc --
3000062EG	EG, 5/8" Rod, 13/16" Max Flange	950 lb	760 lb	50 pc cULus
3000075EG	EG, 3/4" Rod, 13/16" Max Flange	950 lb	760 lb	50 pc cULus
3000087EG	EG, 7/8" Rod, 13/16" Max Flange	950 lb	760 lb	50 pc cULus
Finish: Plain				
3000037PL	3/8" Rod, 13/16" Max Flange	500 lb	250 lb	100 pc --
3000050PL	1/2" Rod, 13/16" Max Flange	950 lb	760 lb	50 pc --
3000062PL	5/8" Rod, 13/16" Max Flange	950 lb	760 lb	50 pc cULus
3000075PL	3/4" Rod, 13/16" Max Flange	950 lb	760 lb	50 pc cULus
3000087PL	7/8" Rod, 13/16" Max Flange	950 lb	760 lb	50 pc cULus

Set screw must be tightened and torqued onto the sloped side of the I-beam. Recognizing that torque wrenches are generally not used or available on many job sites, the setscrew should be tightened so it contacts the I-beam and then an additional 1/4 to 1/2 turn added.



Structural Attachments – Beam

310 Universal Beam Clamp, Thick Flange

- Universal beam clamp for thick beams
- Conforms with Federal Specification WW-H-171 (Type 23), Manufacturers Standardization Society ANSI/MSS-SP-58 (Type 19 and 23)



Structural Attachments – Beam

Material: Steel

Part Number	Description	F1	F2	
Finish: Electrogalvanized				
3100037EG	EG, 3/8" Rod, 1 1/4" Max Flange	500 lb	250 lb	50 pc
3100050EG	EG, 1/2" Rod, 1 1/4" Max Flange	950 lb	760 lb	50 pc
Finish: Plain				
3100037PL	3/8" Rod, 1 1/4" Max Flange	500 lb	250 lb	50 pc
3100050PL	1/2" Rod, 1 1/4" Max Flange	950 lb	760 lb	50 pc

Setscrew must be tightened and torqued onto the sloped side of the I-beam. Recognizing that torque wrenches are generally not used or available on many job sites, the setscrew should be tightened so it contacts the I-beam and then an additional 1/4 to 1/2 turn added.

BC26 Universal Beam Clamp with Tapped Hole

- One thru-hole for easier installation of threaded rod
- Conforms with Federal Specification WW-H-171 (Type 23), Manufacturers Standardization Society ANSI/MSS-SP-58 (Type 19 and 23)



Material: Steel

Finish: Electrogalvanized

Part Number	Description	F1	F2
BC260025EG	1/4" Rod, 1/4" Hole, Threaded	100 lb	250 lb

Setscrew must be tightened and torqued onto the sloped side of the I-beam. Recognizing that torque wrenches are generally not used or available on many job sites, the setscrew should be tightened so it contacts the I-beam and then an additional 1/4 to 1/2 turn added.

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Structural Attachments – Beam

305 Stainless Steel Beam Clamp, Top Mount

- Pressed steel beam clamp
- Structural attachment to top flange of metal beams, purlins, channel, or angle iron
- Conforms with Federal Specification WW-H-171 (Type 23), Manufacturers Standardization Society ANSI/MSS-SP-58 (Type 19)



Material: Stainless Steel 304

Part Number	Description	F
305003754	3/8" Rod, 5/8" Max Flange	500 lb
305005054	1/2" Rod, 5/8" Max Flange	1,130 lb

Set screw must be tightened and torqued onto the sloped side of the I-beam, channel, or angle iron flange. Recognizing that torque wrenches are generally not used or available on many job sites, the setscrew should be tightened so it contacts the I-beam and then an additional 1/4 to 1/2 turn added.

BC Beam Clamp

- Easy installation to beam flanges



Material: Spring Steel
Finish: CADDY[®] ARMOUR

Part Number	Description	F	
BC	1/4" Rod, 7/16" Hole, 1/2" Max Flange	100 lb	100 pc

Setscrew must be tightened and torqued onto the sloped side of the I-beam.



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CADDY[®] ROD LOCK

CADDY[®] ROD LOCK Beam Clamp

- Prefabricated assemblies easily lift and lock into place, helping to save time and money
- Easy "push-to-install" design allows installers to simply push the threaded rod through the mounting hole, instantly holding it in position
- Lock nut can be finger tightened, locking the rod in place
- Works with slightly damaged threads and minor burrs on the threaded rod
- Conforms with Federal Specification WW-H-171 (Type 23), Manufacturers Standardization Society ANSI/MSS-SP-58 (Type 19 and 23)



Patent No.: 8,132,767
8,434,725

Material: Cast Iron

Finish: Electrogalvanized

Part Number	Description	F1*	F2*
CRLB37EG	3/8" Rod, 1/8"-3/8" Flange	250 lb	500 lb

*Static Load 1 represents 1/8" to 3/16" (3 mm to 5 mm) flange thickness. Static Load 2 represents 1/4" to 3/8" (6 mm to 10 mm) flange thickness.

For use on plain and electro zinc plated hardware only. Recognizing that torque wrenches are generally not used or available on many job sites, the setscrew should be tightened so it contacts the I-beam and then an additional 1/2 turn added.

CADDY[®] ROD LOCK Beam Clamp, Thick Flange

- Prefabricated assemblies easily lift and lock into place, helping to save time and money
- Easy "push-to-install" design allows installers to simply push the threaded rod through the mounting hole, instantly holding it in position
- Lock nut can be finger tightened, locking the rod in place
- Works with slightly damaged threads and minor burrs on the threaded rod
- Conforms with Federal Specification WW-H-171 (Type 23), Manufacturers Standardization Society ANSI/MSS-SP-58 (Type 19 and 23)



Patent No.: 8,132,767
8,434,725

Material: Cast Iron

Finish: Electrogalvanized

Part Number	Description	F
CRLB50EG	1/2" Rod, 3/8"-3/4" Flange	1,100 lb

FM[®] Approved for top mount applications only.

For use on plain and electro zinc plated hardware only.

Recognizing that torque wrenches are generally not used or available on many job sites, the setscrew should be tightened so it contacts the I-beam and then an additional 1/2 turn added.



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CADDY[®] ROD LOCK

CADDY[®] ROD LOCK Anchor Screw

- For use with concrete and solid brick
- Prefabricated assemblies easily lift and lock into place, helping to save time and money
- Works with slightly damaged threads and minor burrs on the threaded rod



Patent No.: 8,132,767
8,434,725

Material: Steel

Finish: Electrogalvanized

Part Number	Description	F
CRLA37EG	3/8" Rod, 2 7/8" x 1 1/4" x 7/8"	660 lb

For use on plain and electro zinc plated hardware only. Tested in 3000 psi (20.67 MPa) concrete.

CADDY[®] ROD LOCK Plywood Form Preset Anchor

- Eliminate overhead drilling into building structure – CADDY[®] ROD LOCK Preset Anchors are cast in place
- Nails hold the anchor in place during the pour and easily break off with a strike of a hammer once the plywood forms are removed
- Easy "push-to-install" design allows installers to simply push the threaded rod through the mounting hole, instantly holding it in position
- Works with slightly damaged threads and minor burrs on the threaded rod
- Prefabricated assemblies easily lift and lock into place, helping to save time and money
- Plastic flange acts as insert locator when the forms are removed
- Suitable for use in seismic zones



Patent No.: 8,132,767
8,434,725
Patent Pending

Material: Steel

Finish: Electrogalvanized

Part Number	Description	F
CRLW37EG	3/8" Rod	1,407 lb
CRLW50EG	1/2" Rod	1,605 lb

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CADDY[®] ROD LOCK

CADDY® ROD LOCK

CADDY® ROD LOCK Nut

- Easy "push-to-install" design allows installers to simply push the threaded rod through the mounting hole, instantly holding it in position
- Fast installation onto long threaded rods – push the nut in place instead of threading it up the rod
- Excellent alignment and easy fine adjustment by spinning the nut
- Extremely useful in tight spaces where wrenches are difficult to use



Patent No.: 8,132,767
8,434,725
Patent Pending

Material: Steel
Finish: Electrogalvanized

Part Number	Description	F
CRLN37EG	3/8" Rod	1,350 lb

SN Series Nut

- Allows side mounting of nut to threaded rod
- Reduces the need for threading compared to standard nuts and washers
- Ideal for retrofit projects, such as trapeze installations
- Works with slightly damaged threads and minor burrs on the threaded rod
- Reduces installation time up to 50%



Material: Steel
Finish: Electrogalvanized

Part Number	Description	F
SN25	1/4" Rod	500 lb
SN37	3/8" Rod	1,350 lb
SN50	1/2" Rod	2,250 lb

For use on plain and electro zinc plated hardware only.

CADDY® ROD LOCK

CADDY® ROD LOCK Top-Mount Duct Bracket

- Allows duct to be mounted tight against the ceiling to maximize overhead space and reduce the amount of threaded rod required
- Multiple horizontal mounting slots accommodate insulated duct in tight spaces
- Works with studs in addition to threaded rods for a more aesthetic installation
- Slotted holes in bracket allow for horizontal adjustment of the bracket relative to the duct
- Easy "push-to-install" design allows installers to simply push the threaded rod through the mounting hole, instantly holding it in position
- Ready to use out of the box and eliminates the need for cutting and preparing sections of strut, angle iron, or strap
- Integrated adjustment nut enables fine tuning the system height up or down
- Lock nut can be finger tightened, locking the rod in place
- Ideal for modular assembly – allows attachment of brackets to sections of duct while safely on the ground
- Extremely useful in tight spaces where wrenches are difficult to use



Patent No.: 8,132,767
8,434,725
Patent Pending

Includes self-tapping sheet metal screws to attach bracket to duct

Material: Steel
Finish: Electrogalvanized

Part Number	Description	F
CRLD37EG	3/8" Rod	650 lb



CADDY® ROD LOCK



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CADDY® ROD LOCK

CADDY® ROD LOCK Bottom-Mount Duct Bracket

- Ideal for modular assembly – allows attachment of brackets to sections of duct while safely on the ground
- Slotted holes in bracket allow for horizontal adjustment of the bracket relative to the duct
- Easy "push-to-install" design allows installers to simply push the threaded rod through the mounting hole, instantly holding it in position
- Ready to use out of the box and eliminates the need for cutting and preparing sections of strut, angle iron, or strap
- Integrated adjustment nut enables fine tuning the system height up or down
- Lock nut can be finger tightened, locking the rod in place
- Extremely useful in tight spaces where wrenches are difficult to use



Patent No.: 8,132,767
8,434,725
Patent Pending

Includes self-tapping sheet metal screws to attach bracket to duct

Material: Steel
Finish: Electrogalvanized

Part Number	Description	F
CRLD37BEG	3/8" Rod	650 lb



CADDY® ROD LOCK Bottom-Mount Duct Bracket, Narrow

- Ideal for modular assembly – allows attachment of brackets to sections of duct while safely on the ground
- Non-slotted bracket allows for attachment after the final horizontal position of the duct is achieved
- Easy "push-to-install" design allows installers to simply push the threaded rod through the mounting hole, instantly holding it in position
- Ready to use out of the box and eliminates the need for cutting and preparing sections of strut, angle iron, or strap
- Integrated adjustment nut enables fine tuning the system height up or down
- Lock nut can be finger tightened, locking the rod in place
- Extremely useful in tight spaces where wrenches are difficult to use



Patent No.: 8,132,767
8,434,725
Patent Pending

Includes self-tapping sheet metal screws to attach bracket to duct

Material: Steel
Finish: Electrogalvanized

Part Number	Description	F
CRLD37BNEG	3/8" Rod	1,400 lb



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CADDY® ROD LOCK

CADDY® ROD LOCK L-Bracket

- Easy "push-to-install" design allows installers to simply push the threaded rod through the mounting hole, instantly holding it in position
- Prefabricated assemblies easily lift and lock into place, helping to save time and money
- Multiple attachment holes support the use of either self-drilling screws or bolts, offering installation options for concrete, wood, and steel structures
- Lock nut can be finger tightened, locking the rod in place
- Integrated adjustment nut enables fine tuning the system height up or down
- Extremely useful in tight spaces where wrenches are difficult to use
- Conforms with Federal Specification WW-H-171 (Type 23), Manufacturers Standardization Society ANSI/MSS-SP-58 (Type 19 and 23)



Patent No.: 8,132,767
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Patent Pending

Material: Steel
Finish: Electrogalvanized

Part Number	Description	F
CRLL37EG	3/8" Rod	700 lb



Follow fastener manufacturer's recommended shear and pull-out strength when fastening to the structure. Fastener not included.
Install in accordance with applicable code.

CADDY® ROD LOCK Channel Nut

- Provides fast universal attachment of threaded rod and hardware to standard strut profiles
- Can be used to prefabricate assemblies which can be quickly pushed onto previously installed threaded rods
- Works with slightly damaged threads and minor burrs on the threaded rod



Patent No.: 8,132,767
8,434,725

Material: Cast Iron
Finish: Electrogalvanized

Part Number	Description	F
CRLS37EG	3/8" Rod	750 lb

For use on plain and electro zinc plated hardware only.

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CADDY® ROD LOCK

CADDY® ROD LOCK Strut, Perforated



Patent No.: 8,132,767
8,434,725
Patent Pending

- CADDY® ROD LOCK technology allows for the quick creation, installation, and adjustment of multi-level trapeze assemblies
- Ready to use out of the box and eliminates the need for cutting and preparing sections of strut
- Easy "push-to-install" design allows installers to simply push the threaded rod through the mounting hole, instantly holding it in position
- Integrated adjustment nut enables fine tuning the system height up or down
- Lock nut can be finger tightened, locking the rod in place
- Works with all accessories that fit standard A or C type strut channels

Material: Steel
Finish: Pregalvanized, Electrogalvanized

Part Number	Description	F ↓
Strut Type: A		
CRLP237L14	A Strut, 3/8" Rod, 16"	2,668 lb
CRLP237L18	A Strut, 3/8" Rod, 20"	2,075 lb
CRLP237L22	A Strut, 3/8" Rod, 24"	1,698 lb
CRLP237L26	A Strut, 3/8" Rod, 28"	1,437 lb
CRLP237L38	A Strut, 3/8" Rod, 40"	983 lb
CRLP237L50	A Strut, 3/8" Rod, 52"	642 lb
Strut Type: C		
CRLP137L14	C Strut, 3/8" Rod, 16"	789 lb
CRLP137L18	C Strut, 3/8" Rod, 20"	613 lb
CRLP137L22	C Strut, 3/8" Rod, 24"	494 lb
CRLP137L26	C Strut, 3/8" Rod, 28"	354 lb
CRLP137L38	C Strut, 3/8" Rod, 40"	166 lb

Static loads are assumed to be uniformly distributed and include a hole factor of 0.92. The load applied to CADDY ROD LOCK Strut should include a factor of safety appropriate for the application in which the strut is being used. CADDY ROD LOCK Strut must be installed with the open side of the channel facing up. For in-door applications only.

