Nordstrom Contracting
Consulting Corp
36 Theills Mt Ivy Rd
Pomona, NY 10970

LETTER OF TRANSMITTAL

Project #561A4-18-102
Correct FCA Deficiencies

11/04/2022

To: Gary Boehner
General Engineer
Lyons Campus
151 Knollcroft Rd
Lyons, NJ 07939

Submittal # 6- Division 23- 232213

We are sending you [ ] Herewith [ ] Delivered by Hand [ ] Under Separate Cover [X] Via **ELECTRONIC**

[ ] Plans [ ] Prints [ ] Shop Dwgs [ ] Samples [ ] Specifications [X] Other _____

Copies	Item	# Pages	Description
			Division 23- HVAC
1	1		
			Section 232213- Steam & Condensate Heating Piping
		4	Wheatland Grade A galv Steel Pipe Types & Sizes TBD
		14	Bonney Forge- Forged Steel Fittings- Types and Sizes TBD

The Above Listed Items are transmitted as indicted below:

Return By Date: SEE BAR CHART

_____Approved

_____Approved with corrections as noted on submittal data and/or attached sheets(s)

Signature: _____

Title: _____

Date: _____

Wheatland Tube Company
1 Council Avenue P.O. Box 608
Wheatland, PA 16161-0608
800.257.8182
www.wheatland.com

Wheatland ASTM A 53 Schedule 40 and Schedule 80 Pipe

Wheatland Steel Pipe is made by specialists who understand that it's the small details that make the difference between average products and superior products. At the Wheatland Plant, most department heads and foremen have been employed in some phase of pipe manufacturing for 25 or more years.

This kind of specialization, experience and knowledge pays off...in workable, threadable, uniform pipe. Delivered clean. Delivered promptly.

Wheatland specializes in manufacturing welded steel pipe in 1/2 through 4 nominal sizes. Available inventory in 1/8 to 12 pipe sizes produced to various ASTM standards is maintained to meet your pipe requirements.

Care, pride and personal concern are bonus features that go into every inch of Wheatland Pipe. Don't settle for less.

Make sure it's quality. Make sure it's Wheatland.

Standard Pipe Schedule 40 ASTM A 53 Grades A and B

NPS Designator	DN Designator	Outside Diameter		Inside Diameter		Wall Thickness		Nominal Weight (Mass) per unit Length			
		(Inches)	(mm)	(Inches)	(mm)	(Inches)	(mm)	Plain End (lb/ft)	Plain End (kg/m)	Threads & Coupling (lb/ft)	Threads & Coupling (kg/m
1/8	6	0.405	10.3	0.269	6.8	0.068	1.73	0.24	0.37	0.25	0.37
1/4	8	0.540	13.7	0.364	9.2	0.088	2.24	0.43	0.63	0.43	0.63
3/8	10	0.675	17.1	0.493	12.5	0.091	2.31	0.57	0.84	0.57	0.84
1/2	15	0.840	21.3	0.622	15.8	0.109	2.77	0.85	1.27	0.86	1.27
3/4	20	1.050	26.7	0.824	20.9	0.113	2.87	1.13	1.69	1.14	1.69
1	25	1.315	33.4	1.049	26.6	0.133	3.38	1.68	2.50	1.69	2.50
1-1/4	32	1.660	42.2	1.380	35.1	0.140	3.56	2.27	3.39	2.28	3.40
1-1/2	40	1.900	48.3	1.610	40.9	0.145	3.68	2.72	4.05	2.74	4.04
2	50	2.375	60.3	2.067	52.5	0.154	3.91	3.66	5.44	3.68	5.46
2-1/2	65	2.875	73.0	2.469	62.7	0.203	5.16	5.80	8.63	5.85	8.67
3	80	3.500	88.9	3.068	77.9	0.216	5.49	7.58	11.29	7.68	11.35
3-1/2	90	4.000	101.6	3.548	90.1	0.226	5.74	9.12	13.57	9.27	13.71
4	100	4.500	114.3	4.026	102.3	0.237	6.02	10.80	16.07	10.92	16.23
5	125	5.563	141.3	5.047	158.2	0.258	6.55	14.63	21.77	14.90	22.07
6	150	6.625	168.3	6.065	154.1	0.280	7.11	18.99	28.26	19.34	28.58
8	200	8.625	219.1	7.981	202.7	0.322	8.18	28.58	42.55	29.35	43.73
10	250	10.750	273.0	10.020	254.5	0.365	9.27	40.52	60.29	41.49	63.36
Standard Pipe											
12[1]	300	12.750	323.8	12.000	304.8	0.375	9.52	9.61	3.78	51.28	76.21
Note[1] NPS 12 dimensions are for standard wall pipe, not schedule 40.											

Product Type and Specification:
Standard welded pipe is produced in 1/2 to 6 trade sizes. Wheatland pipe is produced to ASTM A 53 Grades A and B, A 501, and A 589 Type II, API 5L and Federal Specification WW-P404. All pipe threads conform to ANSI B1.20.1. Merchant couplings comply with ASTM A 865.

Specifications and descriptions are accurate as known at time of publication and subject to change without notice.

Wheatland ASTM A 53 Grades A & B Schedule 40 Pipe

Wheatland Tube Company
1 Council Avenue P.O. Box 608
Wheatland, PA 16161-0608
800.257.8182
www.wheatland.com

Extra Heavy Pipe Schedule 80 ASTM A 53 Grade A

NPS Designator	DN Designator	Outside Diameter		Inside Diameter		Wall Thickness		Nominal Weight (Mass) per unit Length			
		(Inches)	(mm)	(Inches)	(mm)	(Inches)	(mm)	Plain End (lb/ft)	Plain End (kg/m)	Threads & Coupling (lb/ft)	Threads & Coupling (kg/m
1/8	6	0.405	10.3	0.215	5.5	0.095	2.41	0.31	0.47	0.32	0.46
1/4	8	0.540	13.7	0.302	7.7	0.119	3.02	0.54	0.80	0.54	0.80
3/8	10	0.675	17.1	0.423	10.7	0.126	3.20	0.74	1.10	0.74	1.10
1/2	15	0.840	21.3	0.549	13.9	0.147	3.73	1.09	1.62	1.09	1.62
3/4	20	1.050	26.7	0.742	18.8	0.154	3.91	1.48	2.20	1.48	2.21
1	25	1.315	33.4	0.957	24.3	0.179	4.55	2.17	3.24	2.19	3.25
1-1/4	32	1.660	42.2	1.278	32.5	0.191	4.85	3.00	4.47	3.03	4.49
1-1/2	40	1.900	48.3	1.500	38.1	0.200	5.08	3.63	5.41	3.65	5.39
2	50	2.375	60.3	1.939	49.3	0.218	5.54	5.03	7.48	5.08	7.55
2-1/2	65	2.875	73.0	2.323	59.0	0.276	7.01	7.67	11.41	7.75	11.52
3	80	3.500	88.9	2.900	73.7	0.300	7.62	10.26	15.27	10.35	15.39
3-1/2	90	4.000	101.6	3.364	85.4	0.318	8.08	12.52	18.63	12.67	18.82
4	100	4.500	114.3	3.826	97.2	0.337	8.56	15.00	22.32	15.20	22.60
5	125	5.563	141.3	4.813	122.3	0.375	9.52	20.80	30.94	21.04	31.42
6	150	6.625	168.3	5.761	146.3	0.432	10.97	28.60	42.56	28.88	43.05
8	200	8.625	219.1	7.625	193.7	0.500	12.70	43.43	64.64	44.00	65.41

Permissible Variations for ASTM A 53 Grades A and B Pipe			
	O.D.	Over	Under
Outside Diameter	NPS 1/8 to 1-1/2 DN 6 to 40	1/64” (0.4mm)	1/64” (0.4mm)
	NPS 2 and up DN 50 and up	1%	1%
Wall Thickness at Any Point		--------	12.5%

ASTM A 53 Grades A and B: Black and Galvanized Pipe is manufactured for ordinary use in steam, water,gas, and air lines. UL Listed and FM Approved, sizes 1” through 6” nominal, for use in Fire Sprinkler Pipe Applications.

Mechanical Properties

Grade A: Yield 30,000 [205 Mpa] psi minimum Tensile: 48,000 psi [330 Mpa] minimum

Grade B: Yield 35,000 [240 Mpa] psi minimum Tensile: 60,000 psi [415 Mpa] minimum

For additional information or to order , contact our pipe department at 800.257.8182,
Fax: 724.346.7260, e-mail info@wheatland.com

Wheatland ASTM A 53 Grade A Schedule 80 Pipe

SureThread™

ASTM A53 Type F Grade A — **Submittal Data Sheet**

Scope
Covers black and hot-dip galvanized continuous weld Grade A pipe. Pipe is intended for mechanical and pressure applications and is acceptable for ordinary uses in steam, water, gas and air lines. Wheatland ASTM A53 is UL Listed and FM Approved for NPS sizes 1–4 for fire sprinkler applications, and FM Approved for NPS sizes ½ and ¾. Pipe is not intended for flanging. Produced to ASTM A53/A53M (latest revision). All Wheatland black and galvanized pipe (½–6 NPS) is approved for drinking water usage.

Hot-dip Galvanized
The average weight of zinc coating shall not be less than 1.8 ounces per square foot of surface (inside and outside). When galvanized pipe is bent or otherwise fabricated to a degree that causes zinc coating to stretch or compress beyond the limit of elasticity, some flaking of the coating may occur.

HYDROSTATIC TESTING

Hydrostatic testing pressures for plain-end pipe are listed below.

NPS	STANDARD WEIGHT — PSI	EXTRA-STRONG WEIGHT — PSI
½–1	1,500	1,500
1¼–1½	2,000	2,000
2–3	2,500	2,500
3½–4	2,800	2,800

End Finish
Plain End:
NPS 1½ and smaller: Unless otherwise specified on order, end finish shall be at the option of the manufacturer.
NPS 2 and larger: For STD and Schedule 80 weights, ends should be beveled to angle of 30°, +5°, -0° with a root face of 1⁄16" ± 1⁄32".

Threaded: to ANSI Standard B 1.20.1
Couplings: to ASTM Standard A865

CHEMICAL REQUIREMENTS

Composition, maximum percentage.

CARBON	MANGANESE	PHOSPHORUS	SULFUR	
0.30	1.20	0.05	0.045	

COPPER	NICKEL	CHROMIUM	MOLYBDENUM	VANADIUM
0.40	0.40	0.40	0.15	0.08

Tensile Requirements
The combination of these five elements shall not exceed 1%.

Tensile Strength, min.	48,000 psi
Yield Strength, min.	30,000 psi
Elongation in 2"	Refer to A53 Table x 4.1 (latest revision — ASTM A53/A53M)

BENDING TEST (COLD) — NPS 2 & UNDER

	DEGREE OF BEND	DIAMETER OF MANDREL
Standard	90°	12 x outside of pipe diameter
Close Coiling	90°	8 x outside of pipe diameter

FLATTENING TEST — NPS 2½ AND GREATER

As a test for quality of the weld, position the weld at 90° from the direction of force and flatten until the OD is ¾ of the original outside diameter. No cracks shall occur along the inside or outside surface of the weld.

DIMENSIONS & WEIGHTS: BLACK PLAIN END

NOMINAL SIZE	OD INCHES	Sch. 40		Sch. 80	
		WALL INCHES	WEIGHT LB./FT.	WALL INCHES	WEIGHT LB./FT.
½	0.840	0.109	0.85	0.147	1.09
¾	1.050	0.113	1.13	0.154	1.48
1	1.315	0.133	1.68	0.179	2.17
1¼	1.660	0.140	2.27	0.191	3.00
1½	1.900	0.145	2.72	0.200	3.63
2	2.375	0.154	3.66	0.218	5.03
2½	2.875	0.203	5.80	0.276	7.67
3	3.500	0.216	7.58	0.300	10.26
3½	4.000	0.226	9.12	0.318	12.52
4	4.500	0.237	10.80	0.337	15.00

Permissible Variations in Wall Thickness
Minimum wall thickness at any point shall not be more than 12.5% under nominal wall thickness specified.

Permissible Variations in Outside Diameter

NPS	1½ and under	± 0.016"
NPS	2 and over	± 1%

Permissible Variations in Weight per Foot
Pipe shall not vary more than ± 10% from the standard specified.

Product Marking
Each length of pipe NPS ½ and larger is continuously stenciled to show the manufacturer, the grade of pipe (ASTM A53), the kind of pipe (F for continuous weld, A for Grade A), the size (Schedule 80 for extra strong) and length. Stencil markings indicate UL Listing and FM Approval for sizes NPS 1–4 for use in fire sprinkler pipe applications. Bar coding is acceptable as a supplementary identification method. Wheatland stencils "SureThread" on the pipe to ensure that you are receiving our SureThread product.

SUBMITTAL INFORMATION

PROJECT: _____ CONTRACTOR: _____ DATE: _____

ENGINEER: _____ SPECIFICATION REFERENCE: _____ SYSTEM TYPE: _____

LOCATIONS: _____ COMMENTS: _____

WST-032117

700 South Dock Street
Sharon, PA 16146
P 800.257.8182
F 724.346.7260

info@wheatland.com
wheatland.com
Follow us on Twitter:
@WheatlandTube

Wheatland Tube
A DIVISION OF ZEKELMAN INDUSTRIES

Standard Steel Pipe

ASTM A53 TYPE E GRADE A

Submittal Data Sheet

Scope

Covers black and hot-dip galvanized electric resistance weld Grade A pipe. Pipe is intended for mechanical and pressure applications and is acceptable for ordinary uses in steam, water, gas and air lines. Pipe is suitable for welding and threading. It is produced to the latest revision of ASTM A53/A53M, Federal Specification WW-P404 and ASME B36.10M.

Hot-dip Galvanized

The average weight of zinc coating shall be not less than 1.8 oz. per sq. ft. of surface (inside and outside). When galvanized pipe is bent or otherwise fabricated to a degree that causes zinc coating to stretch or compress beyond the limit of elasticity, some flaking of the coating may occur.

Hydrostatic and Non-destructive Electric Testing

Hydrostatic inspection test pressures for plain-end pipe are listed in Table X 2.2 of the A53/A53M specification. Test pressures shall be maintained for a minimum of five seconds. Non-destructive electric testing of the weld seam is not a requirement on lengths of ERW pipe NPS 1½ and smaller.

Chemical Requirements

Composition, max. %

Carbon	Manganese	Phosphorus	Sulfur	
.25	.95	.05	.045	
Copper*	**Nickel***	**Chromium***	**Molybdenum***	**Vanadium***
.50	.40	.40	.15	.08

*The combination of these five elements shall not exceed 1.00%.

Tensile Requirements

TENSILE STRENGTH, MIN.	YIELD STRENGTH, MIN.	ELONGATION IN 2"
48,000 psi	30,000 psi	Refer to A53 table X 4.1

Bending Test (Cold)

NPS	DEGREE OF BEND	DIAMETER OF MANDREL
2 and under	90°	12x pipe OD

Frequency of Tests

Tensile tests are required on one length of pipe from each lot of 500 lengths or fraction thereof for each size.

End Finish

Plain End: End finish shall be at the option of the manufacturer.

Threaded: to ANSI® Standard B 1.20.1
Couplings: to ASTM Standard A 865

Weights and Dimensions

STANDARD (SCH. 40) BLACK PLAIN END

NPS	OD	NOMINAL WALL	WEIGHT
	in.	in.	lbs./ft.
¼	0.540	0.088	0.43
⅜	0.675	0.091	0.57

EXTRA STRONG (SCH. 80) BLACK PLAIN END

NPS	OD	NOMINAL WALL	WEIGHT
	in.	in.	lbs./ft.
¼	0.540	0.119	0.54
⅜	0.675	0.126	0.74

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

Permissible Variations in Wall Thickness

Minimum wall thickness at any point shall not be more than 12.5% under nominal wall thickness specified.

Permissible Variations in Outside Diameter

Pipe shall not vary more than +/- 0.016" from the standard specified.

Permissible Variations in Weight per Foot.

Pipe shall not vary more than +/- 10% from the standard specified.

Product Marking

Each bundle tag securely attached to the bundle shall show the manufacturer, the grade of pipe (ASTM A53), the kind of pipe (E for electric resistance weld, A for Grade A), the size (XS for extra strong), and the length. Bar coding is acceptable as a supplementary identification method.

SUBMITTAL INFORMATION

PROJECT: _____ CONTRACTOR: _____ DATE: _____

ENGINEER: _____ SPECIFICATION REFERENCE: _____ SYSTEM TYPE: _____

LOCATIONS: _____ COMMENTS: _____

WST-082420

1 Council Avenue, P.O. Box 608
Wheatland, PA 16161
P 800.257.8182
F 724.346.7260

info@wheatland.com
wheatland.com
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@WheatlandTube

Wheatland Tube
A DIVISION OF ZEKELMAN INDUSTRIES

FORGED STEEL FITTINGS & UNIONS

BONNEY FORGE

BONNEY FORGE

SALES CENTER/WAREHOUSE
14496 CROGHAN PIKE
P.O. BOX 330
MT. UNION, PA 17066
(814) 542-2545 • (800) 231-0655
(800) 345-7546 • FAX (814) 542-9977
www.bonneyforge.com
e-mail: bfsales@bonneyforge.com

ISO 9001:2008
Certificate Number: 30116

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BONNEY FORGE

BONNEY FORGE

Bonney Forge - The Company You Rely on For Forged Steel Fittings and Unions

Since 1967, one name has been synonymous with premier Forged Steel Fittings and Unions – Bonney Forge.

Our continued investment in new technology helps maintain a constant level of superior quality in our products, which is unparalleled in the industry. Some of this new technology includes, state-of-the-art machining centers, which reduce product variability while increasing product serviceability and laser marking machines, which increases our capability to provide part information even on the smallest of components.

Backing by the most comprehensive product line in the industry and an extensive inventory that makes all our products readily available, Bonney Forge is the number one resource for the power, oil, chemical, marine, and construction industries through-out the world.

Dependable, Durable, Uniform and Precise

Our unparalleled, integrated, state of the art manufacturing facility allows Bonney Forge to develop products at the highest volume, all of which define the Bonney Forge mission – consistent unyielding quality. The tight control we maintain over our manufacturing process has earned Bonney Forge ISO-9001 recognition. Additionally, products are inspected to the

strict requirements of ASME B16.11, MSS SP-79, and MSS SP-83.

Superior Corrosion Resistance

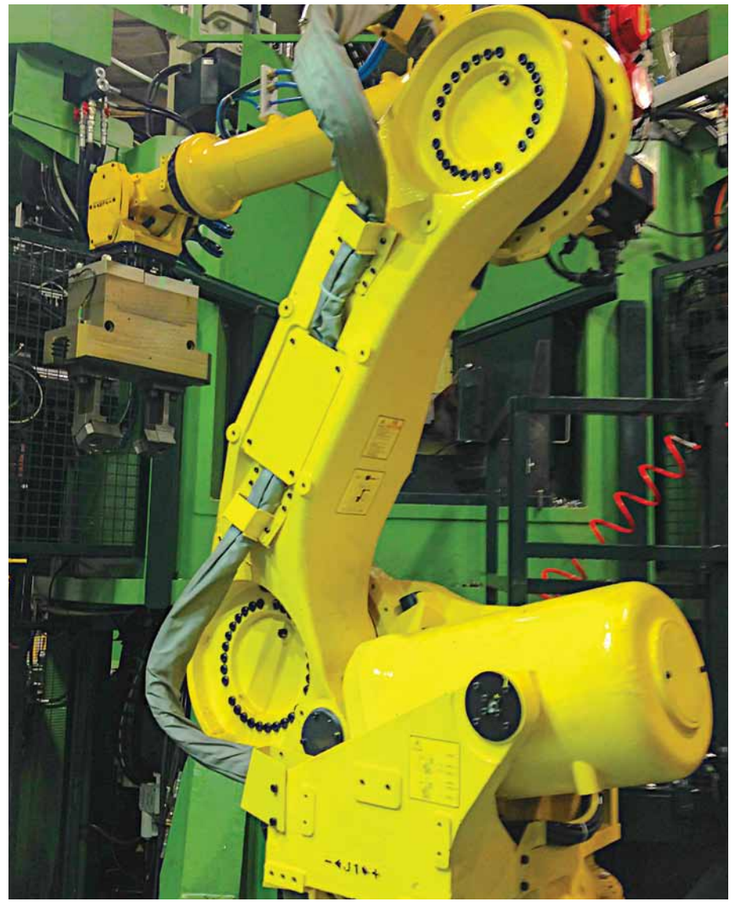
All carbon and low alloy steel fittings are zinc-phosphate coated for superior corrosion resistance. Stainless steel fittings are electropolished to remove free iron and to provide a high-quality finish. All of this is done to ensure our products have the highest degree of corrosion resistance.

All The Fittings You Need

Our fittings come in a variety of classes and material grades for any application. Socket Weld fittings are available in class 3000, 6000 and 9000. Threaded fittings are available in class 2000, 3000, and 6000.

Threaded couplings, reducers, unions, half couplings and caps are available in class 3000 and 6000. Socket Weld couplings, reducers, half couplings and reducer inserts are available in class 3000, 6000 and 9000.

The Best Value -
Price, Quality, Service
All The Time.



Other specialty designed products are available upon request including the following:

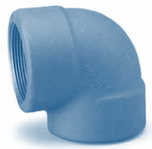
- Reducing Tees
- Multiple end configurations
- Special length couplings
- We also consider customer specific drawings

BONNEY FORGE

Condensed Description

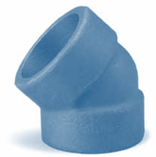
Socket Weld/Threaded Fittings

- Threaded - Available in Class 2000, 3000, & 6000
- Socket Weld - Available in Class 3000, 6000 & 9000



90° Elbow
Threaded
- Class 2000 - 1/4" to 4"
- Class 3000 - 1/8" to 4"
- Class 6000 - 1/8" to 4"

Socket Weld
- Class 3000 - 1/8" to 4"
- Class 6000 - 1/8" to 4"
- Class 9000 - 1/2" to 2"



45° Elbow
Threaded
- Class 2000 - 1/4" to 4"
- Class 3000 - 1/8" to 4"
- Class 6000 - 1/8" to 4"

Socket Weld
- Class 3000 - 1/8" to 4"
- Class 6000 - 1/8" to 4"
- Class 9000 - 1/2" to 2"

Tee
Threaded
- Class 2000 - 1/4" to 4"
- Class 3000 - 1/8" to 4"
- Class 6000 - 1/8" to 4"

Socket Weld
- Class 3000 - 1/8" to 4"
- Class 6000 - 1/8" to 4"
- Class 9000 - 1/2" to 2"

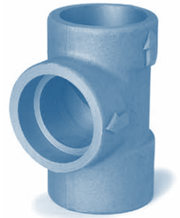
Cross
Threaded
- Class 2000 - 1/4" to 4"
- Class 3000 - 1/8" to 4"
- Class 6000 - 1/8" to 4"

Socket Weld
- Class 3000 - 1/8" to 4"
- Class 6000 - 1/2" to 3"
- Class 9000 - 1/2" to 2"

Lateral
Threaded
- Class 3000 - 1/4" to 2"
- Class 6000 - 1/2" to 1 1/2"

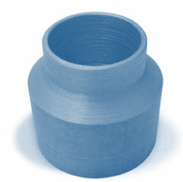
Socket Weld
- Class 3000 - 3/8" to 2"
- Class 6000 - 1/2" to 2"
- Class 9000 - 1/2" to 1 1/2"

Street Elbow
Threaded
- Class 3000 - 1/8" to 2"
- Class 6000 - 1/8" to 1 1/2"



QuikLeg 90®
Threaded
- Class 3000 - 1/2" to 2"
- Class 6000 - 1/2" to1 1/2"

Socket Weld
- Class 3000 - 1/2" to 2"
- Class 6000 - 3/4" to 2"



Boss w/Lip
Threaded
- Class 3000 - 1/4" to 3"
- Class 6000 - 1/8" to 3"

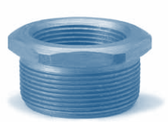
Socket Weld
- Class 3000 - 1/4" to 3"
- Class 6000 - 1/8" to 3"

Plugs & Bushings

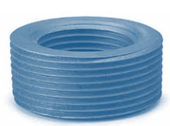
Round Plug
1/8" to 4"

Hexagon Plug
1/8" to 4"

Square Plug
1/8" to 4"



Hexagon Bushing
1/4" to 4"



Flush Bushing
1/4" to 4"

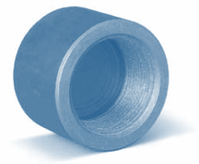
Additional sizes available on request

BONNEY FORGE

Condensed Description

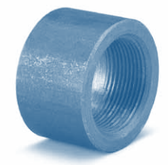
Couplings, Reducers & Caps

Available in class 3000 and 6000.



Pipe Cap
Threaded
- Class 3000 - 1/8" to 4"
- Class 6000 - 1/8" to 4"

Socket Weld
- Class 3000 - 1/8" to 4"
- Class 6000 - 1/8" to 4"

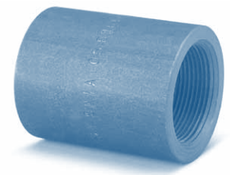


Half Coupling
Threaded
- Class 3000 - 1/8" to 4"
- Class 6000 - 1/8" to 4"

Socket Weld
- Class 3000 - 1/8" to 4"
- Class 6000 - 1/8" to 4"
- Class 9000 - 1/2" to 2"

Coupling
Threaded
- Class 3000 - 1/8" to 4"
- Class 6000 - 1/8" to 4"

Socket Weld
- Class 3000 - 1/8" to 4"
- Class 6000 - 1/8" to 4"
- Class 9000 - 1/2" to 2"



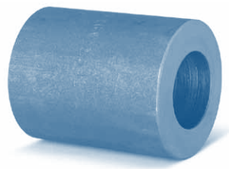
Reducer
Threaded
- Class 3000 - 1/4" to 4"
- Class 6000 - 1/4" to 4"

Socket Weld
- Class 3000 - 1/4" to 4"
- Class 6000 - 1/4" to 4"
- Class 9000 - 1/2" to 2"

Reducer Inserts

Socket weld reducer inserts available in class 3000, 6000 and 9000. Inserts stocked in various materials. Consult factory for special applications.

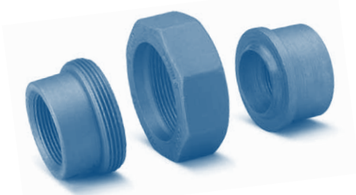
Type 1
Nominal pipe sizes
from 1/4" x 1/8"
to 2" x 1 1/2"



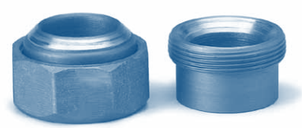
Type 2
Nominal pipe sizes
from 1/2" x 1/4"
to 2" x 1 1/4"

Unions

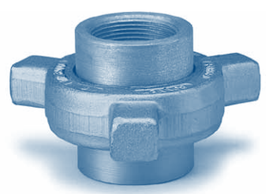
Bonney Forge MSS-SP-83 threaded and socket weld unions in class 3000 and 6000. Use Bonney Forge Rockwood Unions for the ultimate in operation and durability.



MSS-SP-83
Accommodates 1/8" to 3" pipe class 3000 and 1/4" to 2" pipe class 6000.



Rockwood
For use with 1/8" to 2" pipe. 1/8" to 2" threaded connection. 1/4" to 2" socket weld-stainless steel only.



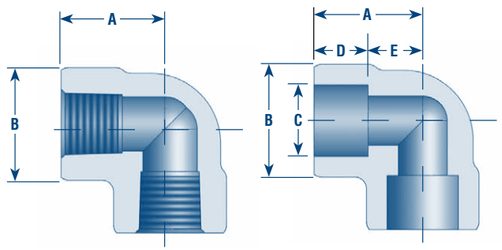
Lug Nut
3/8" to 4" class 3000 and 1/2" to 2" class 6000 threaded & socket weld.

Additional sizes available on request

90° Elbow

BONNEY FORGE

Class 2000
Class 3000
Class 6000
Class 9000



SPECIFICATIONS:
ASME B16.11
ASME B1.20.1 - (NPT)

Threaded

CLASS	DIMENSIONS	SIZES (INCHES)											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
2000	A		7/8	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	3	3 3/8	4 3/16
	B		29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 5/8	4 5/16	5 3/4
	WEIGHT		0.23	0.29	0.48	0.75	1.08	1.59	2.19	3.52	7.09	11.33	25.08
3000	A	7/8	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	2 1/2	3 1/4	3 3/4	4 1/2
	B	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	4	4 3/4	6
	WEIGHT	0.27	0.35	0.58	0.97	1.42	2.29	2.77	5.43	5.87	11.03	17.50	33.20
6000	A	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	2 1/2	3 1/4	3 3/4	4 3/16	4 1/2
	B	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	4	4 3/4	5 3/4	6
	WEIGHT	0.37	0.65	1.05	1.64	2.69	3.62	6.13	7.84	14.40	22.95	37.12	33.42

Socket Weld

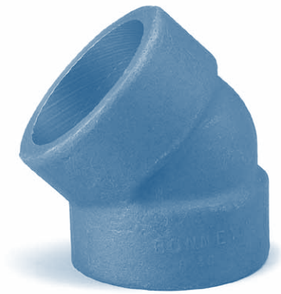
CLASS	DIMENSIONS	SIZES (INCHES)											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
3000	A	7/8	7/8	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	3	3 3/8	4 3/16
	B	29/32	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/16	4 3/8	5 3/4
	C	0.420	0.555	0.690	0.855	1.065	1.330	1.675	1.915	2.406	2.906	3.535	4.545
	D MIN.	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	E	7/16	7/16	17/32	5/8	3/4	7/8	1 1/16	1 1/4	1 1/2	1 5/8	2 1/4	2 5/8
	WEIGHT	0.25	0.21	0.26	0.45	0.75	1.05	1.52	2.08	3.37	6.67	11.08	22.59
6000	A	7/8	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	2 1/2	3 1/4	3 3/4	4 1/2
	B	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	4	4 3/4	6
	C	0.420	0.555	0.690	0.855	1.065	1.330	1.675	1.915	2.406	2.906	3.535	4.545
	D MIN.	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	E	7/16	17/32	5/8	3/4	7/8	1 1/16	1 1/4	1 1/2	1 5/8	2 1/4	2 1/2	2 3/4
	WEIGHT		0.26	0.59	0.97	1.42	2.33	2.96	5.71	6.42	12.16	18.69	34.15
9000	A				1 1/2	1 3/4	2	2 3/8	2 1/2	3			
	B				1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	3 11/16			
	C				0.855	1.065	1.330	1.675	1.915	2.406			
	D MIN.				3/8	1/2	1/2	1/2	1/2	5/8			
	E				1	1 1/8	1 1/4	1 3/8	1 1/2	2 1/8			
	WEIGHT				1.70	2.79	3.81	5.71	8.15	11.26			

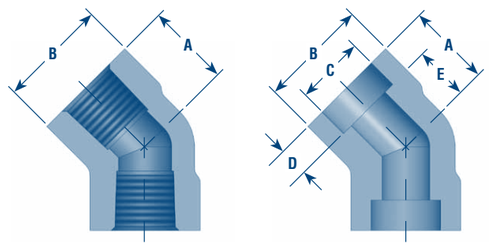
Note: 1. All Dimensions are in inches
2. Weights based on carbon steel (A105)

45° Elbow

BONNEY FORGE

Class 2000
Class 3000
Class 6000
Class 9000





SPECIFICATIONS:
ASME B16.11
ASME B1.20.1 - (NPT)

Threaded

CLASS	DIMENSIONS	SIZES (INCHES)											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
2000	A		3/4	3/4	1	1 1/8	1 1/4	1 5/16	1 3/8	1 3/4	2 1/16	2 1/2	3 1/8
	B		29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	4	4 3/8	6
	WEIGHT		0.21	0.24	0.47	0.73	1.03	1.46	1.77	3.03	8.07	9.46	24.57
3000	A	3/4	3/4	1	1 1/8	1 1/4	1 5/16	1 3/8	1 11/16	1 3/4	2 1/16	2 1/2	3 1/8
	B	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 5/16	4	4 3/4	6
	WEIGHT	0.23	0.30	0.58	0.91	1.29	2.02	2.29	4.54	5.26	7.83	12.99	24.75
6000	A	3/4	1	1 1/8	1 1/4	1 5/16	1 3/8	1 11/16	1 3/4	2 1/16	2 1/2	3 1/8	3 1/8
	B	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 5/16	4	4 3/4	6	6
	WEIGHT	0.56	0.58	0.91	1.54	2.25	2.84	5.12	6.82	10.28	15.00	35.20	24.75

Socket Weld

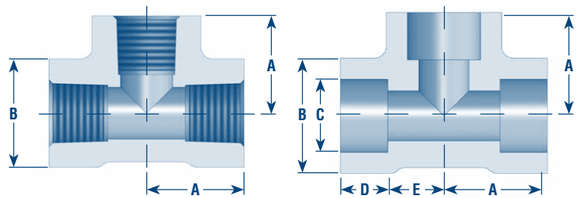
CLASS	DIMENSIONS	SIZES (INCHES)											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
3000	A	3/4	3/4	3/4	1	1 1/8	1 1/4	1 5/16	1 3/8	1 3/4	2 1/16	2 1/2	3 1/8
	B	29/32	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	4	4 3/8	6
	C	0.420	0.555	0.690	0.855	1.065	1.330	1.675	1.915	2.406	2.906	3.535	4.545
	D MIN.	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	E	5/16	5/16	5/16	7/16	1/2	9/16	11/16	13/16	1	1 1/8	1 1/4	1 5/8
	WEIGHT	0.22	0.19	0.22	0.42	0.70	0.95	1.39	1.68	2.96	7.76	8.55	24.06
6000	A	3/4	3/4	1	1 1/8	1 1/4	1 5/16	1 3/8	1 3/4	1 27/32	2 1/16	2 1/2	3 1/8
	B	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 3/8	4	4 3/4	6
	C	0.420	0.555	0.690	0.855	1.065	1.330	1.675	1.915	2.406	2.906	3.535	4.545
	D MIN.	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	E	5/16	5/16	7/16	1/2	9/16	11/16	13/16	1	1 1/8	1 1/4	1 3/8	1 5/8
	WEIGHT		0.22	0.48	0.89	1.26	2.00	2.29	4.49	5.57	8.69	14.20	24.06
9000	A				1 1/4	1 5/16	1 3/8	1 3/4	1 27/32	2 1/16			
	B				1 27/32	2 7/32	2 1/2	3 1/32	3 3/8	4			
	C				0.855	1.065	1.330	1.675	1.915	2.406			
	D MIN.				3/8	1/2	1/2	1/2	1/2	5/8			
	E				5/8	3/4	13/16	7/8	1	1 1/8			
	WEIGHT				1.31	2.37	2.91	4.31	6.89	10.84			

Note: 1. All Dimensions are in inches
2. Weights based on carbon steel (A105)

TEE

BONNEY FORGE

CLASS 2000
CLASS 3000
CLASS 6000
CLASS 9000



SPECIFICATIONS:
ASME B16.11
ASME B1.20.1 - (NPT)

Threaded

CLASS	DIMENSIONS	SIZES (INCHES)											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
2000	A		7/8	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	3	3 3/8	4 3/16
	B		29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/16	4 5/16	5 3/4
	WEIGHT		0.29	0.38	0.63	0.95	1.41	2.13	2.91	4.41	9.89	14.17	29.70
3000	A	7/8	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	2 1/2	3 1/4	3 3/4	4 1/2
	B	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	1 11/32	4	4 3/4	6
	WEIGHT	0.36	0.47	0.77	1.29	1.89	3.08	3.73	7.00	7.63	14.67	22.65	40.08
6000	A	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	2 1/2	3 1/4	3 3/4	4 3/16	4 1/2
	B	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	4	4 3/4	5 3/4	6
	WEIGHT	0.47	0.87	1.45	2.24	3.71	4.92	8.13	10.11	19.16	30.43	47.55	47.77

Socket Weld

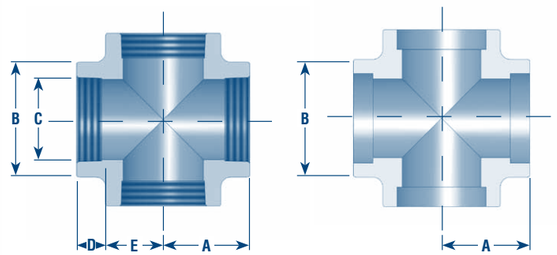
CLASS	DIMENSIONS	SIZES (INCHES)											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
3000	A	7/8	7/8	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	3	3 3/8	4 3/16
	B	29/32	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/16	4 3/8	5 3/4
	C	0.420	0.555	0.690	0.855	1.065	1.330	1.675	1.915	2.406	2.906	3.535	4.545
	D MIN.	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	E	7/16	7/16	17/32	5/8	3/4	7/8	1 1/16	1 1/4	1 1/2	1 5/8	2 1/4	2 5/8
	WEIGHT	0.33	0.27	0.34	0.59	0.94	1.29	2.04	2.77	4.11	8.68	13.79	28.60
6000	A	7/8	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	2 1/2	3 1/4	3 3/4	4 1/2
	B	29/32	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	4	4 3/4	6
	C	0.420	0.555	0.690	0.855	1.065	1.330	1.675	1.915	2.406	2.906	3.535	4.545
	D MIN.	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	E	7/16	17/32	5/8	3/4	7/8	1 1/16	1 1/4	1 1/2	1 5/8	2 1/4	2 1/2	2 3/4
	WEIGHT		0.34	0.80	1.27	1.91	3.17	4.04	7.55	8.19	16.15	24.43	42.79
9000	A				1 1/2	1 3/4	2	2 3/8	2 1/2	3			
	B				1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	3 11/16			
	C				0.855	1.065	1.330	1.675	1.915	2.406			
	D MIN.				3/8	1/2	1/2	1/2	1/2	5/8			
	E				1	1 1/8	1 1/4	1 3/8	1 1/2	2 1/8			
	WEIGHT				2.31	3.62	5.20	7.55	10.78	15.79			

Note: 1. All Dimensions are in inches
2. Weights based on carbon steel (A105)

CROSS

BONNEY FORGE

CLASS 2000
CLASS 3000
CLASS 6000
CLASS 9000



SPECIFICATIONS:
ASME B16.11
ASME B1.20.1 - (NPT)

Threaded

CLASS	DIMENSIONS	SIZES (INCHES)											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
2000	A		31/32	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	3 1/4	3 3/4	4 1/2
	B		1 1/16	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	4	4 3/4	6
	WEIGHT		0.56	0.47	0.83	1.19	1.64	2.46	3.51	5.50	18.32	26.41	45.76
3000	A	31/32	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	2 1/2	3 1/4	3 3/4	4 1/2
	B	1 1/16	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	4	4 3/4	6
	WEIGHT	0.65	0.58	0.97	1.60	2.28	3.65	4.54	8.47	9.10	17.69	26.13	47.37
6000	A	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	2 1/2	3 1/4	3 3/4	4 1/2	4 1/2
	B	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	4	4 3/4	6	6
	WEIGHT	0.65	1.19	1.60	2.65	4.34	5.92	10.50	12.12	23.15	28.13	54.00	43.50

Socket Weld

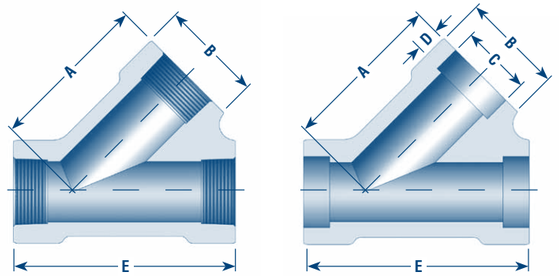
CLASS	DIMENSIONS	SIZES (INCHES)											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
3000	A	15/16	15/16	31/32	1 1/8	1 5/16	1 1/2	1 3/4	2	2 3/8	3 1/4	3 3/4	4 1/2
	B	1 1/16	1 1/16	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	4	4 3/4	6
	C	0.420	0.555	0.690	0.855	1.065	1.330	1.675	1.915	2.406	2.906	3.535	4.545
	D MIN.	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	E	7/16	7/16	17/32	5/8	3/4	7/8	1 1/16	1 1/4	1 1/2	1 5/8	2 1/4	2 5/8
	WEIGHT	0.25	0.25	0.42	0.72	1.17	1.49	2.38	3.25	5.08	15.78	24.73	40.00
6000	A				1 5/16	1 1/2	1 3/4	2	2 3/8	2 1/2	3 1/4	3 3/4	
	B				1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	4	4 3/4	
	C				0.855	1.065	1.330	1.675	1.915	2.406	2.906	3.535	
	D MIN.				3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	
	E				3/4	7/8	1 1/16	1 1/4	1 1/2	1 5/8	2 1/4	2 1/2	
	WEIGHT				1.55	2.31	3.74	5.25	8.80	9.66	16.75	23.00	
9000	A				1 1/2	1 3/4	2	2 3/8	2 1/2	3 1/4			
	B				1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	4			
	C				0.855	1.065	1.330	1.675	1.915	2.406			
	D MIN.				3/8	1/2	1/2	1/2	1/2	5/8			
	E				1	1 1/8	1 1/4	1 3/8	1 1/2	2 1/8			
	WEIGHT				1.75	4.12	5.25	5.12	8.75	22.19			

Note: 1. All Dimensions are in inches
2. Weights based on carbon steel (A105)

LATERAL

BONNEY FORGE

CLASS 3000
CLASS 6000
CLASS 9000



SPECIFICATIONS:

ASME B16.11 - (SOCKET ENDS ONLY)
ASME B1.20.1 - (NPT)

Threaded

CLASS	DIMENSIONS	1/4	3/8	1/2	3/4	1	1 1/2	1 1/2	2
3000	A	1 7/8	2 1/8	2 9/16	3	3 1/2	3 15/16	4 3/4	5
	B	1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/32
	E	2 11/16	3	3 9/16	4 1/8	4 13/16	5 3/8	6 7/16	6 5/8
	WEIGHT		1.00	1.99	2.73	4.43	5.45	11.10	11.70
6000	A			3	3 1/2	3 15/16	4 3/4	5	
	B			1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	
	E			4 1/8	4 13/16	5 3/8	6 7/16	6 5/8	
	WEIGHT			2.38	3.25	5.44	7.19	12.31	

Socket Weld

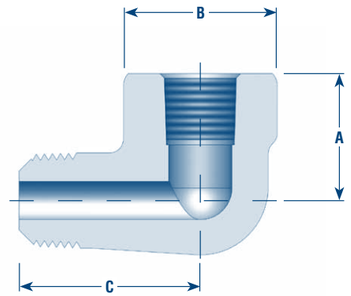
CLASS	DIMENSIONS	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
3000	A		1 7/8	2 1/8	2 9/16	3	3 1/2	3 15/16	4 3/4
	B		1 1/16	1 5/16	1 9/16	1 27/32	2 7/32	2 1/2	3 1/32
	C		0.690	0.855	1.065	1.330	1.675	1.915	2.406
	D MIN.		3/8	3/8	1/2	1/2	1/2	1/2	5/8
	E		2 11/16	3	3 9/16	4 1/8	4 13/16	5 3/8	6 7/16
	WEIGHT		1.00	0.88	1.56	2.08	3.08	4.22	6.89
6000	A			2 9/16	3	3 1/2	3 15/16	4 3/4	5
	B			1 9/16	1 27/32	2 7/32	2 1/2	3 1/32	3 11/32
	C			0.855	1.065	1.330	1.675	1.915	2.406
	D MIN.			3/8	1/2	1/2	1/2	1/2	5/8
	E			3 9/16	4 1/8	4 13/16	5 3/8	6 7/16	6 5/8
	WEIGHT			2.00	3.07	4.85	6.25	11.94	12.50
9000	A			3	3 1/2	3 15/16	4 3/4	5	
	B			1 27/32	2 7/32	2 1/2	3 1/32	3 11/32	
	C			0.855	1.065	1.330	1.675	1.915	
	D MIN.			9/16	5/8	11/16	7/8	1/2	
	E			4 1/8	4 13/16	5 3/8	6 7/16	6 5/8	
	WEIGHT			1.75	2.38	3.75	6.88	6.88	

Note: 1. All Dimensions are in inches
2. Weights based on carbon steel (A105)

STREET ELBOW

BONNEY FORGE

CLASS 3000
CLASS 6000



SPECIFICATIONS:

ASME B16.11
ASME B1.20.1 - (NPT)

Threaded

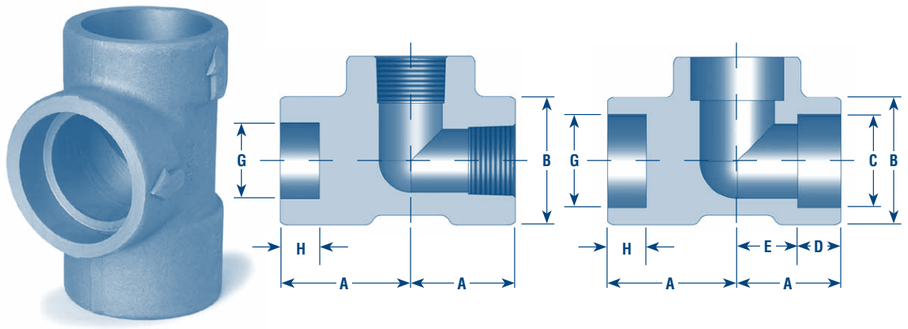
CLASS	DIMENSIONS	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
3000	A	7/8	7/8	1	1 1/8	1 3/8	1 3/4	2	2 1/8	2 1/2
	B	1 1/16	1 1/16	1 5/16	1 1/2	1 13/16	2 3/16	2 7/16	3 1/32	3 5/16
	C	1 1/4	1 1/4	1 1/2	1 5/8	1 7/8	2 1/4	2 5/8	2 15/16	3 5/16
	WEIGHT	0.27	0.25	0.41	0.61	1.02	1.73	2.42	4.05	5.25
6000	A	7/8	1	1 1/8	1 3/8	1 3/4	2	2 1/8	2 1/2	
	B	1 1/16	1 5/16	1 1/2	1 13/16	2 3/16	2 7/16	3 1/32	3 5/16	
	C	1 1/4	1 1/2	1 5/8	1 7/8	2 1/4	2 5/8	2 15/16	3 5/16	
	WEIGHT	0.42	0.44	0.69	1.18	2.09	3.12	4.87	7.04	

Note: 1. All Dimensions are in inches
2. Weights based on carbon steel (A105)

QuikLeg 90

BONNEY FORGE

Class 3000
Class 6000



SPECIFICATIONS:

ASME B16.11 - (SOCKET DIMENSIONS ONLY)
ASME B1.20.1 - (NPT)

Threaded

CLASS	DIMENSIONS	1/2	3/4	1	1 1/4	1 1/2	2
3000	A	1 1/2	1 1/2	2	2	2 3/8	2 1/2
	B	1 7/8	1 7/8	2 1/2	2 1/2	3	3 1/8
	F	1 7/8	1 7/8	2 1/2	2 1/2	3	3 1/4
	G	0.855	1.065	1.330	1.675	1.915	2.406
	H	1/2	9/16	3/4	3/4	3/4	7/8
	WEIGHT	2.63	2.19	6.02		5.10	10.31
6000	A	1 1/2	2	2	2 3/8	2 1/2	
	B	1 7/8	2 1/2	2 1/2	3	3 1/8	
	F	1 7/8	2 1/2	2 1/2	3	3 1/8	
	G	0.855	1.065	1.330	1.675	1.915	
	H	9/16	9/16	3/4	3/4	7/8	
	WEIGHT		6.53			10.31	

Socket Weld

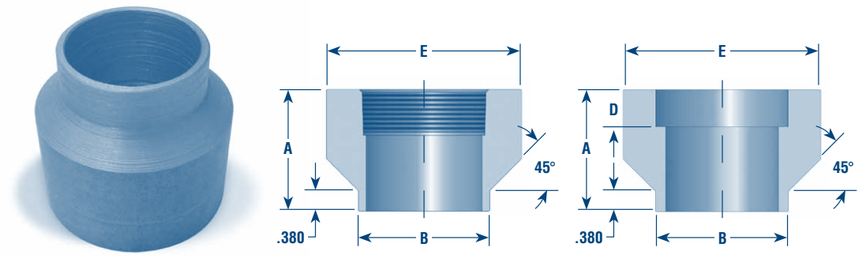
CLASS	DIMENSIONS	1/2	3/4	1	1 1/4	1 1/2	2
3000	A	1 1/2	1 1/2	1 1/2	2	2	2 3/8
	B	1 7/8	1 7/8	1 7/8	2 1/2	2 1/2	3
	C	0.855	1.065	1.330	1.675	1.915	2.406
	D MIN.	3/8	1/2	1/2	1/2	1/2	5/8
	E	5/8	3/4	7/8	1 1/4	1 1/4	1 1/2
	F	1 7/8	1 7/8	1 7/8	2 1/2	2 1/2	3
	G	0.855	1.065	1.330	1.675	1.915	2.406
	H	9/16	9/16	9/16	3/4	3/4	3/4
	WEIGHT		2.03	2.63		3.89	6.33
6000	A		1 1/2	2	2 3/8	2 3/8	2 1/2
	B		1 7/8	2 1/2	3	3	3 3/8
	C		1.065	1.330	1.675	1.915	2.406
	D MIN.		1/2	1/2	1/2	1/2	5/8
	E		7/8	1 1/16	1 1/4	1 1/2	1 5/8
	F		1 7/8	2 1/2	3	3	3 1/8
	G		1.065	1.330	1.675	1.915	2.406
	H		9/16	3/4	9/16	9/16	11/16
	WEIGHT		2.19	6.02		4.75	10.98

Note: 1. All Dimensions are in inches
2. Weights based on carbon steel (A105)

Boss With Lip

BONNEY FORGE

Class 3000
Class 6000



SPECIFICATIONS:

ASME B16.11 - (SOCKET DIMENSIONS ONLY)
ASME B1.20.1 - (NPT)

Threaded

CLASS	DIMENSIONS	SIZES (INCHES) 1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
3000	A		1 3/16	1 3/16	1 5/16	1 3/8	1 11/16	1 7/8	2	2 1/4	2 1/2	2 3/4
	B		11/16	13/16	15/16	1 1/16	1 5/16	1 11/16	1 15/16	2 7/16	2 7/8	3 1/2
	E		1	1 1/16	1 3/8	1 1/2	1 13/16	2 1/4	2 1/2	3 1/8	3 5/8	4 3/8
	WEIGHT		0.13	0.21	0.29	0.29	0.51	0.84	1.18	2.04	2.93	4.11
6000	A	1 3/16	1 3/16	1 3/16	1 5/16	1 3/8	1 11/16	1 7/8	2	2 1/4	2 1/2	2 3/4
	B	9/16	11/16	13/16	15/16	1 1/16	1 5/16	1 11/16	1 15/16	2 7/16	2 7/8	3 1/2
	E	7/8	1	1 1/4	1 1/2	1 3/4	2 1/4	2 1/2	3	3 5/8	4 1/4	5
	WEIGHT	0.12	0.15	0.20	0.33	0.43	0.93	1.15	1.86	3.02	4.40	6.40

Socket Weld

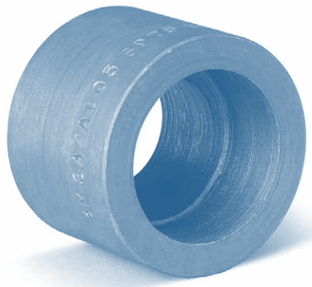
CLASS	DIMENSIONS	SIZES (INCHES) 1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
3000	A		1 3/16	1 3/16	1 5/16	1 3/8	1 11/16	1 7/8	2	2 1/4	2 1/2	2 3/4
	B		11/16	13/16	15/16	1 1/16	1 5/16	1 11/16	1 15/16	2 7/16	2 7/8	3 1/2
	D MIN.		3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8
	E		15/16	1 1/16	1 5/16	1 1/2	1 13/16	2 1/4	2 1/2	3 1/8	3 5/8	4 3/8
	F		0.555	0.690	0.855	1.065	1.330	1.675	1.915	2.406	2.906	3.535
	WEIGHT		0.13	0.21	0.29	0.29	0.51	0.84	1.18	2.04	2.93	4.11
6000	A	1 3/16	1 3/16	1 3/16	1 5/16	1 3/8	1 11/16	1 7/8	2	2 1/4	2 1/2	2 3/4
	B	9/16	11/16	13/16	15/16	1 1/16	1 5/16	1 11/16	1 15/16	2 7/16	2 7/8	3 1/2
	D MIN.	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8
	E	7/8	1	1 1/4	1 1/2	1 3/4	2 1/4	2 1/2	3	3 5/8	4 1/4	5
	F	0.420	0.555	0.690	0.855	1.065	1.340	1.675	1.915	2.406	2.906	3.535
	WEIGHT	0.18	0.16	0.22	0.33	0.43	0.93	1.24	1.91	3.07	4.83	6.83

Note: 1. All Dimensions are in inches
2. Weights based on carbon steel (A105)

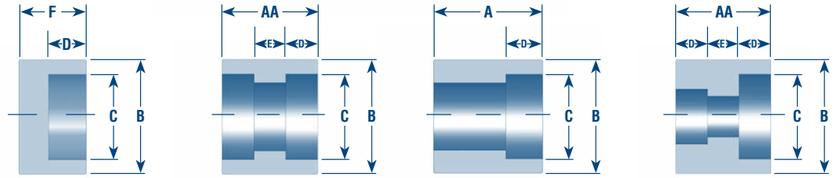
Socket Weld Couplings, Reducers and Caps

BONNEY FORGE

Class 3000
Class 6000
Class 9000



SPECIFICATIONS:
ASME B16.11



Cap | Coupling | Half Coupling | Reducing Coupling

Socket Weld

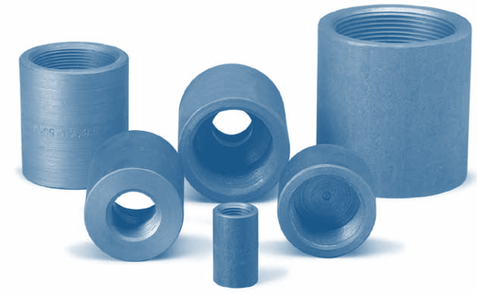
CLASS	DIMENSIONS	SIZES (INCHES)											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
3000	A	1 1/16	1 1/16	1 1/8	1 3/8	1 1/2	1 3/4	1 7/8	2	2 1/2	2 9/16	2 3/4	3
	AA	1 1/32	1 1/32	1 1/32	1 3/16	1 13/32	1 33/64	1 33/64	1 33/64	2 1/64	2 1/64	2 1/64	2 17/64
	B	3/4	7/8	1 1/16	1 1/4	1 1/2	1 13/16	2 1/4	2 1/2	3	3 5/8	4 5/16	5 1/2
	C	0.420	0.555	0.690	0.855	1.065	1.330	1.675	1.915	2.406	2.906	3.535	4.545
	D MIN.	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	E	1/4	1/4	1/4	3/8	3/8	1/2	1/2	1/2	3/4	3/4	3/4	3/4
	F	11/16	3/4	3/4	7/8	1	1 1/16	1 3/16	1 1/4	1 1/2	1 9/16	1 13/16	2 1/16
COUPLING	WEIGHT	0.09	0.12	0.16	0.24	0.39	0.57	0.90	1.04	1.79	2.42	4.06	5.73
HALF COUPLING	WEIGHT	0.10	0.13	0.18	0.32	0.46	0.75	1.24	1.33	2.38	3.55	6.24	8.30
REDUCER	WEIGHT		0.12	0.16	0.24	0.39	0.57	0.90	1.04	1.79	2.42	4.06	5.73
CAP	WEIGHT	0.07	0.10	0.14	0.22	0.36	0.55	1.01	1.27	1.99	3.38	6.30	12.08
6000	A	1 1/16	1 1/16	1 1/8	1 3/8	1 1/2	1 3/4	1 7/8	2	2 1/2	2 9/16	2 3/4	3
	AA	1 1/16	1 1/8	1 1/8	1 5/32	1 13/32	1 33/64	1 33/64	1 33/64	2 1/64	2 1/64	2 1/64	2 17/64
	B	7/8	1 1/16	1 5/16	1 1/2	1 3/4	2 1/4	2 1/2	3	3 5/8	4 1/4	5	6 1/4
	C	0.420	0.555	0.690	0.855	1.065	1.330	1.675	1.915	2.406	2.906	3.535	4.545
	D MIN.	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	E	1/4	1/4	1/4	3/8	3/8	1/2	1/2	1/2	3/4	3/4	3/4	3/4
	F		15/16	15/16	1	1 1/16	1 1/4	1 5/16	1 3/8	1 5/8	1 11/16	1 15/16	2 5/16
COUPLING	WEIGHT		0.23	0.33	0.45	0.67	1.27	1.37	2.09	3.85	4.93	6.69	8.00
HALF COUPLING	WEIGHT				0.56	0.80	1.58	1.72	2.99	4.99	5.44	9.50	12.64
REDUCER	WEIGHT		0.23	0.33	0.45	0.67	1.27	1.37	2.09	3.85	4.93	6.69	8.00
CAP	WEIGHT		0.20	0.27	0.42	0.58	1.18	1.41	2.19	3.65	5.63	8.78	14.25
9000	A				1 3/8	1 1/2	1 3/4	1 51/64	2	2 1/2			
	AA				1 3/8	1 1/2	1 3/4	1 51/64	2	2 1/2			
	B				1 13/16	2	2 3/8	2 3/4	3 1/16	3 5/8			
	C				0.855	1.065	1.330	1.675	1.915	2.406			
	D MIN.				3/8	1/2	1/2	1/2	1/2	5/8			
	E				3/8	3/8	1/2	1/2	1/2	3/4			
COUPLING	WEIGHT				0.62	1.04	1.71	1.69	2.93	4.61			
HALF COUPLING	WEIGHT				0.88	0.80	1.74	2.22	2.93	4.99			
REDUCER	WEIGHT				0.62	1.04	1.71	1.69	2.93	4.61			

Note:
1. All dimensions are in inches.
2. Weights based on carbon steel (A105)
3. Reducer weights shown are based on full coupling sizes.
4. Reducers smaller than 1/4" are not offered.

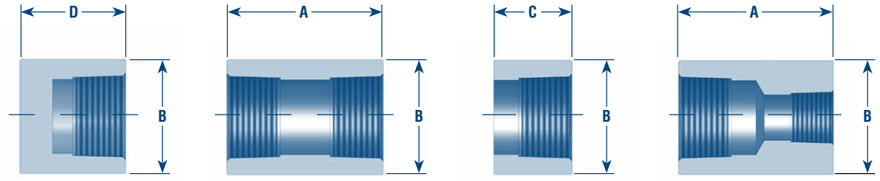
Threaded Couplings, Reducers and Caps

BONNEY FORGE

Class 3000
Class 6000



SPECIFICATIONS:
ASME B16.11
ASME B1.20.1 - (NPT)



Cap | Coupling | Half Coupling | Reducing Coupling

Threaded

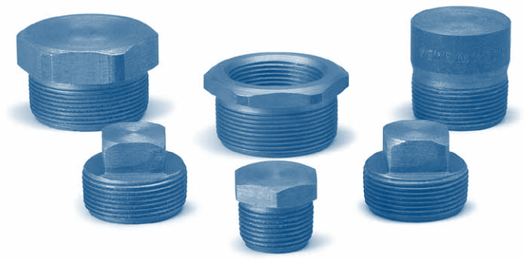
CLASS	DIMENSIONS	SIZES (INCHES)											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
3000	A	1 1/4	1 3/8	1 1/2	1 7/8	2	2 3/8	2 5/8	3 1/8	3 3/8	3 5/8	4 1/4	4 3/4
	B	3/4	3/4	7/8	1 1/8	1 3/8	1 3/4	2 1/4	2 1/2	3	3 5/8	4 1/4	5 1/2
	C	5/8	11/16	3/4	15/16	1	1 3/16	1 5/16	1 9/16	1 11/16	1 13/16	2 1/8	2 3/8
	D	15/16	1	1	1 1/4	1 7/16	1 5/8	1 3/4	1 3/4	1 7/8	2 3/8	2 9/16	2 11/16
COUPLING	WEIGHT	0.13	0.11	0.13	0.29	0.42	0.85	1.60	2.26	2.95	4.61	6.89	12.48
HALF COUPLING	WEIGHT	0.06	0.05	0.06	0.13	0.21	0.42	0.79	1.12	1.53	2.34	3.26	6.48
REDUCER	WEIGHT		0.11	0.13	0.29	0.42	0.85	1.60	2.26	2.95	4.61	6.89	12.48
CAP	WEIGHT	0.10	0.09	0.10	0.24	0.37	0.74	1.35	1.64	2.40	4.45	7.14	12.42
6000	A	1 1/4	1 3/8	1 1/2	1 7/8	2	2 3/8	2 5/8	3 1/8	3 3/8	3 5/8	4 1/4	4 3/4
	B	7/8	1	1 1/4	1 1/2	1 3/4	2 1/4	2 1/2	3	3 5/8	4 1/4	5	6 1/4
	C	5/8	11/16	3/4	15/16	1	1 3/16	1 5/16	1 9/16	1 11/16	1 13/16	2 1/8	2 3/8
	D	1	1 1/16	1 1/16	1 5/16	1 1/2	1 11/16	1 13/16	1 7/8	2	2 1/2	2 11/16	2 15/16
COUPLING	WEIGHT	0.18	0.28	0.39	0.70	0.95	1.93	2.28	4.20	6.00	8.65	13.41	21.86
HALF COUPLING	WEIGHT	0.10	0.12	0.19	0.35	0.49	0.97	1.15	2.08	3.05	4.35	6.83	7.05
REDUCER	WEIGHT		0.28	0.39	0.70	0.95	1.93	2.28	4.20	6.00	8.65	13.41	21.86
CAP	WEIGHT	0.16	0.23	0.31	0.55	0.78	1.55	1.90	2.79	4.35	8.10	10.73	15.58

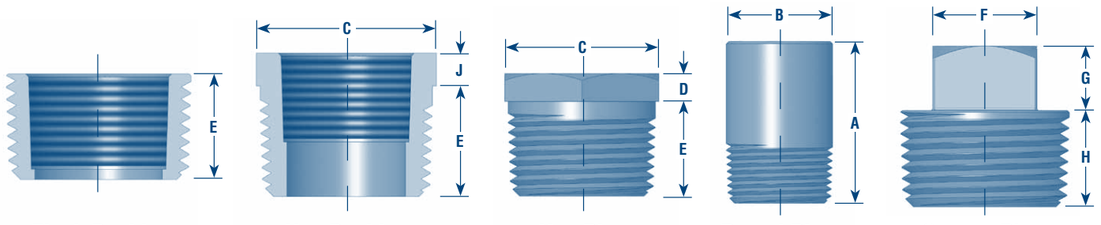
Note:
1. All dimensions are in inches.
2. Weights based on carbon steel (A105)
3. Reducer weights shown are based on full coupling sizes.
4. Reducers smaller than 1/4" are not offered.

Plugs & Bushings

BONNEY FORGE

Class 3000
Class 6000





Flush Bushing | Hex Bushing | Hex Plug | Round Plug | Square Plug

SPECIFICATIONS:
ASME B16.11
ASME B1.20.1 - (NPT)

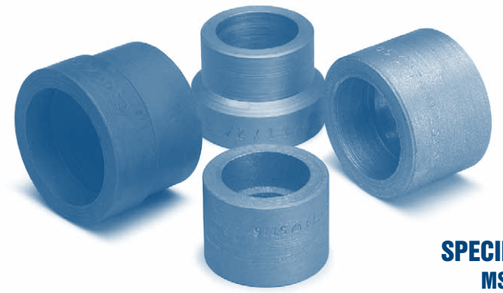
CLASS	DIMENSIONS	SIZES (INCHES)											
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
3000/6000	A	1 3/8	1 5/8	1 5/8	1 3/4	1 3/4	2	2	2	2 1/2	2 3/4	2 3/4	3
	B	13/32	9/16	11/16	13/16	1 1/16	1 5/16	1 11/16	1 29/32	2 3/8	2 7/8	3 1/2	4 1/2
	C	7/16	5/8	11/16	7/8	1 1/16	1 3/8	1 3/4	2	2 1/2	3	3 3/4	4 7/8
	D MIN.	1/4	1/4	5/16	5/16	3/8	3/8	9/16	5/8	11/16	3/4	13/16	1
	E	7/16	1/2	9/16	11/16	3/4	27/32	7/8	15/16	1	1 1/4	1 11/16	1 25/32
	F	9/32	3/8	7/16	9/16	5/8	13/16	15/16	1 1/8	1 5/16	1 1/2	1 11/16	2 1/2
	G	1/4	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	1 1/4
	H	3/8	7/16	1/2	9/16	5/8	3/4	13/16	13/16	7/8	1 1/16	1 1/8	1 1/4
	J MIN.		3/16	3/16	3/16	1/4	1/4	3/8	3/8	3/8	1/2	7/16	1
ROUND PLUG	WEIGHT	0.05	0.11	0.18	0.25	0.41	0.73	1.20	1.57	3.10	5.01	7.40	13.25
HEXAGON PLUG	WEIGHT	0.03	0.06	0.09	0.16	0.27	0.48	0.93	1.35	2.26	3.84	7.08	12.07
SQUARE PLUG	WEIGHT	0.02	0.04	0.06	0.12	0.19	0.35	0.61	0.83	1.41	2.33	3.57	6.28
HEX BUSHING	WEIGHT		0.03	0.04	0.06	0.12	0.21	0.38	0.37	0.77	1.31	3.78	7.31
FLUSH BUSHING	WEIGHT		0.05	0.07	0.03	0.06	0.09	0.17	0.19	0.39	0.62	1.00	1.88

Note: 1. All Dimensions are in inches
2. Weights based on carbon steel (A105)

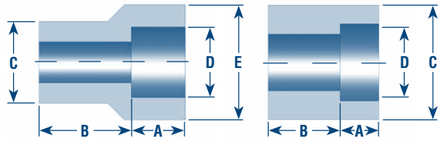
Socket Weld Reducer Inserts (MSS SP-79)

BONNEY FORGE

Class 3000
Class 6000
Class 9000



SPECIFICATIONS:
MSS SP-79
ASME B16.11 - (SOCKET DIMENSIONS ONLY)



Type 1 | Type 2

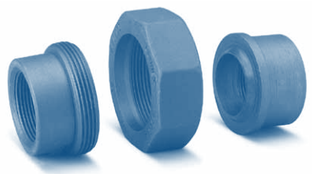
			3000				6000				9000				WEIGHT		
SIZE	C	D	Fig. Type	A (Min.)	B	E	Fig. Type	A (Min.)	B	E	Fig. Type	A (Min.)	B	E	3000	6000	9000
3/8 x 1/4	0.685	0.555	1	3/8	3/4	15/16	1	3/8	27/32	1					0.12	0.20	
1/2 x 3/8	0.850	0.690	1	3/8	13/16	1 1/16	1	3/8	29/32	1 3/16					0.16	0.19	
1/2 x 1/4	0.850	0.555	1	3/8	13/16	15/16	1	3/8	13/16	1					0.17	0.19	
3/4 x 1/2	1.060	0.855	1	3/8	7/8	1 5/16	1	3/8	1	1 3/8	1	3/8	1 3/16	1 3/4	0.26	0.36	0.62
3/4 x 3/8	1.060	0.690	2	3/8	5/8		1	3/8	7/8	1 3/16					0.19	0.25	
3/4 x 1/4	1.060	0.555	2	3/8	11/16		2	3/8	7/8						0.23	0.27	
1 x 3/4	1.325	1.065	1	1/2	15/16	1 17/32	1	1/2	1 1/8	1 11/16	1	1/2	1 1/4	2	0.38	0.60	1.10
1 x 1/2	1.325	0.855	2	3/8	5/8		1	3/8	1 1/8	1 3/8	1	3/8	1 1/8	1 3/4	0.32	0.49	0.74
1 x 3/8	1.325	0.690	2	3/8	11/16		2	3/8	7/8						0.37	0.41	
1 x 1/4	1.325	0.555	2	3/8	3/4		2	3/8	15/16						0.41	0.50	
1 1/4 x 1	1.670	1.330	1	1/2	1	1 7/8	1	1/2	1 3/16	2	1	1/2	1 3/8	2 3/8	0.62	0.89	1.44
1 1/4 x 3/4	1.670	1.065	2	1/2	11/16		2	1/2	13/16		1	1/2	1 3/16	2	0.54	1.04	1.81
1 1/4 x 1/2	1.670	0.855	2	3/8	3/4		2	3/8	7/8		2	3/8	7/8		0.65	0.95	1.14
1 1/4 x 3/8	1.670	0.690	2	3/8	13/16		2	3/8	15/16						0.70	1.04	
1 1/4 x 1/4	1.670	0.555	2	3/8	7/8		2	3/8	1						0.75	1.14	
1 1/2 x 1 1/4	1.910	1.675	1	1/2	1 1/8	2 1/4	1	1/2	1 3/8	2 3/8	1	1/2	1 5/8	2 3/4	0.80	1.23	1.90
1 1/2 x 1	1.910	1.330	2	1/2	11/16		1	1/2	1 5/32	2 1/16	1	1/2	1 3/8	2 3/8	0.68	1.13	1.13
1 1/2 x 3/4	1.910	1.065	2	1/2	3/4		2	1/2	1		2	1/2	1		0.84	1.04	1.23
1 1/2 x 1/2	1.910	0.855	2	3/8	13/16		2	3/8	1 1/16		2	3/8	1		0.97	1.15	1.33
1 1/2 x 3/8	1.910	0.690	2	3/8	7/8		2	3/8	1 1/8						1.00	1.25	
2 x 1 1/2	2.385	1.915	1	1/2	1 1/4	2 1/2	1	1/2	1 17/32	2 11/16	1	1/2	2 1/16	3	1.24	1.93	2.43
2 x 1 1/4	2.385	1.675	2	1/2	13/16		2	1/2	15/16		1	1/2	2	2 3/4	1.16	1.36	1.96
2 x 1	2.385	1.330	2	1/2	7/8		2	1/2	1		2	1/2	1		1.50	1.86	1.54
2 x 3/4	2.385	1.065	2	1/2	15/16		2	1/2	1 1/16		2	1/2	1 1/16		1.69	1.82	1.82
2 x 1/2	2.385	0.855	2	3/8	1		2	3/8	1 1/8		2	3/8	1 1/8		1.81	1.92	1.92

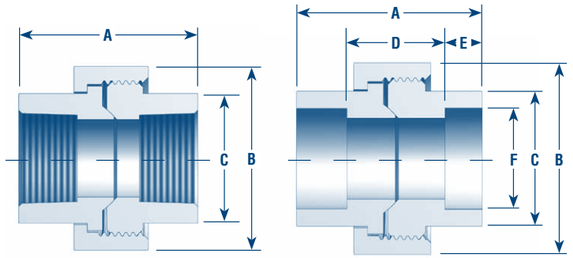
Note: 1. All dimensions are in inches.
2. Weights based on carbon steel (A105)
3. Larger sizes are available upon request, and are supplied in accordance to MSS SP-79.

SP-83 Union

BONNEY FORGE

Class 3000
Class 6000





SPECIFICATIONS:
ASME B16.11
ASME B1.20.1 - (NPT)

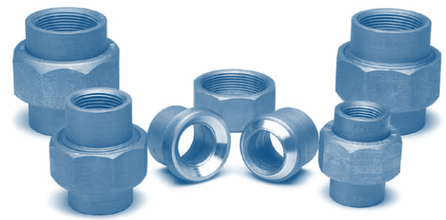
CLASS	DIMENSIONS	SIZES (INCHES)										
		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
3000	A	1 45/64	1 23/32	1 7/8	2	2 9/32	2 1/2	2 7/8	3 1/32	3 1/2	4 3/64	4 19/64
	B	1 3/8	1 3/8	1 9/16	1 13/16	2 11/64	2 9/16	3 1/8	3 1/2	4 1/4	4 7/8	5 3/4
	C	7/8	7/8	1 1/32	1 15/64	1 31/64	1 13/16	2 15/64	2 31/64	3 1/32	3 21/32	4 13/32
	D	61/64	31/32	1 1/8	1 1/4	1 9/32	1 1/2	1 7/8	2 1/32	2 1/4	2 51/64	3 3/64
	E MIN.	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8
	F	0.420	0.555	0.690	0.855	1.065	1.330	1.675	1.915	2.406	2.906	3.535
	WEIGHT	0.41	0.38	0.54	0.79	1.25	1.80	2.88	3.64	5.81	8.77	12.98
6000	A		1 7/8	1 63/64	2 19/64	2 1/2	2 7/8	3 1/64	3 17/32	4 17/64		
	B		1 37/64	1 13/16	2 13/64	2 37/64	3 7/64	3 27/64	4 3/32	4 7/8		
	C		1 1/32	1 15/64	1 15/32	1 51/64	2 11/64	2 15/32	3 1/32	3 21/32		
	D		1 1/8	1 15/64	1 35/64	1 1/2	1 7/8	2 1/64	2 17/32	3 1/64		
	E MIN.		3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8		
	F		0.555	0.690	0.855	1.065	1.330	1.675	1.915	2.406		
	WEIGHT		0.59	0.84	1.42	2.09	3.40	4.09	7.18	12.44		

Note:
1. The "B" Dimensions is measured across the flats of the union nut.
2. All Dimensions are in inches
3. Weights based on carbon steel (A105)

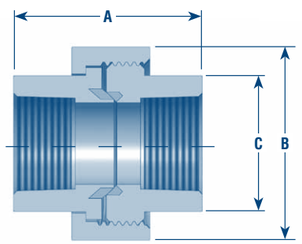
Rockwood Unions

BONNEY FORGE

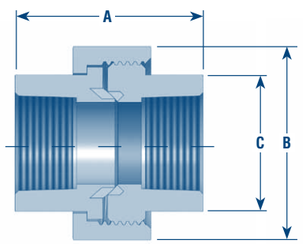
Type 601
Type 602
Type 602B
Type 604



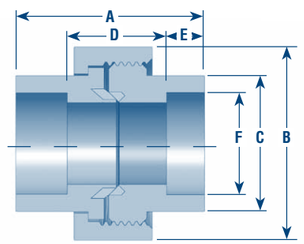
FEATURES:
- Ideal for Steam Service
- Designs rated for 3000 WOG / 600 WSP
- Ball-to-Cone Seats for smooth alignment
- Can be repeatedly assembled and disassembled
- Replaceable and interchangable parts
- Carbon steel components are coated to resist corrosion
- Stays sealed - regardless of shock, vibration, expansion and rough wrenching
- Silicon Bronze and Stainless Steel seats double locked under 120,000 lbs, psi
- Conveniently packaged
- Suitable for use with Schedule 40/80 pipe
- 100% hydro tested
- Type 604 is preferred over bronze to carbon steel seated unions



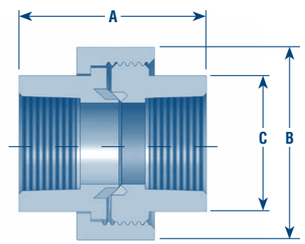
Type 601



Type 602



Type 602B



Type 604

SPECIFICATIONS:
ASME B16.11 - (SOCKET DIMENSIONS ONLY)
ASME B1.20.1 - (NPT)

TYPE	DIMENSIONS	SIZES (INCHES)								
		1/8 18-NPT	1/4 18-NPT	3/8 18-NPT	1/2 14-NPT	3/4 14-NPT	1 11 1/2-NPT	1 1/4 11 1/2-NPT	1 1/2 11 1/2-NPT	2 11 1/2-NPT
TYPE 601, 602, 604	A	1 7/8	1 7/8	2	2 5/32	2 25/64	2 25/32	2 31/32	3 5/64	3 21/32
	B	1 1/4	1 1/4	1 3/8	1 21/32	2	2 3/8	2 3/4	3	3 23/32
	C	3/4	3/4	29/32	1 7/64	1 27/64	1 41/64	2 1/32	2 5/16	2 13/16
	STYLE NUT	HEX	HEX	HEX	HEX	OCTAGON	OCTAGON	OCTAGON	OCTAGON	OCTAGON
	WEIGHT	0.37	0.34	0.43	0.68	1.06	1.51	2.19	2.58	4.83
TYPE 602B	A		1 3/4	2	2 11/64	2 7/16	2 3/4	2 15/16	3 7/64	3 21/32
	B		1 1/4	1 3/8	1 21/32	2	2 3/8	2 3/4	3	3 23/32
	C		3/4	29/32	1 1/8	1 27/64	1 41/64	2 1/32	2 5/16	2 13/16
	D		1	1 1/4	1 27/64	1 7/16	1 3/4	1 15/16	2 7/64	2 13/32
	E MIN.		3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8
	F		0.555	0.690	0.855	1.065	1.330	1.675	1.915	2.406
	STYLE NUT		HEX	HEX	HEX	OCTAGON	OCTAGON	OCTAGON	OCTAGON	OCTAGON
	WEIGHT		0.30	0.43	0.68	1.04	1.46	2.09	2.55	4.71

Note:
1. The "B" Dimension is measured across the flats of the union nut.
2. All Dimensions are in inches
3. Weights based on carbon steel (A105)

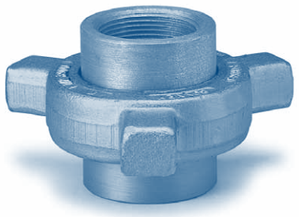
Product Comparison

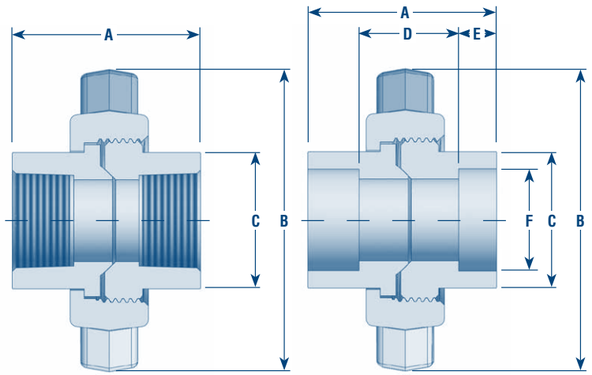
	Type 601	Type 602	Type 602B	Type 604
SEAT MATERIAL	 Silicon Bronze	 Stainless Steel	 Stainless Steel	 Silicon Bronze (male) Stainless (female)
END CONNECTION	Threaded	Threaded	Socket Weld	Threaded

Lug Nut Unions

BONNEY FORGE

Class 3000
Class 6000





Lug Nut unions from Bonney Forge are supplied with modified Stub Acme threads ideal for applications requiring rapid assembly and/or disassembly.

SPECIFICATIONS:

ASME B16.11 - (SOCKET DIMENSIONS ONLY)
ASME B1.20.1 - (NPT)

CLASS	DIMENSIONS	SIZES (INCHES)									
		3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
3000	A	1 7/8	1 63/64	2 19/64	2 57/64	2 29/32	3 1/32	3 31/64	4 1/16	4 31/64	8 1/32
	B	2 9/16	3	3 5/8	4 1/4	5	5 5/8	6 3/8	7 3/16	8	10 23/64
	C	1 1/32	1 15/64	1 31/64	1 13/16	2 3/16	2 15/32	3 1/32	3 21/32	4 13/32	5 29/64
	D	1 1/8	1 15/64	1 19/64	1 57/64	1 29/32	2 1/32	2 15/64	2 13/16	3 15/64	6 17/32
	E MIN.	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8	3/4
	F	0.690	0.855	1.065	1.330	1.675	1.915	2.406	2.906	3.535	4.545
	WEIGHT	0.59	0.91	3.12	2.28	3.48	4.66	7.07	11.40	15.42	
6000	A		2 3/8	2 37/64	2 57/64	3 1/8	3 37/64	4 9/64			
	B		3 5/8	4 1/4	5	5 5/8	6 3/8	7 3/16			
	C		1 15/32	1 51/64	2 11/64	2 9/16	3 1/32	3 11/16			
	D		1 5/8	1 37/64	1 57/64	2 1/8	2 37/64	2 57/64			
	E MIN.		3/8	1/2	1/2	1/2	1/2	5/8			
	F		0.855	1.065	1.330	1.675	1.915	2.406			
	WEIGHT		1.95	2.84	3.96		7.00	14.16			

Note:
1. Seating characteristics of MSS SP-83 unions.
2. The "B" dimension is the diameter across the lugs of the union nut.
3. Twin lug design offered in sizes up to 3/4" Class 3000 & 1/2" Class 6000
4. Tri-Lug design offered in sizes from 1" to 3" Class 3000 & 3/4" to 2" Class 6000.
5. Quad-Lug design offered in 4" Class 3000.

Technical Information

BONNEY FORGE

Pipe Schedule – Equivalency

Pressure Ratings for Bonney Forge Forged Steel Fittings comply with ASME B16.11. The allowable pressure rating for fittings are equivalent to the pressure ratings of the corresponding pipe listed in the table below. The fitting is suitable for the application if the application pipe nominal wall thickness is less than or equal to the nominal thickness of the Schedule No. / Wall Designation listed below.

FITTING CLASS	FITTING CONNECTION	PIPE EQUIVALENT	
		Schedule No.	Wall Designation
2000	Threaded	Sch. 80	XS
3000	Threaded	Sch. 160	-
6000	Threaded	-	XXS
3000	Socket-Weld	Sch. 80	XS
6000	Socket-Weld	Sch. 160	-
9000	Socket-Weld	-	XXS

Pipe Pressure Calculations

ASME B31.1 – 2012	ASME B31.3 - 2012
$P = \frac{2\,SE\,(t_m - A)}{D_o - 2y\,(t_m - A)}$	$t = \frac{PD}{2\,(SEW + PY)}$ or $P = \frac{2\,(SEW + PY)}{D - 2tY}$
P = Pressure Rating	P = Pressure Rating
SE = Allowable Stress (@temperature)	D = Outer Diameter of Pipe
tm = Wall Thickness	S = Allowable Stress (@ Temperature): Table A-1
A = Corrosion Allowance (Typically = 0)	E = Quality Factor: Table A-1A or A-1B
Do = Outer Diameter of Pipe	W = Weld Joint Strength Reduction Factor: Para. 302.3.5(e) (Typically = 1.0)
Y = Table 104.1.2 (A) of ASME B31.1 (0.4 if temperature is less than 900°F)	t = Pipe Wall Thickness
	Y = Table 304.1.1 or Intermediate Temperature Interpolations (Below Equation) $Y = \frac{d + 2c}{D + d + 2c}$
	D = Outer Diameter of Pipe
	d = Inside Diameter of Pipe
	c = Sum of Mechanical Allowances plus Corrosion and Erosion Allowances. Threads: Dimension h of ASME B1.20. Machined Surfaces or Grooves: Specified Tolerance (or 0.02" plus Specified Depth of Cut; when tolerance is not specified)

Notes

BONNEY FORGE

Notes

BONNEY FORGE

Notes

BONNEY FORGE

GENERAL TERMS AND CONDITIONS OF SALE OF: BONNEY FORGE (HEREAFTER REFERRED TO AS "BF")

WARRANTY	All products are warranted to be free from manufacturing defects for a period of one (1) year from date of shipment, and any found to be defective within that period will be replaced without charge, provided (1) that the product was used as recommended and in accordance with approved installation and operating practices, (2) that its failure resulted from a manufacturing defect and not from damage due to corrosive, abrasive, or other wear normally to be expected in the services involved, (3) that the product was not modified or changed (unless written approval was given by BF), and (4) that written notice of such defect is delivered to BF during such one (1) year period. No labor costs or other expense or liability is assumed. The Uniform Commercial Code shall not apply to the sale, nor the Michigan statutes adopting the Uniform Commercial Code. This express warranty is in lieu of and excludes all other warranties, guarantees, or representations, expressed or implied. THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.
EXCLUSIONS	Do not use BF products in aircraft or aerospace applications. No warranties, guarantees or representations of any kind are made with respect to such applications. Purchaser assumes all risks of any use in such applications and will indemnify and hold harmless BF against and from any claims, costs (including attorney's fees) and liabilities arising out of such use.
PURCHASER'S REMEDIES	The Purchaser's remedies with respect to any product furnished by BF hereunder that is found not to be in conformity with the terms and conditions of the contract because of breach of contract, breach of express or implied warranty, or negligence shall be limited exclusively to the right of replacement of such defective product or, at our option, repayment of our sale price of the product. In no event shall BF be liable for claims (based upon breach of contract, breach of express or implied warranty, or negligence) for any other damages, whether direct, immediate, foreseeable, consequential, or special or for any expenses incurred by reason of the use or misuse, sale or fabrication of products which do or do not conform to the terms and conditions of the contract.
PRICES	Prices, and other terms of sale and payment, are subject to change without notice. Unless a contrary provision appears in this price schedule, quotation or order acknowledgment, prices may be withdrawn without notice at any time. Stenographic or clerical errors are subject to correction.
ACCEPTANCE OF ORDERS	All orders are subject to BF credit department approval prior to acceptance by BF. No assignment of the Purchaser's rights may be made without the written consent of BF.
REMITTANCES	All accounts are payable in United States funds, free of exchange, collection, or any other charges. If, in the sole discretion of BF, the financial condition of the Purchaser at any time so requires, BF retains the right to require full or partial payment in advance.
PARTIAL SHIPMENTS AND PAYMENTS	BF reserves the right to make partial shipments from time to time, and to render invoices therefore, which shall be due and payable as provided in said invoices and the paragraph entitled "Remittances". If the Purchaser becomes overdue in any such partial payment, BF shall be entitled to suspend work and/or avail itself of other legal remedies.
TAXES	Unless otherwise specifically noted, the amount of any sale, use, occupancy, excise tax, or other tax, of any nature, federal, state, or local for which BF is legally liable, either initially or through failure of payment by Purchaser, shall be added or be in addition to the price quoted and Purchaser agrees to pay the same to BF.
SHORTAGES & DAMAGES IN TRANSIT	Claims for shortages must be made in writing within ten days after receipt of shipment, but loss of or damage to material in transit is the responsibility of the carrier.
DELAYS	All promises of shipment are estimated as closely as possible, and we will use our best efforts to ship within the time promised but do not guarantee to do so, and assume no liability for not doing so. Materials stated to be in stock are subject to prior sale.
CANCELLATION & SUSPENSION	The order or contract is subject to cancellation or instructions to suspend or delay work or delivery only upon receipt of written notification and with our consent, and upon agreement to pay BF's adjustment charge. Orders for special products (usually "price on application" items) may be changed and/or cancelled only upon receipt of written instructions with an expressed agreement to make payment for material used and work already performed.
RETURN OF MATERIAL	No product of our manufacture may be returned without written consent. All goods returned are subject to a handling charge plus freight in both directions and charges for any required reconditioning, unless otherwise specified in writing by BF.
PATENTS	Purchaser will indemnify and hold harmless BF against and from any claims, costs (including attorney's fees) and liabilities arising out of any suit alleging infringement of any patents, by any product supplied by BF under the contract and made in accordance with the design and/or specification furnished by the Purchaser to BF.
GOVERNING LAW	The contract shall be governed by, construed, and enforced in accordance with the laws of the Commonwealth of Pennsylvania, without regard to conflict of law principles.
NO WAIVER	The failure of BF to insist, in any one or more instances upon the performance of any of the terms, covenants, or conditions of the contract or to exercise any right thereunder shall not be construed as a waiver or relinquishment of the future performance of any such term, covenant, or condition or the future exercise of such rights, nor shall it be deemed to be a waiver or relinquishment of any other term, covenant, or condition or the exercise of any other rights under the contract.
DIES, TOOLS AND PATTERNS	Dies, tools and patterns required to produce the article quoted on shall remain the property of BF. Preparation charges for dies, tools and patterns represent only a portion of cost. Payment of such charge does not give you any right, title, or interest in such dies, tools, or other products of preparation. We will not be responsible for retention of dies or patterns on which no orders are received for two years or more.
FORCE MAJEURE	Any delays in or failure of performance of BF shall not constitute default or give rise to any claims or damages if and to the extent that such delay or failure is caused by occurrences beyond the control of BF, including but not limited to acts of God or the public enemy, expropriation or confiscation of facilities, compliance with any order or request of any governmental authority, acts of war, rebellion or sabotage or damage resulting therefrom, embargoes or other export restrictions, fires, floods, explosions, accidents, breakdowns, riots or strikes or other conceived acts of workmen, whether direct or indirect, or any other causes whether or not of the same class or kind as those specifically above named which are not within the control of BF and which by the exercise of reasonable diligence, BF is unable to prevent or provide against.
PURCHASER'S ACCEPTANCE OF ABOVE CONDITIONS	The contract shall be subject to the terms and conditions contained or referred to in BF's price schedule, quotation or order acknowledgment and to no others whatsoever. No waiver, alteration, or modification of the terms and conditions in this price schedule, quotation or order acknowledgment shall be binding unless in writing and signed by an authorized representative of BF.

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