SUBMITTAL DATA

Rev. 11/01/10

ASTM A53 TYPE F GRADE A PIPE

SCOPE

Covers black and hot-dipped galvanized furnace-butt welded (continuous welded) Grade A pipe. Pipe is intended for mechanical and pressure applications and is acceptable for ordinary uses in steam, water, gas and air lines. l ASTM A53 is UL Listed and FM Approved, sizes 1" through 6" nominal, for use in Fire Sprinkler Pipe Applications. Pipe is suitable for welding, threading, grooving and bending. Pipe is not intended for flanging. Produced to ASTM A53/A53M latest revision.

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 which causes zinc coating to stretch or compress beyond the limit of elasticity, some flaking of the coating may occur.

HYDROSTATIC TESTING

Hydrostatic test pressures for plain-end pipe are indicated below.

NPS	Standard Weight - PSI	Extra Strong Weight - PSI
1/2 through 1	1500	1500
1-1/4 - 1-1/2	2000	2000
2 through 3	2500	2500
3 ½ - 4	2800	2800

END FINISH

Plain End:

NPS 1-1/2 and smaller: unless otherwise specified on order, end finish shall be at the option of the manufacturer.

NPS 2 and larger: STD and Sch 80 weights: ends beveled to angle of 30^0, $+5^0$, -0^0 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, max. %

Carbon	Manganese	Phosphorus	Sulfur
.30	1.20	.05	.045

*Copper	*Nickel	*Chromium	*Molybdenum	*Vanadium
.40	.40	.40	.15	.08

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

TENSILE REQUIREMENTS

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) FOR NPS 2 and UNDER:

	Degree of Bend	Diameter of Mandrel
Standard	90^0	12 x outside pipe diameter
Close Coiling	90^0	8 x outside pipe diameter

FLATTENING TEST - NPS 2-1/2 and Greater

As a test for quality of the weld, position the weld at 90^0 from the direction of force and flatten until the OD is 3/4 of the original outside diameter. No cracks shall occur along the inside or outside surface of the weld.

DIMENSIONS and WEIGHTS

BLACK PLAIN END

Nominal Size	OD Inches	Sch. 40		Sch. 80	
		Wall Inches	Weight Lb./Ft.	Wall Inches	Weight Lb./Ft.
1/2"	.840	.109	.85	.147	1.09
3/4"	1.050	.113	1.13	.154	1.48
1"	1.315	.133	1.68	.179	2.17
1-1/4"	1.660	.140	2.27	.191	3.00
1-1/2"	1.900	.145	2.72	.200	3.63
2"	2.375	.154	3.66	.218	5.03
2-1/2"	2.875	.203	5.80	.276	7.67
3"	3.500	.216	7.58	.300	10.26
3-1/2"	4.000	.226	9.12	.318	12.52
4"	4.500	.237	10.80	.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	1-1/2 and under	+/- .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 1/2 NPS 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 (Sch 80 for extra strong), and length. Stencil markings indicate UL Listing and FM Approval for sizes 1" through 6" nominal for use in Fire Sprinkler Pipe Applications. Bar Coding is acceptable as a supplementary identification method.

Even with all the advances in technology today, the wholly welded piping system has for decades remained the best choice for use in high pressure and high temperature application. Many piping jobs in schools, industrial plants, refineries and factories have benefited from the inherent advantages of a completely welded system. It becomes a closed container joining pipes, valves, fittings, and flanges. A welded joint actually becomes part of the pipe, minimizing leak potential. This provides greater margins of safety, especially under conditions of high internal pressures. Additionally, welding fittings form a continuous metal structure with the pipe, adding forged-in strength to any piping system. Furthermore, smooth forged fittings simplify insulation and take up less space.

ASTM A 234

Scope

This standard covers wrought carbon steel fittings of seamless and welded construction which are manufactured to the dimensional specifications of ASME B16.9 and B16.28. These fittings are primarily for use in pressure piping and in pressure vessel fabrication for service at moderate and elevated temperatures.

Materials

The starting material for fittings shall consist of killed steel, forgings, bars, plates, seamless or fusion-welded tubular products with filler metal added and shall conform to the the chemical requirements of ASTM A 234. Unless otherwise specified, carbon steel plates may be either coarse grain or fine grain practice.

Manufacture

Forging or shaping operations are performed by hammering, pressing, piercing, extruding, upsetting, rolling, bending, machining, or by a combination of two or more of these operations. The forming process shall be applied so that it will not produce injurious imperfections in the fittings.

Heat Treatment

Hot-formed WPB fittings, upon which the final forming operation is completed at a temperature above 1150°F and below 1800°F, need not be heat treated. Cold-Formed WPB fittings, upon which the final forming operation is completed at a temperature below 1150°F, shall be normalized, or shall be stress relieved at 1100°F to 1275°F.

IMORT MATERIAL

Fitting Summary Data Sheet

Chemical requirements (in %):

Carbon	Manganese	Phosphorus (max)	Sulfur (max)
.30 max	.29-1.06	.050	.058

Silicon	Chromium	Molybdenum	Nickel	Copper
.10 min	.40 max	.15 max	.40 max	.40 max

Vanadium	Columbium
.08 max	.02 max

Mechanical requirements:

Tensile Strength		60,000-85,000 psi
Yield Strength (min)		35,000 psi
Elongation	- Longitudinal:	22%
	- Transverse:	14%

Dimensions

Butt-welding fittings and butt-welding short radius elbows and returns purchased in accordance with this specification shall conform to the dimensions and tolerances given in the latest revision of ANSI B16.9 and B16.28, respectively.

Certification

When requested by the purchaser, the manufacturer shall provide a certificate of compliance to this specification. If requested to provide test reports, the manufacturer shall also provide the following where applicable:

* Chemical analysis results. When the amount of an element is less than .02%, the analysis for that element is reported as "<0.02%."
* Tensile property results, report the yield strength and ultimate strength in ksi [or MPa] and elongation in percent,
* Hardness acceptable in accordance with Section 10 of ASTM A-234,
* Seamless or Welded,
* Type of Heat Treatment, if any,
* Starting material, specifically pipe, plate, etc.,
* Statement regarding radiographic or ultrasonic examination.
* Any supplemental testing required by the purchase order.

Product Marking

All fittings shall have the prescribed information stamped or otherwise suitable marked on each fitting in accordance with ASTM A 234/MSS SP-25. A Weldbend fitting is marked as follows: Weldbend's Name, Nominal Pipe Size, Pipe Wall Thickness Designation, Material Grade (WPB/WPC) and Heat Identification Number.

Note: All information contained in this document, and for a complete description of all requirements, refer to ASTM A 105. Sheets are subject to change without notice.

Flange Summary Data Sheet

Even with all the advances in technology today, the wholly welded piping system has for decades remained the best choice for use in high pressure and high temperature application. Many piping jobs in schools, industrial plants, refineries, and factories have benefited from the inherent advantages of a completely welded system. It becomes a closed container joining pipes, valves, fittings, and flanges. A welded joint actually becomes part of the pipe, minimizing leak potential. This provides greater margins of safety, especially under conditions of high internal pressures. Additionally, welding fittings form a continuous metal structure with the pipe, adding forged-in strength to any piping system. Furthermore, smooth forged flanges simplify insulation and take up less space.

ASTM A 105

Scope

This standard covers forged carbon steel piping components for ambient- and higher-temperature service in pressure systems. Flanges are ordered either to dimensions specified by the purchaser or to dimensional specifications such as ASME 16.5 and API 6A. Forgings made to ASTM A 105 are normally limited to a maximum weight of 10,000 lb.

Materials

flanges are made by hammering, pressing, rolling and/or machining cast or forged bars, billets or slabs. These adhere to the extent described in the following sections.

Manufacture

ASTM A 105 covers the requirements for forged steel components as finished products only.
The requirements for raw materials are covered by the standards specified in Section 2: Referenced Documents of ASTM A 105.

Heat Treatment

Heat treatment is not a mandatory requirement of this specification except for the following piping components:
* Flanges above Class 300,
* Flanges of special design where the design pressure at the design temperature exceeds the pressure-temperature ratings of Class 300, Group 1.1,
* Flanges of special design where the design pressure or design temperature is not known.

Heat treatment, when required by the above, shall be annealing, normalizing, normalizing and tempering, or quenching and tempering in accordance with ASTM A 961.

Chemical requirements (in %):

Carbon	Manganese	Phosphorus (max)	Sulfur (max)
.35 max	.60-1.05	.035	.040

Silicon	Copper	Nickel	Chromium
.10-.35	.40 max	.40 max	.30 max

Molybdenum	Vanadium	Columbium
.12 max	.08 max	.02 max

Mechanical requirements:

Tensile Strength (min)	70,000 psi
Yield Strength (min)	36,000 psi
Basic minimum elongation for walls 5/16 in. and over in thickness, strip tests.	30%
Reduction of area (min)	30%
Hardness, HB (max)	187

Dimensions

flanges are manufactured in accordance with ASME B 16.5 (24" NPS and smaller) and ASME B 16.47 (26" - 60" NPS).

Certification

For forgings made to specified dimensions agreed upon by the purchaser, and for forgings made to dimensional standards, the application of identification marks, as required by ASTM A 961, shall be the certification that the forgings have been furnished in accordance with the requirements of this standard. The specification designation included on test reports shall include the year of issue and revision letter, if any.
Test Reports: When test reports are required, [illegible] will also provide the following, if applicable:
*Type of heat treatment,
*Tensile property results, i.e., yield strength and ultimate strength in ksi, elongation and reduction in area, in percent,
*Chemical analysis results,
*Hardness results, and,
*Any supplementary testing required by the purchase order.

Product Marking

All flanges shall have the prescribed information stamped or otherwise suitable marked on each flange in accordance with the Standard/MSS SP-25. A Weldbend flange is marked as follows:

, Nominal Pipe Size, A105/SA105, Bore Designation, Heat Identification Number and manufacture date.

Note: All information contained in this document, and for a complete description of all requirements, refer to ASTM A 105. Sheets are subject to change without notice.

MALLEABLE IRON FITTINGS

ANVIL® INTERNATIONAL

COLUMBIA PLANT

1411 Lancaster Avenue
Columbia, PA 17512-1900
Telephone: 717-684-4400
Fax: 717-684-6868
ISO 9001:2008 Certified Facility

CERTIFICATE OF COMPLIANCE
MALLEABLE IRON PRODUCTS

This is to certify that the Malleable Iron Fittings and Bushings manufactured by Anvil International, Columbia, PA, U.S.A., comply with the following specifications:

Dimensions	
• **Fittings**	**ASME / ANSI B16.3**
• **Bushings/Plugs**	**ASME / ANSI B16.14**
Material	**ASTM A-197**
Galvanizing	**ASTM A-153**
Threads	**ANSI / ASME B.1.20.1**
Pressure Rating	
• **Fittings**	**ANSI / ASME B16.3**
• **Bushings/Plugs**	**ANSI / ASME B16.14**

NOTE: Anvil malleable iron fittings are UL/ULC listed.
All pressure fittings, bushings and plugs are FM approved.

Certified for and on behalf of Anvil International - Columbia Plant.

Frank DeSolis
Quality Manager

February 10, 2012

Brass Ball Valves

BALL VALVES

Two-Piece Body • Full Port • Blowout-Proof Stem • PTFE Seats

¼"-2" 600 PSI/41.4 Bar Non-Shock Cold Working Pressure
2½"-4" 400 PSI/27.6 Bar Non-Shock Cold Working Pressure
150 PSI/10.3 Bar Saturated Steam

CSA CERTIFIED TO ASME B16.44
AND CR91-002 (THREADED ¼"-4") • UL LISTED (THREADED ¼"-4")
• FM APPROVED (THREADED ¼"-2")

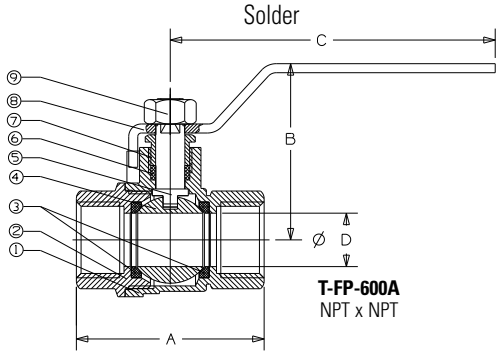
Threaded
CSA (¼" - 4"):
- CR91-002: ½ psig, 2 psig, and 5 psig (these are specific approved categories)
- ASME B13.44: 125 psig (maximum)
- Temperature is -4° F to 194° F

Threaded
FM (1/4" - 2"):
- 175wwp Threaded

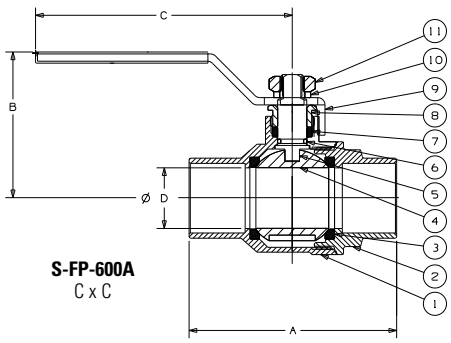
UL, Gas and Oil (¼" - 4"):
- YQNZ, Compressed Gas Shutoff Valves: 250 psi
- YRBX, Flammable Liquid Shutoff Valves: 250 psi
- YRPV, Gas Shutoff Valves: 250 psi
- YSDT, LP-Gas Shutoff Valves: 250 psi
- MHKZ, Manual Valves: 250 psi

T-FP-600A
Threaded

S-FP-600A
Solder



T-FP-600A
NPT x NPT



S-FP-600A
C x C

MATERIAL LIST

PART		SPECIFICATION
1.	Body	Forged Brass[2] CU > 57%
2.	End Cap	Forged Brass[2] CU > 57%
3.	Ball Seat	PTFE
4.	Ball	Brass, Chrome Plated
5.	Stem	Brass
6.	O-Ring (Stem Seal)*	Fluorocarbon (FKM)
7.	Stem Packing	PTFE
8.	Packing Nut	Brass
9.	Lever Handle[1]	Steel, Plated
10.	Lock Washer*	Stainless Steel
11.	Handle Nut[1]	Stainless Steel

Note: * Parts 6 and 10 are applicable of S-FP-600A only.
[1] Due to Standard Approvals, Lever Handles and Nuts are not interchangeable between Solder and Threaded.
[2] For Material Certification, contact NIBCO Technical Services.

DIMENSIONS—WEIGHTS—QUANTITIES

Size		Dimensions T-FP-600A A		S-FP-600A A		T-FP-600A B		S-FP-600A B		T-FP-600A C		S-FP-600A C		Port D		T-FP-600A		S-FP-600A		T-FP-600A	S-FP-600N
In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	Lbs.	Kg.	Lbs.	Kg.	Ctn. Qty.	Ctn. Qty.
¼	8	1.76	45	—	—	1.73	44	—	—	3.54	90	—	—	.39	10	.33	.15	—	—	18	—
⅜	10	1.76	45	1.75	44	1.73	44	1.58	40	3.54	90	3.78	96	.39	10	.30	.14	.38	.17	18	18
½	15	2.05	52	2.01	51	1.92	49	1.78	45	3.54	90	3.78	96	.59	15	.44	.20	.40	.18	18	18
¾	20	2.36	60	2.74	70	2.09	53	2.13	54	3.78	96	3.98	101	.75	19	.66	.30	.67	.30	12	12
1	25	2.76	70	3.35	85	2.56	65	2.52	64	4.53	115	4.41	112	.98	25	1.10	.50	1.12	.51	6	6
1¼	32	3.31	84	3.78	96	2.95	75	2.65	67	4.53	115	5.04	128	1.26	32	1.57	.71	1.49	.67	4	4
1½	40	3.66	93	4.42	112	3.35	85	3.12	79	5.51	140	6.22	158	1.57	40	2.40	1.09	2.38	1.08	2	2
2	50	4.18	106	5.34	136	3.68	93	3.41	87	5.51	140	6.22	158	1.97	50	3.37	1.53	3.62	1.64	2	2
2½	65	5.38	137	6.28	160	4.76	121	4.76	121	8.66	220	8.66	220	2.56	65	7.60	3.45	6.36	2.88	3	3
3	75	6.04	153	7.15	182	5.08	129	5.08	129	8.66	220	8.66	220	2.95	75	9.36	4.24	8.32	3.77	2	2
4	100	7.39	188	—	—	5.87	149	—	—	9.61	244	—	—	3.89	99	16.85	7.64	—	—	1	—

USE IN U.S. POTABLE DRINKING WATER APPLICATIONS IS PROHIBITED AFTER JANUARY 3, 2014

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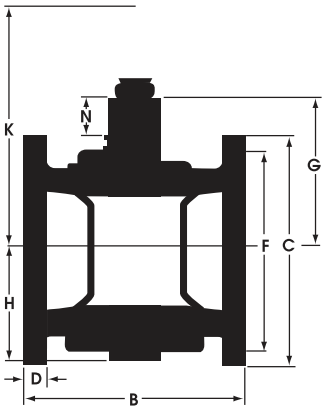
www.nibco.com

Available in certain sizes upon request

Materials of Construction

PLUG VALVES

Body: ASTM A 126 Class B
Plug: ASTM A 126 Class B
Baseplate: ASTM A 126 Class B
Baseplate Spring: Stainless Steel 17-7
Sealant Screw: Commercial Steel
Double Ball Check Valve: Commercial Steel
Gasket: Glass Filled TFE
Body Sealant Fitting: Commercial Steel (8", 10" and 12" only)



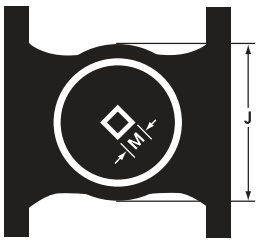


Fig. R-1431
Wrench-Operated

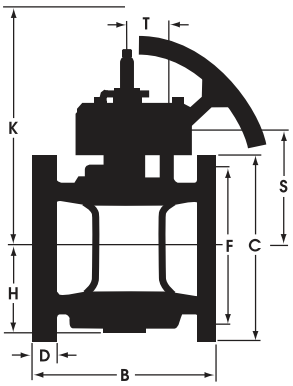
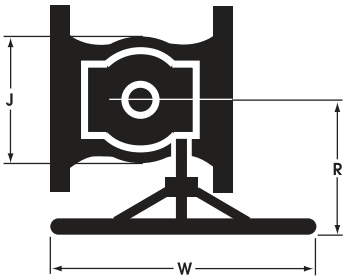


Fig. R-1431 WGA
Worm Gear-Operated



Rectangular Port, Regular Opening Valves R-1431 Dimensions

DESCRIPTION		BOTTOM ENTRY											
SIZE (Inches)		1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12
B	Face-to-Face Flanged	5 1/2	6	6 1/2	7	7 1/2	8	9	10	10 1/2	11 1/2	13	14
H	Center of Port to Bottom of Valve	1 7/8	2 5/8	2 3/8	2 5/8	3 1/8	3 1/4	4 1/4	5 1/8	5 1/8	6 1/8	7 5/8	9 3/4
J	Extreme Width of Body	2 1/2	3 7/8	3	4	4 3/4	5 1/2	6 7/8	7 1/2	7 1/2	10	12	13 1/2
L	Diameter of Sealant Stick	3/8	3/8	3/8	3/8	3/8	3/8	5/8	5/8	5/8	5/8	5/8	5/8
FLANGE DATA													
C	Diameter of Flanges	4 1/4	4 5/8	5	6	7	7 1/2	9	10	11	13 1/2	16	19
D	Thickness of Flanges	7/16	1/2	9/16	5/8	11/16	3/4	15/16	15/16	1	1 1/8	1 3/16	1 1/4
E	No. and Size of Bolts	4-1/2	4-1/2	4-1/2	4-5/8	4-5/8	4-5/8	8-5/8	8-3/4	8-3/4	8-3/4	12-7/8	12-7/8
F	Diameter of Bolt Circle	3 1/8	3 1/2	3 7/8	4 3/4	5 1/2	6	7 1/2	8 1/2	9 1/2	11 3/4	14 1/4	17
STEM DATA													
G	Center of Port to Top of Stem	3 5/8	3 7/8	3 5/8	3 7/8	5	5 1/4	6 5/8	7 1/2	7 1/2	8 1/2	10 3/4	13 1/4
K	Clearance to Remove Lubricant Screw	5 7/8	6 1/8	5 3/4	6 1/8	7 1/4	7 1/2	10 1/8	10 7/8	10 7/8	11 7/8	14 1/8	16 5/8
M	Width of Square of Stem	15/16	15/16	15/16	15/16	1 1/4	1 1/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	2
N	Height of Square of Stem	1 3/8	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	1 7/8	1 7/8	1 7/8	1 7/8	2 1/8	2 3/8
	Wrench	A	A	A	A	C	C	F	H-24	H-24	H-30	H-36	K-36
	Wt. (lb.)	6	10	10	20	28	38	66	87	96	158	248	387
WORM GEAR-OPERATED													
K	Clearance to Remove Lubricant Screw							13 7/8	13	13	14	16 1/4	18 3/4
R	Center of Port to Handwheel Face							8	11	11	11	12 1/4	12 3/4
S	Center of Port to Center of WGA Shaft							6 1/4	7	7	7 15/16	10 3/8	13 5/4
T	Center of Plug Stem to Center of WGA Shaft							2 9/16	2 9/16	2 9/16	2 9/16	3 1/8	4 7/8
W	Diameter of WGA Handwheel							12	12	12	12	16	16

Flanges are drilled to ANSI B.16.1 Class 125 Cast Iron Flange Standard. Bolt holes are drilled 1/8" larger than bolts.

THREAD O LETS

Commanding a Higher Standard SM

THE PHOENIX FORGE GROUP

1020 MACARTHUR ROAD, READING, PA 19605-9404
(610) 374-3117 • FAX: (610) 374-5211
www.phoenixforge.com

PRODUCT SPECIFICATION BULLETIN

CERTIFICATE of COMPLIANCE

TRANS-O-CON® BRANCH CONNECTIONS

We hereby certify that the TRANS-0-CON® forged branch connections manufactured by Phoenix Forging Company conform to the requirements of the latest edition of MSS SP-97. These products conform to the applicable metallurgical and hardness requirements of NACE MR0175, NACE MR0103, and ISO 15156 and do not exceed a Rockwell hardness of C-22 or a Brinnell hardness of 187 HBW maximum.

We further certify that these branch connections fully conform to the chemical and mechanical requirements of the latest edition of ASTM/ASME A105/SA105. Mill test reports are retained at Phoenix Forging Company and are available upon request. These products conform to the applicable requirements of CSA-51, ASME B31.1, B31.3, and ASME Section VIII, Division 1 Boiler and Pressure Vessel Codes.

These branch connections are capable of passing a hydrostatic test compatible with the rate of the finished forging. The ends of all butt weld branch connections conform to the latest edition of ASME B16.9. The threads of all threaded branch connections conform to the latest edition of ASME B1.20.1. The socket weld ends of all socket-welding branch connections conform to the latest edition of ASME B16.11.

In addition, we certify that the Phoenix Forging Company branch connections are manufactured and inspected in the United States of America. This certification of compliance conforms to requirements of DIN 50.049 3.1.B. All measuring and test equipment used for acceptance of these products fully conform to specified requirements and have been calibrated in accordance with MIL-STD-45662, ANSI/NCSL Z540-1-1994, and ISO 10012-1.

These products are produced in accordance with the Phoenix Forging Company ISO 9001:2008 Certified Quality System Program. These products are inspected by independent quality control personnel conforming to the requirements of EN 10204 Section 3.1B. These products were not exposed to mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Bulletin: B-20.00 Rev. 3 Date: 08/01/11 Approved: Guy Cuccio Title: Technical Services Mgr.

Commanding a Higher Standard SM

THE PHOENIX FORGE GROUP

1020 MACARTHUR ROAD, READING, PA 19605-9404
(610) 374-3117 • FAX: (610) 374-5211
www.phoenixforge.com

PRODUCT SPECIFICATION BULLETIN

CERTIFICATE of COMPLIANCE

PIPE NIPPLES – CARBON STEEL ASTM A53 WELDED

We hereby certify that the black and galvanized welded pipe nipples, supplied by Capitol Manufacturing and CapProducts Ltd. conform to the dimensional requirements of ASTM A733. The raw material used to produce these nipples conforms to the chemical and mechanical requirements of ASTM A53 Type E or F requirements. These products conform to the applicable requirements of CSA-51, ASME B31.1, B31.3, and ASME Section VIII, Division 1 Boiler and Pressure Vessel Codes.

The threads of these nipples are manufactured in accordance with the ANSI/ASME B1.20.1 pipe thread standard. These pipe nipples are cleaned and coated with a water-soluble rust inhibitor. In addition, we certify that Capitol Manufacturing or CapProducts Ltd. brand carbon steel welded pipe nipples are respectively manufactured and inspected in the United States of America or Canada.

These products are produced in accordance with the Capitol Manufacturing or CapProducts Ltd. ISO 9001:2008 Certified Quality System Program. These products are inspected by independent quality control personnel conforming to the requirements of EN 10204 Section 3.1B. These products were not exposed to mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

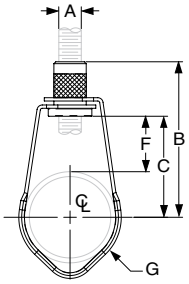
Fig. 69 Adjustable Swivel Ring, Tapped Per NFPA Standards

Size Range: 1/2" through 8"
Material: Carbon steel
Finish: Strap is Pre-Galvanized Zinc Material. Nut is Zinc Plated.
Service: Recommended for suspension of non-insulated **stationary** pipe line.
Maximum Temperature: 450° F
Approvals: Complies with Federal Specification A-A-1192A (Type 10), *WW-H-171-E (Type 10)*, and ANSI/MSS SP-58 (Type 10). UL Listed and FM Approved (Sizes 3/4" - 8").
Features:

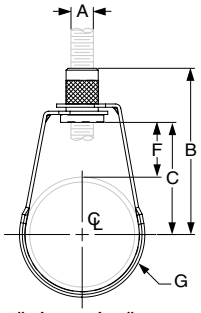
- 1/2" - 2" sizes designed for use with steel and CPVC piping and manufactured with FBC System Compatible oil.
- Threads are countersunk so that they cannot become burred or damaged.
- Knurled swivel nut provides vertical adjustment after piping is in place.
- Captured swivel nut in the 1/2" through 6" sizes. The capture is permanent in the bottom portion of the band, allowing the hanger to be opened during installation if desired, but not allowing the nut to fall completely out.

Ordering: Specify size, figure number and name.
Non-captured nut also available upon request.

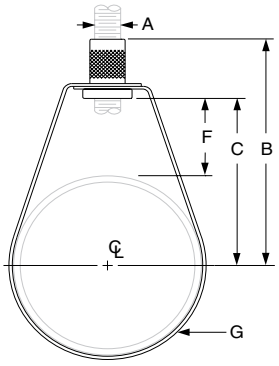
1/2" through 2" Size
Rounded Edge Design



1/2" through 1" pipe



1 1/4" through 2" pipe



2 1/2" through 8" pipe

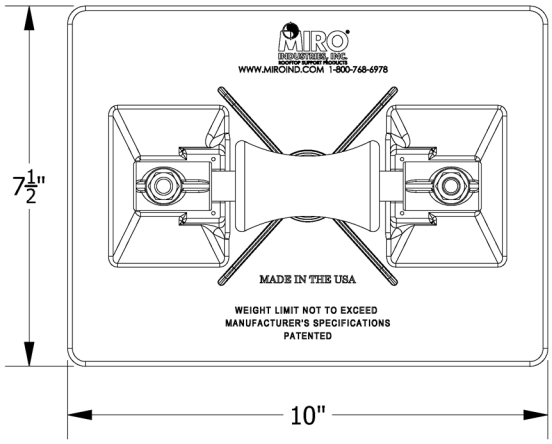
c UL us LISTED FM APPROVED

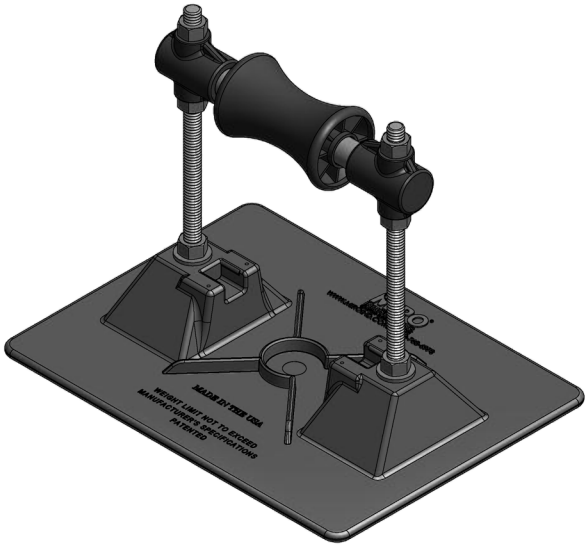
2 1/2" through 8" Size

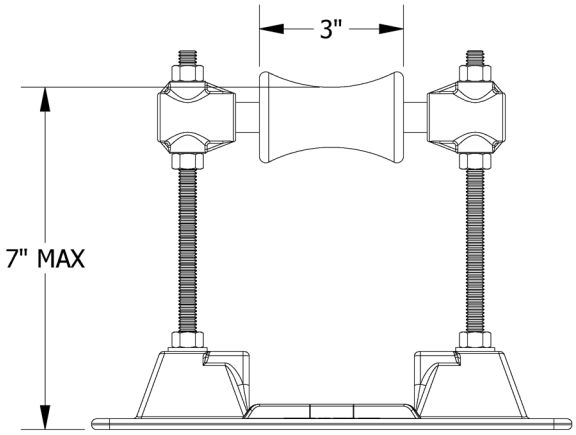
FIG. 69: LOADS (LBS) • WEIGHT (LBS) • DIMENSIONS (IN)

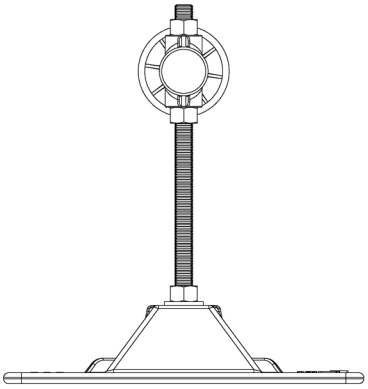
Pipe Size	Max Load	Weight	Rod Size A	B	C	F	G Width
1/2	300	0.10	3/8	2 7/8	2	1 9/16	5/8
3/4		0.10		2 3/4	1 7/8	1 5/16	
1		0.10		2 9/16	1 11/16	1	
1 1/4		0.10		2 5/8	1 3/4	7/8	
1 1/2		0.10		2 3/4	1 7/8		
2		0.11		3 1/4	2 3/8	1 1/8	
2 1/2	525	0.20		4	2 3/4	1 5/16	3/4
3		0.20		3 13/16	2 15/16	1 3/16	
4	650	0.30		4 11/16	3 13/16	1 9/16	
5	1,000	0.54	1/2	5 5/16	4 3/8		
6		0.65		6 11/16	5 9/16	2 1/4	
8		1.00		8 9/16	7 9/16	3 1/4	

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









Model 3-RAH-7

Model: 11M

Cast Iron Screwed End Y Strainers
Sizes: ¼"- 4" (6-100mm)

Pressure/Temperature–Non-Shock		
Model	**Material**	**Rating**
11M	Cast Iron	400psi @ -20°F to 150°F 27.58 bar @ 65.56°C 250psi @ 406°F 17.24 bar @ 207.78°C

11M **Class 250**

Model 11M

Typical Service
- Used extensively to strain foreign matter from pipe lines and provide economical protection for costly pumps, meters, valves and other similar mechanical equipment.

Features
- Machined seats in both body and cap align and lock the screen in place to stop sediment bypass.

Construction
- Gasketed cap is used for easy disassembly and assembly. Many others use Loctite, rendering disassembly virtually impossible.

Self-Cleaning
- Self cleaning is accomplished by opening the plug or valve connected to the blowoff outlet.

Blowoff Outlets
- Outlets are NPT Tapped
- Sizes of tapping specified on the next page.
- Not normally furnished with plug. Plug available, specify with order.

Capacity
- Generously proportioned bodies
- Open Area Ratio much greater than pipe size, ensure low pressure loss.

Screens

		STANDARD (WATER)		STEAM RECOMMENDATION	
MODEL	**SIZES**	**MATERIAL**	**OPENING**	**MATERIAL**	**OPENING**
11M	½" - 2"	304SS	20 mesh	304SS	30 mesh
11M	2½"- 4"	304SS	.062 perf	304SS	.045 perf

Pressure Drop
Pressure Drop Charts in Technical Data section of Mueller Steam Specialty Engineering binder.

Material

	11M
Body	Cast Iron ASTM A126-B
Gasket	Metal filled Graphite

Job Name _____ Contractor _____

Job Location _____ Approval _____

Engineer _____ Contractor's P.O. No. _____

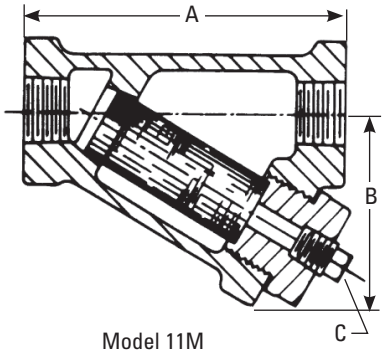
Approval _____ Representative _____

Mueller Steam Specialty™

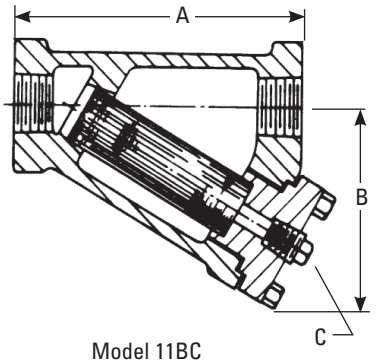
Dimensions and Weights

SIZE		DIMENSIONS						WEIGHTS	
		A		B		C			
in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.
¼	6	3 3/16	81	2 1/16	52	¼	6	1.6	0.7
⅜	10	3 3/16	81	2 1/16	52	¼	6	1.6	0.7
½	15	3 3/16	81	2 1/16	52	¼	6	1.6	0.7
¾	20	3¾	95	2 7/16	61	⅜	10	2.4	1.1
1	25	4	102	2⅝	66	⅜	10	3.0	1.4
1¼	32	5	127	3⅜	85	¾	20	5.2	2.3
1½	40	5¾	146	3⅞	98	¾	20	8.0	3.6
2	50	7	177	4¾	121	1	25	12.5	5.7
2½	65	9¼	234	5⅞	149	1½	40	22.0	10.0
3	80	10	254	6	152	1½	40	30.0	13.6
4	100	15 3/16	386	11¼	286	1½	40	70.0	32.0

Apply For Certified Drawings.



Model 11M



Model 11BC

Mueller Steam Specialty product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Mueller Steam Specialty Technical Service. Mueller Steam Specialty reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Mueller Steam Specialty products previously or subsequently sold.

Mueller Steam Specialty™

ISO 9001-2008 CERTIFIED

A Watts Water Technologies Company

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