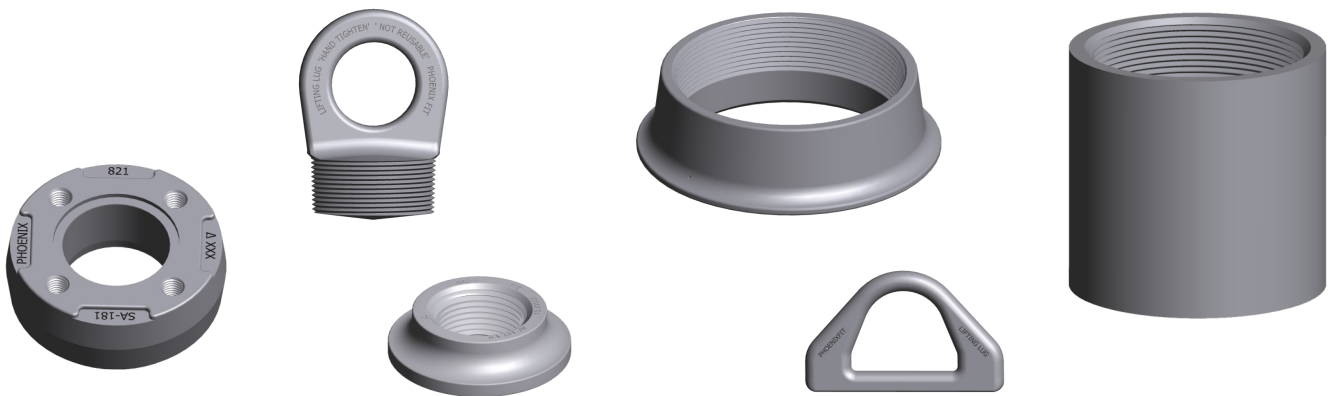




# Tank and Cylinder Fittings



PFC511 R1

**THE PHOENIX FORGE GROUP**  
*Commanding a Higher Standard<sup>SM</sup>*



# THE PHOENIX FORGE GROUP

*Commanding a Higher Standard* <sup>SM</sup>

CAPITOL MANUFACTURING COMPANY\*  
Crowley, LA

PHOENIX FORGING COMPANY\*  
Catasauqua, PA

CAPPRODUCTS Ltd.\*  
Vanastra, ON

PHOENIX HOTFORM COMPANY\*  
Allentown, PA

CONDUIT PIPE PRODUCTS CO.\*  
W. Jefferson, OH

**\*ISO 9001:2008**

BARCO INDUSTRIES, INC.  
Reading, PA

## OUR PROMISE TO YOU

We promise to provide you with quality forged products, delivered on time and at a fair price. We can make this promise because only Phoenix offers you experience dating back to the 19th Century, state-of-the-art 20th Century manufacturing technologies, and 21st Century innovation.

When your production plans call for Forged Steel Fittings, Trans-O-Con transition pipe connections, Tank and Cylinder Fittings or custom forged products—contact The Phoenix Forge Group.

## THE PHOENIX LEADERSHIP ADVANTAGE

**Phoenix Forging is the nation's largest producer and distributor of Tank & Cylinder Fittings. It pays to deal with the industry leader.**

- **FULL LINE SUPPLIER**— Forged Steel Fittings—All Standard Styles & Sizes: Unions, Lifting Lugs, LPG Gage Adapters, Couplings, Thread Protectors, Pressed Steel Fittings and Custom Products.
- **LARGE INVENTORY**— Multi-Million Dollar Inventory and Next Day Shipment
- **CUSTOM DESIGN**— Our technical engineers, assisted by CAD/CAM capability, are available to assist you.
- **TECHNICAL SUPPORT**— Statistical calculations regarding application criteria available upon request.
- **COMPUTER SERVICES**— Computer assisted order entry, inventory control, database management system.
- **QUALITY ASSURANCE PROGRAM**— Material qualification, equipment maintenance and upgrading, statistical process control and gauge control are all included in a concentrated program to ensure production of superior quality products. - **ISO 9001 CERTIFICATION** -
- **EXPERIENCE**— Phoenix has over 100 years experience in manufacturing a wide variety of products.
- **COMMUNICATIONS**— State of the Art order placement & communications systems, including EDI, XML & e-commerce.
- **ELECTRONIC MTR's**— Immediate access to MTR's at [www.phoenixforge.com](http://www.phoenixforge.com).
- **BAR CODING**— All product has a standard Phoenix barcode. Custom barcoding available on request.
- **UL RECOGNIZED PARTS**
- **CANADIAN REGISTRATION NUMBERS**— View and download CRN's at [www.phoenixforge.com](http://www.phoenixforge.com).



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## SPECIFICATIONS

Our flanges are manufactured in accordance with Underwriter’s Laboratories and ASME Boiler and Pressure Code Section II and applicable portions of Section IV and VIII.

Material Specifications comply with ASTM A105/ASME SA105, ASTM A181-70A, SME SA 181-70 or applicable DOT specifications.

Our standard threaded product complies with ANSI/ASME B1.20.1-1983.

NPTF (Dry Seal) threads as well as other special threads are available.

Certifications are provided on the web at [www.phoenixforge.com](http://www.phoenixforge.com).

Canadian Provincial Registration numbers are available on the web at [www.phoenixforge.com](http://www.phoenixforge.com).

## IDENTIFICATION AND MARKING

During the forging process, all Phoenix products are marked with the size, heat of steel, part number and Phoenix identification. These figures remain visible after installation.

### Dimensional Tolerances—Hot Forged Welding Flanges

#### THICKNESS

|                           |                |
|---------------------------|----------------|
| Pipe Size: 1/8” to 1 1/2” | ± 1/32”        |
| Pipe Size: 2” to 4”       | + 3/64” -1/32” |
| Pipe Size: 5” to 8”       | + 1/16” -1/32” |

#### OUTSIDE DIAMETER

|                           |                |
|---------------------------|----------------|
| Pipe Size: 1/8” to 1 1/4” | ± 1/64”        |
| Pipe Size: 1 1/2” to 3”   | + 1/32” -1/64” |
| Pipe Size: 3 1/2” to 6”   | ± 1/32”        |
| Pipe Size: 8”             | + 3/64” -1/32” |

#### DIAMETER OF PILOT

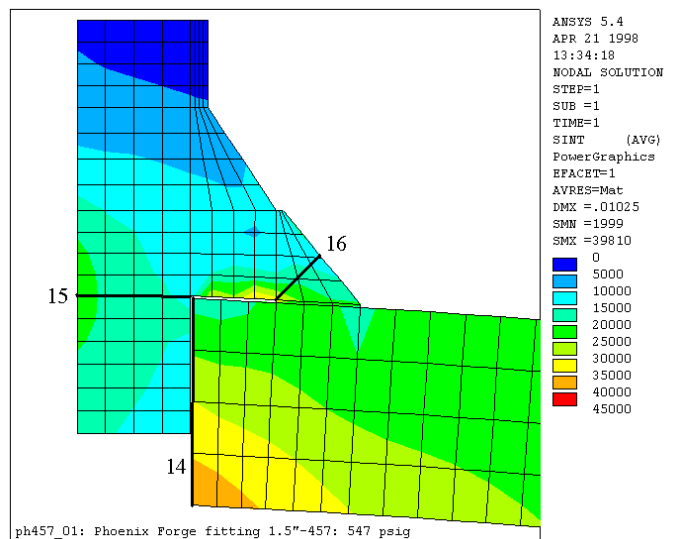
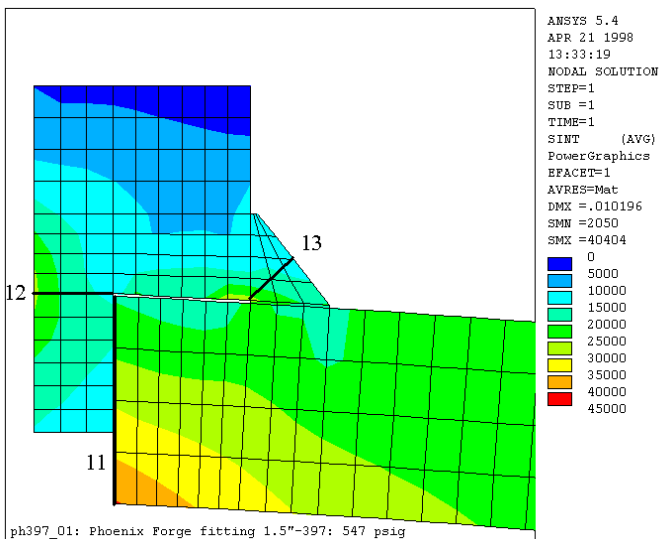
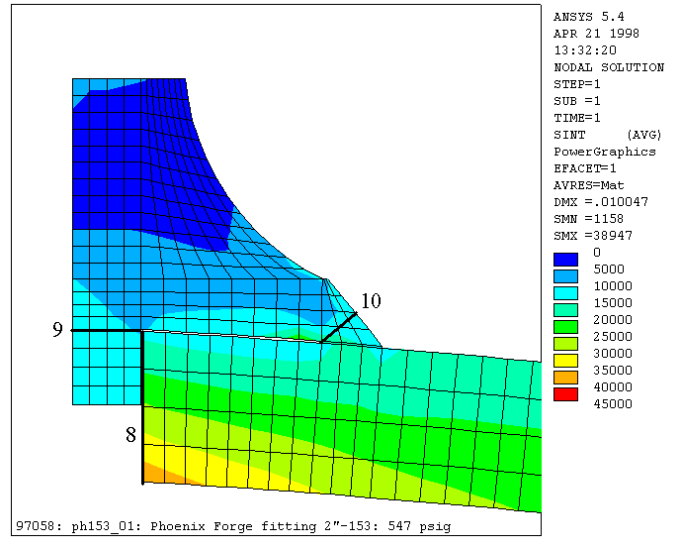
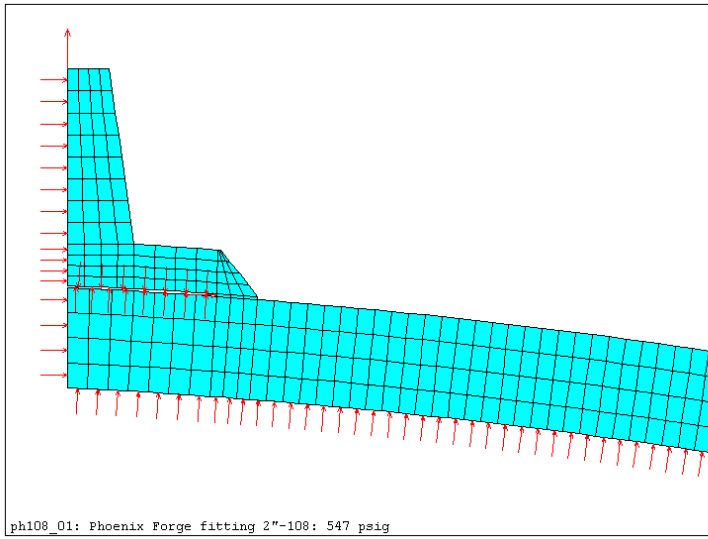
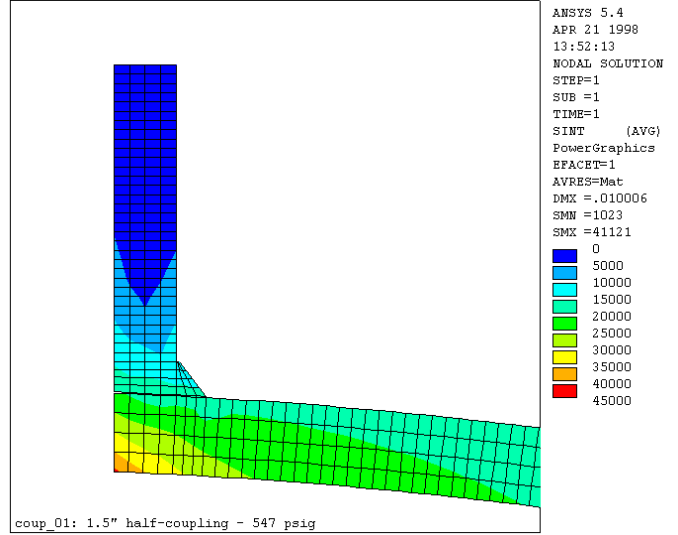
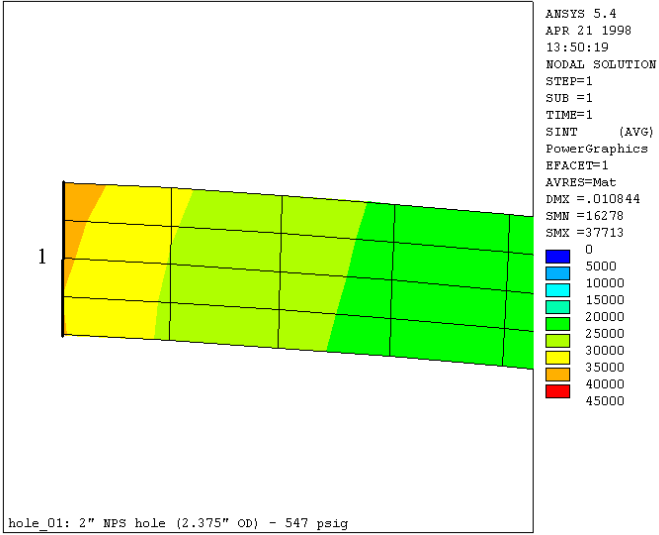
|                         |                |
|-------------------------|----------------|
| Pipe Size: 1/8” to 1”   | ± 1/32”        |
| Pipe Size: 1 1/4” to 4” | + 3/64” -1/32” |

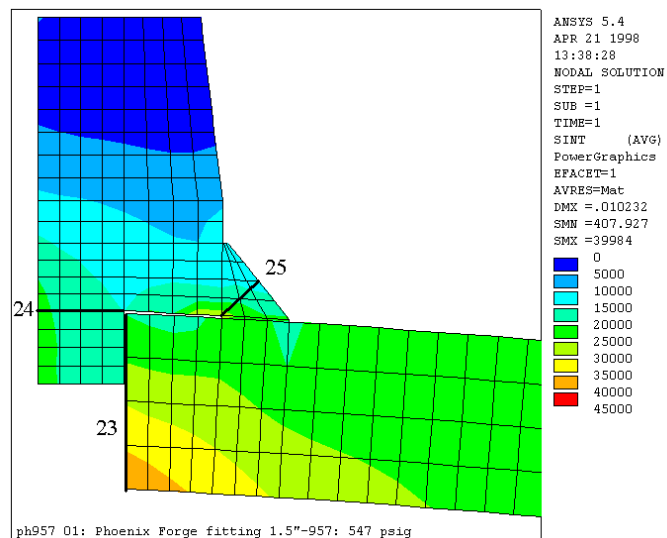
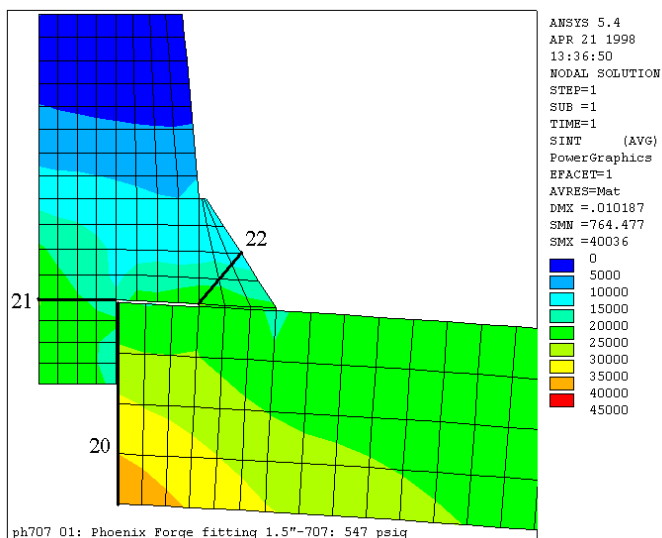
#### THREADING

All sizes ± One Thread

### Phoenix Forged Welding Flanges and other related products are also available.

- |                           |                                 |
|---------------------------|---------------------------------|
| 1. Special Threaded Parts | 5. Machined “O” - Ring Products |
| 2. Stainless Steel        | 6. Evacuation Dip Tubes         |
| 3. Custom Designed Parts  | 7. Dielectric Nylon Fittings    |
| 4. Full Coupling Line     | 8. Screw Machine Parts          |





## Phoenix Pressure Vessel Fittings - Pressure Temperature Ratings Basis

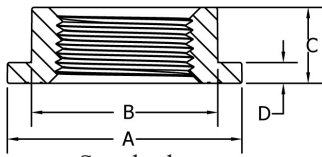
The finite element analysis summarized in the above figures were performed to confirm the strength-equivalence between a standard Phoenix Forge Group ASME B16.11, Class 3000 threaded coupling and threaded fittings, when welded to a pressure vessel in accordance with Section VIII, Division I of the ASME Boiler and Pressure Vessel Code. The design temperature and other service conditions for all welding fittings are limited by various construction codes. Within these limits, The Phoenix Forge Group certifies its welding fittings identified as such, as Manufacturer's Standard per ASME Section VIII, Division I, paragraph UG-11 (a) (1).

When identified with a 3000 or a 3M the maximum allowable pressure for a fitting is that computed for Schedule 160 straight seamless pipe of equivalent material, as done in ASME B36.11. The wall thickness used in such computation shall be that tabulated in ASME B36.10M for the fitting nominal pipe size and schedule 160, reduced by applicable manufacturing tolerances and other allowances (e.g., threaded allowances). Any corrosion allowance and any variation in allowable stress due to temperature shall be applied to the pipe and fitting alike.

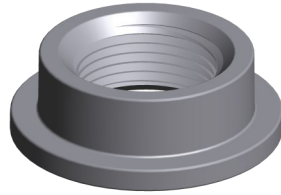
Note that the pressure-temperature ratings obtained in this manner are for the fitting, because the fitting to pipe or vessel attachment welds are governed by design codes such as ASME Section VIII, Divisional I, paragraph UW-16, which may impose more restrictive pressure-temperature limits.

### NOTICE

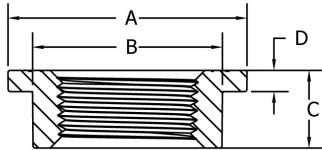
It should be noted that this study is supportive only of the Phoenix Forge Group Pressure Vessel Fittings' proven designs. No consent is given to use Phoenix Pressure Vessel Fittings' proof of test or mathematical calculation to support other manufacturer's products which may be similar to Phoenix designs. Furthermore, it is cautioned that the use of these tests or calculations to support other manufacturer's products may be invalid because of differences in materials, fabrication processes or dimensions.



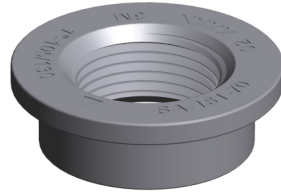
Standard  
Tapped from hub side



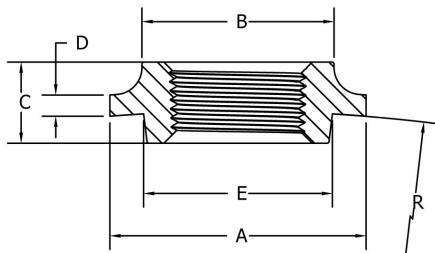
**SERIES 100**



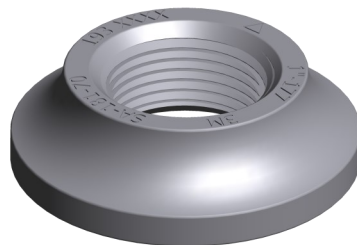
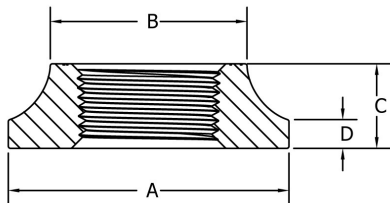
Inverted  
Tapped from flange side



**SERIES 125**



**SERIES 150**



**SERIES 175**

## FLAT TYPE

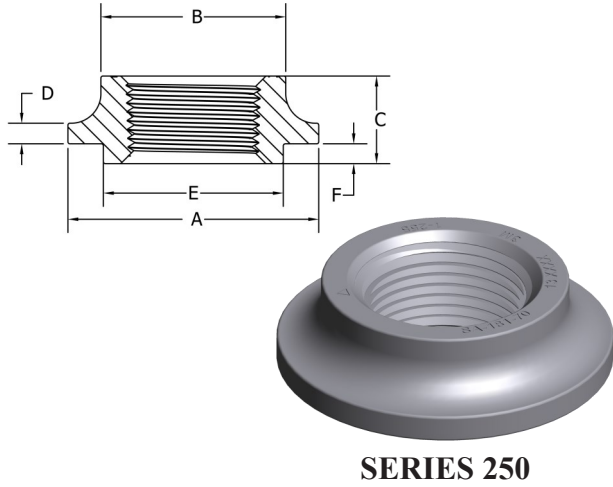
| Pipe Size | Series Standard | Series Inverted | Approx Weight | A     | B     | C     | D    |
|-----------|-----------------|-----------------|---------------|-------|-------|-------|------|
| 1/8       | 100             | 125             | 0.04          | 1.188 | .625  | .281  | .125 |
| 1/4       | 101             | 126             | 0.06          | 1.250 | .750  | .375  | .156 |
| 3/8       | 102             | 127             | 0.08          | 1.375 | .938  | .375  | .156 |
| 1/2       | 103             | 128             | 0.12          | 1.500 | 1.125 | .579  | .157 |
| 3/4       | 104             | 129             | 0.18          | 1.750 | 1.375 | .625  | .188 |
| 1         | 105             | 130             | 0.28          | 2.125 | 1.688 | .688  | .188 |
| 1-1/4     | 106             | 131             | 0.32          | 2.500 | 2.000 | .688  | .188 |
| 1-1/2     | 107             | 132             | 0.52          | 3.000 | 2.375 | .812  | .188 |
| 2         | 108             | 133             | 0.68          | 3.375 | 2.875 | .812  | .203 |
| 2-1/2     | 109             | 134             | 1.20          | 4.250 | 3.500 | 1.000 | .188 |
| 3         | 110             | 135             | 1.44          | 5.000 | 4.125 | 1.000 | .219 |
| 4         | 112             | 137             | 2.12          | 6.000 | 5.188 | 1.125 | .250 |

## STANDARD HEAVY CURVED TYPE WITH PILOT

| Pipe Size | Series | Approx Weight | A      | B     | C     | D    | E     | R      |
|-----------|--------|---------------|--------|-------|-------|------|-------|--------|
| 3/4       | 150A   | 0.26          | 2.062  | 1.437 | .625  | .196 | 1.344 | 7.000  |
| 1         | 150    | 0.36          | 2.375  | 1.781 | .750  | .196 | 1.750 | 15.000 |
| 1-1/4     | 151    | 0.46          | 2.750  | 2.156 | .750  | .196 | 1.875 | 10.000 |
| 1-1/2     | 152    | 0.58          | 3.125  | 2.406 | .750  | .196 | 2.344 | 15.000 |
| 2         | 153    | 0.66          | 3.375  | 2.875 | .812  | .196 | 2.719 | 15.000 |
| 2-1/2     | 154    | 1.12          | 4.250  | 3.438 | 1.000 | .125 | 3.062 | 22.000 |
| 3         | 155    | 1.36          | 4.875  | 4.094 | 1.000 | .219 | 3.688 | 22.000 |
| 4         | 157    | 1.86          | 5.812  | 5.125 | 1.250 | .218 | 4.750 | 26.000 |
| 5         | 158    | 3.50          | 7.125  | 6.250 | 1.375 | .250 | 5.812 | 42.000 |
| 6         | 159    | 4.88          | 8.250  | 7.375 | 1.437 | .250 | 6.875 | 28.000 |
| 8         | 160    | 8.14          | 10.500 | 9.500 | 1.562 | .250 | 9.000 | 48.000 |

## EXTRA HEAVY FLAT TYPE SERIES

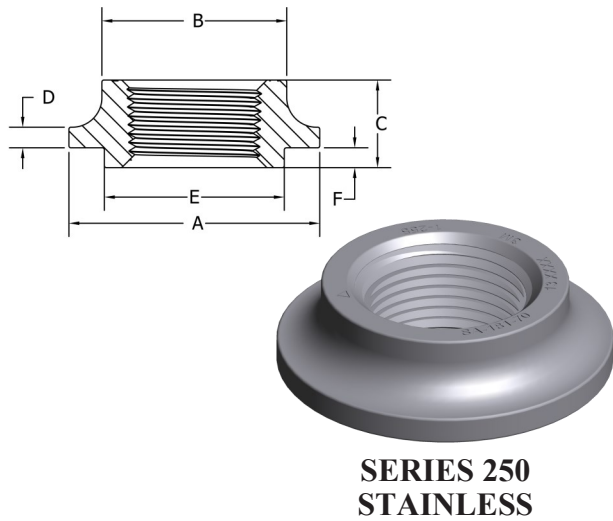
| Pipe Size | Series | Approx Weight | A     | B     | C     | D    |
|-----------|--------|---------------|-------|-------|-------|------|
| 1/4       | 175A   | 0.26          | 2.000 | 1.250 | .750  | .191 |
| 3/8       | 175B   | 0.24          | 2.000 | 1.250 | .750  | .191 |
| 1/2       | 175    | 0.30          | 2.000 | 1.250 | .750  | .188 |
| 3/4       | 176    | 0.44          | 2.250 | 1.500 | .728  | .250 |
| 1         | 177    | 0.56          | 2.500 | 1.750 | .750  | .250 |
| 1-1/4     | 178    | 0.64          | 2.875 | 2.062 | .750  | .250 |
| 1-1/2     | 179    | 0.84          | 3.250 | 2.375 | .750  | .250 |
| 2         | 180    | 1.00          | 3.750 | 2.875 | .750  | .250 |
| 2-1/2     | 181    | 1.68          | 4.250 | 3.500 | 1.000 | .250 |
| 3         | 182    | 2.92          | 5.500 | 4.250 | 1.000 | .250 |
| 4         | 184    | 4.10          | 6.500 | 5.375 | 1.125 | .250 |
| 5         | 185    | 7.82          | 8.062 | 6.688 | 1.406 | .313 |
| 6         | 186    | 8.38          | 8.500 | 7.625 | 1.500 | .406 |



## STANDARD FLAT TYPE WITH PILOT

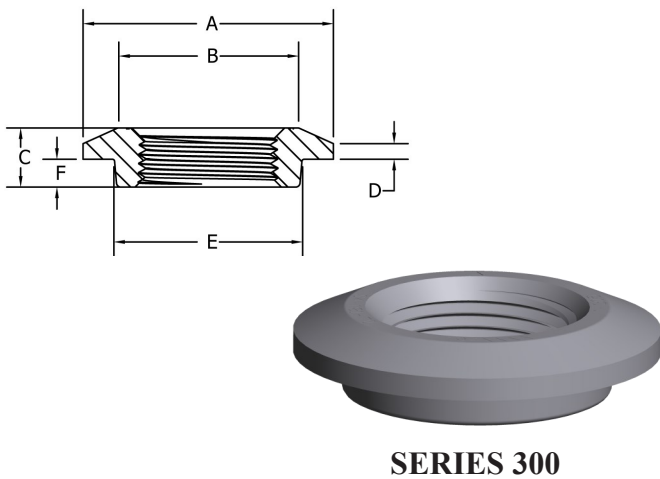
| Pipe Size | Series | Approx Weight | A     | B     | C     | D    | E     | F    |
|-----------|--------|---------------|-------|-------|-------|------|-------|------|
| 1/8       | 250    | 0.10          | 1.375 | .875  | .469  | .094 | .843  | .082 |
| 1/4       | 251    | 0.12          | 1.500 | 1.000 | .500  | .140 | .968  | .125 |
| 3/8       | 252    | 0.14          | 1.625 | 1.062 | .500  | .140 | .937  | .125 |
| 1/2       | 253    | 0.18          | 1.812 | 1.118 | .625  | .156 | 1.156 | .156 |
| 3/4       | 254    | 0.26          | 2.062 | 1.438 | .750  | .156 | 1.343 | .156 |
| 1         | 255    | 0.40          | 2.375 | 1.750 | .830  | .195 | 1.703 | .188 |
| 1-1/4     | 256    | 0.46          | 2.500 | 2.125 | .875  | .196 | 1.938 | .188 |
| 1-1/2     | 257    | 0.62          | 3.031 | 2.375 | .875  | .204 | 2.312 | .187 |
| 2         | 258    | 0.64          | 3.375 | 2.875 | .812  | .188 | 2.688 | .188 |
| 2-1/2     | 259    | 0.96          | 4.063 | 3.312 | 1.000 | .093 | 3.187 | .188 |
| 3         | 260    | 1.10          | 4.625 | 3.938 | 1.000 | .219 | 3.688 | .188 |
| 3-1/2     | 261    | 1.45          | 5.125 | 4.438 | 1.000 | .219 | 4.188 | .188 |
| 4         | 262    | 2.10          | 5.812 | 4.938 | 1.250 | .219 | 4.750 | .188 |

ASTM A304L/316L - Manufactured to A-182 Spec



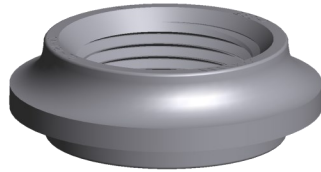
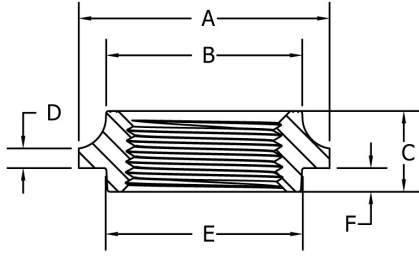
## STAINLESS STEEL FLAT TYPE WITH PILOT

| Pipe Size | Series | Approx Weight | A     | B     | C     | D    | E     | F    |
|-----------|--------|---------------|-------|-------|-------|------|-------|------|
| 1/4       | 251    | 0.12          | 1.500 | 1.000 | .500  | .140 | .968  | .125 |
| 3/8       | 252    | 0.14          | 1.625 | 1.062 | .500  | .140 | .937  | .125 |
| 1/2       | 253    | 0.18          | 1.812 | 1.118 | .625  | .156 | 1.156 | .156 |
| 3/4       | 254    | 0.26          | 2.062 | 1.438 | .750  | .156 | 1.343 | .156 |
| 1         | 255    | 0.40          | 2.375 | 1.750 | .830  | .195 | 1.703 | .188 |
| 1-1/4     | 256    | 0.46          | 2.500 | 2.125 | .875  | .196 | 1.938 | .188 |
| 1-1/2     | 257    | 0.62          | 3.031 | 2.375 | .875  | .204 | 2.312 | .187 |
| 2         | 258    | 0.64          | 3.375 | 2.875 | .812  | .188 | 2.688 | .188 |
| 3         | 260    | 1.10          | 4.625 | 3.938 | 1.000 | .219 | 3.688 | .188 |



## BOILER FLANGE WITH PILOT

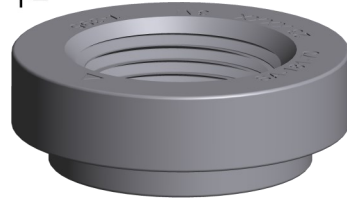
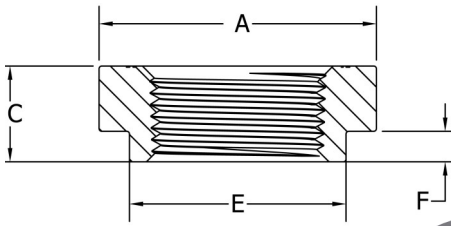
| Pipe Size | Series | Approx Weight | A     | B     | C    | D    | E     | F    |
|-----------|--------|---------------|-------|-------|------|------|-------|------|
| 1/8       | 300    | 0.08          | 1.312 | .812  | .406 | .094 | .875  | .125 |
| 1/4       | 301    | 0.08          | 1.312 | .812  | .406 | .094 | .875  | .125 |
| 3/8       | 302    | 0.12          | 1.438 | 1.062 | .469 | .094 | 1.188 | .188 |
| 1/2       | 303    | 0.14          | 1.625 | 1.188 | .468 | .140 | 1.125 | .188 |
| 3/4       | 304    | 0.20          | 2.000 | 1.375 | .468 | .140 | 1.312 | .188 |
| 1         | 305    | 0.26          | 2.250 | 1.625 | .531 | .140 | 1.687 | .250 |
| 1-1/4     | 306    | 0.30          | 2.562 | 1.938 | .562 | .140 | 1.938 | .250 |
| 1-1/2     | 307    | 0.42          | 2.937 | 2.312 | .578 | .156 | 2.250 | .250 |
| 2         | 308    | 0.46          | 3.375 | 2.750 | .593 | .156 | 2.625 | .250 |



**SERIES 380**

## LIGHTWEIGHT FLAT TYPE WITH PILOT

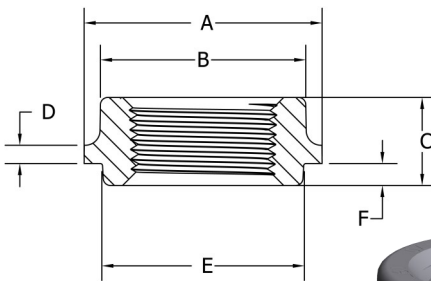
| Pipe Size | Series | Approx Weight | A     | B     | C    | D    | E     | F    |
|-----------|--------|---------------|-------|-------|------|------|-------|------|
| 1/8       | 380    | 0.06          | 1.188 | .750  | .406 | .094 | .750  | .125 |
| 1/4       | 381    | 0.06          | 1.188 | .875  | .438 | .094 | .750  | .156 |
| 3/8       | 382    | 0.06          | 1.312 | .938  | .438 | .094 | .938  | .156 |
| 1/2       | 383    | 0.08          | 1.438 | 1.063 | .469 | .094 | 1.063 | .188 |
| 3/4       | 384    | 0.10          | 1.625 | 1.250 | .468 | .156 | 1.375 | .156 |
| 1         | 385    | 0.20          | 2.000 | 1.562 | .641 | .156 | 1.562 | .188 |
| 1-1/4     | 386    | 0.26          | 2.375 | 1.937 | .641 | .156 | 1.937 | .188 |
| 1-1/2     | 387    | 0.32          | 2.688 | 2.188 | .641 | .156 | 2.188 | .188 |
| 2         | 388    | 0.36          | 3.125 | 2.625 | .734 | .156 | 2.625 | .250 |



**SERIES 390**

## MODIFIED LIGHTWEIGHT FLAT TYPE WITH PILOT

| Pipe Size | Series | Approx Weight | A     | C    | E     | F    |
|-----------|--------|---------------|-------|------|-------|------|
| 1/4       | 391    | 0.12          | 1.438 | .406 | .938  | .125 |
| 3/8       | 392    | 0.12          | 1.438 | .438 | .938  | .156 |
| 1/2       | 393    | 0.12          | 1.438 | .469 | 1.062 | .188 |
| 3/4       | 394    | 0.14          | 1.625 | .531 | 1.375 | .250 |
| 1         | 395    | 0.28          | 2.000 | .688 | 1.316 | .219 |
| 1-1/4     | 396    | 0.36          | 2.375 | .688 | 1.938 | .250 |
| 1-1/2     | 397    | 0.50          | 2.688 | .750 | 2.188 | .250 |
| 2         | 398    | 0.60          | 3.125 | .781 | 2.625 | .250 |

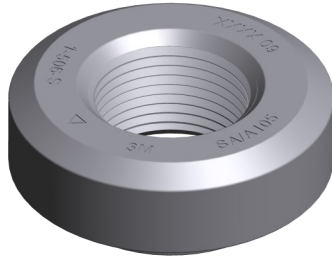
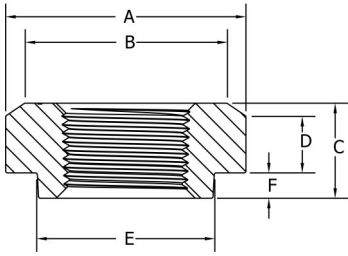


**SERIES 450**

## TRIMMED FLAT TYPE WITH PILOT

| Pipe Size | Series | Approx Weight | A     | B     | C    | D    | E     | F    |
|-----------|--------|---------------|-------|-------|------|------|-------|------|
| 3/8       | 452    | 0.10          | 1.312 | 1.063 | .500 | .156 | .968  | .125 |
| 3/4       | 454    | 0.18          | 1.750 | 1.438 | .656 | .156 | 1.344 | .156 |
| 1         | 455    | 0.32          | 2.031 | 1.750 | .750 | .156 | 1.718 | .187 |
| 1-1/2     | 457    | 0.46          | 2.687 | 2.375 | .750 | .188 | 2.313 | .188 |
| 2         | 458    | 0.62          | 3.125 | 2.875 | .906 | .250 | 2.688 | .250 |

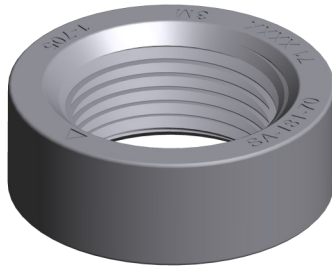
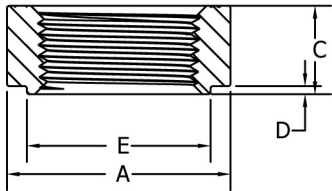




**SERIES 500**

### L.P.G. FLANGE WITH PILOT

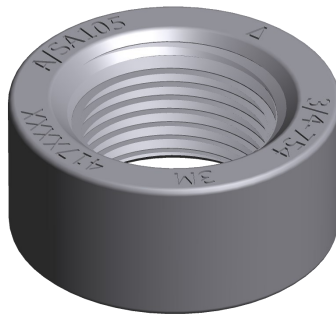
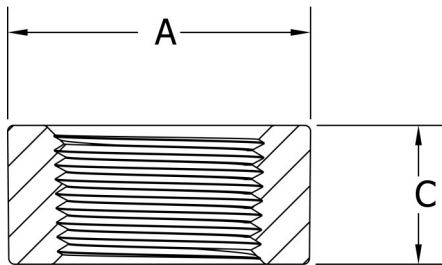
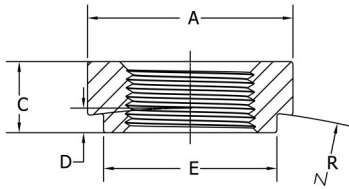
| Pipe Size | Series | Approx Weight | A     | B     | C    | D    | E     | F    |
|-----------|--------|---------------|-------|-------|------|------|-------|------|
| 3/4       | 504    | 0.40          | 1.875 | 1.438 | .875 | .500 | 1.500 | .250 |
| 1         | 505    | 0.48          | 2.125 | 1.656 | .906 | .500 | 1.750 | .250 |
| 1-1/4     | 506    | 0.54          | 2.375 | 2.000 | .937 | .560 | 2.000 | .250 |



**SERIES 700**

### COUPLING TYPE FLANGE WITH PILOT

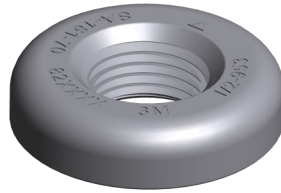
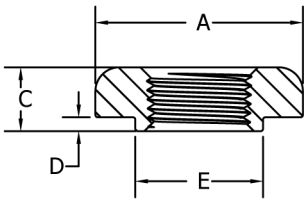
| Pipe Size | Series | Approx Weight | A     | C     | D    | E     | R      |
|-----------|--------|---------------|-------|-------|------|-------|--------|
| 1/4       | 701    | 0.14          | 1.188 | .562  | .062 | .921  | NA     |
| 3/8       | 702    | 0.12          | 1.188 | .562  | .062 | .921  | NA     |
| 1/2       | 703    | 0.10          | 1.250 | .562  | .062 | .921  | NA     |
| 3/4       | 704    | 0.14          | 1.500 | .563  | .063 | 1.172 | NA     |
| 1         | 705    | 0.20          | 1.750 | .688  | .063 | 1.437 | NA     |
| 1         | 705-7R | 0.30          | 2.000 | .688  | .238 | 1.688 | 7.000  |
| 1-1/4     | 706-7R | 0.38          | 2.375 | .688  | .250 | 1.938 | 7.000  |
| 1-1/4     | 706    | 0.28          | 2.125 | .688  | .125 | 1.812 | 12.000 |
| 1-1/2     | 707    | 0.40          | 2.500 | .750  | .218 | 2.188 | 12.000 |
| 2         | 708    | 0.56          | 3.000 | .781  | .218 | 2.562 | 12.000 |
| 2-1/2     | 709    | 1.24          | 3.750 | 1.000 | .188 | 3.125 | 18.000 |
| 3         | 710    | 1.36          | 4.250 | 1.063 | .188 | 3.812 | 18.000 |



**SERIES 750**

### COUPLING TYPE FLANGE

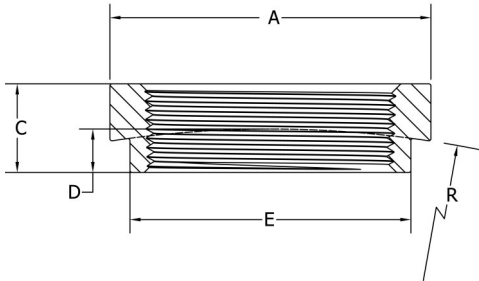
| Pipe Size | Series | Approx Weight | A     | C     |
|-----------|--------|---------------|-------|-------|
| 1/4       | 751    | *             | 1.000 | 0.688 |
| 3/8       | 752    | *             | 1.188 | 0.688 |
| 1/2       | 753    | .16           | 1.250 | 0.688 |
| 3/4       | 754    | *             | 1.500 | 0.688 |
| 1         | 755    | *             | 1.750 | 0.781 |
| 1-1/4     | 756    | *             | 2.250 | 0.813 |
| 1-1/2     | 757    | .57           | 2.500 | 0.813 |
| 2         | 758    | .81           | 3.000 | 0.875 |
| 2-1/2     | 759    | *             | 3.620 | 1.312 |
| 3         | 760    | 2.35          | 4.250 | 1.375 |
| 4         | 762    | 4.37          | 5.500 | 1.500 |



**SERIES 950**

## COMPOSITE FLAT FLANGE WITH PILOT

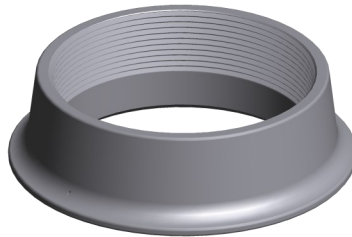
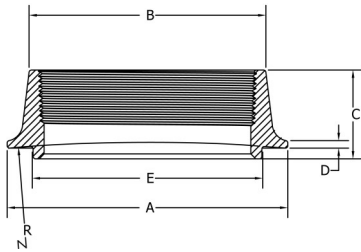
| Pipe Size | Series | Approx Weight | A     | C    | D    | E     |
|-----------|--------|---------------|-------|------|------|-------|
| 1/4       | 951    | 0.20          | 1.625 | .500 | .109 | 1.000 |
| 1/2       | 953    | 0.18          | 1.625 | .500 | .109 | 1.000 |



**SERIES 958 R**

## COMPOSITE CURVED FLANGE WITH PILOT

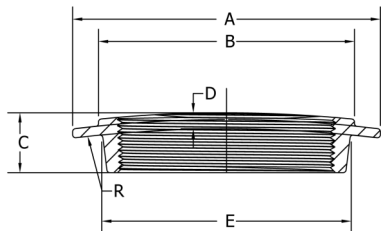
| Pipe Size | Series | Approx Weight | A     | C    | D    | E     | R      |
|-----------|--------|---------------|-------|------|------|-------|--------|
| 1-1/2     | 957    | 0.56          | 2.688 | .781 | .266 | 2.266 | 7.500  |
| 2         | 958    | 0.50          | 3.000 | .828 | .406 | 2.625 | 10.000 |



## HI-FIVE

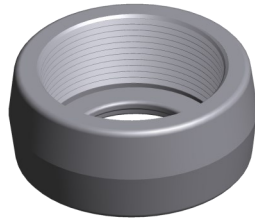
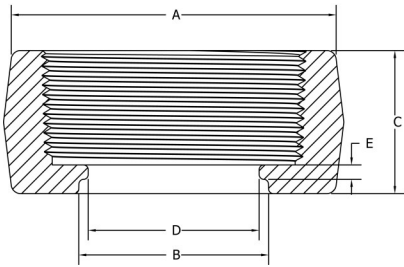
| Pipe Size | Series | Approx Weight | A     | B     | C     | D    | E     | R      |
|-----------|--------|---------------|-------|-------|-------|------|-------|--------|
| 5         | 158-A  | 5.00          | 7.125 | 6.000 | 2.250 | .188 | 5.812 | 42.000 |

NOTE: Standard Tolerances do not apply.



## LOW PROFILE

| Pipe Size | Series | A     | C     | D    | E     | R      |
|-----------|--------|-------|-------|------|-------|--------|
| 4         | 875    | 6.312 | 1.225 | .328 | 5.250 | 26.000 |
| 5         | 878    | 7.312 | 1.375 | .375 | 6.375 | 42.000 |



## MONITORING FLANGE

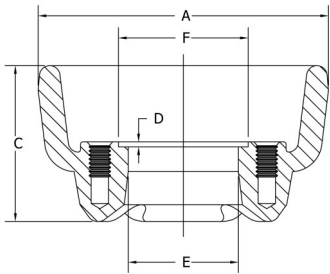
| Pipe Size | Series | Approx Weight | A     | B     | C     | D     | E    |
|-----------|--------|---------------|-------|-------|-------|-------|------|
| 3         | 837    | 3.68          | 4.250 | 2.500 | 1.875 | 2.250 | .187 |

3" NPT inside top.  
Bottom bore to suit 2" Schedule 40 pipe.  
NOTE: Standard Tolerances do not apply.

## Forged Float Gage Adapters

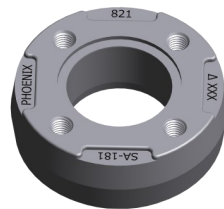
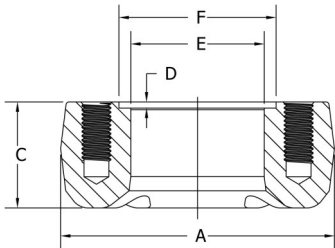
Specify Phoenix Float Gage Adapters:

\* Meets ASME SA-181-70 \* Markings on top surface \* Permanent Traceability



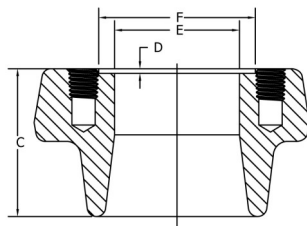
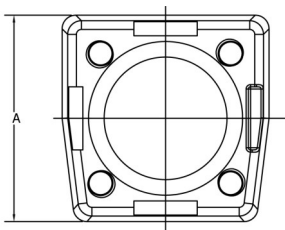
## JUNIOR RECESSED

| Series | Approx Weight | A     | C     | D    | E     | F     |
|--------|---------------|-------|-------|------|-------|-------|
| 820    | 1.88          | 3.531 | 1.906 | .062 | 1.340 | 1.578 |



## JUNIOR DONUT

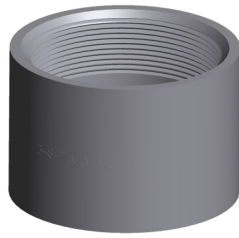
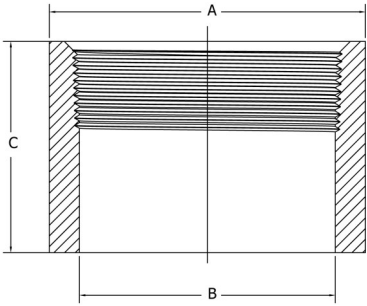
| Series | Approx Weight | A     | C     | D    | E     | F     |
|--------|---------------|-------|-------|------|-------|-------|
| 821    | 1.12          | 2.750 | 1.062 | .062 | 1.340 | 1.578 |



## SENIOR

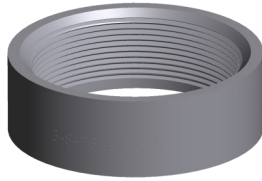
| Series | Approx Weight | A     | C     | D    | E     | F     |
|--------|---------------|-------|-------|------|-------|-------|
| 826    | 2.04          | 2.812 | 1.968 | .062 | 1.670 | 2.094 |

# HEAVY WALL T.O.E. STRUCTURAL COUPLINGS 2" - 8"



## SERIES A-FULL COUPLINGS

| Pipe Size | Series | Approx Weight | Min Wall | A     | B     | C     |
|-----------|--------|---------------|----------|-------|-------|-------|
| 3         | 3-845A | 5.26          | .480     | 4.250 | 3.250 | 3.250 |
| 4         | 3-847A | 7.20          | .480     | 5.250 | 4.250 | 3.500 |
| 5         | 3-848A | 8.96          | .470     | 6.250 | 5.250 | 3.750 |



## SERIES B-HALF COUPLINGS

| Pipe Size | Series | Approx Weight | Min Wall | A     | B     | C     |
|-----------|--------|---------------|----------|-------|-------|-------|
| 3         | 3-845B | 2.36          | .480     | 4.250 | 3.250 | 1.562 |
| 4         | 3-847B | 3.26          | .480     | 5.250 | 4.250 | 1.687 |
| 5         | 3-848B | 3.84          | .470     | 6.250 | 5.250 | 1.750 |
| 6         | 3-849B | 6.16          | .545     | 7.500 | 6.250 | 1.875 |
| 8         | 3-850B | 10.64         | .673     | 9.750 | 8.250 | 2.000 |



## SERIES C-FIREGUARD COUPLINGS

| Pipe Size | Series | Approx Weight | Min Wall | A     | B     | C     |
|-----------|--------|---------------|----------|-------|-------|-------|
| 2         | 3-843C | 4.88          | .421     | 3.000 | 2.125 | 5.000 |
| 3         | 3-845C | 8.16          | .480     | 4.250 | 3.250 | 5.000 |
| 4         | 3-847C | 10.40         | .480     | 5.250 | 4.250 | 5.000 |
| 5         | 3-848C | 12.24         | .470     | 6.250 | 5.250 | 5.000 |
| 6         | 3-849C | 18.10         | .545     | 7.500 | 6.250 | 5.000 |
| 8         | 3-850C | 28.36         | .673     | 9.750 | 8.250 | 5.000 |



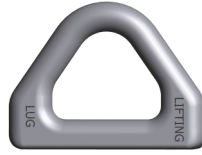
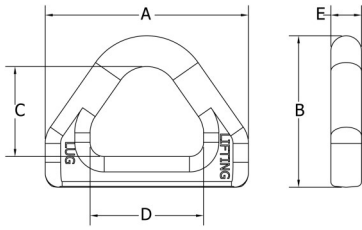
## SERIES D-FIREGUARD COUPLINGS

| Pipe Size | Series | Approx Weight | Min Wall | A     | B     | C     |
|-----------|--------|---------------|----------|-------|-------|-------|
| 2         | 3-843D | 5.70          | .375     | 2.875 | 2.125 | 7.000 |
| 3         | 3-845D | 8.36          | .375     | 4.000 | 3.250 | 7.000 |
| 4         | 3-847D | 10.62         | .375     | 5.000 | 4.250 | 7.000 |
| 6         | 3-849D | 14.74         | .375     | 7.000 | 6.250 | 7.000 |

Material Specification:  
DOM/Seamless Tubing  
Meets A-513A & A-519  
Grade SAE 1026

- Inquire about:
- Custom Lengths
  - Special Threading
  - Full Couplings

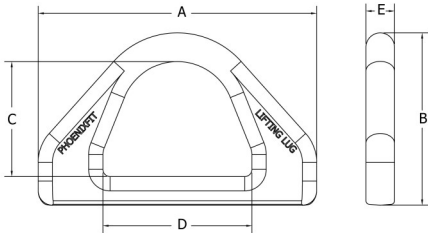
# LIFTING LUGS



## MINI SERIES 2-898-MIN

| Series    | Approx Weight | A     | B     | C     | D     | E    |
|-----------|---------------|-------|-------|-------|-------|------|
| 2-898-MIN | 0.30          | 2.687 | 2.000 | 1.188 | 1.500 | .406 |

Maximum load capacity per lug: 4850 lbs.

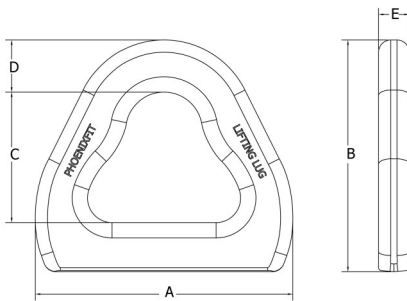


## SMALL SERIES 2-900-LUG

| Series    | Approx Weight | A     | B     | C     | D     | E    |
|-----------|---------------|-------|-------|-------|-------|------|
| 2-900-LUG | 0.90          | 4.875 | 3.000 | 2.000 | 2.609 | .500 |

Maximum load capacity per lug: 6800 lbs.

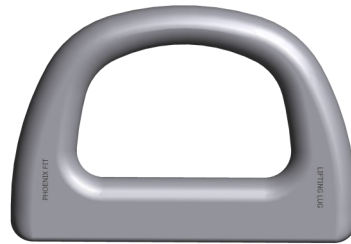
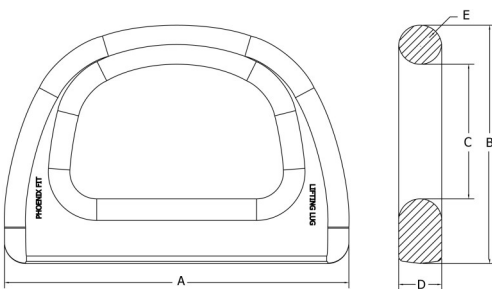
\*Available in 304L



## MEDIUM SERIES 2-899-MLL

| Series    | Approx Weight | A     | B     | C     | D     | E    |
|-----------|---------------|-------|-------|-------|-------|------|
| 2-899-MLL | 2.38          | 5.250 | 4.718 | 2.618 | 1.100 | .625 |

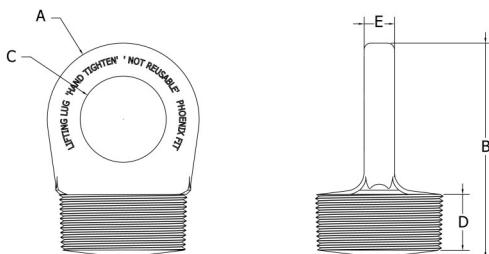
Maximum load capacity per lug: 20,000 lbs.



## LARGE SERIES 2-901-LLL

| Series    | Approx Weight | A     | B     | C     | D     | E    |
|-----------|---------------|-------|-------|-------|-------|------|
| 2-901-LLL | 6.26          | 8.000 | 5.531 | 3.125 | 1.000 | .906 |

Maximum load capacity per lug: 16,500 lbs.



## 2" NPT THREADED SERIES 3-903-2-TLL

| Series      | Approx Weight | A       | B     | C      | D     | E    |
|-------------|---------------|---------|-------|--------|-------|------|
| 3-903-2-TLL | 2.08          | R 1.405 | 4.000 | R .796 | 1.000 | .562 |

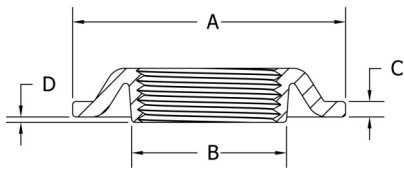
Maximum load capacity per lug: 11,450 lbs.

## 4" NPT THREADED SERIES 3-902-TLL

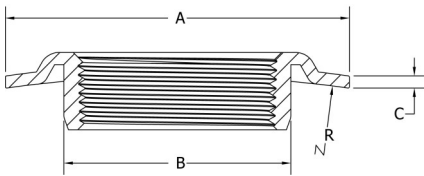
| Series    | Approx Weight | A       | B     | C       | D     | E     |
|-----------|---------------|---------|-------|---------|-------|-------|
| 3-902-TLL | 9.36          | R 2.500 | 6.341 | R 1.500 | 1.000 | 1.000 |

Maximum load capacity per lug: 28,000 lbs.

## Pressed Steel Fittings



| FLAT TYPE* |        |               |       |       |      |       |
|------------|--------|---------------|-------|-------|------|-------|
| Pipe Size  | Series | Approx Weight | A     | B     | C    | D     |
| 1/2        | 613    | 0.08          | 1.745 | 0.900 | .134 | 0.160 |
| 3/4        | 614    | 0.16          | 2.360 | 1.110 | .134 | 0.140 |
| 1          | 615    | 0.14          | 2.346 | 1.372 | .134 | 0.210 |
| 1-1/4      | 616    | 0.20          | 2.860 | 1.742 | .134 | 0.333 |
| 1-1/2      | 617    | 0.32          | 3.653 | 1.942 | .118 | 0.060 |
| 2          | 618    | 0.32          | 3.730 | 2.460 | .130 | 0.365 |
| 2          | 648    | 0.44          | 3.840 | 2.480 | .156 | 0.545 |



| CURVED TYPE |        |               |       |       |      |    |
|-------------|--------|---------------|-------|-------|------|----|
| Pipe Size   | Series | Approx Weight | A     | B     | C    | R  |
| 1-1/2       | 637    | 0.24          | 3.265 | 1.954 | .118 | 13 |
| 2           | 638    | 0.32          | 3.670 | 2.460 | .130 | 13 |
| 2           | 658    | 0.44          | 3.825 | 2.480 | .156 | 14 |
| 2           | 668    | 0.44          | 3.800 | 2.480 | .156 | 11 |

## Thread Protectors

Thread Protectors are manufactured from tin plated steel for durability, flexibility and corrosion resistance.



|            |  |
|------------|--|
| Pipe Sizes | 1/8", 1/4", 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3", 3 1/2", 4", 5", 6", 8" |
|------------|--|

## The Isolator® Bushing



**The Isolator® from Phoenix Forging offers significant advantages over other anode protection devices used in underground tanks.**

- Unique design minimizes cross-threading.
- Extremely lightweight, resilient and easy to install.
- Slightly offset design for quick and easy flange entry.
- No-burr construction for a smoother, tighter fit.
- Oversized, reinforced tabs for extra strength during installation.
- Top quality flanges and bushings from one source.

# The Following are Registered Trademarks of The Phoenix Forge Group

Int. Cls.: 6 and 40  
Prior U.S. Cls.: 13, 103, and 106

United States Patent and Trademark Office

Reg. No. 1,783,836  
Registered July 27, 1993

TRADEMARK  
SERVICE MARK  
PRINCIPAL REGISTER



PHOENIX FORGING COMPANY INC.  
(PENNSYLVANIA CORPORATION)  
FRONT AND CHAPEL STREETS  
CATASAUQUA, PA 18032

FOR: FORGED METAL PRODUCTS; NAMELY  
METAL TANK FLANGES AND PIPE CONNECT-  
ORS, IN CLASS 6 (U.S. CL. 13).

FIRST USE 0-0-1943; IN COMMERCE 0-0-1943.  
FOR: FORGING METAL GOODS

TO THE ORDER AND SPECIFICATION OF  
OTHERS, IN CLASS 40 (U.S. CLS. 103 AND 106).  
FIRST USE 0-0-1943; IN COMMERCE 0-0-1943.

SER. NO. 74-234, 442, FILED 12-31-1991.  
AMOS T. MATTHEWS, JR., EXAMINING  
ATTORNEY

## OTHER REGISTERED TRADEMARKS:

PHOENIXFIT®  
HYDRO FLIGHT®  
HY-PLUS®  
HI-FIVE®  
ISOLATOR® BUSHING  
TRANS-O-CON®

 PHOENIX FORGING COMPANY INC.

 PHOENIX FITTINGS COMPANY

 PHOENIX HOTFORM COMPANY

 PHOENIX HOTFORM COMPANY,  
ALTERNATE SYMBOL



FORGED WITH PRIDE IN THE USA

## TRADE ASSOCIATIONS:

PRESSURE VESSEL MANUFACTURERS ASSOCIATION  
STI/SPFA—STEEL TANK INSTITUTE/STEEL PLATE  
FABRICATORS ASSOCIATION  
THE PVF ROUNDTABLE  
FORGING INDUSTRY ASSOCIATION  
AMERICAN SUPPLY ASSOCIATION  
INDUSTRIAL PIPING DIVISION—ASA  
STAFDA—SPECIALTY TOOL & FASTENERS  
DISTRIBUTION ASSOCIATION  
AMERICAN HARDWARE MANUFACTURERS  
ASSOCIATION  
ASME—AMERICAN SOCIETY OF MECHANICAL  
ENGINEERS  
ASTM—AMERICAN SOCIETY TESTING MATERIALS  
MSS—MANUFACTURING STANDARDIZATION SOCIETY  
SME—SOCIETY OF MANUFACTURING ENGINEERS

## SERVICE MARK:

COMMANDING A HIGHER STANDARD<sup>SM</sup>