



# 2024 PRODUCT CATALOG

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*Your source for pipe fittings and custom solutions!*

API International is a manufacturer and wholesale distributor of flanges, expansion joints, valves, other pipe fittings and custom fabricated parts for the Agriculture, Exhaust, HVAC and Water Works industries. We stock parts in our conveniently located warehouses for quick distribution throughout the United States, and our Machine Shop can modify stock items or produce custom product to meet your unique specifications.



API Headquarters - Office Building

We strive to be the easiest company to work with. That is why we are quick to respond, keep the right products in inventory and take full ownership over every order that comes to us. We maintain a large sales staff so that when you call there is always an actual person there to answer. From making sure we meet requirements to getting your order shipped out on time, we hold ourselves accountable.



# Services

## International Procurement



During our forty-plus years of doing business internationally we have developed alliances with suppliers in Asia and Europe. Our overseas representatives maintain a close partnership with our current suppliers and are continuously engaged in source finding on our client's behalf.

Our international representatives reside in the area that they service. Because of this, they are experts in local tradition, dialects, and acceptable business practices applicable to each region. When you elect to work with **API International** for your procurement needs, you have instant access to our knowledge base of how to successfully conduct business in the markets that we buy from.

## Custom Fabrication



One of **API International's** core competencies is fabricating custom parts in a variety of alloys for our OEM customers. Our team of professionals work with our engineering department and select manufacturers to customize high quality products for your unique requirements.

## Logistics Services



**API's** logistics services are designed to allow OEMs to focus on the manufacturing process without worrying about when their custom parts will be available for use. Our range of services includes all logistical aspects for OEM customers: shipping from our network of overseas manufacturers; freight forwarding; customs clearing; local trucking; material handling and warehousing in one of our facilities. We handle all of the pieces of the logistics puzzle, enabling our OEMs clients to maintain inventory levels of quality controlled products that match their production timeline.

We give our customers the option of either utilizing our warehouse space to inventory blanket orders or shipping containers directly to a manufacturing facility. In addition, when customers elect to utilize your own warehouse, we are happy to customize box dimensions to match our customer's warehouse rack dimensions.



# Standard Terms and Conditions of Sale

UNLESS OTHERWISE AGREED TO IN WRITING, THE FOLLOWING PROVISIONS APPLY TO ALL SALES:

## 1) SALES:

All merchandise ordered shall be sold subject to SELLER'S standard warranty, viz: SELLER warrants that any product of its manufacture, which upon examination is found by SELLER'S representative to be defective either in the workmanship of material whereby it is not suitable under proper usage and service for the purpose for which it was designed, will be at SELLER'S option, repaired or replaced free of charge including transportation charges, but not the cost of installation, provided that SELLER received written claim specifying the defect within 1-year from the date of shipment to the original purchaser. Warranty excludes sales of gasket products. ALL OTHER WARRANTIES EXPRESSED AND IMPLIED INCLUDING ANY WARRANTY OF MERCHANTABILITY ARE HEREBY DISCLAIMED. The foregoing expresses all of the SELLER'S obligations and liabilities with respect to the quality of items furnished by it and it shall under no circumstances be liable for consequential damages.

**2) MINIMUM ORDER REQUIREMENT:** All orders must meet a minimum purchase amount of \$150.00. Any machine shop services must meet a minimum \$100.00 material *and* \$150.00 machining charge.

## 3) ORDER ACCEPTANCE BY SELLER:

- All orders received from BUYER are subject to acceptance by SELLER, unless the quotation specifies that it is a bid in response to an invitation for bids, in which event the order or award shall constitute acceptance of the bid in accordance to bid terms.
- Terms and conditions on the BUYER'S order form, at variance with terms and conditions stated herein, are binding upon SELLER only if specifically accepted by SELLER in writing.
- Orders accepted by SELLER cannot be canceled by BUYER except with SELLER'S written consent and upon terms that will indemnify SELLER against loss.
- Initial order for new customers (pending finance approval) must meet a \$500.00 product minimum (freight excluded).

**4) SAMPLES:** In the event samples are furnished to BUYER, SELLER will not assume any liability in connection with the furnishing of use thereof, and there will be no agreement of warranty collateral to, or affecting, the furnishing of such samples.

## 5) PRICE AND PAYMENT:

- All goods are sold at the prices stated in the offer. All offers are subject to approval, acceptance, and correction by API International, Inc. Any offers containing errors in quotations will be corrected by API International and resubmitted to BUYER for acceptance or refusal. All prices are subject to change without notice.
- Unless otherwise stated, legal delivery and prices are F.O.B. SELLER'S plant, and prices do not include transportation charges.
- Taxes Not Included In Price: Except where otherwise prohibited by law, all sales, excise, use, or similar taxes or charges by the federal, any foreign, or any state or local government, which SELLER may be required to pay or collect, shall be in addition to the price stated and shall be paid by BUYER, unless valid exception certificate is furnished therefore.
- Payment: All accounts are payable on or before the date due listed on the invoice, which is based on the terms of the account. SELLER may demand payment in advance of shipment if, in SELLER'S opinion, the credit or financial condition of BUYER is, or is about to become, impaired.
- Payments Where Shipments are Delayed: Where BUYER requests a delay in shipment, SELLER shall have the option of billing for goods when ready for shipment. If material is not ordered out within sixty (60) days after goods are ready, SELLER will have the option of billing storage charges.

## 6) DELIVERY:

- Shipping Dates: Shipping dates are approximate only and subject to change.
- Unforeseen Delays: SELLER shall not be liable in damages or otherwise for delays or failure in performance when caused by circumstance of every nature and description and, however arising, beyond SELLER'S reasonable control in the event SELLER is unable due to any such occurrence or otherwise, to fulfill its total commitment to all customers, BUYER agrees to accept as full and complete performance by SELLER, deliveries in accordance with such plan or pro-rata as SELLER may adopt.
- Packaging: SELLER will provide commercial packaging adequate, under normal conditions, to protect the goods in shipment and identify the contents. Should BUYER request any special packaging, it will be done at BUYER'S expense.
- Routing: All goods will be shipped via the least expensive or most expeditious means of transportation under the circumstances unless BUYER indicates otherwise. If BUYER provides no routing instructions, SELLER shall be the sole judge of the best method of routing shipment.
- All claims for damages or shortages must be made to API International within 48 hours of receipt of shipment. Damages in shipment shall remain the responsibility of BUYER, unless otherwise provided in writing by SELLER.

**7) INSPECTION:** SELLER will inspect all goods prior to shipment, and such inspection will be adequate to meet SELLER'S standards for dimensional and visual characteristics.

**8) REJECTION:** Any claim for non-conformance of products with the order must be made in writing within thirty (30) days of receipt of shipment, or BUYER hereby waives any such objection. In the event such claim is filed, SELLER shall have a reasonable time to investigate the circumstances and repair or replace any such products as found to be non-conforming.

## 9) RETURNS:

- No goods may be returned by BUYER for any reason without SELLER'S prior written approval.
- All returns must be pre-approved and accompanied by an RMA (Return Material Authorization) issued by API International. All returns must be shipped freight prepaid unless otherwise specified on the RMA.
- Special, custom fabricated, or modified items will not be accepted for return.
- Items not listed in the current API International catalog or items purchased more than 90 (ninety) days prior to the requested return date will not be accepted.
- Current catalog items will be subjected to a minimum 25% restocking charge.
- All items will be inspected upon receipt and must be in good, re-saleable condition. Parts returned that are not in saleable condition will be either subject to an additional rework charge or possibly no credit will be issued.
- Once credit amount is determined, the refund will be posted to the BUYER'S account. Cash refunds will not be issued.

**10) SPECIAL DAMAGES:** Neither BUYER NOR SELLER shall make any claims for special consequential damages.

**11) PATENT INFRINGEMENT:** Should the goods furnished by SELLER be of such a nature that the design, therefore, is supplied by BUYER, or should the goods be labeled or marked with a trademark or trade name requested by BUYER, then BUYER agrees to defend SELLER in any action, either civil or criminal, brought against SELLER by any third party, for the infringement or misuse of any such patents or trademarks, and BUYER further agrees to hold SELLER harmless from any damage or loss resulting therefrom.

## 12) GENERAL PROVISIONS:

- Modifications of Contract: It is agreed that there is no other contract in force between BUYER and SELLER and no alteration shall be binding unless agreed to in writing by SELLER. Should SELLER by any words, acts, or writing, waive or be deemed to have waived any of the provisions of this agreement, or should SELLER fail to insist upon performance by BUYER of one or more of the terms herein, such action or failure on SELLER'S part will in no way be deemed to imply or constitute a waiver of any other terms contained in this agreement.
- Compliance with Laws: SELLER certifies compliance with all relevant Federal, State, and local laws, including Paragraph 6, 7, and 12 of the Fair Labor Standards Act as amended and any regulations and orders issued under Paragraph 14 thereof.
- In the event of a suit or action over the terms of this sale, the prevailing party shall be entitled to recover from the other party such sum as the court may judge reasonable, as attorney fees at trial or on appeal venue.
- Any suit or action brought as a result of any sale covered by these conditions shall be brought in the state of Oregon, and the laws of the State of Oregon shall apply.
- API International reserves the right, in its sole discretion, to change the Terms under which www.apiint.com is offered. The most current version of the Terms will supersede all previous versions. API International encourages you to periodically review the Terms to stay informed of our updates.

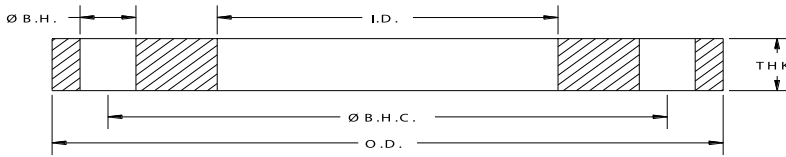
## Flange Dimensional Tolerances

|                                  |                                      |                        |
|----------------------------------|--------------------------------------|------------------------|
| <b>OUTSIDE<br/>DIAMETER</b>      | When O.D is 24" or less              | + 0.125" , - 0.0625"   |
|                                  | When O.D is over 24"                 | +0.125" , - 0.125"     |
| <b>INSIDE DIAMETER</b>           | When I.D is 10" and smaller          | +0.03125" , - 0"       |
|                                  | When I.D is over 10"                 | +0.0625" , - 0"        |
| <b>CONTACT FACE<br/>DIAMETER</b> | Raised Face                          | +0.0156" , - 0.0156"   |
| <b>DRILLING</b>                  | Bolt Hole Diameter                   | +0.03125" , - 0.03125" |
|                                  | Bolt Circle Diameter                 | +0.0625" , - 0.0625"   |
|                                  | Bolt Hole Spacing                    | +0.03125" , - 0.03125" |
| <b>THICKNESS</b>                 | When nominal size is 18" and smaller | +0.125" , - 0"         |
|                                  | When nominal size is 20" and larger  | + 0.1875" , - 0"       |

# AWWA Flanges C207/C228 Specifications

## Domestic & Import





## AWWA Class “B” C207 Steel-Ring Flanges [86 psi]

| API Part Number | Size | O.D.   | I.D.   | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|--------|--------|----------|--------|--------|-------|------------|
| PF0400-B        | 4    | 9.00   | 4.57   | 7.50     | 0.750  | 8      | 0.625 | 7.7        |
| PF0500-B        | 5    | 10.00  | 5.66   | 8.50     | 0.875  | 8      | 0.625 | 8.6        |
| PF0600-B        | 6    | 11.00  | 6.72   | 9.50     | 0.875  | 8      | 0.688 | 10.7       |
| PF0800-B        | 8    | 13.50  | 8.72   | 11.75    | 0.875  | 8      | 0.688 | 15.3       |
| PF1000-B        | 10   | 16.00  | 10.88  | 14.25    | 1.000  | 12     | 0.688 | 19.2       |
| PF1200-B        | 12   | 19.00  | 12.88  | 17.00    | 1.000  | 12     | 0.688 | 28.1       |
| PF1400-B        | 14   | 21.00  | 14.19  | 18.75    | 1.125  | 12     | 0.688 | 34.4       |
| PF1600-B        | 16   | 23.50  | 16.19  | 21.25    | 1.125  | 16     | 0.688 | 41.3       |
| PF1800-B        | 18   | 25.00  | 18.19  | 22.75    | 1.250  | 16     | 0.688 | 41.2       |
| PF2000-B        | 20   | 27.50  | 20.19  | 25.00    | 1.250  | 20     | 0.688 | 48.6       |
| PF2200-B        | 22   | 29.50  | 22.19  | 27.25    | 1.375  | 20     | 0.750 | 56.8       |
| PF2400-B        | 24   | 32.00  | 24.19  | 29.50    | 1.375  | 20     | 0.750 | 67.0       |
| PF2600-B        | 26   | 34.25  | 26.19  | 31.75    | 1.375  | 24     | 0.812 | 79.3       |
| PF2800-B        | 28   | 36.50  | 28.19  | 34.00    | 1.375  | 28     | 0.875 | 93.7       |
| PF3000-B        | 30   | 38.75  | 30.19  | 36.00    | 1.375  | 28     | 0.875 | 103.9      |
| PF3200-B        | 32   | 41.75  | 32.19  | 38.50    | 1.625  | 28     | 0.938 | 131.3      |
| PF3400-B        | 34   | 43.75  | 34.19  | 40.50    | 1.625  | 32     | 0.938 | 137.0      |
| PF3600-B        | 36   | 46.00  | 36.19  | 42.75    | 1.625  | 32     | 1.000 | 159.7      |
| PF3800-B        | 38   | 48.75  | 38.19  | 45.25    | 1.625  | 32     | 1.000 | 184.5      |
| PF4000-B        | 40   | 50.75  | 40.19  | 47.25    | 1.625  | 36     | 1.000 | 191.5      |
| PF4200-B        | 42   | 53.00  | 42.19  | 49.50    | 1.625  | 36     | 1.125 | 232.5      |
| PF4400-B        | 44   | 55.25  | 44.19  | 51.75    | 1.625  | 40     | 1.125 | 247.6      |
| PF4600-B        | 46   | 57.25  | 46.19  | 53.75    | 1.625  | 40     | 1.125 | 258.6      |
| PF4800-B        | 48   | 59.50  | 48.19  | 56.00    | 1.625  | 44     | 1.250 | 304.9      |
| PF5000-B        | 50   | 61.75  | 50.19  | 58.25    | 1.875  | 44     | 1.250 | 315.2      |
| PF5200-B        | 52   | 64.00  | 52.19  | 60.50    | 1.875  | 44     | 1.250 | 336.9      |
| PF5400-B        | 54   | 66.25  | 54.19  | 62.75    | 1.875  | 44     | 1.375 | 395.1      |
| PF6000-B        | 60   | 73.00  | 60.19  | 69.25    | 1.875  | 52     | 1.500 | 506.1      |
| PF6600-B        | 66   | 80.00  | 66.19  | 76.00    | 1.875  | 52     | 1.625 | 661.1      |
| PF7200-B        | 72   | 86.50  | 72.19  | 82.50    | 1.875  | 60     | 1.750 | 798.8      |
| PF7800-B        | 78   | 93.00  | 78.19  | 89.00    | 2.125  | 64     | 2.000 | 995.6      |
| PF8400-B        | 84   | 99.75  | 84.19  | 95.50    | 2.125  | 64     | 2.000 | 1140.7     |
| PF9000-B        | 90   | 106.50 | 90.19  | 102.00   | 2.438  | 68     | 2.250 | 1408.8     |
| PF9600-B        | 96   | 113.25 | 96.19  | 108.50   | 2.438  | 68     | 2.250 | 1591.2     |
| PF10200-B       | 102  | 120.00 | 102.19 | 114.50   | 2.688  | 72     | 2.500 | 1918.7     |
| PF10800-B       | 108  | 126.75 | 108.19 | 120.75   | 2.688  | 72     | 2.500 | 2142.6     |
| PF11400-B       | 114  | 133.50 | 114.19 | 126.75   | 2.938  | 76     | 2.750 | 2534.1     |
| PF12000-B       | 120  | 140.25 | 120.19 | 132.75   | 2.938  | 76     | 2.750 | 2803.9     |
| PF12600-B       | 126  | 147.00 | 126.19 | 139.25   | 3.188  | 80     | 3.000 | 3263.6     |
| PF13200-B       | 132  | 153.75 | 132.19 | 145.75   | 3.188  | 80     | 3.000 | 3583.5     |
| PF14400-B       | 144  | 167.25 | 144.19 | 158.25   | 3.438  | 84     | 3.250 | 4489.5     |

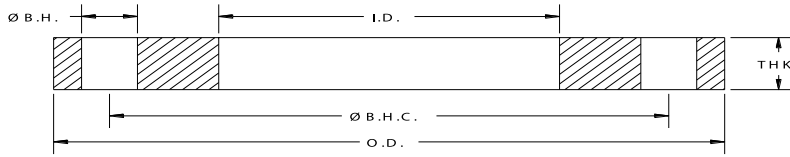
Notes:

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ANSI class 150 pattern.
- c. For flanges in smaller sizes see page 4.2.

Pressure Ratings: 86psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

DC# 0324



## AWWA Class “D” C207 Steel-Ring Flanges [150-175 psi]

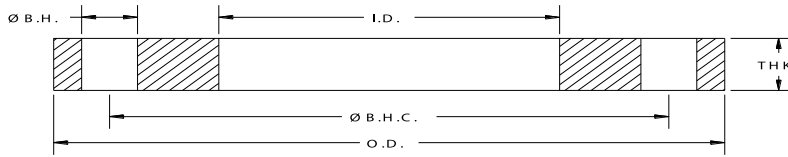
| API Part Number | Size | O.D.   | I.D.   | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|--------|--------|----------|--------|--------|-------|------------|
| PF0400-D        | 4    | 9.00   | 4.57   | 7.50     | 0.750  | 8      | 0.625 | 7.7        |
| PF0500-D        | 5    | 10.00  | 5.66   | 8.50     | 0.875  | 8      | 0.625 | 8.6        |
| PF0600-D        | 6    | 11.00  | 6.72   | 9.50     | 0.875  | 8      | 0.688 | 10.7       |
| PF0800-D        | 8    | 13.50  | 8.72   | 11.75    | 0.875  | 8      | 0.688 | 15.3       |
| PF1000-D        | 10   | 16.00  | 10.88  | 14.25    | 1.000  | 12     | 0.688 | 19.2       |
| PF1200-D        | 12   | 19.00  | 12.88  | 17.00    | 1.000  | 12     | 0.812 | 33.1       |
| PF1400-D        | 14   | 21.00  | 14.19  | 18.75    | 1.125  | 12     | 0.938 | 46.8       |
| PF1600-D        | 16   | 23.50  | 16.19  | 21.25    | 1.125  | 16     | 1.000 | 60.1       |
| PF1800-D        | 18   | 25.00  | 18.19  | 22.75    | 1.250  | 16     | 1.062 | 63.7       |
| PF2000-D        | 20   | 27.50  | 20.19  | 25.00    | 1.250  | 20     | 1.125 | 79.5       |
| PF2200-D        | 22   | 29.50  | 22.19  | 27.25    | 1.375  | 20     | 1.188 | 89.9       |
| PF2400-D        | 24   | 32.00  | 24.19  | 29.50    | 1.375  | 20     | 1.250 | 111.6      |
| PF2600-D        | 26   | 34.25  | 26.19  | 31.75    | 1.375  | 24     | 1.312 | 128.1      |
| PF2800-D        | 28   | 36.50  | 28.19  | 34.00    | 1.375  | 28     | 1.312 | 140.6      |
| PF3000-D        | 30   | 38.75  | 30.19  | 36.00    | 1.375  | 28     | 1.375 | 163.3      |
| PF3200-D        | 32   | 41.75  | 32.19  | 38.50    | 1.625  | 28     | 1.500 | 210.0      |
| PF3400-D        | 34   | 43.75  | 34.19  | 40.50    | 1.625  | 32     | 1.500 | 219.1      |
| PF3600-D        | 36   | 46.00  | 36.19  | 42.75    | 1.625  | 32     | 1.625 | 259.4      |
| PF3800-D        | 38   | 48.75  | 38.19  | 45.25    | 1.625  | 32     | 1.625 | 299.8      |
| PF4000-D        | 40   | 50.75  | 40.19  | 47.25    | 1.625  | 36     | 1.625 | 311.1      |
| PF4200-D        | 42   | 53.00  | 42.19  | 49.50    | 1.625  | 36     | 1.750 | 361.7      |
| PF4400-D        | 44   | 55.25  | 44.19  | 51.75    | 1.625  | 40     | 1.750 | 385.1      |
| PF4600-D        | 46   | 57.25  | 46.19  | 53.75    | 1.625  | 40     | 1.750 | 402.2      |
| PF4800-D        | 48   | 59.50  | 48.19  | 56.00    | 1.625  | 44     | 1.875 | 457.3      |
| PF5000-D        | 50   | 61.75  | 50.19  | 58.25    | 1.875  | 44     | 2.000 | 504.4      |
| PF5200-D        | 52   | 64.00  | 52.19  | 60.50    | 1.875  | 44     | 2.000 | 539.1      |
| PF5400-D        | 54   | 66.25  | 54.19  | 62.75    | 1.875  | 44     | 2.125 | 610.6      |
| PF6000-D        | 60   | 73.00  | 60.19  | 69.25    | 1.875  | 52     | 2.250 | 759.1      |
| PF6600-D        | 66   | 80.00  | 66.19  | 76.00    | 1.875  | 52     | 2.500 | 1017.0     |
| PF7200-D        | 72   | 86.50  | 72.19  | 82.50    | 1.875  | 60     | 2.625 | 1198.2     |
| PF7800-D        | 78   | 93.00  | 78.19  | 89.00    | 2.125  | 64     | 2.750 | 1368.9     |
| PF8400-D        | 84   | 99.75  | 84.19  | 95.50    | 2.125  | 64     | 2.875 | 1639.7     |
| PF9000-D        | 90   | 106.50 | 90.19  | 102.00   | 2.438  | 68     | 3.000 | 1878.2     |
| PF9600-D        | 96   | 113.25 | 96.19  | 108.50   | 2.438  | 68     | 3.250 | 2298.4     |
| PF10200-D       | 102  | 120.00 | 102.19 | 114.50   | 2.688  | 72     | 3.250 | 2494.3     |
| PF10800-D       | 108  | 126.75 | 108.19 | 120.75   | 2.688  | 72     | 3.375 | 2892.5     |
| PF11400-D       | 114  | 133.50 | 114.19 | 126.75   | 2.938  | 76     | 3.500 | 3225.2     |
| PF12000-D       | 120  | 140.25 | 120.19 | 132.75   | 2.938  | 76     | 3.500 | 3568.6     |
| PF12600-D       | 126  | 147.00 | 126.19 | 139.25   | 3.188  | 80     | 3.750 | 4079.5     |
| PF13200-D       | 132  | 153.75 | 132.19 | 145.75   | 3.188  | 80     | 3.875 | 4628.6     |
| PF14400-D       | 144  | 167.25 | 144.19 | 158.25   | 3.438  | 84     | 4.125 | 5698.3     |

**Notes:**

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ANSI class 150 pattern
- c. For flanges in smaller sizes see page 4.2.

**Pressure Ratings: 175psi (4" - 12") and 150psi (14" and larger) at atmospheric temperature.**

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



## AWWA Class “D” C207 Steel-Ring Flanges for O.D. Tubing [150-175 psi]

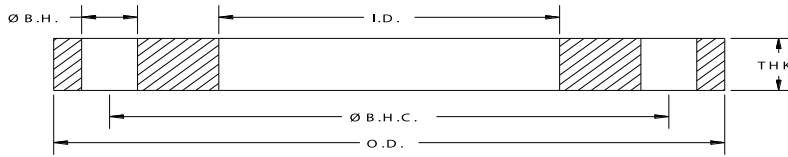
| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| PFO400-D-16     | 4    | 9.00  | 4.06  | 7.50     | 0.750  | 8      | 0.625 | 8.5        |
| PFO500-D-16     | 5    | 10.00 | 5.06  | 8.50     | 0.875  | 8      | 0.625 | 9.6        |
| PFO600-D-16     | 6    | 11.00 | 6.09  | 9.50     | 0.875  | 8      | 0.688 | 12.0       |
| PFO800-D-16     | 8    | 13.50 | 8.09  | 11.75    | 0.875  | 8      | 0.688 | 17.1       |
| PF1000-D-16     | 10   | 16.00 | 10.12 | 14.25    | 1.000  | 12     | 0.688 | 22.0       |
| PF1200-D-16     | 12   | 19.00 | 12.12 | 17.00    | 1.000  | 12     | 0.812 | 37.9       |

**Notes:**

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ANSI class 150 pattern.

**Pressure Ratings: 175psi (4" - 12") 150psi (14" and larger) at atmospheric temperature.**

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



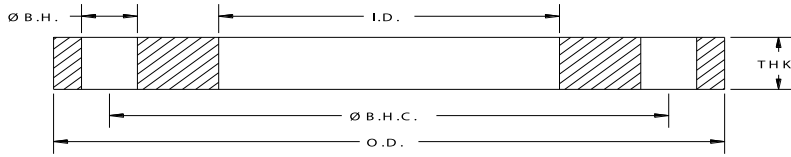
## AWWA Class “D” C207 Steel-Ring Overbore Flanges [150-175 psi]

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| PFOB1400-1613-D | 14   | 21.00 | 16.13 | 18.75    | 1.125  | 12     | 0.935 | 34.0       |
| PFOB1600-1813-D | 16   | 23.50 | 18.13 | 21.25    | 1.130  | 16     | 1.000 | 55.0       |
| PFOB1800-1988-D | 18   | 25.00 | 19.88 | 22.75    | 1.250  | 16     | 1.060 | 53.0       |
| PFOB1800-2013-D | 18   | 25.00 | 20.13 | 22.75    | 1.250  | 16     | 1.060 | 53.0       |
| PFOB2000-2188-D | 20   | 27.50 | 21.88 | 25.00    | 1.250  | 20     | 1.130 | 75.0       |
| PFOB2400-2588-D | 24   | 32.00 | 25.88 | 29.50    | 1.375  | 20     | 1.250 | 91.0       |
| PFOB2400-2613-D | 24   | 32.00 | 26.13 | 29.50    | 1.375  | 20     | 1.250 | 84.5       |
| PFOB3000-3200-D | 30   | 38.75 | 32.00 | 36.00    | 1.380  | 28     | 1.380 | 130.5      |
| PFOB3600-3800-D | 36   | 46.00 | 38.00 | 42.75    | 1.630  | 32     | 1.630 | 213.5      |
| PFOB4200-4400-D | 42   | 53.00 | 44.00 | 49.50    | 1.630  | 36     | 1.750 | 304.0      |
| PFOB4800-5000-D | 48   | 59.50 | 50.00 | 56.00    | 1.630  | 44     | 1.880 | 457.0      |

Notes:

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ANSI/ASME B16.5 Class 150 drilling pattern.
- c. Pressure Ratings: Class D. Sizes 4”-12” in, 175 psi; sizes 14” and larger, 150 psi. at atmospheric temperature.

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



## AWWA Class “E” C207 Steel-Ring Flanges [275psi]

| API Part Number | Size | O.D.   | I.D.   | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|--------|--------|----------|--------|--------|-------|------------|
| PF0400-E        | 4    | 9.00   | 4.57   | 7.50     | 0.750  | 8      | 1.125 | 13.9       |
| PF0500-E        | 5    | 10.00  | 5.66   | 8.50     | 0.875  | 8      | 1.188 | 16.3       |
| PF0600-E        | 6    | 11.00  | 6.72   | 9.50     | 0.875  | 8      | 1.313 | 20.4       |
| PF0800-E        | 8    | 13.50  | 8.72   | 11.75    | 0.875  | 8      | 1.500 | 33.4       |
| PF1000-E        | 10   | 16.00  | 10.88  | 14.25    | 1.000  | 12     | 1.563 | 43.7       |
| PF1200-E        | 12   | 19.00  | 12.88  | 17.00    | 1.000  | 12     | 1.750 | 71.4       |
| PF1400-E        | 14   | 21.00  | 14.19  | 18.75    | 1.125  | 12     | 1.875 | 93.7       |
| PF1600-E        | 16   | 23.50  | 16.19  | 21.25    | 1.125  | 16     | 2.000 | 120.2      |
| PF1800-E        | 18   | 25.00  | 18.19  | 22.75    | 1.250  | 16     | 2.125 | 127.3      |
| PF2000-E        | 20   | 27.50  | 20.19  | 25.00    | 1.250  | 20     | 2.375 | 167.8      |
| PF2200-E        | 22   | 29.50  | 22.19  | 27.25    | 1.375  | 20     | 2.500 | 189.2      |
| PF2400-E        | 24   | 32.00  | 24.19  | 29.50    | 1.375  | 20     | 2.625 | 234.3      |
| PF2600-E        | 26   | 34.25  | 26.19  | 31.75    | 1.375  | 24     | 2.750 | 268.4      |
| PF2800-E        | 28   | 36.50  | 28.19  | 34.00    | 1.375  | 28     | 2.750 | 294.5      |
| PF3000-E        | 30   | 38.75  | 30.19  | 36.00    | 1.375  | 28     | 2.875 | 341.4      |
| PF3200-E        | 32   | 41.75  | 32.19  | 38.50    | 1.625  | 28     | 3.000 | 420.0      |
| PF3400-E        | 34   | 43.75  | 34.19  | 40.50    | 1.625  | 32     | 3.000 | 438.3      |
| PF3600-E        | 36   | 46.00  | 36.19  | 42.75    | 1.625  | 32     | 3.125 | 498.9      |
| PF3800-E        | 38   | 48.75  | 38.19  | 45.25    | 1.625  | 32     | 3.125 | 576.5      |
| PF4000-E        | 40   | 50.75  | 40.19  | 47.25    | 1.625  | 36     | 3.250 | 622.3      |
| PF4200-E        | 42   | 53.00  | 42.19  | 49.50    | 1.625  | 36     | 3.375 | 697.6      |
| PF4400-E        | 44   | 55.25  | 44.19  | 51.75    | 1.625  | 40     | 3.375 | 742.7      |
| PF4600-E        | 46   | 57.25  | 46.19  | 53.75    | 1.625  | 40     | 3.438 | 790.2      |
| PF4800-E        | 48   | 59.50  | 48.19  | 56.00    | 1.625  | 44     | 3.500 | 853.6      |
| PF5000-E        | 50   | 61.75  | 50.19  | 58.25    | 1.875  | 44     | 3.500 | 882.7      |
| PF5200-E        | 52   | 64.00  | 52.19  | 60.50    | 1.875  | 44     | 3.625 | 977.1      |
| PF5400-E        | 54   | 66.25  | 54.19  | 62.75    | 1.875  | 44     | 3.750 | 1077.6     |
| PF6000-E        | 60   | 73.00  | 60.19  | 69.25    | 1.875  | 52     | 3.875 | 1307.4     |
| PF6600-E        | 66   | 80.00  | 66.19  | 76.00    | 1.875  | 52     | 4.250 | 1729.0     |
| PF7200-E        | 72   | 86.50  | 72.19  | 82.50    | 1.875  | 60     | 4.375 | 1997.0     |
| PF7800-E        | 78   | 93.00  | 78.19  | 89.00    | 2.125  | 64     | 4.750 | 2364.5     |
| PF8400-E        | 84   | 99.75  | 84.19  | 95.50    | 2.125  | 64     | 4.750 | 2709.1     |
| PF9000-E        | 90   | 106.50 | 90.19  | 102.00   | 2.438  | 68     | 5.125 | 3208.8     |
| PF9600-E        | 96   | 113.25 | 96.19  | 108.50   | 2.438  | 68     | 5.125 | 3624.3     |
| PF10200-E       | 102  | 120.00 | 102.19 | 114.50   | 2.688  | 72     | 5.500 | 4221.1     |
| PF10800-E       | 108  | 126.75 | 108.19 | 120.75   | 2.688  | 72     | 5.500 | 4713.8     |
| PF11400-E       | 114  | 133.50 | 114.19 | 126.75   | 2.938  | 76     | 5.875 | 5413.8     |
| PF12000-E       | 120  | 140.25 | 120.19 | 132.75   | 2.938  | 76     | 5.875 | 5990.1     |
| PF12600-E       | 126  | 147.00 | 126.19 | 139.25   | 3.188  | 80     | 6.250 | 6799.2     |
| PF13200-E       | 132  | 153.75 | 132.19 | 145.75   | 3.188  | 80     | 6.250 | 8062.8     |
| PF14400-E       | 144  | 167.25 | 144.19 | 158.25   | 3.438  | 84     | 6.750 | 9346.0     |

**Notes:**

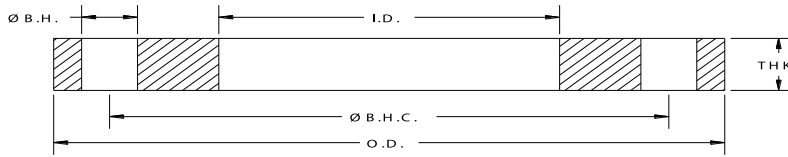
- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ANSI class 150 pattern.
- c. For flanges in smaller sizes see page 4.2.

**Pressure Ratings: 275psi at atmospheric temperature.**

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**

DC# 0324





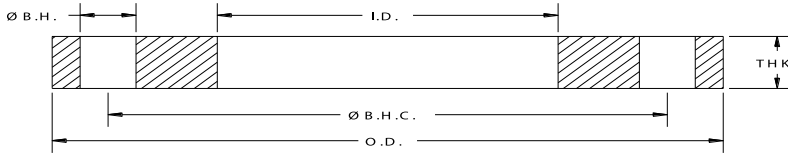
## AWWA Class “E” C207 Steel-Ring Overbore Flanges [275 psi]

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| PFOB1400-1613-E | 14   | 21.00 | 16.13 | 18.75    | 1.125  | 12     | 1.875 | 69.0       |
| PFOB1600-1813-E | 16   | 23.50 | 18.13 | 21.25    | 1.130  | 16     | 2.000 | 120.0      |
| PFOB1800-1988-E | 18   | 25.00 | 19.88 | 22.75    | 1.250  | 16     | 2.130 | 97.0       |
| PFOB1800-2013-E | 18   | 25.00 | 20.13 | 22.75    | 1.250  | 16     | 2.130 | 125.0      |
| PFOB2000-2188-E | 20   | 27.50 | 21.88 | 25.00    | 1.250  | 20     | 2.380 | 168.0      |
| PFOB2400-2588-E | 24   | 32.00 | 25.88 | 29.50    | 1.375  | 20     | 1.250 | 234.0      |
| PFOB2400-2594-E | 24   | 32.00 | 25.94 | 29.50    | 1.380  | 20     | 2.630 | 235.0      |
| PFOB2400-2613-E | 24   | 32.00 | 26.13 | 29.50    | 1.380  | 20     | 2.630 | 234.0      |
| PFOB3000-3200-E | 30   | 38.75 | 32.00 | 36.00    | 1.380  | 28     | 2.880 | 341.0      |
| PFOB3000-3206-E | 30   | 38.75 | 32.06 | 36.00    | 1.375  | 28     | 2.880 | 341.0      |
| PFOB3600-3800-E | 36   | 46.00 | 38.00 | 42.75    | 1.630  | 32     | 3.130 | 499.0      |
| PFOB4200-4400-E | 42   | 53.00 | 44.00 | 49.50    | 1.630  | 36     | 3.380 | 698.0      |
| PFOB4800-5000-E | 48   | 59.50 | 50.00 | 56.00    | 1.630  | 44     | 3.500 | 854.0      |

Notes:

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ANSI/ASME B16.5 Class 150 drilling pattern.
- c. Pressure Ratings: 275 psi. for all sizes at atmospheric temperature.

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



## AWWA Class “F” C207 Steel-Ring Flanges [300 psi]

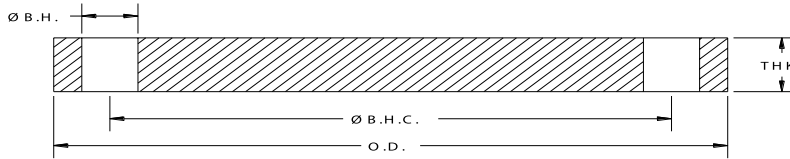
| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| PF0400-F        | 4    | 10.00 | 4.57  | 7.88     | 0.875  | 8      | 1.130 | 18.4       |
| PF0500-F        | 5    | 11.00 | 5.66  | 9.25     | 0.875  | 8      | 1.210 | 22.3       |
| PF0600-F        | 6    | 12.50 | 6.73  | 10.62    | 0.875  | 12     | 1.310 | 29.7       |
| PF0800-F        | 8    | 15.00 | 8.73  | 13.00    | 1.000  | 12     | 1.310 | 39.9       |
| PF1000-F        | 10   | 17.50 | 10.88 | 15.25    | 1.125  | 16     | 1.500 | 56.0       |
| PF1200-F        | 12   | 20.50 | 12.88 | 17.75    | 1.250  | 16     | 1.630 | 83.2       |
| PF1400-F        | 14   | 23.00 | 14.19 | 20.25    | 1.250  | 20     | 1.940 | 128.0      |
| PF1600-F        | 16   | 25.50 | 16.19 | 22.50    | 1.375  | 20     | 2.140 | 166.8      |
| PF1800-F        | 18   | 28.00 | 18.19 | 24.75    | 1.375  | 24     | 2.250 | 204.2      |
| PF2000-F        | 20   | 30.50 | 20.19 | 27.00    | 1.375  | 24     | 2.330 | 247.4      |
| PF2200-F        | 22   | 33.00 | 22.19 | 29.25    | 1.375  | 24     | 2.500 | 306.7      |
| PF2400-F        | 24   | 36.00 | 24.19 | 32.00    | 1.625  | 24     | 2.690 | 387.6      |
| PF2600-F        | 26   | 38.25 | 26.19 | 34.50    | 1.875  | 28     | 3.000 | 451.0      |
| PF2800-F        | 28   | 40.75 | 28.19 | 37.00    | 1.875  | 28     | 3.130 | 532.2      |
| PF3000-F        | 30   | 43.00 | 30.19 | 39.25    | 1.875  | 28     | 3.150 | 585.7      |
| PF3200-F        | 32   | 45.25 | 32.19 | 41.50    | 1.875  | 28     | 3.250 | 657.5      |
| PF3400-F        | 34   | 47.50 | 34.19 | 43.50    | 1.875  | 28     | 3.380 | 743.0      |
| PF3600-F        | 36   | 50.00 | 36.19 | 46.00    | 2.125  | 32     | 3.460 | 801.9      |
| PF3800-F        | 38   | 52.25 | 38.19 | 48.00    | 2.125  | 32     | 3.500 | 874.3      |
| PF4000-F        | 40   | 54.25 | 40.19 | 50.25    | 2.125  | 36     | 3.630 | 937.4      |
| PF4200-F        | 42   | 57.00 | 42.19 | 52.75    | 2.125  | 36     | 3.810 | 1103.4     |
| PF4400-F        | 44   | 59.25 | 44.19 | 55.00    | 2.125  | 36     | 4.000 | 1237.2     |
| PF4600-F        | 46   | 61.50 | 46.19 | 57.25    | 2.125  | 40     | 4.130 | 1360.8     |
| PF4800-F        | 48   | 65.00 | 48.19 | 60.75    | 2.125  | 40     | 4.500 | 1736.8     |

**Notes:**

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ANSI class 300 pattern.

**Pressure Ratings: 300psi at atmospheric temperature.**

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



## AWWA Class “B” Steel Blind Flanges - 2013 Specs [86 psi]

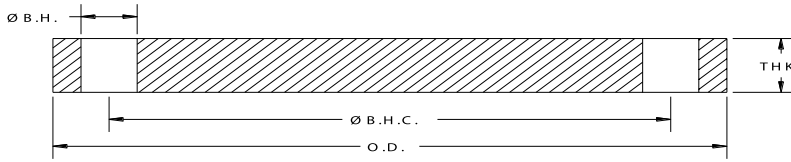
| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| PFBL0400-B      | 4    | 9.00  | BLIND | 7.50     | 0.750  | 8      | 0.625 | 10.6       |
| PFBL0500-B      | 5    | 10.00 | BLIND | 8.50     | 0.875  | 8      | 0.625 | 13.0       |
| PFBL0600-B      | 6    | 11.00 | BLIND | 9.50     | 0.875  | 8      | 0.688 | 17.6       |
| PFBL0800-B      | 8    | 13.50 | BLIND | 11.75    | 0.875  | 8      | 0.688 | 27.0       |
| PFBL1000-B      | 10   | 16.00 | BLIND | 14.25    | 1.000  | 12     | 0.688 | 38.5       |
| PFBL1200-B      | 12   | 19.00 | BLIND | 17.00    | 1.000  | 12     | 0.719 | 67.0       |
| PFBL1400-B      | 14   | 21.00 | BLIND | 18.75    | 1.125  | 12     | 0.791 | 80.0       |
| PFBL1600-B      | 16   | 23.50 | BLIND | 21.25    | 1.125  | 16     | 0.892 | 105.0      |
| PFBL1800-B      | 18   | 25.00 | BLIND | 22.75    | 1.250  | 16     | 0.950 | 132.0      |
| PFBL2000-B      | 20   | 27.50 | BLIND | 25.00    | 1.250  | 20     | 1.040 | 186.0      |
| PFBL2200-B      | 22   | 29.50 | BLIND | 27.25    | 1.375  | 20     | 1.132 | 209.0      |
| PFBL2400-B      | 24   | 32.00 | BLIND | 29.50    | 1.375  | 20     | 1.216 | 268.0      |
| PFBL2600-B      | 26   | 34.25 | BLIND | 31.75    | 1.375  | 24     | 1.307 | 328.0      |
| PFBL2800-B      | 28   | 36.50 | BLIND | 34.00    | 1.375  | 28     | 1.398 | 397.0      |
| PFBL3000-B      | 30   | 38.75 | BLIND | 36.00    | 1.375  | 28     | 1.477 | 488.0      |
| PFBL3200-B      | 32   | 41.75 | BLIND | 38.50    | 1.625  | 28     | 1.581 | 586.0      |
| PFBL3400-B      | 34   | 43.75 | BLIND | 40.50    | 1.625  | 32     | 1.661 | 675.0      |
| PFBL3600-B      | 36   | 46.00 | BLIND | 42.75    | 1.625  | 32     | 1.751 | 790.0      |
| PFBL3800-B      | 38   | 48.75 | BLIND | 45.25    | 1.625  | 32     | 1.853 | 944.0      |
| PFBL4000-B      | 40   | 50.75 | BLIND | 47.25    | 1.625  | 36     | 1.933 | 1066.0     |
| PFBL4200-B      | 42   | 53.00 | BLIND | 49.50    | 1.625  | 36     | 2.023 | 1220.0     |
| PFBL4400-B      | 44   | 55.25 | BLIND | 51.75    | 1.625  | 40     | 2.114 | 1385.0     |
| PFBL4600-B      | 46   | 57.25 | BLIND | 53.75    | 1.625  | 40     | 2.194 | 1547.0     |
| PFBL4800-B      | 48   | 59.50 | BLIND | 56.00    | 1.625  | 44     | 2.285 | 1739.0     |
| PFBL5000-B      | 50   | 61.75 | BLIND | 58.25    | 1.875  | 44     | 2.377 | 1934.0     |
| PFBL5200-B      | 52   | 64.00 | BLIND | 60.50    | 1.875  | 44     | 2.468 | 2163.0     |
| PFBL5400-B      | 54   | 66.25 | BLIND | 62.75    | 1.875  | 44     | 2.559 | 2408.0     |
| PFBL6000-B      | 60   | 73.00 | BLIND | 69.25    | 1.875  | 52     | 2.820 | 3225.0     |
| PFBL6600-B      | 66   | 80.00 | BLIND | 76.00    | 1.875  | 52     | 3.092 | 4272.0     |
| PFBL7200-B      | 72   | 86.50 | BLIND | 82.50    | 1.875  | 60     | 3.353 | 5418.0     |

Notes:

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ANSI class 150 pattern.
- c. AWWA recommends the use of Dish Assemblies for sizes above 72". Call API customer service for additional information.

Pressure Ratings: 86psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



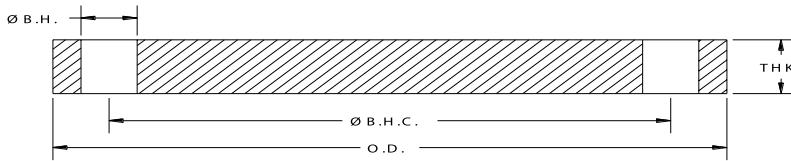
## AWWA Class “D” Steel Blind Flanges [150-175 psi]

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| PFBL0400-D      | 4    | 9.00  | BLIND | 7.50     | 0.750  | 8      | 0.625 | 10.6       |
| PFBL0500-D      | 5    | 10.00 | BLIND | 8.50     | 0.875  | 8      | 0.650 | 13.6       |
| PFBL0600-D      | 6    | 11.00 | BLIND | 9.50     | 0.875  | 8      | 0.693 | 17.7       |
| PFBL0800-D      | 8    | 13.50 | BLIND | 11.75    | 0.875  | 8      | 0.812 | 31.8       |
| PFBL1000-D      | 10   | 16.00 | BLIND | 14.25    | 1.000  | 12     | 0.953 | 51.7       |
| PFBL1200-D      | 12   | 19.00 | BLIND | 17.00    | 1.000  | 12     | 1.117 | 86.7       |
| PFBL1400-D      | 14   | 21.00 | BLIND | 18.75    | 1.125  | 12     | 1.133 | 107.4      |
| PFBL1600-D      | 16   | 23.50 | BLIND | 21.25    | 1.125  | 16     | 1.265 | 149.8      |
| PFBL1800-D      | 18   | 25.00 | BLIND | 22.75    | 1.250  | 16     | 1.331 | 177.7      |
| PFBL2000-D      | 20   | 27.50 | BLIND | 25.00    | 1.250  | 20     | 1.448 | 233.6      |
| PFBL2200-D      | 22   | 29.50 | BLIND | 27.25    | 1.375  | 20     | 1.568 | 290.5      |
| PFBL2400-D      | 24   | 32.00 | BLIND | 29.50    | 1.375  | 20     | 1.661 | 364.5      |
| PFBL2600-D      | 26   | 34.25 | BLIND | 31.75    | 1.375  | 24     | 1.786 | 448.2      |
| PFBL2800-D      | 28   | 36.50 | BLIND | 34.00    | 1.375  | 28     | 1.906 | 542.6      |
| PFBL3000-D      | 30   | 38.75 | BLIND | 36.00    | 1.375  | 28     | 2.008 | 647.3      |
| PFBL3200-D      | 32   | 41.75 | BLIND | 38.50    | 1.625  | 28     | 2.150 | 798.6      |
| PFBL3400-D      | 34   | 43.75 | BLIND | 40.50    | 1.625  | 32     | 2.252 | 916.9      |
| PFBL3600-D      | 36   | 46.00 | BLIND | 42.75    | 1.625  | 32     | 2.370 | 1071.4     |
| PFBL3800-D      | 38   | 48.75 | BLIND | 45.25    | 1.625  | 32     | 2.506 | 1278.2     |
| PFBL4000-D      | 40   | 50.75 | BLIND | 47.25    | 1.625  | 36     | 2.609 | 1440.1     |
| PFBL4200-D      | 42   | 53.00 | BLIND | 49.50    | 1.625  | 36     | 2.729 | 1648.1     |
| PFBL4400-D      | 44   | 55.25 | BLIND | 51.75    | 1.625  | 40     | 2.849 | 1868.2     |
| PFBL4600-D      | 46   | 57.25 | BLIND | 53.75    | 1.625  | 40     | 2.952 | 2083.7     |
| PFBL4800-D      | 48   | 59.50 | BLIND | 56.00    | 1.625  | 44     | 3.072 | 2340.7     |
| PFBL5000-D      | 50   | 61.75 | BLIND | 58.25    | 1.875  | 44     | 3.196 | 2601.9     |
| PFBL5200-D      | 52   | 64.00 | BLIND | 60.50    | 1.875  | 44     | 3.315 | 2907.5     |
| PFBL5400-D      | 54   | 66.25 | BLIND | 62.75    | 1.875  | 44     | 3.435 | 3236.7     |
| PFBL6000-D      | 60   | 73.00 | BLIND | 69.25    | 1.875  | 52     | 3.779 | 4327.6     |
| PFBL6600-D      | 66   | 80.00 | BLIND | 76.00    | 1.875  | 52     | 4.136 | 5722.2     |
| PFBL7200-D      | 72   | 86.50 | BLIND | 82.50    | 1.875  | 60     | 4.480 | 7249.0     |

Notes:

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ANSI class 150 pattern.
- c. AWWA recommends the use of Dish Assemblies for sizes above 72". Call API customer service for additional information.

**Pressure Ratings: 175psi (4" - 12") and 150psi (14" and larger) at atmospheric temperature.**



## AWWA Class “E” Steel Blind Flanges [275 psi]

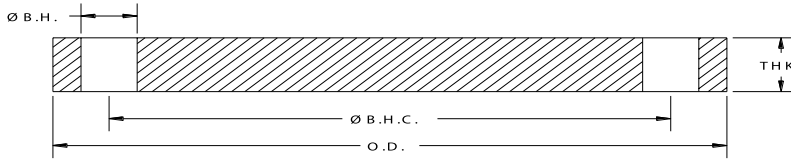
| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| PFBL0400-E      | 4    | 9.00  | BLIND | 7.50     | 0.750  | 8      | 1.125 | 19.2       |
| PFBL0500-E      | 5    | 10.00 | BLIND | 8.50     | 0.875  | 8      | 1.188 | 24.8       |
| PFBL0600-E      | 6    | 11.00 | BLIND | 9.50     | 0.875  | 8      | 1.313 | 33.6       |
| PFBL0800-E      | 8    | 13.50 | BLIND | 11.75    | 0.875  | 8      | 1.500 | 58.8       |
| PFBL1000-E      | 10   | 16.00 | BLIND | 14.25    | 1.000  | 12     | 1.563 | 84.9       |
| PFBL1200-E      | 12   | 19.00 | BLIND | 17.00    | 1.000  | 12     | 1.750 | 135.9      |
| PFBL1400-E      | 14   | 21.00 | BLIND | 18.75    | 1.125  | 12     | 1.875 | 177.7      |
| PFBL1600-E      | 16   | 23.50 | BLIND | 21.25    | 1.125  | 16     | 2.000 | 236.8      |
| PFBL1800-E      | 18   | 25.00 | BLIND | 22.75    | 1.250  | 16     | 2.125 | 283.7      |
| PFBL2000-E      | 20   | 27.50 | BLIND | 25.00    | 1.250  | 20     | 2.375 | 383.2      |
| PFBL2200-E      | 22   | 29.50 | BLIND | 27.25    | 1.375  | 20     | 2.500 | 463.1      |
| PFBL2400-E      | 24   | 32.00 | BLIND | 29.50    | 1.375  | 20     | 2.625 | 576.1      |
| PFBL2600-E      | 26   | 34.25 | BLIND | 31.75    | 1.375  | 24     | 2.750 | 690.1      |
| PFBL2800-E      | 28   | 36.50 | BLIND | 34.00    | 1.375  | 28     | 2.750 | 782.9      |
| PFBL3000-E      | 30   | 38.75 | BLIND | 36.00    | 1.375  | 28     | 2.875 | 926.8      |
| PFBL3200-E      | 32   | 41.75 | BLIND | 38.50    | 1.625  | 28     | 3.000 | 1114.3     |
| PFBL3400-E      | 34   | 43.75 | BLIND | 40.50    | 1.625  | 32     | 3.050 | 1241.8     |
| PFBL3600-E      | 36   | 46.00 | BLIND | 42.75    | 1.625  | 32     | 3.209 | 1450.7     |
| PFBL3800-E      | 38   | 48.75 | BLIND | 45.25    | 1.625  | 32     | 3.394 | 1731.1     |
| PFBL4000-E      | 40   | 50.75 | BLIND | 47.25    | 1.625  | 36     | 3.533 | 1950.2     |
| PFBL4200-E      | 42   | 53.00 | BLIND | 49.50    | 1.625  | 36     | 3.695 | 2231.5     |
| PFBL4400-E      | 44   | 55.25 | BLIND | 51.75    | 1.625  | 40     | 3.857 | 2529.4     |
| PFBL4600-E      | 46   | 57.25 | BLIND | 53.75    | 1.625  | 40     | 3.997 | 2821.3     |
| PFBL4800-E      | 48   | 59.50 | BLIND | 56.00    | 1.625  | 44     | 4.159 | 3169.0     |
| PFBL5000-E      | 50   | 61.75 | BLIND | 58.25    | 1.875  | 44     | 4.327 | 3522.6     |
| PFBL5200-E      | 52   | 64.00 | BLIND | 60.50    | 1.875  | 44     | 4.489 | 3937.1     |
| PFBL5400-E      | 54   | 66.25 | BLIND | 62.75    | 1.875  | 44     | 4.651 | 4382.5     |
| PFBL6000-E      | 60   | 73.00 | BLIND | 69.25    | 1.875  | 52     | 5.116 | 5858.7     |
| PFBL6600-E      | 66   | 80.00 | BLIND | 76.00    | 1.875  | 52     | 5.601 | 7749.0     |
| PFBL7200-E      | 72   | 86.50 | BLIND | 82.50    | 1.875  | 60     | 6.066 | 9815.3     |

**Notes:**

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ANSI class 150 pattern.
- c. AWWA recommends the use of Dish Assemblies for sizes above 72". Call API customer service for additional information.

**Pressure Ratings: 275psi at atmospheric temperature.**

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



## AWWA Class “F” Steel Blind Flanges [300 psi]

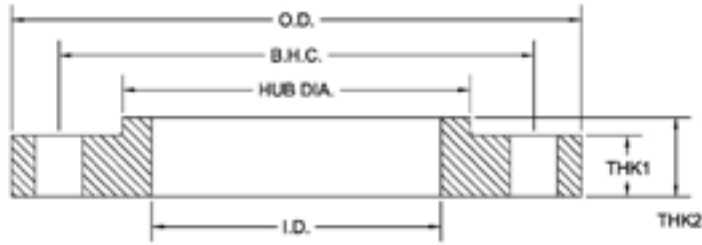
| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| PFBL0400-F      | 4    | 10.00 | BLIND | 7.88     | 0.875  | 8      | 1.130 | 23.6       |
| PFBL0500-F      | 5    | 11.00 | BLIND | 9.25     | 0.875  | 8      | 1.210 | 30.9       |
| PFBL0600-F      | 6    | 12.50 | BLIND | 10.62    | 0.875  | 12     | 1.310 | 42.9       |
| PFBL0800-F      | 8    | 15.00 | BLIND | 13.00    | 1.000  | 12     | 1.310 | 62.1       |
| PFBL1000-F      | 10   | 17.50 | BLIND | 15.25    | 1.125  | 16     | 1.500 | 95.5       |
| PFBL1200-F      | 12   | 20.50 | BLIND | 17.75    | 1.250  | 16     | 1.630 | 143.4      |
| PFBL1400-F      | 14   | 23.00 | BLIND | 20.25    | 1.250  | 20     | 1.940 | 214.9      |
| PFBL1600-F      | 16   | 25.50 | BLIND | 22.50    | 1.375  | 20     | 2.140 | 291.7      |
| PFBL1800-F      | 18   | 28.00 | BLIND | 24.75    | 1.375  | 24     | 2.250 | 369.8      |
| PFBL2000-F      | 20   | 30.50 | BLIND | 27.00    | 1.375  | 24     | 2.330 | 458.8      |
| PFBL2200-F      | 22   | 33.00 | BLIND | 29.25    | 1.375  | 24     | 2.500 | 580.6      |
| PFBL2400-F      | 24   | 36.00 | BLIND | 32.00    | 1.625  | 24     | 2.690 | 737.9      |
| PFBL2600-F      | 26   | 38.25 | BLIND | 34.50    | 1.875  | 28     | 3.000 | 911.0      |
| PFBL2800-F      | 28   | 40.75 | BLIND | 37.00    | 1.875  | 28     | 3.130 | 1088.0     |
| PFBL3000-F      | 30   | 43.00 | BLIND | 39.25    | 1.875  | 28     | 3.166 | 1233.3     |
| PFBL3200-F      | 32   | 45.25 | BLIND | 41.50    | 1.875  | 28     | 3.332 | 1445.2     |
| PFBL3400-F      | 34   | 47.50 | BLIND | 43.50    | 1.875  | 28     | 3.475 | 1668.6     |
| PFBL3600-F      | 36   | 50.00 | BLIND | 46.00    | 2.125  | 32     | 3.671 | 1924.2     |
| PFBL3800-F      | 38   | 52.25 | BLIND | 48.00    | 2.125  | 32     | 3.815 | 2195.0     |
| PFBL4000-F      | 40   | 54.25 | BLIND | 50.25    | 2.125  | 36     | 3.982 | 2463.8     |
| PFBL4200-F      | 42   | 57.00 | BLIND | 52.75    | 2.125  | 36     | 4.171 | 2864.7     |
| PFBL4400-F      | 44   | 59.25 | BLIND | 55.00    | 2.125  | 36     | 4.338 | 3231.9     |
| PFBL4600-F      | 46   | 61.50 | BLIND | 57.25    | 2.125  | 40     | 4.505 | 3628.7     |
| PFBL4800-F      | 48   | 65.00 | BLIND | 60.75    | 2.125  | 40     | 4.781 | 4322.1     |

**Notes:**

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ANSI class 300 pattern.

**Pressure Ratings: 300psi at atmospheric temperature.**

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



## AWWA Class “D” Steel Hub Ring Flange [150-175 psi]

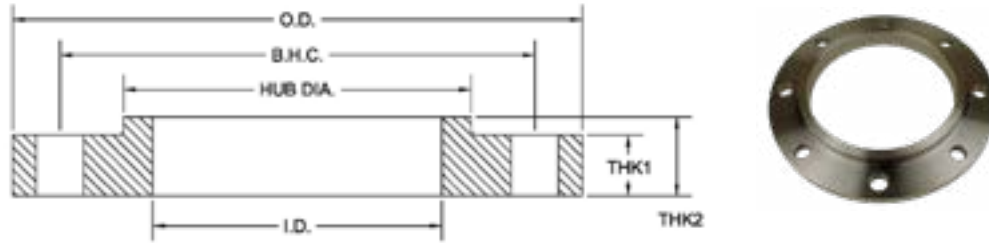
| API Part Number | Size | O.D.   | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | L     | H.D.    | Weight Lbs |
|-----------------|------|--------|-------|----------|--------|--------|-------|-------|---------|------------|
| PF0400-D-H      | 4    | 9.00   | 4.57  | 7.50     | 0.750  | 8      | 0.500 | 0.875 | 5.312   | 6.8        |
| PF0500-D-H      | 5    | 10.00  | 5.66  | 8.50     | 0.875  | 8      | 0.562 | 1.250 | 6.312   | 8.9        |
| PF0600-D-H      | 6    | 11.00  | 6.72  | 9.50     | 0.875  | 8      | 0.562 | 1.250 | 7.562   | 10.5       |
| PF0800-D-H      | 8    | 13.50  | 8.72  | 11.75    | 0.875  | 8      | 0.562 | 1.250 | 9.688   | 15.2       |
| PF1000-D-H      | 10   | 16.00  | 10.88 | 14.25    | 1.000  | 12     | 0.688 | 1.250 | 12.000  | 22.4       |
| PF1200-D-H      | 12   | 19.00  | 12.88 | 17.00    | 1.000  | 12     | 0.688 | 1.250 | 14.375  | 33.1       |
| PF1400-D-H      | 14   | 21.00  | 14.19 | 18.75    | 1.125  | 12     | 0.750 | 1.250 | 15.750  | 42.6       |
| PF1600-D-H      | 16   | 23.50  | 16.19 | 21.25    | 1.125  | 16     | 0.750 | 1.250 | 18.000  | 51.9       |
| PF1800-D-H      | 18   | 25.00  | 18.19 | 22.75    | 1.250  | 16     | 0.750 | 1.250 | 19.875  | 52.0       |
| PF2000-D-H      | 20   | 27.50  | 20.19 | 25.00    | 1.250  | 20     | 0.750 | 1.250 | 22.000  | 61.4       |
| PF2200-D-H      | 22   | 29.50  | 22.19 | 27.25    | 1.375  | 20     | 1.000 | 1.750 | 24.250  | 91.5       |
| PF2400-D-H      | 24   | 32.00  | 24.19 | 29.50    | 1.375  | 20     | 1.000 | 1.750 | 26.125  | 105.0      |
| PF2600-D-H      | 26   | 34.25  | 26.19 | 31.75    | 1.375  | 24     | 1.000 | 1.750 | 28.500  | 119.0      |
| PF2800-D-H      | 28   | 36.50  | 28.19 | 34.00    | 1.375  | 28     | 1.000 | 1.750 | 30.500  | 129.0      |
| PF3000-D-H      | 30   | 38.75  | 30.19 | 36.00    | 1.375  | 28     | 1.000 | 1.750 | 32.500  | 143.0      |
| PF3200-D-H      | 32   | 41.75  | 32.19 | 38.50    | 1.625  | 28     | 1.125 | 1.750 | 34.750  | 180.0      |
| PF3400-D-H      | 34   | 43.75  | 34.19 | 40.50    | 1.625  | 32     | 1.125 | 1.750 | 36.750  | 189.0      |
| PF3600-D-H      | 36   | 46.00  | 36.19 | 42.75    | 1.625  | 32     | 1.125 | 1.750 | 38.750  | 206.0      |
| PF3800-D-H      | 38   | 48.75  | 38.19 | 45.25    | 1.625  | 32     | 1.125 | 1.750 | 40.750  | 236.0      |
| PF4000-D-H      | 40   | 50.75  | 40.19 | 47.25    | 1.625  | 36     | 1.125 | 1.750 | 43.000  | 247.0      |
| PF4200-D-H      | 42   | 53.00  | 42.19 | 49.50    | 1.625  | 36     | 1.250 | 1.750 | 45.000  | 285.0      |
| PF4400-D-H      | 44   | 55.25  | 44.19 | 51.75    | 1.625  | 40     | 1.250 | 2.250 | 47.000  | 333.0      |
| PF4600-D-H      | 46   | 57.25  | 46.19 | 53.75    | 1.625  | 40     | 1.250 | 2.250 | 49.000  | 348.0      |
| PF4800-D-H      | 48   | 59.50  | 48.19 | 56.00    | 1.625  | 44     | 1.375 | 2.500 | 51.000  | 404.0      |
| PF5000-D-H      | 50   | 61.75  | 50.19 | 58.25    | 1.875  | 44     | 1.375 | 2.500 | 53.000  | 420.0      |
| PF5200-D-H      | 52   | 64.00  | 52.19 | 60.50    | 1.875  | 44     | 1.375 | 2.500 | 55.000  | 447.0      |
| PF5400-D-H      | 54   | 66.25  | 54.19 | 62.75    | 1.875  | 44     | 1.375 | 2.500 | 57.000  | 472.0      |
| PF6000-D-H      | 60   | 73.00  | 60.19 | 69.25    | 1.875  | 52     | 1.500 | 2.750 | 63.000  | 604.0      |
| PF6600-D-H      | 66   | 80.00  | 66.19 | 76.00    | 1.875  | 52     | 1.500 | 2.750 | 69.000  | 717.0      |
| PF7200-D-H      | 72   | 86.50  | 72.19 | 82.50    | 1.875  | 60     | 1.500 | 2.750 | 75.000  | 801.0      |
| PF7800-D-H      | 78   | 93.00  | 78.19 | 89.00    | 2.125  | 64     | 1.750 | 3.000 | 81.250  | 1009.0     |
| PF8400-D-H      | 84   | 99.75  | 84.19 | 95.50    | 2.125  | 64     | 1.750 | 3.000 | 87.500  | 1158.0     |
| PF9000-D-H      | 90   | 106.50 | 90.19 | 102.00   | 2.438  | 68     | 2.000 | 3.200 | 93.750  | 1430.0     |
| PF9600-D-H      | 96   | 113.25 | 96.19 | 108.50   | 2.438  | 68     | 2.000 | 3.250 | 100.000 | 1625.0     |

**Notes:**

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ANSI class 150 pattern.

**Pressure Ratings: 175psi (4" - 12") 150psi (14" and larger) at atmospheric temperature.**

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



## AWWA Class “E” Steel Hub Ring Flange [275 psi]

| API Part Number | Size | O.D.   | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | THK 2 | H.D.    | Weight Lbs |
|-----------------|------|--------|-------|----------|--------|--------|-------|-------|---------|------------|
| PF0400-E-H      | 4    | 9.00   | 4.57  | 7.50     | 0.750  | 8      | 0.938 | 1.312 | 5.312   | 12.2       |
| PF0500-E-H      | 5    | 10.00  | 5.66  | 8.50     | 0.875  | 8      | 0.938 | 1.438 | 6.438   | 13.9       |
| PF0600-E-H      | 6    | 11.00  | 6.72  | 9.50     | 0.875  | 8      | 1.000 | 1.562 | 7.562   | 17.0       |
| PF0800-E-H      | 8    | 13.50  | 8.72  | 11.75    | 0.875  | 8      | 1.125 | 1.750 | 9.688   | 27.5       |
| PF1000-E-H      | 10   | 16.00  | 10.88 | 14.25    | 1.000  | 12     | 1.188 | 1.938 | 12.000  | 37.4       |
| PF1200-E-H      | 12   | 19.00  | 12.88 | 17.00    | 1.000  | 12     | 1.250 | 2.188 | 14.375  | 59.4       |
| PF1400-E-H      | 14   | 21.00  | 14.19 | 18.75    | 1.125  | 12     | 1.375 | 2.250 | 15.750  | 77.7       |
| PF1600-E-H      | 16   | 23.50  | 16.19 | 21.25    | 1.125  | 16     | 1.438 | 2.500 | 18.000  | 100.0      |
| PF1800-E-H      | 18   | 25.00  | 18.19 | 22.75    | 1.250  | 16     | 1.562 | 2.688 | 19.875  | 109.0      |
| PF2000-E-H      | 20   | 27.50  | 20.19 | 25.00    | 1.250  | 20     | 1.688 | 2.875 | 22.000  | 139.0      |
| PF2200-E-H      | 22   | 29.50  | 22.19 | 27.25    | 1.375  | 20     | 1.812 | 3.125 | 24.000  | 161.0      |
| PF2400-E-H      | 24   | 32.00  | 24.19 | 29.50    | 1.375  | 20     | 1.875 | 3.250 | 26.125  | 198.0      |
| PF2600-E-H      | 26   | 34.25  | 26.19 | 31.75    | 1.375  | 24     | 2.000 | 3.375 | 28.500  | 235.0      |
| PF2800-E-H      | 28   | 36.50  | 28.19 | 34.00    | 1.375  | 28     | 2.062 | 3.438 | 30.750  | 168.0      |
| PF3000-E-H      | 30   | 38.75  | 30.19 | 36.00    | 1.375  | 28     | 2.125 | 3.530 | 32.750  | 303.0      |
| PF3200-E-H      | 32   | 41.75  | 32.19 | 38.50    | 1.625  | 28     | 2.250 | 3.625 | 35.000  | 375.0      |
| PF3400-E-H      | 34   | 43.75  | 34.19 | 40.50    | 1.625  | 32     | 2.312 | 3.688 | 37.000  | 400.0      |
| PF3600-E-H      | 36   | 46.00  | 36.19 | 42.75    | 1.625  | 32     | 2.375 | 3.750 | 39.250  | 450.0      |
| PF3800-E-H      | 38   | 48.75  | 38.19 | 45.25    | 1.625  | 32     | 2.375 | 3.750 | 41.750  | 527.0      |
| PF4000-E-H      | 40   | 50.75  | 40.19 | 47.25    | 1.625  | 36     | 2.500 | 3.875 | 43.750  | 570.0      |
| PF4200-E-H      | 42   | 53.00  | 42.19 | 49.50    | 1.625  | 36     | 2.625 | 4.000 | 46.000  | 650.0      |
| PF4400-E-H      | 44   | 55.25  | 44.19 | 51.75    | 1.625  | 40     | 2.625 | 4.000 | 48.000  | 687.0      |
| PF4600-E-H      | 46   | 57.25  | 46.19 | 53.75    | 1.625  | 40     | 2.688 | 4.062 | 50.000  | 732.0      |
| PF4800-E-H      | 48   | 59.50  | 48.19 | 56.00    | 1.625  | 44     | 2.750 | 4.125 | 52.250  | 800.0      |
| PF5000-E-H      | 50   | 61.75  | 50.19 | 58.25    | 1.875  | 44     | 2.750 | 4.125 | 54.250  | 826.0      |
| PF5200-E-H      | 52   | 64.00  | 52.19 | 60.50    | 1.875  | 44     | 2.875 | 4.250 | 56.500  | 921.0      |
| PF5400-E-H      | 54   | 66.25  | 54.19 | 62.75    | 1.875  | 44     | 3.000 | 4.375 | 58.750  | 1022.0     |
| PF6000-E-H      | 60   | 73.00  | 60.19 | 69.25    | 1.875  | 52     | 3.125 | 4.500 | 65.250  | 1252.0     |
| PF6600-E-H      | 66   | 80.00  | 66.19 | 76.00    | 1.875  | 52     | 3.375 | 4.875 | 71.500  | 1621.0     |
| PF7200-E-H      | 72   | 86.50  | 72.19 | 82.50    | 1.875  | 60     | 3.500 | 5.000 | 78.500  | 1919.0     |
| PF7800-E-H      | 78   | 93.00  | 78.19 | 89.00    | 2.125  | 64     | 3.875 | 5.375 | 84.500  | 2277.0     |
| PF8400-E-H      | 84   | 99.75  | 84.19 | 95.50    | 2.125  | 64     | 3.875 | 5.375 | 90.500  | 2583.0     |
| PF9000-E-H      | 90   | 106.50 | 90.19 | 102.00   | 2.438  | 68     | 4.250 | 5.750 | 96.750  | 3076.0     |
| PF9600-E-H      | 96   | 113.25 | 96.19 | 108.50   | 2.438  | 68     | 4.250 | 5.750 | 102.750 | 3448.0     |

Notes:

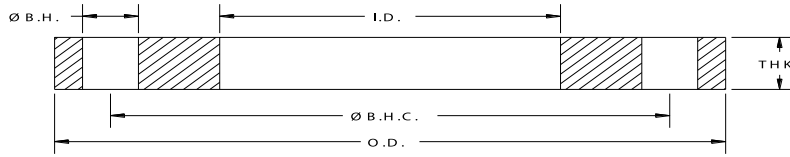
a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.

b. Meets ANSI class 150 pattern.

Pressure Ratings: 275psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.





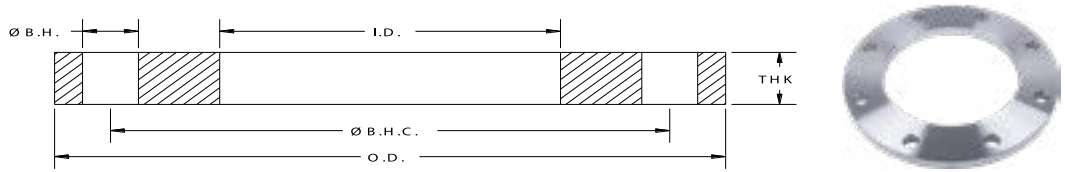
## AWWA Class “SA” Stainless Steel-Ring Flanges [50psi]

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C | Ø B.H. | # B.H | THK   | Weight lbs |
|-----------------|------|-------|-------|---------|--------|-------|-------|------------|
| SPF0200-A       | 2    | 6.00  | 2.44  | 4.75    | 0.625  | 4     | 0.500 | 3.0        |
| SPF0250-A       | 2.5  | 7.00  | 2.94  | 5.50    | 0.625  | 4     | 0.500 | 4.0        |
| SPF0300-A       | 3    | 7.50  | 3.57  | 6.00    | 0.625  | 4     | 0.500 | 4.7        |
| SPF0400-A       | 4    | 9.00  | 4.57  | 7.50    | 0.625  | 8     | 0.500 | 6.4        |
| SPF0500-A       | 5    | 10.00 | 5.66  | 8.50    | 0.750  | 8     | 0.500 | 7.2        |
| SPF0600-A       | 6    | 11.00 | 6.72  | 9.50    | 0.750  | 8     | 0.500 | 8.4        |
| SPF0800-A       | 8    | 13.50 | 8.72  | 11.75   | 0.750  | 8     | 0.500 | 11.4       |
| SPF1000-A       | 10   | 16.00 | 10.88 | 14.25   | 0.875  | 12    | 0.625 | 17.4       |
| SPF1200-A       | 12   | 19.00 | 12.88 | 17.00   | 0.875  | 12    | 0.625 | 25.5       |
| SPF1400-A       | 14   | 21.00 | 14.19 | 18.75   | 1.000  | 12    | 0.625 | 31.3       |

Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L. Material conforms to the requirements of AWWA C228 specifications. Other material is available upon request.
- b. Meets ANSI class 150 pattern.
- c. For flanges larger than 14" see AWWA Class "B"
- d. Class SB is being sold as the recommended product for sizes 10", 12", 14" and meet/exceed the required pressure ratings for Class SA
- e. Thickness Spec's (sizes 10", 12", 14"):
  - i. AWWA Class A requires minimum .625" (+.125;- .000).
  - ii. AWWA Class B requires minimum .688" (.125"; -.000).
- f. AWWA Class A acceptable thickness (sizes 10", 12", 14"): .625 -.750"
- g. **Pressure Ratings: 275psi at atmospheric temperature.**

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



## AWWA Class “SB” Stainless Steel-Ring Flanges [86 psi]

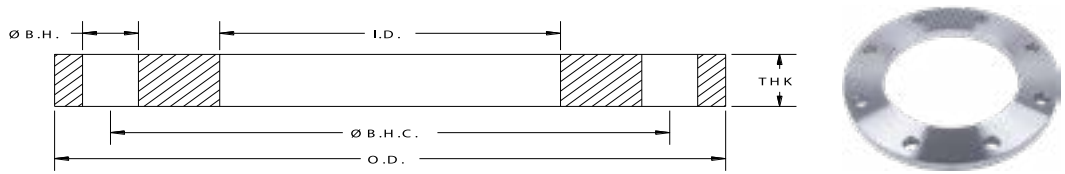
| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| SPF0200-B       | 2    | 6.00  | 2.44  | 4.75     | 0.750  | 4      | 0.625 | 3.9        |
| SPF0250-B       | 2.5  | 7.00  | 2.94  | 5.50     | 0.750  | 4      | 0.625 | 5.3        |
| SPF0300-B       | 3    | 7.50  | 3.57  | 6.00     | 0.750  | 4      | 0.625 | 5.7        |
| SPF0400-B       | 4    | 9.00  | 4.57  | 7.50     | 0.750  | 8      | 0.625 | 7.7        |
| SPF0500-B       | 5    | 10.00 | 5.66  | 8.50     | 0.875  | 8      | 0.625 | 8.6        |
| SPF0600-B       | 6    | 11.00 | 6.72  | 9.50     | 0.875  | 8      | 0.688 | 10.7       |
| SPF0800-B       | 8    | 13.50 | 8.72  | 11.75    | 0.875  | 8      | 0.688 | 15.3       |
| SPF1000-B       | 10   | 16.00 | 10.88 | 14.25    | 1.000  | 12     | 0.688 | 19.2       |
| SPF1200-B       | 12   | 19.00 | 12.88 | 17.00    | 1.000  | 12     | 0.688 | 29.3       |
| SPF1400-B       | 14   | 21.00 | 14.19 | 18.75    | 1.125  | 12     | 0.688 | 36.2       |
| SPF1600-B       | 16   | 23.50 | 16.19 | 21.25    | 1.125  | 16     | 0.688 | 42.2       |
| SPF1800-B       | 18   | 25.00 | 18.19 | 22.75    | 1.250  | 16     | 0.688 | 44.8       |
| SPF2000-B       | 20   | 27.50 | 20.19 | 25.00    | 1.250  | 20     | 0.688 | 52.1       |
| SPF2200-B       | 22   | 29.50 | 22.19 | 27.25    | 1.375  | 20     | 0.750 | 60.9       |
| SPF2400-B       | 24   | 32.00 | 24.19 | 29.50    | 1.375  | 20     | 0.750 | 71.0       |
| SPF2600-B       | 26   | 34.25 | 26.19 | 31.75    | 1.375  | 24     | 0.812 | 80.0       |
| SPF2800-B       | 28   | 36.50 | 28.19 | 34.00    | 1.375  | 28     | 0.875 | 94.0       |
| SPF3000-B       | 30   | 38.75 | 30.19 | 36.00    | 1.375  | 28     | 0.875 | 108.0      |
| SPF3200-B       | 32   | 41.75 | 32.19 | 38.50    | 1.625  | 28     | 0.938 | 121.0      |
| SPF3400-B       | 34   | 43.75 | 34.19 | 40.50    | 1.625  | 32     | 0.938 | 137.0      |
| SPF3600-B       | 36   | 46.00 | 36.19 | 42.75    | 1.625  | 32     | 1.000 | 166.0      |
| SPF3800-B       | 38   | 48.75 | 38.19 | 45.25    | 1.625  | 32     | 1.000 | 185.0      |
| SPF4000-B       | 40   | 50.75 | 40.19 | 47.25    | 1.625  | 36     | 1.000 | 203.0      |
| SPF4200-B       | 42   | 53.00 | 42.19 | 49.50    | 1.625  | 36     | 1.125 | 241.0      |
| SPF4400-B       | 44   | 55.25 | 44.19 | 51.75    | 1.625  | 40     | 1.125 | 248.0      |
| SPF4600-B       | 46   | 57.25 | 46.19 | 53.75    | 1.625  | 40     | 1.125 | 259.0      |
| SPF4800-B       | 48   | 59.50 | 48.19 | 56.00    | 1.625  | 44     | 1.250 | 285.0      |
| SPF5000-B       | 50   | 61.75 | 50.19 | 58.25    | 1.875  | 44     | 1.250 | 316.0      |
| SPF5200-B       | 52   | 64.00 | 52.19 | 60.50    | 1.875  | 44     | 1.250 | 338.0      |
| SPF5400-B       | 54   | 66.25 | 54.19 | 62.75    | 1.875  | 44     | 1.375 | 397.0      |
| SPF6000-B       | 60   | 73.00 | 60.19 | 69.25    | 1.875  | 52     | 1.500 | 472.0      |

**Notes:**

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L. Material conforms to the requirements of AWWA C228 specifications. Other material is available upon request.
- b. Meets ANSI class 150 pattern.
- c. For flanges in smaller sizes see page 4.3.

**Pressure Ratings: 86psi at atmospheric temperature.**

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



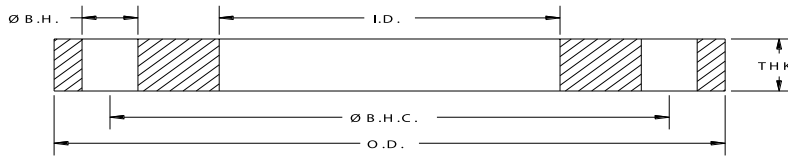
## AWWA Class “SD” Stainless Steel-Ring Flanges [150-175 psi]

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| SPF0200-D       | 2    | 6.00  | 2.44  | 4.75     | 0.750  | 4      | 0.625 | 3.9        |
| SPF0250-D       | 2.5  | 7.00  | 2.94  | 5.50     | 0.750  | 4      | 0.625 | 5.3        |
| SPF0300-D       | 3    | 7.50  | 3.57  | 6.00     | 0.750  | 4      | 0.625 | 5.7        |
| SPF0400-D       | 4    | 9.00  | 4.57  | 7.50     | 0.750  | 8      | 0.625 | 8.1        |
| SPF0500-D       | 5    | 10.00 | 5.66  | 8.50     | 0.875  | 8      | 0.625 | 9.1        |
| SPF0600-D       | 6    | 11.00 | 6.72  | 9.50     | 0.875  | 8      | 0.688 | 10.7       |
| SPF0800-D       | 8    | 13.50 | 8.72  | 11.75    | 0.875  | 8      | 0.688 | 15.7       |
| SPF1000-D       | 10   | 16.00 | 10.88 | 14.25    | 1.000  | 12     | 0.688 | 19.3       |
| SPF1200-D       | 12   | 19.00 | 12.88 | 17.00    | 1.000  | 12     | 0.812 | 33.9       |
| SPF1400-D       | 14   | 21.00 | 14.19 | 18.75    | 1.125  | 12     | 0.938 | 47.3       |
| SPF1600-D       | 16   | 23.50 | 16.19 | 21.25    | 1.125  | 16     | 1.000 | 60.8       |
| SPF1800-D       | 18   | 25.00 | 18.19 | 22.75    | 1.250  | 16     | 1.062 | 65.2       |
| SPF2000-D       | 20   | 27.50 | 20.19 | 25.00    | 1.250  | 20     | 1.125 | 81.2       |
| SPF2200-D       | 22   | 29.50 | 22.19 | 27.25    | 1.375  | 20     | 1.188 | 90.8       |
| SPF2400-D       | 24   | 32.00 | 24.19 | 29.50    | 1.375  | 20     | 1.250 | 112.0      |
| SPF2600-D       | 26   | 34.25 | 26.19 | 31.75    | 1.375  | 24     | 1.312 | 132.0      |
| SPF2800-D       | 28   | 36.50 | 28.19 | 34.00    | 1.375  | 28     | 1.312 | 148.0      |
| SPF3000-D       | 30   | 38.75 | 30.19 | 36.00    | 1.375  | 28     | 1.375 | 169.0      |
| SPF3200-D       | 32   | 41.75 | 32.19 | 38.50    | 1.625  | 28     | 1.500 | 211.0      |
| SPF3400-D       | 34   | 43.75 | 34.19 | 40.50    | 1.625  | 32     | 1.500 | 219.0      |
| SPF3600-D       | 36   | 46.00 | 36.19 | 42.75    | 1.625  | 32     | 1.625 | 265.0      |
| SPF3800-D       | 38   | 48.75 | 38.19 | 45.25    | 1.625  | 32     | 1.625 | 300.0      |
| SPF4000-D       | 40   | 50.75 | 40.19 | 47.25    | 1.625  | 36     | 1.625 | 311.0      |
| SPF4200-D       | 42   | 53.00 | 42.19 | 49.50    | 1.625  | 36     | 1.750 | 362.0      |
| SPF4400-D       | 44   | 55.25 | 44.19 | 51.75    | 1.625  | 40     | 1.750 | 385.0      |
| SPF4600-D       | 46   | 57.25 | 46.19 | 53.75    | 1.625  | 40     | 1.750 | 404.0      |
| SPF4800-D       | 48   | 59.50 | 48.19 | 56.00    | 1.625  | 44     | 1.875 | 457.0      |
| SPF5000-D       | 50   | 61.75 | 50.19 | 58.25    | 1.875  | 44     | 2.000 | 505.0      |
| SPF5200-D       | 52   | 64.00 | 52.19 | 60.50    | 1.875  | 44     | 2.000 | 539.0      |
| SPF5400-D       | 54   | 66.25 | 54.19 | 62.75    | 1.875  | 44     | 2.125 | 611.0      |
| SPF6000-D       | 60   | 73.00 | 60.19 | 69.25    | 1.875  | 52     | 2.250 | 760.0      |

**Notes:**

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L. Material conforms to the requirements of AWWA C228 specifications. Other material is available upon request.
- b. Meets ANSI class 150 pattern.
- c. For flanges in smaller sizes see page 4.3.

**Pressure Ratings: 175psi (4" - 12") and 150psi (14" and larger) at atmospheric temperature.**



## AWWA Class “SE” Stainless Steel-Ring Flanges [275 psi]

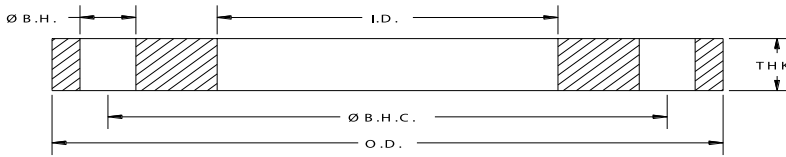
| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| SPF0200-E       | 2    | 6.00  | 2.44  | 4.75     | 0.750  | 4      | 1.125 | 6.9        |
| SPF0250-E       | 2.5  | 7.00  | 2.94  | 5.50     | 0.750  | 4      | 1.125 | 9.5        |
| SPF0300-E       | 3    | 7.50  | 3.57  | 6.00     | 0.750  | 4      | 1.125 | 10.3       |
| SPF0400-E       | 4    | 9.00  | 4.57  | 7.50     | 0.750  | 8      | 1.125 | 14.1       |
| SPF0500-E       | 5    | 10.00 | 5.66  | 8.50     | 0.875  | 8      | 1.188 | 16.7       |
| SPF0600-E       | 6    | 11.00 | 6.72  | 9.50     | 0.875  | 8      | 1.313 | 21.1       |
| SPF0800-E       | 8    | 13.50 | 8.72  | 11.75    | 0.875  | 8      | 1.500 | 34.4       |
| SPF1000-E       | 10   | 16.00 | 10.88 | 14.25    | 1.000  | 12     | 1.563 | 45.9       |
| SPF1200-E       | 12   | 19.00 | 12.88 | 17.00    | 1.000  | 12     | 1.750 | 72.3       |
| SPF1400-E       | 14   | 21.00 | 14.19 | 18.75    | 1.125  | 12     | 1.875 | 97.7       |
| SPF1600-E       | 16   | 23.50 | 16.19 | 21.25    | 1.125  | 16     | 2.000 | 123.4      |
| SPF1800-E       | 18   | 25.00 | 18.19 | 22.75    | 1.250  | 16     | 2.125 | 130.0      |
| SPF2000-E       | 20   | 27.50 | 20.19 | 25.00    | 1.250  | 20     | 2.375 | 171.0      |
| SPF2200-E       | 22   | 29.50 | 22.19 | 27.25    | 1.375  | 20     | 2.500 | 189.0      |
| SPF2400-E       | 24   | 32.00 | 24.19 | 29.50    | 1.375  | 20     | 2.625 | 234.0      |
| SPF2600-E       | 26   | 34.25 | 26.19 | 31.75    | 1.375  | 24     | 2.750 | 270.0      |
| SPF2800-E       | 28   | 36.50 | 28.19 | 34.00    | 1.375  | 28     | 2.750 | 296.0      |
| SPF3000-E       | 30   | 38.75 | 30.19 | 36.00    | 1.375  | 28     | 2.875 | 350.0      |
| SPF3200-E       | 32   | 41.75 | 32.19 | 38.50    | 1.625  | 28     | 3.000 | 396.0      |
| SPF3400-E       | 34   | 43.75 | 34.19 | 40.50    | 1.625  | 32     | 3.000 | 440.0      |
| SPF3600-E       | 36   | 46.00 | 36.19 | 42.75    | 1.625  | 32     | 3.125 | 511.0      |
| SPF3800-E       | 38   | 48.75 | 38.19 | 45.25    | 1.625  | 32     | 3.125 | 579.0      |
| SPF4000-E       | 40   | 50.75 | 40.19 | 47.25    | 1.625  | 36     | 3.250 | 625.0      |
| SPF4200-E       | 42   | 53.00 | 42.19 | 49.50    | 1.625  | 36     | 3.375 | 689.0      |
| SPF4400-E       | 44   | 55.25 | 44.19 | 51.75    | 1.625  | 40     | 3.375 | 746.0      |
| SPF4600-E       | 46   | 57.25 | 46.19 | 53.75    | 1.625  | 40     | 3.438 | 799.0      |
| SPF4800-E       | 48   | 59.50 | 48.19 | 56.00    | 1.625  | 44     | 3.500 | 857.0      |
| SPF5000-E       | 50   | 61.75 | 50.19 | 58.25    | 1.875  | 44     | 3.500 | 886.0      |
| SPF5200-E       | 52   | 64.00 | 52.19 | 60.50    | 1.875  | 44     | 3.625 | 992.0      |
| SPF5400-E       | 54   | 66.25 | 54.19 | 62.75    | 1.875  | 44     | 3.750 | 1082.0     |
| SPF6000-E       | 60   | 73.00 | 60.19 | 69.25    | 1.875  | 52     | 3.875 | 1312.0     |
| SPF6600-E       | 66   | 80.00 | 66.19 | 76.00    | 1.875  | 52     | 4.250 | 1735.0     |
| SPF7200-E       | 72   | 86.50 | 72.19 | 82.50    | 1.875  | 60     | 4.375 | 2004.0     |

**Notes:**

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L. Material conforms to the requirements of AWWA C228 specifications. Other material is available upon request.
- b. Meets ANSI class 150 pattern.
- c. For flanges in smaller sizes see page 4.3.

**Pressure Ratings: 275psi at atmospheric temperature.**

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



## AWWA Class “SF” Stainless Steel-Ring Flanges [300 psi]

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| SPF0400-F       | 4    | 10.00 | 4.57  | 7.88     | 0.875  | 8      | 1.130 | 18.4       |
| SPF0500-F       | 5    | 11.00 | 5.66  | 9.25     | 0.875  | 8      | 1.210 | 22.3       |
| SPF0600-F       | 6    | 12.50 | 6.72  | 10.62    | 0.875  | 12     | 1.310 | 29.7       |
| SPF0800-F       | 8    | 15.00 | 8.72  | 13.00    | 1.000  | 12     | 1.310 | 39.9       |
| SPF1000-F       | 10   | 17.50 | 10.88 | 15.25    | 1.125  | 16     | 1.500 | 56.0       |
| SPF1200-F       | 12   | 20.50 | 12.88 | 17.75    | 1.250  | 16     | 1.630 | 84.9       |
| SPF1400-F       | 14   | 23.00 | 14.19 | 20.25    | 1.250  | 20     | 1.940 | 127.0      |
| SPF1600-F       | 16   | 25.50 | 16.19 | 22.50    | 1.375  | 20     | 2.140 | 166.0      |
| SPF1800-F       | 18   | 28.00 | 18.19 | 24.75    | 1.375  | 24     | 2.250 | 205.0      |
| SPF2000-F       | 20   | 30.50 | 20.19 | 27.00    | 1.375  | 24     | 2.330 | 247.0      |
| SPF2200-F       | 22   | 33.00 | 22.19 | 29.25    | 1.375  | 24     | 2.500 | 307.0      |
| SPF2400-F       | 24   | 36.00 | 24.19 | 32.00    | 1.625  | 24     | 2.690 | 388.0      |
| SPF2600-F       | 26   | 38.25 | 26.25 | 34.50    | 1.875  | 28     | 3.000 | 450.0      |
| SPF2800-F       | 28   | 40.75 | 28.25 | 37.00    | 1.875  | 28     | 3.130 | 532.0      |
| SPF3000-F       | 30   | 43.00 | 30.25 | 39.25    | 1.875  | 28     | 3.150 | 585.0      |
| SPF3200-F       | 32   | 45.25 | 32.25 | 41.50    | 1.875  | 28     | 3.250 | 657.0      |
| SPF3400-F       | 34   | 47.50 | 34.25 | 43.50    | 1.875  | 28     | 3.380 | 740.0      |
| SPF3600-F       | 36   | 50.00 | 36.25 | 46.00    | 2.125  | 32     | 3.460 | 801.0      |
| SPF3800-F       | 38   | 52.25 | 38.25 | 48.00    | 2.125  | 32     | 3.500 | 873.0      |
| SPF4000-F       | 40   | 54.25 | 40.25 | 50.25    | 2.125  | 36     | 3.630 | 936.0      |
| SPF4200-F       | 42   | 57.00 | 42.25 | 52.75    | 2.125  | 36     | 3.810 | 1102.0     |
| SPF4400-F       | 44   | 59.25 | 44.25 | 55.00    | 2.125  | 36     | 4.000 | 1236.0     |
| SPF4600-F       | 46   | 61.50 | 46.25 | 57.25    | 2.125  | 40     | 4.130 | 1343.0     |
| SPF4800-F       | 48   | 65.00 | 48.25 | 60.75    | 2.125  | 40     | 4.500 | 1717.0     |

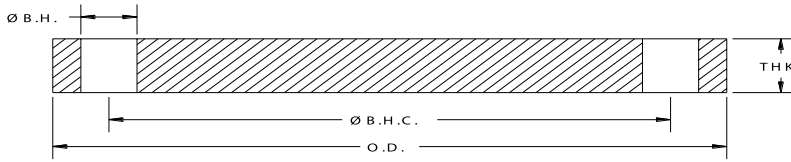
**Notes:**

a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L. Material conforms to the requirements of AWWA C228 specifications. Other material is available upon request.

b. Meets ANSI class 300 pattern.

**Pressure Ratings: 300 psi at atmospheric temperature.**

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



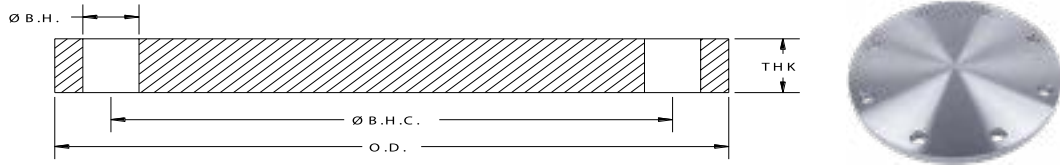
## AWWA Class “SA” Stainless Steel Blind Flanges [50 psi]

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C | Ø B.H. | # B.H | THK   | Weight lbs |
|-----------------|------|-------|-------|---------|--------|-------|-------|------------|
| SPFBL0200-A     | 2    | 6.00  | BLIND | 4.75    | 0.750  | 4     | 0.500 | 4.0        |
| SPFBL0250-A     | 2.5  | 7.00  | BLIND | 5.50    | 0.750  | 4     | 0.500 | 5.5        |
| SPFBL0300-A     | 3    | 7.50  | BLIND | 6.00    | 0.750  | 4     | 0.500 | 6.2        |
| SPFBL0350-A     | 3.5  | 8.50  | BLIND | 7.00    | 0.750  | 8     | 0.500 | 7.5        |
| SPFBL0400-A     | 4    | 9.00  | BLIND | 7.50    | 0.750  | 8     | 0.500 | 9.1        |
| SPFBL0500-A     | 5    | 10.00 | BLIND | 8.50    | 0.875  | 8     | 0.500 | 11.0       |
| SPFBL0600-A     | 6    | 11.00 | BLIND | 9.50    | 0.875  | 8     | 0.500 | 14.3       |
| SPFBL0800-A     | 8    | 13.50 | BLIND | 11.75   | 0.875  | 8     | 0.500 | 20.0       |

Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.. Material conforms to the requirements of AWWA C228 specifications. Other material is available upon request.
- b. Meets ANSI class 150 pattern.
- c. For flanges larger than 8" see AWWA Class "B"
- d. **Pressure Ratings: 275psi at atmospheric temperature.**

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



## AWWA Class “SB” Stainless Steel Blind Flanges (86 psi)

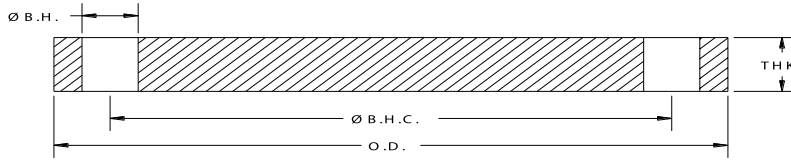
| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| SPFBL0400-B     | 4    | 9.00  | BLIND | 7.50     | 0.750  | 8      | 0.625 | 11.0       |
| SPFBL0500-B     | 5    | 10.00 | BLIND | 8.50     | 0.875  | 8      | 0.625 | 13.0       |
| SPFBL0600-B     | 6    | 11.00 | BLIND | 9.50     | 0.875  | 8      | 0.688 | 18.0       |
| SPFBL0800-B     | 8    | 13.50 | BLIND | 11.75    | 0.875  | 8      | 0.688 | 27.0       |
| SPFBL1000-B     | 10   | 16.00 | BLIND | 14.25    | 1.000  | 12     | 0.688 | 38.0       |
| SPFBL1200-B     | 12   | 19.00 | BLIND | 17.00    | 1.000  | 12     | 0.719 | 56.0       |
| SPFBL1400-B     | 14   | 21.00 | BLIND | 18.75    | 1.125  | 12     | 0.791 | 75.0       |
| SPFBL1600-B     | 16   | 23.50 | BLIND | 21.25    | 1.125  | 16     | 0.892 | 105.0      |
| SPFBL1800-B     | 18   | 25.00 | BLIND | 22.75    | 1.250  | 16     | 0.950 | 126.0      |
| SPFBL2000-B     | 20   | 27.50 | BLIND | 25.00    | 1.250  | 20     | 1.040 | 167.0      |
| SPFBL2200-B     | 22   | 29.50 | BLIND | 27.25    | 1.375  | 20     | 1.132 | 209.0      |
| SPFBL2400-B     | 24   | 32.00 | BLIND | 29.50    | 1.375  | 20     | 1.216 | 267.0      |
| SPFBL2600-B     | 26   | 34.25 | BLIND | 31.75    | 1.375  | 24     | 1.307 | 327.0      |
| SPFBL2800-B     | 28   | 36.50 | BLIND | 34.00    | 1.375  | 28     | 1.398 | 397.0      |
| SPFBL3000-B     | 30   | 38.75 | BLIND | 36.00    | 1.375  | 28     | 1.477 | 475.0      |
| SPFBL3200-B     | 32   | 41.75 | BLIND | 38.50    | 1.625  | 28     | 1.581 | 586.0      |
| SPFBL3400-B     | 34   | 43.75 | BLIND | 40.50    | 1.625  | 32     | 1.661 | 675.0      |
| SPFBL3600-B     | 36   | 46.00 | BLIND | 42.75    | 1.625  | 32     | 1.751 | 790.0      |
| SPFBL3800-B     | 38   | 48.75 | BLIND | 45.25    | 1.625  | 32     | 1.853 | 944.0      |
| SPFBL4000-B     | 40   | 50.75 | BLIND | 47.25    | 1.625  | 36     | 1.933 | 1066.0     |
| SPFBL4200-B     | 42   | 53.00 | BLIND | 49.50    | 1.625  | 36     | 2.023 | 1220.0     |
| SPFBL4400-B     | 44   | 55.25 | BLIND | 51.75    | 1.625  | 40     | 2.114 | 1385.0     |
| SPFBL4600-B     | 46   | 57.25 | BLIND | 53.75    | 1.625  | 40     | 2.194 | 1547.0     |
| SPFBL4800-B     | 48   | 59.50 | BLIND | 56.00    | 1.625  | 44     | 2.285 | 1739.0     |
| SPFBL5000-B     | 50   | 61.75 | BLIND | 58.25    | 1.875  | 44     | 2.377 | 1934.0     |
| SPFBL5200-B     | 52   | 64.00 | BLIND | 60.50    | 1.875  | 44     | 2.468 | 2163.0     |
| SPFBL5400-B     | 54   | 66.25 | BLIND | 62.75    | 1.875  | 44     | 2.559 | 2408.0     |
| SPFBL6000-B     | 60   | 73.00 | BLIND | 69.25    | 1.875  | 52     | 2.820 | 3225.0     |
| SPFBL6600-B     | 66   | 80.00 | BLIND | 76.00    | 1.875  | 52     | 3.092 | 4272.0     |
| SPFBL7200-B     | 72   | 86.50 | BLIND | 82.50    | 1.875  | 60     | 3.353 | 5418.0     |

**Notes:**

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L. Material conforms to the requirements of AWWA C228 specifications. Other material is available upon request.
- b. Meets ANSI class 150 pattern.
- c. AWWA recommends the use of Dish Assemblies for sizes above 72". Call API customer service for additional information.

**Pressure Ratings: 86psi at atmospheric temperature.**

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



## AWWA Class “SD” Stainless Steel Blind Flanges - 1986 Spec’s

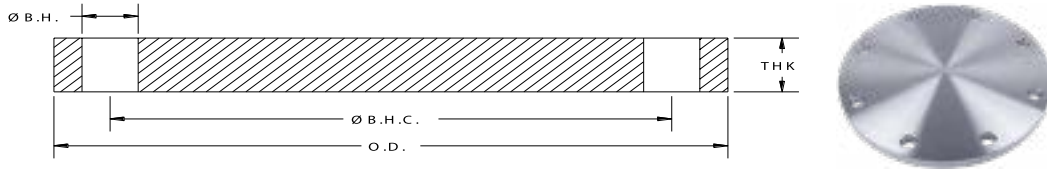
| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| SPFBL0400-86    | 4    | 9.00  | BLIND | 7.50     | 0.750  | 8      | 0.625 | 11.0       |
| SPFBL0500-86    | 5    | 10.00 | BLIND | 8.50     | 0.875  | 8      | 0.625 | 13.0       |
| SPFBL0600-86    | 6    | 11.00 | BLIND | 9.50     | 0.875  | 8      | 0.688 | 18.0       |
| SPFBL0800-86    | 8    | 13.50 | BLIND | 11.75    | 0.875  | 8      | 0.688 | 27.0       |
| SPFBL1000-86    | 10   | 16.00 | BLIND | 14.25    | 1.000  | 12     | 0.688 | 38.0       |
| SPFBL1200-86    | 12   | 19.00 | BLIND | 17.00    | 1.000  | 12     | 0.813 | 64.0       |
| SPFBL1400-86    | 14   | 21.00 | BLIND | 18.75    | 1.125  | 12     | 0.938 | 88.0       |
| SPFBL1600-86    | 16   | 23.50 | BLIND | 21.25    | 1.125  | 16     | 1.000 | 118.0      |
| SPFBL1800-86    | 18   | 25.00 | BLIND | 22.75    | 1.250  | 16     | 1.063 | 141.0      |
| SPFBL2000-86    | 20   | 27.50 | BLIND | 25.00    | 1.250  | 20     | 1.125 | 181.0      |
| SPFBL2400-86    | 24   | 32.00 | BLIND | 29.50    | 1.375  | 20     | 1.250 | 273.0      |
| SPFBL3000-86    | 30   | 38.75 | BLIND | 36.00    | 1.375  | 28     | 1.375 | 436.0      |
| SPFBL3600-86    | 36   | 46.00 | BLIND | 42.75    | 1.625  | 32     | 1.625 | 735.0      |
| SPFBL4200-86    | 42   | 53.00 | BLIND | 49.50    | 1.625  | 36     | 1.750 | 1057.0     |
| SPFBL4800-86    | 48   | 59.50 | BLIND | 56.00    | 1.625  | 44     | 1.875 | 1428.0     |
| SPFBL6000-86    | 60   | 73.00 | BLIND | 69.25    | 1.875  | 52     | 2.250 | 2574.0     |

Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L. Material conforms to the requirements of AWWA C228 specifications. Other material is available upon request.
- b. Meets ANSI class 150 pattern.
- c. Manufactured to AWWA C207-1986 dimensional specifications.
- d. AWWA recommends the use of Dish Assemblies for sizes above 72". Call API customer service for additional information.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.





## AWWA Class “SD” Stainless Steel Blind Flanges [150-175 psi]

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| SPFBL0400-D     | 4    | 9.00  | BLIND | 7.50     | 0.750  | 8      | 0.625 | 11.0       |
| SPFBL0500-D     | 5    | 10.00 | BLIND | 8.50     | 0.875  | 8      | 0.650 | 13.0       |
| SPFBL0600-D     | 6    | 11.00 | BLIND | 9.50     | 0.875  | 8      | 0.693 | 18.0       |
| SPFBL0800-D     | 8    | 13.50 | BLIND | 11.75    | 0.875  | 8      | 0.813 | 31.0       |
| SPFBL1000-D     | 10   | 16.00 | BLIND | 14.25    | 1.000  | 12     | 0.953 | 52.0       |
| SPFBL1200-D     | 12   | 19.00 | BLIND | 17.00    | 1.000  | 12     | 1.117 | 87.0       |
| SPFBL1400-D     | 14   | 21.00 | BLIND | 18.75    | 1.125  | 12     | 1.133 | 107.0      |
| SPFBL1600-D     | 16   | 23.50 | BLIND | 21.25    | 1.125  | 16     | 1.265 | 150.0      |
| SPFBL1800-D     | 18   | 25.00 | BLIND | 22.75    | 1.250  | 16     | 1.331 | 178.0      |
| SPFBL2000-D     | 20   | 27.50 | BLIND | 25.00    | 1.250  | 20     | 1.448 | 234.0      |
| SPFBL2200-D     | 22   | 29.50 | BLIND | 27.25    | 1.375  | 20     | 1.568 | 290.0      |
| SPFBL2400-D     | 24   | 32.00 | BLIND | 29.50    | 1.375  | 20     | 1.661 | 365.0      |
| SPFBL2600-D     | 26   | 34.25 | BLIND | 31.75    | 1.375  | 24     | 1.786 | 447.0      |
| SPFBL2800-D     | 28   | 36.50 | BLIND | 34.00    | 1.375  | 28     | 1.906 | 542.0      |
| SPFBL3000-D     | 30   | 38.75 | BLIND | 36.00    | 1.375  | 28     | 2.008 | 647.0      |
| SPFBL3200-D     | 32   | 41.75 | BLIND | 38.50    | 1.625  | 28     | 2.150 | 798.0      |
| SPFBL3400-D     | 34   | 43.75 | BLIND | 40.50    | 1.625  | 32     | 2.252 | 916.0      |
| SPFBL3600-D     | 36   | 46.00 | BLIND | 42.75    | 1.625  | 32     | 2.370 | 1071.0     |
| SPFBL3800-D     | 38   | 48.75 | BLIND | 45.25    | 1.625  | 32     | 2.506 | 1277.0     |
| SPFBL4000-D     | 40   | 50.75 | BLIND | 47.25    | 1.625  | 36     | 2.609 | 1439.0     |
| SPFBL4200-D     | 42   | 53.00 | BLIND | 49.50    | 1.625  | 36     | 2.729 | 1648.0     |
| SPFBL4400-D     | 44   | 55.25 | BLIND | 51.75    | 1.625  | 40     | 2.849 | 1867.0     |
| SPFBL4600-D     | 46   | 57.25 | BLIND | 53.75    | 1.625  | 40     | 2.952 | 2082.0     |
| SPFBL4800-D     | 48   | 59.50 | BLIND | 56.00    | 1.625  | 44     | 3.072 | 2340.0     |
| SPFBL5000-D     | 50   | 61.75 | BLIND | 58.25    | 1.875  | 44     | 3.196 | 2600.0     |
| SPFBL5200-D     | 52   | 64.00 | BLIND | 60.50    | 1.875  | 44     | 3.315 | 2906.0     |
| SPFBL5400-D     | 54   | 66.25 | BLIND | 62.75    | 1.875  | 44     | 3.435 | 3235.0     |
| SPFBL6000-D     | 60   | 73.00 | BLIND | 69.25    | 1.875  | 52     | 3.779 | 4328.0     |
| SPFBL6600-D     | 66   | 80.00 | BLIND | 76.00    | 1.875  | 52     | 4.136 | 5719.0     |

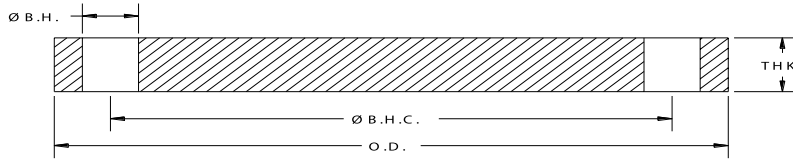
**Notes:**

a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L. Material conforms to the requirements of AWWA C228 specifications. Other material is available upon request.

b. Meets ANSI class 150 pattern.

c. AWWA recommends the use of Dish Assemblies for sizes above 72". Call API customer service for additional information.

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



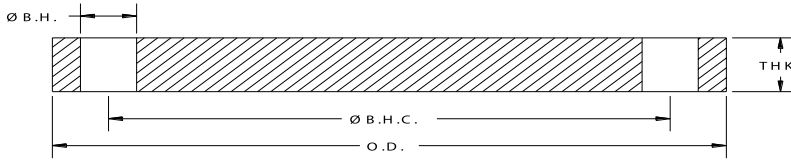
## AWWA Class “SE” Stainless Steel Blind Flanges [275psi]

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| SPFBL0400-E     | 4    | 9.00  | BLIND | 7.50     | 0.750  | 8      | 1.125 | 19.0       |
| SPFBL0500-E     | 5    | 10.00 | BLIND | 8.50     | 0.875  | 8      | 1.188 | 24.0       |
| SPFBL0600-E     | 6    | 11.00 | BLIND | 9.50     | 0.875  | 8      | 1.313 | 33.0       |
| SPFBL0800-E     | 8    | 13.50 | BLIND | 11.75    | 0.875  | 8      | 1.500 | 58.0       |
| SPFBL1000-E     | 10   | 16.00 | BLIND | 14.25    | 1.000  | 12     | 1.563 | 84.0       |
| SPFBL1200-E     | 12   | 19.00 | BLIND | 17.00    | 1.000  | 12     | 1.750 | 135.0      |
| SPFBL1400-E     | 14   | 21.00 | BLIND | 18.75    | 1.125  | 12     | 1.875 | 176.0      |
| SPFBL1600-E     | 16   | 23.50 | BLIND | 21.25    | 1.125  | 16     | 2.000 | 234.0      |
| SPFBL1800-E     | 18   | 25.00 | BLIND | 22.75    | 1.250  | 16     | 2.125 | 283.0      |
| SPFBL2000-E     | 20   | 27.50 | BLIND | 25.00    | 1.250  | 20     | 2.375 | 382.0      |
| SPFBL2200-E     | 22   | 29.50 | BLIND | 27.25    | 1.375  | 20     | 2.500 | 462.0      |
| SPFBL2400-E     | 24   | 32.00 | BLIND | 29.50    | 1.375  | 20     | 2.625 | 575.0      |
| SPFBL2600-E     | 26   | 34.25 | BLIND | 31.75    | 1.375  | 24     | 2.750 | 689.0      |
| SPFBL2800-E     | 28   | 36.50 | BLIND | 34.00    | 1.375  | 28     | 2.750 | 782.0      |
| SPFBL3000-E     | 30   | 38.75 | BLIND | 36.00    | 1.375  | 28     | 2.875 | 926.0      |
| SPFBL3200-E     | 32   | 41.75 | BLIND | 38.50    | 1.625  | 28     | 3.000 | 1113.0     |
| SPFBL3400-E     | 34   | 43.75 | BLIND | 40.50    | 1.625  | 32     | 3.050 | 1241.0     |
| SPFBL3600-E     | 36   | 46.00 | BLIND | 42.75    | 1.625  | 32     | 3.209 | 1450.0     |
| SPFBL3800-E     | 38   | 48.75 | BLIND | 45.25    | 1.625  | 32     | 3.394 | 1730.0     |
| SPFBL4000-E     | 40   | 50.75 | BLIND | 47.25    | 1.625  | 36     | 3.533 | 1949.0     |
| SPFBL4200-E     | 42   | 53.00 | BLIND | 49.50    | 1.625  | 36     | 3.695 | 2230.0     |
| SPFBL4400-E     | 44   | 55.25 | BLIND | 51.75    | 1.625  | 40     | 3.857 | 2528.0     |
| SPFBL4600-E     | 46   | 57.25 | BLIND | 53.75    | 1.625  | 40     | 3.997 | 2819.0     |
| SPFBL4800-E     | 48   | 59.50 | BLIND | 56.00    | 1.625  | 44     | 4.159 | 3167.0     |
| SPFBL5000-E     | 50   | 61.75 | BLIND | 58.25    | 1.875  | 44     | 4.327 | 3520.0     |
| SPFBL5200-E     | 52   | 64.00 | BLIND | 60.50    | 1.875  | 44     | 4.489 | 3935.0     |
| SPFBL5400-E     | 54   | 66.25 | BLIND | 62.75    | 1.875  | 44     | 4.651 | 4380.0     |
| SPFBL6000-E     | 60   | 73.00 | BLIND | 69.25    | 1.875  | 52     | 5.116 | 5855.0     |
| SPFBL6600-E     | 66   | 80.00 | BLIND | 76.00    | 1.875  | 52     | 5.601 | 7745.0     |
| SPFBL7200-E     | 72   | 86.50 | BLIND | 82.50    | 1.875  | 60     | 6.066 | 9810.0     |

Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L. Material conforms to the requirements of AWWA C228 specifications. Other material is available upon request.
- b. Meets ANSI class 150 pattern
- c. AWWA recommends the use of Dish Assemblies for sizes above 72". Call API customer service for additional information.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



## AWWA Class “SF” Stainless Steel Blind Flanges [300 psi]

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| SPFBL0400-F     | 4    | 10.00 | BLIND | 7.88     | 0.875  | 8      | 1.130 | 23.0       |
| SPFBL0500-F     | 5    | 11.00 | BLIND | 9.25     | 0.875  | 8      | 1.210 | 31.0       |
| SPFBL0600-F     | 6    | 12.50 | BLIND | 10.62    | 0.875  | 12     | 1.310 | 43.0       |
| SPFBL0800-F     | 8    | 15.00 | BLIND | 13.00    | 1.000  | 12     | 1.310 | 62.0       |
| SPFBL1000-F     | 10   | 17.50 | BLIND | 15.25    | 1.125  | 16     | 1.500 | 96.0       |
| SPFBL1200-F     | 12   | 20.50 | BLIND | 17.75    | 1.250  | 16     | 1.630 | 143.0      |
| SPFBL1400-F     | 14   | 23.00 | BLIND | 20.25    | 1.250  | 20     | 1.940 | 214.0      |
| SPFBL1600-F     | 16   | 25.50 | BLIND | 22.50    | 1.375  | 20     | 2.140 | 291.0      |
| SPFBL1800-F     | 18   | 28.00 | BLIND | 24.75    | 1.375  | 24     | 2.250 | 369.0      |
| SPFBL2000-F     | 20   | 30.50 | BLIND | 27.00    | 1.375  | 24     | 2.330 | 458.0      |
| SPFBL2200-F     | 22   | 33.00 | BLIND | 29.25    | 1.375  | 24     | 2.500 | 580.0      |
| SPFBL2400-F     | 24   | 36.00 | BLIND | 32.00    | 1.625  | 24     | 2.690 | 737.0      |
| SPFBL2600-F     | 26   | 38.25 | BLIND | 34.50    | 1.875  | 28     | 3.000 | 910.0      |
| SPFBL2800-F     | 28   | 40.75 | BLIND | 37.00    | 1.875  | 28     | 3.130 | 1087.0     |
| SPFBL3000-F     | 30   | 43.00 | BLIND | 39.25    | 1.875  | 28     | 3.166 | 1232.0     |
| SPFBL3200-F     | 32   | 45.25 | BLIND | 41.50    | 1.875  | 28     | 3.332 | 1444.0     |
| SPFBL3400-F     | 34   | 47.50 | BLIND | 43.50    | 1.875  | 28     | 3.475 | 1667.0     |
| SPFBL3600-F     | 36   | 50.00 | BLIND | 46.00    | 2.125  | 32     | 3.671 | 1923.0     |
| SPFBL3800-F     | 38   | 52.25 | BLIND | 48.00    | 2.125  | 32     | 3.815 | 2193.0     |
| SPFBL4000-F     | 40   | 54.25 | BLIND | 50.25    | 2.125  | 36     | 3.982 | 2462.0     |
| SPFBL4200-F     | 42   | 57.00 | BLIND | 52.75    | 2.125  | 36     | 4.171 | 2863.0     |
| SPFBL4400-F     | 44   | 59.25 | BLIND | 55.00    | 2.125  | 36     | 4.338 | 3230.0     |
| SPFBL4600-F     | 46   | 61.50 | BLIND | 57.25    | 2.125  | 40     | 4.505 | 3608.0     |
| SPFBL4800-F     | 48   | 65.00 | BLIND | 60.75    | 2.125  | 40     | 4.781 | 4300.0     |

**Notes:**

a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L. Material conforms to the requirements of AWWA C228 specifications. Other material is available upon request.

b. Meets ANSI class 300 pattern.

**Pressure Ratings: 300psi at atmospheric temperature.**

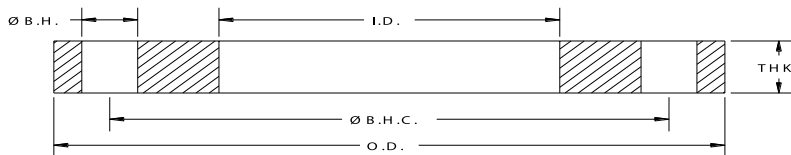
**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



# Light Weight Flanges (1/2" & 5/8" Thick)

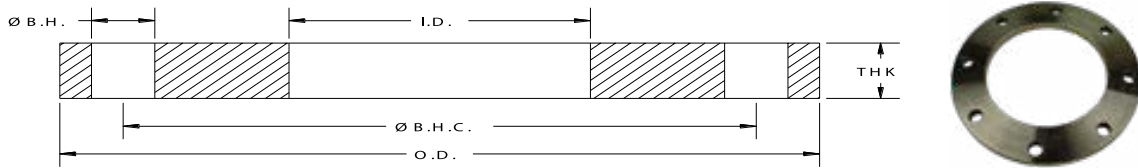
Domestic & Import





## 1/2" Thick Steel Slip-on Flanges

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| PFH0100         | 1    | 4.25  | 1.36  | 3.13     | 0.630  | 4      | 0.500 | 1.8        |
| PFH0200         | 2    | 6.00  | 2.44  | 4.75     | 0.750  | 4      | 0.500 | 3.1        |
| PFH0250         | 2.5  | 7.00  | 2.94  | 5.50     | 0.750  | 4      | 0.500 | 4.2        |
| PFH0300         | 3    | 7.50  | 3.57  | 6.00     | 0.750  | 4      | 0.500 | 4.7        |
| PFH0350         | 3.5  | 8.50  | 4.07  | 7.00     | 0.750  | 8      | 0.500 | 5.5        |
| PFH0400         | 4    | 9.00  | 4.57  | 7.50     | 0.750  | 8      | 0.500 | 6.4        |
| PFH0500         | 5    | 10.00 | 5.66  | 8.50     | 0.875  | 8      | 0.500 | 7.2        |
| PFH0600         | 6    | 11.00 | 6.72  | 9.50     | 0.875  | 8      | 0.500 | 8.4        |
| PFH0800         | 8    | 13.50 | 8.72  | 11.75    | 0.875  | 8      | 0.500 | 11.4       |
| PFH1000         | 10   | 16.00 | 10.88 | 14.25    | 1.000  | 12     | 0.500 | 14.6       |
| PFH1200         | 12   | 19.00 | 12.88 | 17.00    | 1.000  | 12     | 0.500 | 21.6       |
| PFH1400         | 14   | 21.00 | 14.19 | 18.75    | 1.125  | 12     | 0.500 | 25.0       |
| PFH1600         | 16   | 23.50 | 16.19 | 21.25    | 1.125  | 16     | 0.500 | 30.0       |
| PFH1800         | 18   | 25.00 | 18.19 | 22.75    | 1.250  | 16     | 0.500 | 30.0       |
| PFH2000         | 20   | 27.50 | 20.19 | 25.00    | 1.250  | 20     | 0.500 | 36.0       |
| PFH2200         | 22   | 29.50 | 22.19 | 27.25    | 1.375  | 20     | 0.500 | 40.0       |
| PFH2400         | 24   | 32.00 | 24.19 | 29.50    | 1.375  | 20     | 0.500 | 45.0       |
| PFH2600         | 26   | 34.25 | 26.19 | 31.75    | 1.375  | 24     | 0.500 | 48.0       |
| PFH2800         | 28   | 36.50 | 28.19 | 34.00    | 1.375  | 28     | 0.500 | 54.0       |
| PFH3000         | 30   | 38.75 | 30.19 | 36.00    | 1.375  | 28     | 0.500 | 61.0       |
| PFH3200         | 32   | 41.75 | 32.19 | 38.50    | 1.625  | 28     | 0.500 | 74.0       |
| PFH3400         | 34   | 43.75 | 34.19 | 40.50    | 1.625  | 32     | 0.500 | 80.0       |
| PFH3600         | 36   | 46.00 | 36.19 | 42.75    | 1.625  | 32     | 0.500 | 83.0       |
| PFH3800         | 38   | 48.75 | 38.19 | 45.25    | 1.625  | 32     | 0.500 | 93.0       |
| PFH4000         | 40   | 50.75 | 40.19 | 47.25    | 1.625  | 36     | 0.500 | 96.0       |
| PFH4200         | 42   | 53.00 | 42.19 | 49.50    | 1.625  | 36     | 0.500 | 107.0      |
| PFH4400         | 44   | 55.25 | 44.19 | 51.75    | 1.625  | 40     | 0.500 | 111.0      |
| PFH4600         | 46   | 57.25 | 46.19 | 53.75    | 1.625  | 40     | 0.500 | 115.0      |
| PFH4800         | 48   | 59.50 | 48.19 | 56.00    | 1.625  | 44     | 0.500 | 122.0      |



## 1/2" Thick Reducing Steel Flanges

| API Part Number | Size    | O.D.  | I.D.  | Ø B.H.C | Ø B.H | # B.H | THK   | Weight lbs |
|-----------------|---------|-------|-------|---------|-------|-------|-------|------------|
| PFHR0300-206    | 3 x 2   | 7.50  | 2.06  | 6.00    | 0.750 | 4     | 0.500 | 5.5        |
| PFHR0400-306    | 4 x 3   | 9.00  | 3.06  | 7.50    | 0.750 | 8     | 0.500 | 8.0        |
| PFHR0400-357    | 4 x 3   | 9.00  | 3.57  | 7.50    | 0.750 | 8     | 0.500 | 7.2        |
| PFHR0500-306    | 5 x 3   | 10.00 | 3.06  | 8.50    | 0.875 | 8     | 0.500 | 9.5        |
| PFHR0500-357    | 5 x 3   | 10.00 | 3.57  | 8.50    | 0.850 | 8     | 0.500 | 9.3        |
| PFHR0500-406    | 5 x 4   | 10.00 | 4.06  | 8.50    | 0.875 | 8     | 0.500 | 8.8        |
| PFHR0500-457    | 5 x 4   | 10.00 | 4.57  | 8.50    | 0.875 | 8     | 0.500 | 8.2        |
| PFHR0600-406    | 6 x 4   | 11.00 | 4.06  | 9.50    | 0.875 | 8     | 0.500 | 12.0       |
| PFHR0600-457    | 6 x 4   | 11.00 | 4.57  | 9.50    | 0.875 | 8     | 0.500 | 11.4       |
| PFHR0600-506    | 6 x 5   | 11.00 | 5.06  | 9.50    | 0.875 | 8     | 0.500 | 10.8       |
| PFHR0600-563    | 6 x 5   | 11.00 | 5.63  | 9.50    | 0.875 | 8     | 0.500 | 9.6        |
| PFHR0800-406    | 8 x 4   | 13.50 | 4.06  | 11.75   | 0.875 | 8     | 0.500 | 17.7       |
| PFHR0800-506    | 8 x 5   | 13.50 | 5.06  | 11.75   | 0.875 | 8     | 0.500 | 16.8       |
| PFHR0800-563    | 8 x 5   | 13.50 | 5.63  | 11.75   | 0.875 | 8     | 0.500 | 16.1       |
| PFHR0800-606    | 8 x 6   | 13.50 | 6.06  | 11.75   | 0.875 | 8     | 0.500 | 15.6       |
| PFHR0800-672    | 8 x 6   | 13.50 | 6.72  | 11.75   | 0.875 | 8     | 0.500 | 14.7       |
| PFHR1000-606    | 10 x 6  | 16.00 | 6.06  | 14.25   | 1.000 | 12    | 0.500 | 23.4       |
| PFHR1000-672    | 10 x 6  | 16.00 | 6.72  | 14.25   | 1.000 | 12    | 0.500 | 26.0       |
| PFHR1000-806    | 10 x 8  | 16.00 | 8.06  | 14.25   | 1.000 | 12    | 0.500 | 20.0       |
| PFHR1000-872    | 10 x 8  | 16.00 | 8.72  | 14.25   | 1.000 | 12    | 0.500 | 19.3       |
| PFHR1200-806    | 12 x 8  | 19.00 | 8.06  | 17.00   | 1.000 | 12    | 0.500 | 32.0       |
| PFHR1200-1006   | 12 x 10 | 19.00 | 10.06 | 17.00   | 1.000 | 12    | 0.500 | 28.5       |
| PFHR1200-1075   | 12 x 10 | 19.00 | 10.75 | 17.00   | 1.000 | 12    | 0.500 | 27.0       |
| PFHR1200-1088   | 12 x 10 | 19.00 | 10.88 | 17.00   | 1.000 | 12    | 0.500 | 26.0       |
| PFHR1400-806    | 14 x 8  | 21.00 | 8.06  | 18.75   | 1.125 | 12    | 0.500 | 40.1       |
| PFHR1400-1006   | 14 x 10 | 21.00 | 10.06 | 18.75   | 1.125 | 12    | 0.500 | 36.1       |
| PFHR1400-1206   | 14 x 12 | 21.00 | 12.06 | 18.75   | 1.125 | 12    | 0.500 | 32.0       |
| PFHR1600-806    | 16 x 8  | 23.50 | 8.06  | 21.25   | 1.125 | 16    | 0.500 | 52.5       |
| PFHR1600-1006   | 16 x 10 | 23.50 | 10.06 | 21.25   | 1.125 | 16    | 0.500 | 34.0       |
| PFHR1600-1206   | 16 x 12 | 23.50 | 12.06 | 21.25   | 1.125 | 16    | 0.500 | 41.0       |
| PFHR1600-1406   | 16 x 14 | 23.50 | 14.06 | 21.25   | 1.125 | 16    | 0.500 | 40.0       |
| PFHR1800-1406   | 18 x 14 | 25.00 | 14.06 | 22.75   | 1.250 | 16    | 0.500 | 44.9       |
| PFHR2000-1206   | 20 x 12 | 27.50 | 14.06 | 25.00   | 1.250 | 20    | 0.500 | 48.0       |
| PFHR2200-2019   | 20x 22  | 29.50 | 20.19 | 27.25   | 1.380 | 20    | 0.500 | 48.5       |

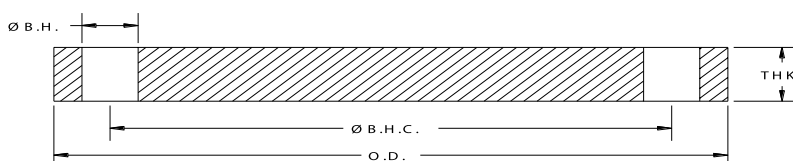
Notes:

- a. Flange material is steel (to AWWA C207-13 specifications). Specific grades of steel for structural or critical applications are available upon request.
- b. Meets ANSI Class 150 pattern

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**

## 1/2" Thick Steel Slip-on Flanges for O.D. Tubing

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| PFH0200-16      | 2    | 6.00  | 2.06  | 4.75     | 0.750  | 4      | 0.500 | 3.5        |
| PFH0250-16      | 2.5  | 7.00  | 2.56  | 5.50     | 0.750  | 4      | 0.500 | 4.5        |
| PFH0300-16      | 3    | 7.50  | 3.06  | 6.00     | 0.750  | 4      | 0.500 | 5.3        |
| PFH0350-16      | 3.5  | 8.50  | 3.56  | 7.00     | 0.750  | 8      | 0.500 | 6.0        |
| PFH0400-16      | 4    | 9.00  | 4.06  | 7.50     | 0.750  | 8      | 0.500 | 6.9        |
| PFH0500-16      | 5    | 10.00 | 5.06  | 8.50     | 0.875  | 8      | 0.500 | 8.0        |
| PFH0600-16      | 6    | 11.00 | 6.09  | 9.50     | 0.875  | 8      | 0.500 | 9.0        |
| PFH0800-16      | 8    | 13.50 | 8.09  | 11.75    | 0.875  | 8      | 0.500 | 12.6       |
| PFH1000-16      | 10   | 16.00 | 10.12 | 14.25    | 1.000  | 12     | 0.500 | 16.3       |
| PFH1200-16      | 12   | 19.00 | 12.12 | 17.00    | 1.000  | 12     | 0.500 | 22.5       |



## 1/2" Thick Steel Blind Flanges

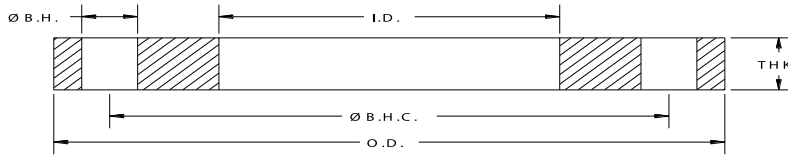
| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| PFBH0200        | 2    | 6.00  | BLIND | 4.75     | 0.750  | 4      | 0.500 | 4.0        |
| PFBH0250        | 2.5  | 7.00  | BLIND | 5.50     | 0.750  | 4      | 0.500 | 5.5        |
| PFBH0300        | 3    | 7.50  | BLIND | 6.00     | 0.750  | 4      | 0.500 | 6.5        |
| PFBH0350        | 3.5  | 8.50  | BLIND | 7.00     | 0.750  | 8      | 0.500 | 7.5        |
| PFBH0400        | 4    | 9.00  | BLIND | 7.50     | 0.750  | 8      | 0.500 | 9.0        |
| PFBH0500        | 5    | 10.00 | BLIND | 8.50     | 0.875  | 8      | 0.500 | 11.5       |
| PFBH0600        | 6    | 11.00 | BLIND | 9.50     | 0.875  | 8      | 0.500 | 13.5       |
| PFBH0800        | 8    | 13.50 | BLIND | 11.75    | 0.875  | 8      | 0.500 | 21.0       |
| PFBH1000        | 10   | 16.00 | BLIND | 14.25    | 1.000  | 12     | 0.500 | 27.8       |
| PFBH1200        | 12   | 19.00 | BLIND | 17.00    | 1.000  | 12     | 0.500 | 41.8       |
| PFBH1400        | 14   | 21.00 | BLIND | 18.75    | 1.125  | 12     | 0.500 | 51.5       |
| PFBH1600        | 16   | 23.50 | BLIND | 21.25    | 1.125  | 16     | 0.500 | 60.0       |
| PFBH1800        | 18   | 25.00 | BLIND | 22.75    | 1.250  | 16     | 0.500 | 70.0       |
| PFBH2000        | 20   | 27.50 | BLIND | 25.00    | 1.250  | 20     | 0.500 | 90.0       |
| PFBH2200        | 22   | 29.50 | BLIND | 27.25    | 1.375  | 20     | 0.500 | 93.0       |
| PFBH2400        | 24   | 32.00 | BLIND | 29.50    | 1.375  | 20     | 0.500 | 112.0      |
| PFBH2600        | 26   | 34.25 | BLIND | 31.75    | 1.375  | 24     | 0.500 | 125.0      |
| PFBH2800        | 28   | 36.50 | BLIND | 34.00    | 1.375  | 28     | 0.500 | 143.0      |
| PFBH3000        | 30   | 38.75 | BLIND | 36.00    | 1.375  | 28     | 0.500 | 161.0      |
| PFBH3200        | 32   | 41.75 | BLIND | 38.50    | 1.625  | 28     | 0.500 | 185.0      |
| PFBH3400        | 34   | 43.75 | BLIND | 40.50    | 1.625  | 32     | 0.500 | 204.0      |
| PFBH3600        | 36   | 46.00 | BLIND | 42.75    | 1.625  | 32     | 0.500 | 225.0      |

## Notes:

- Flange material is steel (to AWWA C207-13 specifications). Specific grades of steel for structural or critical applications are available upon request.
- Meets ANSI class 150 pattern.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



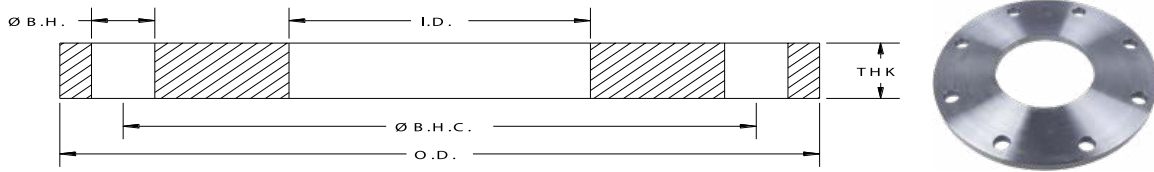


## 1/2" Thick Stainless Steel Slip-on Flanges for Pipe

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C | Ø B.H. | # B.H | THK   | Weight lbs |
|-----------------|------|-------|-------|---------|--------|-------|-------|------------|
| SPFH0050        | 0.5  | 3.50  | 0.88  | 2.38    | 0.630  | 4     | 0.500 | 1.0        |
| SPFH0075        | 0.75 | 3.88  | 1.09  | 2.75    | 0.630  | 4     | 0.500 | 1.3        |
| SPFH0100        | 1    | 4.25  | 1.36  | 3.13    | 0.630  | 4     | 0.500 | 1.7        |
| SPFH0125        | 1.25 | 4.63  | 1.70  | 3.50    | 0.630  | 4     | 0.500 | 2.3        |
| SPFH0150        | 1.5  | 5.00  | 1.95  | 3.88    | 0.630  | 4     | 0.500 | 2.5        |
| SPFH0200        | 2    | 6.00  | 2.44  | 4.75    | 0.750  | 4     | 0.500 | 3.0        |
| SPFH0250        | 2.5  | 7.00  | 2.94  | 5.50    | 0.750  | 4     | 0.500 | 4.0        |
| SPFH0300        | 3    | 7.50  | 3.57  | 6.00    | 0.750  | 4     | 0.500 | 4.7        |
| SPFH0350        | 3.5  | 8.50  | 4.07  | 7.00    | 0.750  | 8     | 0.500 | 5.5        |
| SPFH0400        | 4    | 9.00  | 4.57  | 7.50    | 0.750  | 8     | 0.500 | 6.4        |
| SPFH0500        | 5    | 10.00 | 5.66  | 8.50    | 0.875  | 8     | 0.500 | 7.2        |
| SPFH0600        | 6    | 11.00 | 6.72  | 9.50    | 0.875  | 8     | 0.500 | 8.4        |
| SPFH0800        | 8    | 13.50 | 8.72  | 11.75   | 0.875  | 8     | 0.500 | 11.4       |
| SPFH1000        | 10   | 16.00 | 10.88 | 14.25   | 1.000  | 12    | 0.500 | 14.6       |
| SPFH1200        | 12   | 19.00 | 12.88 | 17.00   | 1.000  | 12    | 0.500 | 21.6       |
| SPFH1400        | 14   | 21.00 | 14.19 | 18.75   | 1.125  | 12    | 0.500 | 26.5       |
| SPFH1600        | 16   | 23.50 | 16.19 | 21.25   | 1.125  | 16    | 0.500 | 31.0       |
| SPFH1800        | 18   | 25.00 | 18.19 | 22.75   | 1.250  | 16    | 0.500 | 32.0       |
| SPFH2000        | 20   | 27.50 | 20.19 | 25.00   | 1.250  | 20    | 0.500 | 37.5       |
| SPFH2200        | 22   | 29.50 | 22.19 | 27.25   | 1.375  | 20    | 0.500 | 38.5       |
| SPFH2400        | 24   | 32.00 | 24.19 | 29.50   | 1.375  | 20    | 0.500 | 49.0       |
| SPFH2600        | 26   | 34.25 | 26.19 | 31.75   | 1.375  | 24    | 0.500 | 52.0       |
| SPFH2800        | 28   | 36.50 | 28.19 | 34.00   | 1.375  | 28    | 0.500 | 54.0       |
| SPFH3000        | 30   | 38.75 | 30.19 | 36.00   | 1.375  | 28    | 0.500 | 65.0       |
| SPFH3200        | 32   | 41.75 | 32.19 | 38.50   | 1.625  | 28    | 0.500 | 70.0       |
| SPFH3400        | 34   | 43.75 | 34.19 | 40.50   | 1.625  | 32    | 0.500 | 74.0       |
| SPFH3600        | 36   | 46.00 | 36.19 | 42.75   | 1.625  | 32    | 0.500 | 81.0       |
| SPFH3800        | 38   | 48.75 | 38.19 | 45.25   | 1.625  | 32    | 0.500 | 93.0       |
| SPFH4000        | 40   | 50.75 | 40.19 | 47.25   | 1.625  | 36    | 0.500 | 97.0       |
| SPFH4200        | 42   | 53.00 | 42.19 | 49.50   | 1.625  | 36    | 0.500 | 104.0      |
| SPFH4400        | 44   | 55.25 | 44.19 | 51.75   | 1.625  | 40    | 0.500 | 111.0      |
| SPFH4600        | 46   | 57.25 | 46.19 | 53.75   | 1.625  | 40    | 0.500 | 118.0      |
| SPFH4800        | 48   | 59.50 | 48.19 | 56.00   | 1.625  | 44    | 0.500 | 124.0      |

## 1/2" Thick Stainless Steel Slip-on Flanges for O.D. Tubing

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C | Ø B.H. | # B.H | THK   | Weight lbs |
|-----------------|------|-------|-------|---------|--------|-------|-------|------------|
| SPFH0050-16     | 0.5  | 3.50  | 0.56  | 2.38    | 0.630  | 4     | 0.500 | 1.1        |
| SPFH0075-16     | 0.75 | 3.88  | 0.81  | 2.75    | 0.630  | 4     | 0.500 | 1.5        |
| SPFH0100-16     | 1    | 4.25  | 1.06  | 3.13    | 0.630  | 4     | 0.500 | 2.0        |
| SPFH0125-16     | 1.25 | 4.63  | 1.31  | 3.50    | 0.630  | 4     | 0.500 | 2.6        |
| SPFH0150-16     | 1.5  | 5.00  | 1.56  | 3.88    | 0.630  | 4     | 0.500 | 2.8        |
| SPFH0200-16     | 2    | 6.00  | 2.06  | 4.75    | 0.750  | 4     | 0.500 | 3.5        |
| SPFH0250-16     | 2.5  | 7.00  | 2.56  | 5.50    | 0.750  | 4     | 0.500 | 4.5        |
| SPFH0300-16     | 3    | 7.50  | 3.06  | 6.00    | 0.750  | 4     | 0.500 | 5.3        |
| SPFH0350-16     | 3.5  | 8.50  | 3.56  | 7.00    | 0.750  | 8     | 0.500 | 6.0        |
| SPFH0400-16     | 4    | 9.00  | 4.06  | 7.50    | 0.750  | 8     | 0.500 | 6.9        |
| SPFH0500-16     | 5    | 10.00 | 5.06  | 8.50    | 0.875  | 8     | 0.500 | 8.0        |
| SPFH0600-16     | 6    | 11.00 | 6.09  | 9.50    | 0.875  | 8     | 0.500 | 9.0        |
| SPFH0800-16     | 8    | 13.50 | 8.09  | 11.75   | 0.875  | 8     | 0.500 | 12.6       |
| SPFH1000-16     | 10   | 16.00 | 10.12 | 14.25   | 1.000  | 12    | 0.500 | 16.3       |
| SPFH1200-16     | 12   | 19.00 | 12.12 | 17.00   | 1.000  | 12    | 0.500 | 22.5       |



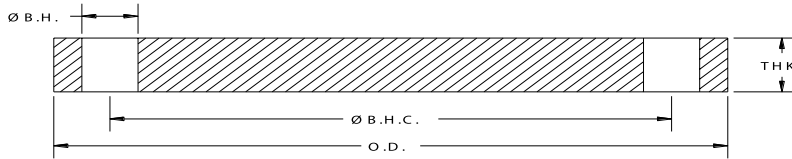
# 1/2" Thick Reducing Stainless Steel Flanges

| API Part Number | Size    | O.D.  | I.D.  | Ø B.H.C | Ø B.H | # B.H | THK   | Weight lbs |
|-----------------|---------|-------|-------|---------|-------|-------|-------|------------|
| SPFHR0500-406   | 5 x 4   | 10.00 | 4.06  | 8.50    | 0.88  | 8     | 0.500 | 9.0        |
| SPFHR0600-406   | 6 x 4   | 11.00 | 4.06  | 9.50    | 0.88  | 8     | 0.500 | 11.0       |
| SPFHR0600-506   | 6 x 5   | 11.00 | 5.06  | 9.50    | 0.88  | 8     | 0.500 | 10.5       |
| SPFHR0800-506   | 8 x 5   | 13.50 | 5.06  | 11.75   | 0.88  | 8     | 0.500 | 18.0       |
| SPFHR0800-606   | 8 x 6   | 13.50 | 6.06  | 11.75   | 0.88  | 8     | 0.500 | 16.5       |
| SPFHR0800-672   | 8 x 6   | 13.50 | 6.72  | 11.75   | 0.88  | 8     | 0.500 | 15.0       |
| SPFHR1000-606   | 10 x 6  | 16.00 | 6.06  | 14.25   | 1.00  | 12    | 0.500 | 18.0       |
| SPFHR1000-806   | 10 x 8  | 16.00 | 8.06  | 14.25   | 1.00  | 12    | 0.500 | 20.0       |
| SPFHR1200-1006  | 12 x 10 | 19.00 | 10.06 | 17.00   | 1.00  | 12    | 0.500 | 31.0       |
| SPFHR1200-806   | 12 x 8  | 19.00 | 8.06  | 17.00   | 1.00  | 12    | 0.500 | 34.0       |
| SPFHR1400-1288  | 14 x 12 | 21.00 | 12.88 | 18.75   | 1.13  | 12    | 0.500 | 28.0       |

Notes:

- a. Flange material is steel (to AWWA C207-13 specifications). Specific grades of steel for structural or critical applications are available upon request.
- b. Meets ANSI Class 150 pattern

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



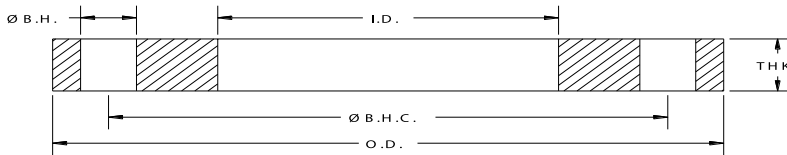
## 1/2" Thick Stainless Steel Blind Flanges

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C | Ø B.H. | # B.H | THK   | Weight lbs |
|-----------------|------|-------|-------|---------|--------|-------|-------|------------|
| SPFBH0200       | 2    | 6.00  | BLIND | 4.75    | 0.750  | 4     | 0.500 | 4.0        |
| SPFBH0250       | 2.5  | 7.00  | BLIND | 5.50    | 0.750  | 4     | 0.500 | 5.5        |
| SPFBH0300       | 3    | 7.50  | BLIND | 6.00    | 0.750  | 4     | 0.500 | 6.2        |
| SPFBH0350       | 3.5  | 8.50  | BLIND | 7.00    | 0.750  | 8     | 0.500 | 7.5        |
| SPFBH0400       | 4    | 9.00  | BLIND | 7.50    | 0.750  | 8     | 0.500 | 9.1        |
| SPFBH0500       | 5    | 10.00 | BLIND | 8.50    | 0.875  | 8     | 0.500 | 11.0       |
| SPFBH0600       | 6    | 11.00 | BLIND | 9.50    | 0.875  | 8     | 0.500 | 14.3       |
| SPFBH0800       | 8    | 13.50 | BLIND | 11.75   | 0.875  | 8     | 0.500 | 20.0       |
| SPFBH1000       | 10   | 16.00 | BLIND | 14.25   | 1.000  | 12    | 0.500 | 27.0       |
| SPFBH1200       | 12   | 19.00 | BLIND | 17.00   | 1.000  | 12    | 0.500 | 41.0       |
| SPFBH1400       | 14   | 21.00 | BLIND | 18.75   | 1.125  | 12    | 0.500 | 51.2       |
| SPFBH1600       | 16   | 23.50 | BLIND | 21.25   | 1.125  | 16    | 0.500 | 60.0       |
| SPFBH1800       | 18   | 25.00 | BLIND | 22.75   | 1.250  | 16    | 0.500 | 70.3       |
| SPFBH2000       | 20   | 27.50 | BLIND | 25.00   | 1.250  | 20    | 0.500 | 90.0       |
| SPFBH2200       | 22   | 29.50 | BLIND | 27.25   | 1.375  | 20    | 0.500 | 93.0       |
| SPFBH2400       | 24   | 32.00 | BLIND | 29.50   | 1.375  | 20    | 0.500 | 109.0      |
| SPFBH2600       | 26   | 34.25 | BLIND | 31.75   | 1.375  | 24    | 0.500 | 126.0      |
| SPFBH2800       | 28   | 36.50 | BLIND | 34.00   | 1.375  | 28    | 0.500 | 142.3      |
| SPFBH3000       | 30   | 38.75 | BLIND | 36.00   | 1.375  | 28    | 0.500 | 161.1      |
| SPFBH3200       | 32   | 41.75 | BLIND | 38.50   | 1.625  | 28    | 0.500 | 185.2      |
| SPFBH3400       | 34   | 43.75 | BLIND | 40.50   | 1.625  | 32    | 0.500 | 203.0      |
| SPFBH3600       | 36   | 46.00 | BLIND | 42.75   | 1.625  | 32    | 0.500 | 225.0      |

Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
- b. Meets ANSI class 150 pattern.

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



## 5/8" Thick Class 150IPS Slip-on Flanges

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK  | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|------|------------|
| PF2200-063      | 22   | 29.50 | 22.19 | 27.25    | 1.38   | 20     | 0.63 | 48         |
| PF2400-063      | 24   | 32.00 | 24.19 | 29.50    | 1.38   | 20     | 0.63 | 55         |
| PF2600-063      | 26   | 34.25 | 26.19 | 31.75    | 1.38   | 24     | 0.63 | 63         |
| PF2800-063      | 28   | 36.50 | 28.19 | 34.00    | 1.38   | 28     | 0.63 | 65         |
| PF3000-063      | 30   | 38.75 | 30.19 | 36.00    | 1.38   | 28     | 0.63 | 77         |
| PF3200-063      | 32   | 41.75 | 32.19 | 38.50    | 1.63   | 28     | 0.63 | 90         |
| PF3400-063      | 34   | 43.75 | 34.19 | 40.50    | 1.63   | 32     | 0.63 | 93         |
| PF3600-063      | 36   | 46.00 | 36.19 | 42.75    | 1.63   | 32     | 0.63 | 100        |
| PF3800-063      | 38   | 48.75 | 38.19 | 45.25    | 1.63   | 32     | 0.63 | 117        |
| PF4000-063      | 40   | 50.75 | 40.19 | 47.25    | 1.63   | 36     | 0.63 | 119        |
| PF4200-063      | 42   | 53.00 | 42.19 | 49.50    | 1.63   | 36     | 0.63 | 130        |

Notes:

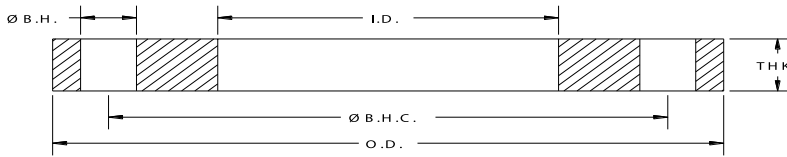
- a. Flange material is steel (to AWWA C207-13 specifications). Specific grades of steel for structural or critical applications are available upon request.
- b. Meets ANSI class 150 pattern.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

# Miscellaneous Plate Flanges

## Domestic & Import





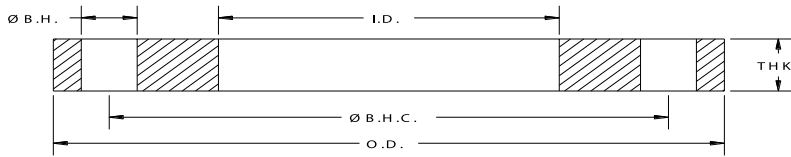
## Class 150 Steel Slip-on Plate Flanges

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK   | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|------------|
| PF0050          | 0.5  | 3.50  | 0.88  | 2.38     | 0.630  | 4      | 0.500 | 1.2        |
| PF0075          | 0.75 | 3.88  | 1.09  | 2.75     | 0.630  | 4      | 0.500 | 1.5        |
| PF0100          | 1    | 4.25  | 1.36  | 3.13     | 0.630  | 4      | 0.500 | 1.8        |
| PF0125          | 1.25 | 4.63  | 1.70  | 3.50     | 0.630  | 4      | 0.500 | 1.9        |
| PF0150          | 1.5  | 5.00  | 1.95  | 3.88     | 0.630  | 4      | 0.630 | 2.9        |
| PF0200          | 2    | 6.00  | 2.44  | 4.75     | 0.750  | 4      | 0.630 | 4.1        |
| PF0250          | 2.5  | 7.00  | 2.94  | 5.50     | 0.750  | 4      | 0.630 | 5.4        |
| PF0300          | 3    | 7.50  | 3.57  | 6.00     | 0.750  | 4      | 0.630 | 5.9        |
| PF0400          | 4    | 9.00  | 4.57  | 7.50     | 0.750  | 8      | 0.630 | 8.1        |
| PF0500          | 5    | 10.00 | 5.66  | 8.50     | 0.875  | 8      | 0.750 | 10.4       |
| PF0600          | 6    | 11.00 | 6.72  | 9.50     | 0.875  | 8      | 0.750 | 11.4       |
| PF0800          | 8    | 13.50 | 8.72  | 11.75    | 0.875  | 8      | 1.000 | 22.0       |
| PFI000          | 10   | 16.00 | 10.88 | 14.25    | 1.000  | 12     | 1.000 | 28.5       |
| PF1200          | 12   | 19.00 | 12.88 | 17.00    | 1.000  | 12     | 1.000 | 41.5       |

Notes:

- a. Flange material is steel (to AWWA C207-13 specifications). Specific grades of steel for structural or critical applications are available upon request.
- b. Meets ANSI class 150 pattern.

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



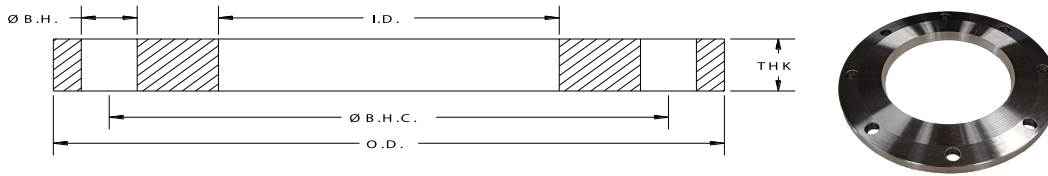
## Class 150 Stainless Steel Slip-on Plate Flanges

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C | Ø B.H. | # B.H | THK   | Weight lbs |
|-----------------|------|-------|-------|---------|--------|-------|-------|------------|
| SPF0050         | 0.5  | 3.50  | 0.88  | 2.38    | 0.630  | 4     | 0.500 | 1.2        |
| SPF0075         | 0.75 | 3.88  | 1.09  | 2.75    | 0.630  | 4     | 0.500 | 1.5        |
| SPF0100         | 1    | 4.25  | 1.36  | 3.13    | 0.630  | 4     | 0.500 | 1.8        |
| SPF0125         | 1.25 | 4.63  | 1.70  | 3.50    | 0.630  | 4     | 0.500 | 1.9        |
| SPF0150         | 1.5  | 5.00  | 1.95  | 3.88    | 0.630  | 4     | 0.630 | 2.9        |
| SPF0200         | 2    | 6.00  | 2.44  | 4.75    | 0.750  | 4     | 0.630 | 4.1        |
| SPF0250         | 2.5  | 7.00  | 2.94  | 5.50    | 0.750  | 4     | 0.630 | 5.4        |
| SPF0300         | 3    | 7.50  | 3.57  | 6.00    | 0.750  | 4     | 0.630 | 5.9        |
| SPF0400         | 4    | 9.00  | 4.57  | 7.50    | 0.750  | 8     | 0.630 | 8.1        |
| SPF0500         | 5    | 10.00 | 5.66  | 8.50    | 0.875  | 8     | 0.750 | 10.4       |
| SPF0600         | 6    | 11.00 | 6.72  | 9.50    | 0.875  | 8     | 0.750 | 11.4       |
| SPF0800         | 8    | 13.50 | 8.72  | 11.75   | 0.875  | 8     | 1.000 | 22.0       |
| SPF1000         | 10   | 16.00 | 10.88 | 14.25   | 1.000  | 12    | 1.000 | 28.5       |
| SPF1200         | 12   | 19.00 | 12.88 | 17.00   | 1.000  | 12    | 1.000 | 41.5       |

Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
- b. Meets ANSI class 150 pattern.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



## Butterfly Valve Adapter 4020 Flange

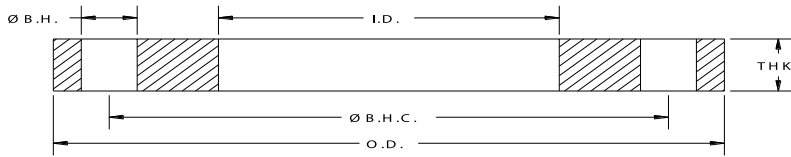
| API Part Number | Size | O.D.   | Ø Serrations | Ø B.H.C | I.D.   | # B.H. | Ø B.H. | THK  |
|-----------------|------|--------|--------------|---------|--------|--------|--------|------|
| 402032000       | 2    | 5.063  | 3.375        | 4.281   | 2.032  | 4      | 0.406  | .469 |
| 402031000       | 3    | 5.750  | 4.250        | 4.906   | 3.032  | 6      | 0.438  | .469 |
| 402028000       | 4    | 8.000  | 6.250        | 7.031   | 4.032  | 6      | 0.563  | .469 |
| 402029000       | 5    | 8.500  | 7.000        | 7.563   | 5.032  | 6      | 0.563  | .469 |
| 402030000       | 6    | 10.250 | 8.500        | 9.156   | 6.063  | 8      | 0.563  | .469 |
| 402027000       | 8    | 13.500 | 11.750       | 11.750  | 8.032  | 8      | 0.750  | .630 |
| 402036000       | 10   | 16.000 | 14.250       | 14.250  | 10.032 | 12     | 0.688  | .630 |
| 402033000       | 12   | 19.000 | 17.000       | 17.000  | 12.000 | 12     | 1.000  | .630 |

Notes:

- a. Material ASTM A105 Mild Steel

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.





## Butterfly Valve Flat 520 Flange

| API Part Number | Size | O.D. | Ø Serrations | Ø B.H.C | I.D.  | # B.H. | Ø B.H. | THK  |
|-----------------|------|------|--------------|---------|-------|--------|--------|------|
| 520693000       | 3    | 7.5  | 3.375        | 6.0     | 3.031 | 4      | 0.750  | .375 |
| 520694000       | 4    | 9.0  | 4.250        | 9.0     | 4.031 | 8      | 0.750  | .500 |
| 520696000       | 6    | 11.0 | 6.250        | 9.5     | 6.063 | 8      | 0.875  | .500 |

Notes:

a. Material ASTM A105 Mild Steel

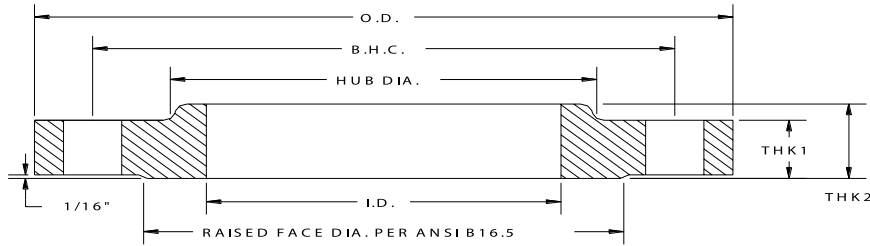
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

| Notes |
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# ANSI/ASME B16.5 Forged Flanges

## Domestic & Import





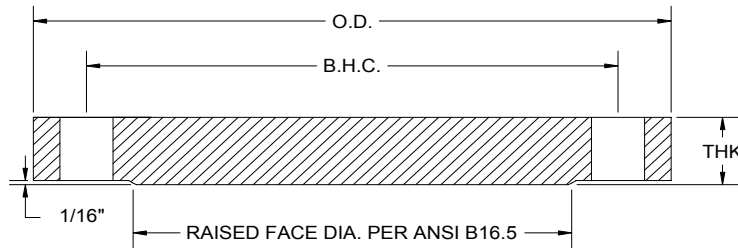
## ANSI Class 150 Forged Steel Raised Face Slip-on Flanges

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK1  | THK2  | H.D.   | RF DIA | RH (RAD) | Weight Lbs |
|-----------------|------|-------|-------|----------|--------|--------|-------|-------|--------|--------|----------|------------|
| RFS0050         | 0.5  | 3.50  | 0.88  | 2.38     | 0.630  | 4      | 0.440 | 0.630 | 1.190  | 1.375  | 0.188    | 1.2        |
| RFS0075         | 0.75 | 3.88  | 1.09  | 2.75     | 0.630  | 4      | 0.500 | 0.630 | 1.500  | 1.688  | 0.188    | 1.6        |
| RFS0100         | 1    | 4.25  | 1.36  | 3.13     | 0.630  | 4      | 0.563 | 0.690 | 1.940  | 2.000  | 0.188    | 2.0        |
| RFS0125         | 1.25 | 4.63  | 1.70  | 3.50     | 0.630  | 4      | 0.630 | 0.813 | 2.313  | 2.500  | 0.188    | 3.0        |
| RFS0150         | 1.5  | 5.00  | 1.95  | 3.88     | 0.630  | 4      | 0.690 | 0.880 | 2.563  | 2.875  | 0.188    | 3.0        |
| RFS0200         | 2    | 6.00  | 2.44  | 4.75     | 0.750  | 4      | 0.750 | 1.000 | 3.063  | 3.625  | 0.188    | 5.0        |
| RFS0250         | 2.5  | 7.00  | 2.94  | 5.50     | 0.750  | 4      | 0.880 | 1.130 | 3.563  | 4.125  | 0.188    | 8.0        |
| RFS0300         | 3    | 7.50  | 3.57  | 6.00     | 0.750  | 4      | 0.940 | 1.190 | 4.250  | 5.000  | 0.188    | 9.0        |
| RFS0350         | 3.5  | 8.50  | 4.07  | 7.00     | 0.750  | 8      | 0.940 | 1.250 | 4.810  | 5.500  | 0.188    | 10.5       |
| RFS0400         | 4    | 9.00  | 4.57  | 7.50     | 0.750  | 8      | 0.940 | 1.313 | 5.312  | 6.188  | 0.188    | 13.0       |
| RFS0500         | 5    | 10.00 | 5.66  | 8.50     | 0.875  | 8      | 0.940 | 1.440 | 6.440  | 7.313  | 0.188    | 15.0       |
| RFS0600         | 6    | 11.00 | 6.72  | 9.50     | 0.875  | 8      | 1.000 | 1.563 | 7.563  | 8.500  | 0.250    | 17.0       |
| RFS0800         | 8    | 13.50 | 8.72  | 11.75    | 0.875  | 8      | 1.130 | 1.750 | 9.690  | 10.625 | 0.250    | 28.0       |
| RFS1000         | 10   | 16.00 | 10.88 | 14.25    | 1.000  | 12     | 1.190 | 1.940 | 12.000 | 12.750 | 0.250    | 40.0       |
| RFS1200         | 12   | 19.00 | 12.88 | 17.00    | 1.000  | 12     | 1.250 | 2.190 | 14.380 | 15.000 | 0.313    | 61.0       |
| RFS1400         | 14   | 21.00 | 14.14 | 18.75    | 1.125  | 12     | 1.380 | 2.250 | 15.750 | 16.250 | 0.313    | 83.0       |
| RFS1600         | 16   | 23.50 | 16.16 | 21.25    | 1.125  | 16     | 1.440 | 2.500 | 18.000 | 18.500 | 0.313    | 106.0      |
| RFS1800         | 18   | 25.00 | 18.18 | 22.75    | 1.250  | 16     | 1.563 | 2.690 | 19.880 | 21.000 | 0.313    | 109.0      |
| RFS2000         | 20   | 27.50 | 20.20 | 25.00    | 1.250  | 20     | 1.690 | 2.880 | 22.000 | 23.000 | 0.313    | 148.0      |
| RFS2200         | 22   | 29.50 | 22.22 | 27.25    | 1.375  | 20     | 1.840 | 3.130 | 24.250 | 25.250 | 0.313    | 185.0      |
| RFS2400         | 24   | 32.00 | 24.25 | 29.50    | 1.375  | 20     | 1.880 | 3.250 | 26.130 | 27.250 | 0.313    | 204.0      |

Notes:

- a. Dimensions and Tolerances per ANSI B16.5.
- b. Flanges are painted black.
- c. ASTM A-105.
- d. Meets ANSI class 150 pattern.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



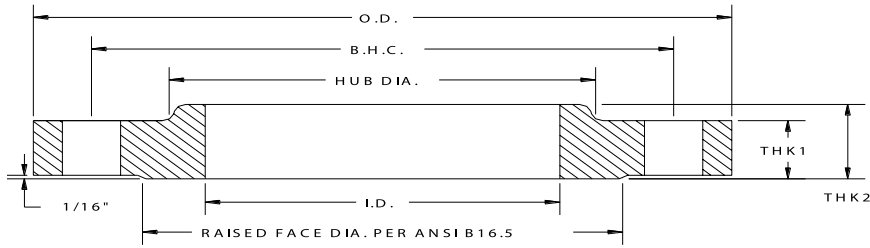
## ANSI Class 150 Forged Steel Raised Face Blind Flanges

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H. | THK1  | RF DIA | Weight Lb |
|-----------------|------|-------|-------|----------|--------|--------|-------|--------|-----------|
| RFB0050         | 0.5  | 3.50  | BLIND | 2.38     | 0.630  | 4      | 0.440 | 1.375  | 1.0       |
| RFB0075         | 0.75 | 3.88  | BLIND | 2.75     | 0.630  | 4      | 0.500 | 1.688  | 1.0       |
| RFB0100         | 1    | 4.25  | BLIND | 3.13     | 0.630  | 4      | 0.563 | 2.000  | 2.0       |
| RFB0125         | 1.25 | 4.63  | BLIND | 3.50     | 0.630  | 4      | 0.630 | 2.500  | 2.9       |
| RFB0150         | 1.5  | 5.00  | BLIND | 3.88     | 0.630  | 4      | 0.690 | 2.875  | 3.5       |
| RFB0200         | 2    | 6.00  | BLIND | 4.75     | 0.750  | 4      | 0.750 | 3.625  | 5.0       |
| RFB0250         | 2.5  | 7.00  | BLIND | 5.50     | 0.750  | 4      | 0.880 | 4.125  | 9.0       |
| RFB0300         | 3    | 7.50  | BLIND | 6.00     | 0.750  | 4      | 0.940 | 5.000  | 9.0       |
| RFB0350         | 3.5  | 8.50  | BLIND | 7.00     | 0.750  | 8      | 0.940 | 5.500  | 13.0      |
| RFB0400         | 4    | 9.00  | BLIND | 7.50     | 0.750  | 8      | 0.940 | 6.188  | 17.0      |
| RFB0500         | 5    | 10.00 | BLIND | 8.50     | 0.875  | 8      | 0.940 | 7.313  | 19.7      |
| RFB0600         | 6    | 11.00 | BLIND | 9.50     | 0.875  | 8      | 1.000 | 8.500  | 27.0      |
| RFB0800         | 8    | 13.50 | BLIND | 11.75    | 0.875  | 8      | 1.130 | 10.625 | 43.5      |
| RFB1000         | 10   | 16.00 | BLIND | 14.25    | 1.000  | 12     | 1.190 | 12.750 | 65.5      |
| RFB1200         | 12   | 19.00 | BLIND | 17.00    | 1.000  | 12     | 1.250 | 15.000 | 123.0     |
| RFB1400         | 14   | 21.00 | BLIND | 18.75    | 1.125  | 12     | 1.380 | 16.250 | 133.3     |
| RFB1600         | 16   | 23.50 | BLIND | 21.25    | 1.125  | 16     | 1.440 | 18.500 | 180.0     |
| RFB1800         | 18   | 25.00 | BLIND | 22.75    | 1.250  | 16     | 1.563 | 21.000 | 220.0     |
| RFB2000         | 20   | 27.50 | BLIND | 25.00    | 1.250  | 20     | 1.690 | 23.000 | 284.0     |
| RFB2200         | 22   | 29.50 | BLIND | 27.25    | 1.375  | 20     | 1.840 | 25.250 | 360.0     |
| RFB2400         | 24   | 32.00 | BLIND | 29.50    | 1.375  | 20     | 1.880 | 27.250 | 445.0     |

Notes:

- a. Dimensions and Tolerances per ANSI B16.5.
- b. Flanges are painted black.
- c. ASTM A-105.
- d. Meets ANSI class 150 pattern.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



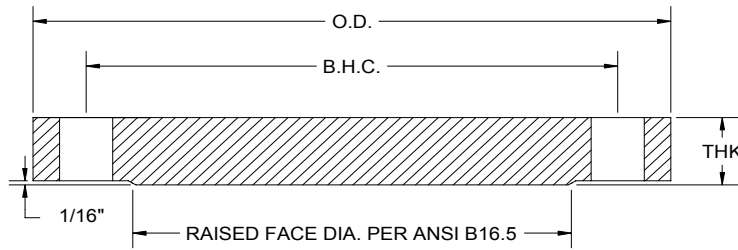
## ANSI Class 300 Forged Steel Raised Face Slip-on Flanges

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C | Ø B.H. | # B.H. | THK1  | THK2  | H.D.   | RF DIA | RH (RAD) | Weight lbc |
|-----------------|------|-------|-------|---------|--------|--------|-------|-------|--------|--------|----------|------------|
| RFS0050-30      | 0.5  | 3.75  | 0.88  | 2.63    | 0.750  | 4      | 0.563 | 0.880 | 1.500  | 1.375  | 0.188    | 2.0        |
| RFS0075-30      | 0.75 | 4.63  | 1.09  | 3.25    | 0.750  | 4      | 0.625 | 1.000 | 1.875  | 1.688  | 0.188    | 2.4        |
| RFS0100-30      | 1    | 4.88  | 1.36  | 3.50    | 0.750  | 4      | 0.688 | 1.063 | 2.125  | 2.000  | 0.188    | 3.0        |
| RFS0125-30      | 1.25 | 5.25  | 1.70  | 3.88    | 0.750  | 4      | 0.750 | 1.063 | 2.500  | 2.500  | 0.188    | 4.5        |
| RFS0150-30      | 1.5  | 6.13  | 1.95  | 4.50    | 0.875  | 4      | 0.813 | 1.188 | 2.750  | 2.875  | 0.188    | 6.5        |
| RFS0200-30      | 2    | 6.50  | 2.44  | 5.00    | 0.750  | 8      | 0.875 | 1.313 | 3.313  | 3.625  | 0.188    | 7.0        |
| RFS0250-30      | 2.50 | 7.50  | 2.94  | 5.88    | 0.875  | 8      | 1.000 | 1.500 | 3.938  | 4.125  | 0.188    | 10.0       |
| RFS0300-30      | 3    | 8.25  | 3.57  | 6.63    | 0.875  | 8      | 1.125 | 1.688 | 4.625  | 5.000  | 0.188    | 13.0       |
| RFS0350-30      | 3.5  | 9.00  | 3.57  | 7.25    | 0.875  | 8      | 1.188 | 1.750 | 5.250  | 5.500  | 0.188    | 17.0       |
| RFS0400-30      | 4    | 10.00 | 4.57  | 7.88    | 0.875  | 8      | 1.250 | 1.875 | 5.750  | 6.188  | 0.188    | 23.5       |
| RFS0500-30      | 5    | 11.00 | 5.66  | 9.25    | 0.875  | 8      | 1.375 | 2.000 | 7.000  | 7.313  | 0.188    | 29.0       |
| RFS0600-30      | 6    | 12.50 | 6.72  | 10.63   | 0.875  | 12     | 1.438 | 2.063 | 8.125  | 8.500  | 0.250    | 36.0       |
| RFS0800-30      | 8    | 15.00 | 8.72  | 13.00   | 1.000  | 12     | 1.625 | 2.438 | 10.250 | 10.625 | 0.250    | 56.0       |
| RFS1000-30      | 10   | 17.50 | 10.88 | 15.25   | 1.125  | 16     | 1.875 | 2.625 | 12.625 | 12.750 | 0.250    | 77.0       |
| RFS1200-30      | 12   | 20.50 | 12.88 | 17.75   | 1.250  | 16     | 2.000 | 2.875 | 14.750 | 15.000 | 0.313    | 113.0      |
| RFS1400-30      | 14   | 23.00 | 14.14 | 20.25   | 1.250  | 20     | 2.125 | 3.000 | 16.750 | 16.250 | 0.313    | 159.0      |
| RFS1600-30      | 16   | 25.50 | 16.16 | 22.50   | 1.375  | 20     | 2.250 | 3.250 | 19.000 | 18.500 | 0.313    | 210.0      |
| RFS1800-30      | 18   | 28.00 | 18.18 | 24.75   | 1.375  | 24     | 2.375 | 3.500 | 21.000 | 21.000 | 0.313    | 253.0      |
| RFS2000-30      | 20   | 30.50 | 20.20 | 27.00   | 1.375  | 24     | 2.500 | 3.750 | 23.125 | 23.000 | 0.313    | 307.0      |
| RFS2400-30      | 24   | 36.00 | 24.25 | 32.00   | 1.625  | 24     | 2.750 | 4.188 | 27.625 | 27.250 | 0.313    | 490.0      |

Notes:

- a. Dimensions and Tolerances per ANSI B16.5.
- b. Flanges are painted black.
- c. ASTM A-105.
- d. Meets ANSI class 300 pattern.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



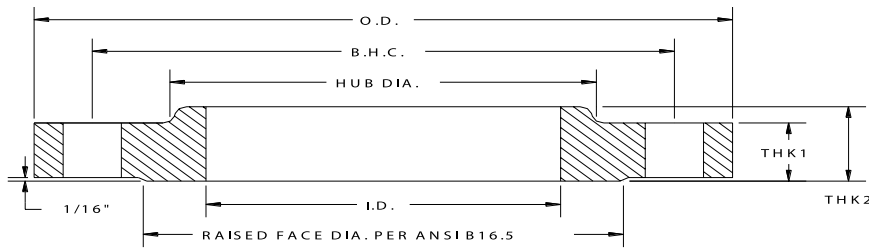
## ANSI Class 300 Forged Steel Raised Face Blind Flanges

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C | Ø B.H. | # B.H | THK   | RF DIA | Weight lbs |
|-----------------|------|-------|-------|---------|--------|-------|-------|--------|------------|
| RFB0050-30      | 0.5  | 3.75  | BLIND | 2.63    | 0.750  | 4     | 0.563 | 1.375  | 1.4        |
| RFB0075-30      | 0.75 | 4.63  | BLIND | 3.25    | 0.750  | 4     | 0.625 | 1.688  | 2.5        |
| RFB0100-30      | 1    | 4.88  | BLIND | 3.50    | 0.750  | 4     | 0.688 | 2.000  | 3.0        |
| RFB0125-30      | 1.25 | 5.25  | BLIND | 3.88    | 0.750  | 4     | 0.750 | 2.500  | 4.0        |
| RFB0150-30      | 1.5  | 6.13  | BLIND | 4.50    | 0.875  | 4     | 0.813 | 2.875  | 6.0        |
| RFB0200-30      | 2    | 6.50  | BLIND | 5.00    | 0.750  | 8     | 0.875 | 3.625  | 8.0        |
| RFB0250-30      | 2.50 | 7.50  | BLIND | 5.88    | 0.875  | 8     | 1.000 | 4.125  | 11.0       |
| RFB0300-30      | 3    | 8.25  | BLIND | 6.63    | 0.875  | 8     | 1.125 | 5.000  | 15.0       |
| RFB0350-30      | 3.5  | 9.00  | BLIND | 7.25    | 0.875  | 8     | 1.188 | 5.500  | 20.0       |
| RFB0400-30      | 4    | 10.00 | BLIND | 7.88    | 0.875  | 8     | 1.250 | 6.188  | 25.0       |
| RFB0500-30      | 5    | 11.00 | BLIND | 9.25    | 0.875  | 8     | 1.375 | 7.313  | 35.0       |
| RFB0600-30      | 6    | 12.50 | BLIND | 10.63   | 0.875  | 12    | 1.438 | 8.500  | 46.0       |
| RFB0800-30      | 8    | 15.00 | BLIND | 13.00   | 1.000  | 12    | 1.625 | 10.625 | 75.0       |
| RFB1000-30      | 10   | 17.50 | BLIND | 15.25   | 1.125  | 16    | 1.875 | 12.750 | 124.0      |
| RFB1200-30      | 12   | 20.50 | BLIND | 17.75   | 1.250  | 16    | 2.000 | 15.000 | 174.0      |
| RFB1400-30      | 14   | 23.00 | BLIND | 20.25   | 1.250  | 20    | 2.125 | 16.250 | 246.0      |
| RFB1600-30      | 16   | 25.50 | BLIND | 22.50   | 1.375  | 20    | 2.250 | 18.500 | 315.0      |
| RFB1800-30      | 18   | 28.00 | BLIND | 24.75   | 1.375  | 24    | 2.375 | 21.000 | 427.0      |
| RFB2000-30      | 20   | 30.50 | BLIND | 27.00   | 1.375  | 24    | 2.500 | 23.000 | 515.0      |
| RFB2400-30      | 24   | 36.00 | BLIND | 32.00   | 1.625  | 24    | 2.750 | 27.250 | 800.0      |

Notes:

- a. Dimensions and Tolerances per ANSI B16.5.
- b. Flanges are painted black.
- c. ASTM A-105.
- d. Meets ANSI class 300 pattern.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



## ANSI Class 150 Forged Stainless Steel Raised Face Slip-on Flanges

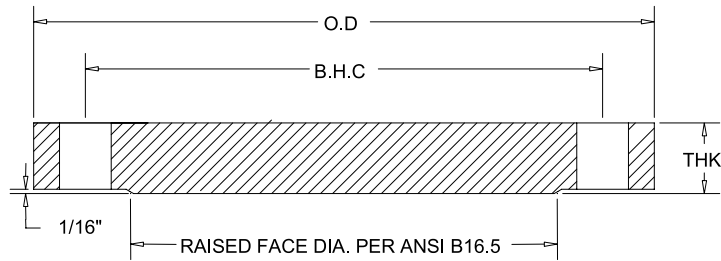
| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C | Ø B.H. | # B.H | THK1  | THK2  | H.D.   | RF DIA | RH (RAD) | Weight lbs |
|-----------------|------|-------|-------|---------|--------|-------|-------|-------|--------|--------|----------|------------|
| SRFS0050        | 0.5  | 3.50  | 0.88  | 2.38    | 0.630  | 4     | 0.440 | 0.630 | 1.190  | 1.375  | 0.188    | 1.2        |
| SRFS0075        | 0.75 | 3.88  | 1.09  | 2.75    | 0.630  | 4     | 0.500 | 0.630 | 1.500  | 1.688  | 0.188    | 1.6        |
| SRFS0100        | 1    | 4.25  | 1.36  | 3.13    | 0.630  | 4     | 0.563 | 0.690 | 1.940  | 2.000  | 0.188    | 2.0        |
| SRFS0125        | 1.25 | 4.63  | 1.70  | 3.50    | 0.630  | 4     | 0.630 | 0.813 | 2.313  | 2.500  | 0.188    | 3.0        |
| SRFS0150        | 1.5  | 5.00  | 1.95  | 3.88    | 0.630  | 4     | 0.690 | 0.880 | 2.563  | 2.875  | 0.188    | 3.0        |
| SRFS0200        | 2    | 6.00  | 2.44  | 4.75    | 0.750  | 4     | 0.750 | 1.000 | 3.063  | 3.625  | 0.188    | 5.0        |
| SRFS0250        | 2.5  | 7.00  | 2.94  | 5.50    | 0.750  | 4     | 0.880 | 1.130 | 3.563  | 4.125  | 0.188    | 8.0        |
| SRFS0300        | 3    | 7.50  | 3.57  | 6.00    | 0.750  | 4     | 0.940 | 1.190 | 4.250  | 5.000  | 0.188    | 9.0        |
| SRFS0350        | 3.5  | 8.50  | 4.07  | 7.00    | 0.750  | 8     | 0.940 | 1.250 | 4.810  | 5.500  | 0.188    | 11.0       |
| SRFS0400        | 4    | 9.00  | 4.57  | 7.50    | 0.750  | 8     | 0.940 | 1.313 | 5.312  | 6.188  | 0.188    | 13.0       |
| SRFS0500        | 5    | 10.00 | 5.66  | 8.50    | 0.875  | 8     | 0.940 | 1.440 | 6.440  | 7.313  | 0.188    | 15.0       |
| SRFS0600        | 6    | 11.00 | 6.72  | 9.50    | 0.875  | 8     | 1.000 | 1.563 | 7.563  | 8.500  | 0.250    | 17.0       |
| SRFS0800        | 8    | 13.50 | 8.72  | 11.75   | 0.875  | 8     | 1.130 | 1.750 | 9.690  | 10.625 | 0.250    | 28.0       |
| SRFS1000        | 10   | 16.00 | 10.88 | 14.25   | 1.000  | 12    | 1.190 | 1.940 | 12.000 | 12.750 | 0.250    | 40.0       |
| SRFS1200        | 12   | 19.00 | 12.88 | 17.00   | 1.000  | 12    | 1.250 | 2.190 | 14.380 | 15.000 | 0.313    | 61.0       |
| SRFS1400        | 14   | 21.00 | 14.14 | 18.75   | 1.125  | 12    | 1.380 | 2.250 | 15.750 | 16.250 | 0.313    | 83.0       |
| SRFS1600        | 16   | 23.50 | 16.16 | 21.25   | 1.125  | 16    | 1.440 | 2.500 | 18.000 | 18.500 | 0.313    | 106.0      |
| SRFS1800        | 18   | 25.00 | 18.18 | 22.75   | 1.250  | 16    | 1.563 | 2.690 | 19.880 | 21.000 | 0.313    | 109.0      |
| SRFS2000        | 20   | 27.50 | 20.20 | 25.00   | 1.250  | 20    | 1.690 | 2.880 | 22.000 | 23.000 | 0.313    | 148.0      |
| SRFS2200        | 22   | 29.50 | 22.22 | 27.25   | 1.375  | 20    | 1.840 | 3.130 | 24.250 | 25.250 | 0.313    | 174.0      |
| SRFS2400        | 24   | 32.00 | 24.25 | 29.50   | 1.375  | 20    | 1.880 | 3.250 | 26.130 | 27.250 | 0.313    | 204.0      |

Notes:

- a. Dimensions and Tolerances per ANSI B16.5.
- b. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
- c. ASTM A182.
- d. Meets ANSI class 150 pattern.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.





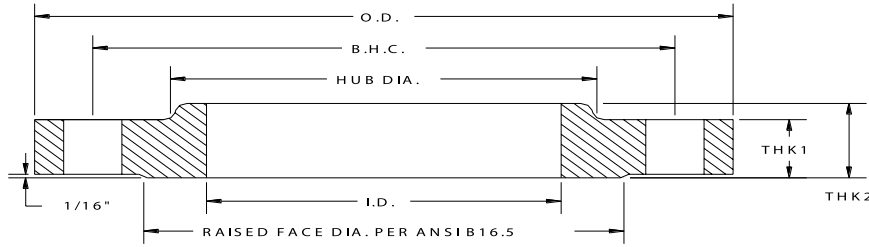
## ANSI Class 150 Forged Stainless Steel Raised Face Blind Flanges

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C | Ø B.H. | # B.H | THK   | RF DIA | Weight lbs |
|-----------------|------|-------|-------|---------|--------|-------|-------|--------|------------|
| SRFB0050        | 0.5  | 3.50  | BLIND | 2.38    | 0.630  | 4     | 0.440 | 1.375  | 3.0        |
| SRFB0075        | 0.75 | 3.88  | BLIND | 2.75    | 0.630  | 4     | 0.500 | 1.688  | 4.0        |
| SRFB0100        | 1    | 4.25  | BLIND | 3.13    | 0.630  | 4     | 0.563 | 2.000  | 4.5        |
| SRFB0125        | 1.25 | 4.63  | BLIND | 3.50    | 0.630  | 4     | 0.630 | 2.500  | 5.0        |
| SRFB0150        | 1.5  | 5.00  | BLIND | 3.88    | 0.630  | 4     | 0.690 | 2.875  | 5.5        |
| SRFB0200        | 2    | 6.00  | BLIND | 4.75    | 0.750  | 4     | 0.750 | 3.625  | 6.0        |
| SRFB0250        | 2.5  | 7.00  | BLIND | 5.50    | 0.750  | 4     | 0.880 | 4.125  | 9.0        |
| SRFB0300        | 3    | 7.50  | BLIND | 6.00    | 0.750  | 4     | 0.940 | 5.000  | 11.5       |
| SRFB0350        | 3.5  | 8.50  | BLIND | 7.00    | 0.750  | 8     | 0.940 | 5.500  | 13.5       |
| SRFB0400        | 4    | 9.00  | BLIND | 7.50    | 0.750  | 8     | 0.940 | 6.188  | 15.5       |
| SRFB0500        | 5    | 10.00 | BLIND | 8.50    | 0.875  | 8     | 0.940 | 7.313  | 19.5       |
| SRFB0600        | 6    | 11.00 | BLIND | 9.50    | 0.875  | 8     | 1.000 | 8.500  | 25.5       |
| SRFB0800        | 8    | 13.50 | BLIND | 11.75   | 0.875  | 8     | 1.130 | 10.625 | 44.5       |
| SRFB1000        | 10   | 16.00 | BLIND | 14.25   | 1.000  | 12    | 1.190 | 12.750 | 67.0       |
| SRFB1200        | 12   | 19.00 | BLIND | 17.00   | 1.000  | 12    | 1.250 | 15.000 | 98.0       |
| SRFB1400        | 14   | 21.00 | BLIND | 18.75   | 1.125  | 12    | 1.380 | 16.250 | 134.0      |
| SRFB1600        | 16   | 23.50 | BLIND | 21.25   | 1.125  | 16    | 1.440 | 18.500 | 176.0      |
| SRFB1800        | 18   | 25.00 | BLIND | 22.75   | 1.250  | 16    | 1.563 | 21.000 | 215.0      |
| SRFB2000        | 20   | 27.50 | BLIND | 25.00   | 1.250  | 20    | 1.690 | 23.000 | 286.0      |
| SRFB2200        | 22   | 29.50 | BLIND | 27.25   | 1.375  | 20    | 1.840 | 25.250 | 358.0      |
| SRFB2400        | 24   | 32.00 | BLIND | 29.50   | 1.375  | 20    | 1.880 | 27.250 | 426.0      |

Notes:

- a. Dimensions and Tolerances per ANSI B16.5.
- b. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
- c. ASTM A182.
- d. Meets ANSI class 150 pattern.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



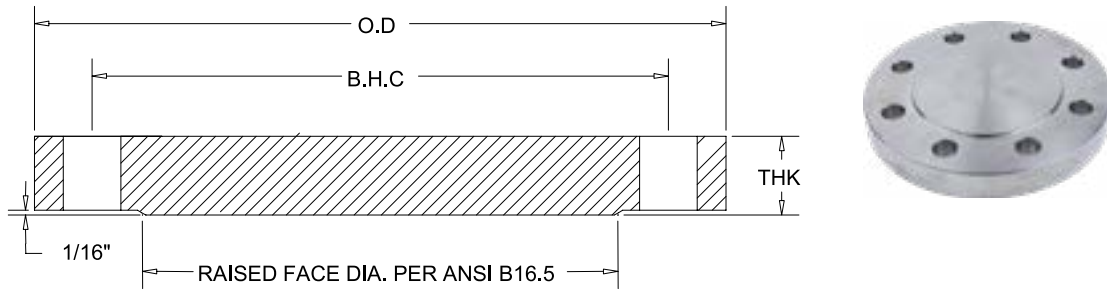
## ANSI Class 300 Forged Stainless Steel Raised Face Slip-on Flanges

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H | THK1  | THK2  | H.D.   | RF DIA | RH (RAD) | Weight lbs |
|-----------------|------|-------|-------|----------|--------|-------|-------|-------|--------|--------|----------|------------|
| SRFS0050-30     | 0.5  | 3.75  | 0.88  | 2.63     | 0.750  | 4     | 0.563 | 0.880 | 1.500  | 1.375  | 0.188    | 1.0        |
| SRFS0075-30     | 0.75 | 4.63  | 1.09  | 3.25     | 0.750  | 4     | 0.625 | 1.000 | 1.875  | 1.688  | 0.188    | 2.0        |
| SRFS0100-30     | 1    | 4.88  | 1.36  | 3.50     | 0.750  | 4     | 0.688 | 1.063 | 2.125  | 2.000  | 0.188    | 3.0        |
| SRFS0125-30     | 1.25 | 5.25  | 1.70  | 3.88     | 0.750  | 4     | 0.750 | 1.063 | 2.500  | 2.500  | 0.188    | 3.5        |
| SRFS0150-30     | 1.5  | 6.13  | 1.95  | 4.50     | 0.875  | 4     | 0.813 | 1.188 | 2.750  | 2.875  | 0.188    | 5.5        |
| SRFS0200-30     | 2    | 6.50  | 2.44  | 5.00     | 0.750  | 8     | 0.875 | 1.313 | 3.313  | 3.625  | 0.188    | 6.5        |
| SRFS0250-30     | 2.5  | 7.50  | 2.94  | 5.88     | 0.875  | 8     | 1.000 | 1.500 | 3.938  | 4.125  | 0.188    | 10.0       |
| SRFS0300-30     | 3    | 8.25  | 3.57  | 6.63     | 0.875  | 8     | 1.125 | 1.688 | 4.625  | 5.000  | 0.188    | 13.0       |
| SRFS0350-30     | 3.5  | 9.00  | 3.57  | 7.25     | 0.875  | 8     | 1.188 | 1.750 | 5.250  | 5.500  | 0.188    | 17.0       |
| SRFS0400-30     | 4    | 10.00 | 4.57  | 7.88     | 0.875  | 8     | 1.250 | 1.875 | 5.750  | 6.188  | 0.188    | 21.0       |
| SRFS0500-30     | 5    | 11.00 | 5.66  | 9.25     | 0.875  | 8     | 1.375 | 2.000 | 7.000  | 7.313  | 0.188    | 28.0       |
| SRFS0600-30     | 6    | 12.50 | 6.72  | 10.63    | 0.875  | 12    | 1.438 | 2.063 | 8.125  | 8.500  | 0.250    | 35.0       |
| SRFS0800-30     | 8    | 15.00 | 8.72  | 13.00    | 1.000  | 12    | 1.625 | 2.438 | 10.250 | 10.625 | 0.250    | 55.0       |
| SRFS1000-30     | 10   | 17.50 | 10.88 | 15.25    | 1.125  | 16    | 1.875 | 2.625 | 12.625 | 12.750 | 0.250    | 79.0       |
| SRFS1200-30     | 12   | 20.50 | 12.88 | 17.75    | 1.250  | 16    | 2.000 | 2.875 | 14.750 | 15.000 | 0.313    | 113.0      |
| SRFS1400-30     | 14   | 23.00 | 14.14 | 20.25    | 1.250  | 20    | 2.125 | 3.000 | 16.750 | 16.250 | 0.313    | 158.0      |
| SRFS1600-30     | 16   | 25.50 | 16.16 | 22.50    | 1.375  | 20    | 2.250 | 3.250 | 19.000 | 18.500 | 0.313    | 204.0      |
| SRFS1800-30     | 18   | 28.00 | 18.18 | 24.75    | 1.375  | 24    | 2.375 | 3.500 | 21.000 | 21.000 | 0.313    | 230.0      |
| SRFS2000-30     | 20   | 30.50 | 20.20 | 27.00    | 1.375  | 24    | 2.500 | 3.750 | 23.125 | 23.000 | 0.313    | 280.0      |
| SRFS2400-30     | 24   | 36.00 | 24.25 | 32.00    | 1.625  | 24    | 2.750 | 4.188 | 27.625 | 27.250 | 0.313    | 396.0      |

Notes:

- a. Dimensions and Tolerances per ANSI B16.5.
- b. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
- c. ASTM A182.
- d. Meets ANSI class 300 pattern.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



## ANSI Class 300 Forged Stainless Steel Raised Face Blind Flanges

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C | Ø B.H. | # B.H | THK   | RF DIA | Weight lbs |
|-----------------|------|-------|-------|---------|--------|-------|-------|--------|------------|
| SRFB0050-30     | 0.5  | 3.75  | BLIND | 2.63    | 0.750  | 4     | 0.563 | 1.375  | 3.0        |
| SRFB0075-30     | 0.75 | 4.63  | BLIND | 3.25    | 0.750  | 4     | 0.625 | 1.688  | 4.0        |
| SRFB0100-30     | 1    | 4.88  | BLIND | 3.50    | 0.750  | 4     | 0.688 | 2.000  | 5.0        |
| SRFB0125-30     | 1.25 | 5.25  | BLIND | 3.88    | 0.750  | 4     | 0.750 | 2.500  | 5.5        |
| SRFB0150-30     | 1.5  | 6.13  | BLIND | 4.50    | 0.875  | 4     | 0.813 | 2.875  | 6.0        |
| SRFB0200-30     | 2    | 6.50  | BLIND | 5.00    | 0.750  | 8     | 0.875 | 3.625  | 6.5        |
| SRFB0250-30     | 2.5  | 7.50  | BLIND | 5.88    | 0.875  | 8     | 1.000 | 4.125  | 10.0       |
| SRFB0300-30     | 3    | 8.25  | BLIND | 6.63    | 0.875  | 8     | 1.125 | 5.000  | 15.0       |
| SRFB0350-30     | 3.5  | 9.00  | BLIND | 7.25    | 0.875  | 8     | 1.188 | 5.500  | 21.0       |
| SRFB0400-30     | 4    | 10.00 | BLIND | 7.88    | 0.875  | 8     | 1.250 | 6.188  | 27.0       |
| SRFB0500-30     | 5    | 11.00 | BLIND | 9.25    | 0.875  | 8     | 1.375 | 7.313  | 39.0       |
| SRFB0600-30     | 6    | 12.50 | BLIND | 10.63   | 0.875  | 12    | 1.438 | 8.500  | 48.0       |
| SRFB0800-30     | 8    | 15.00 | BLIND | 13.00   | 1.000  | 12    | 1.625 | 10.625 | 75.0       |
| SRFB1000-30     | 10   | 17.50 | BLIND | 15.25   | 1.125  | 16    | 1.875 | 12.750 | 122.0      |
| SRFB1200-30     | 12   | 20.50 | BLIND | 17.75   | 1.250  | 16    | 2.000 | 15.000 | 180.0      |
| SRFB1400-30     | 14   | 23.00 | BLIND | 20.25   | 1.250  | 20    | 2.125 | 16.250 | 241.0      |
| SRFB1600-30     | 16   | 25.50 | BLIND | 22.50   | 1.375  | 20    | 2.250 | 18.500 | 312.0      |
| SRFB1800-30     | 18   | 28.00 | BLIND | 24.75   | 1.375  | 24    | 2.375 | 21.000 | 398.0      |
| SRFB2000-30     | 20   | 30.50 | BLIND | 27.00   | 1.375  | 24    | 2.500 | 23.000 | 500.0      |
| SRFB2400-30     | 24   | 36.00 | BLIND | 32.00   | 1.625  | 24    | 2.750 | 27.250 | 760.0      |

Notes:

- a. Dimensions and Tolerances per ANSI B16.5.
- b. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
- c. ASTM A182.
- d. Meets ANSI class 300 pattern.

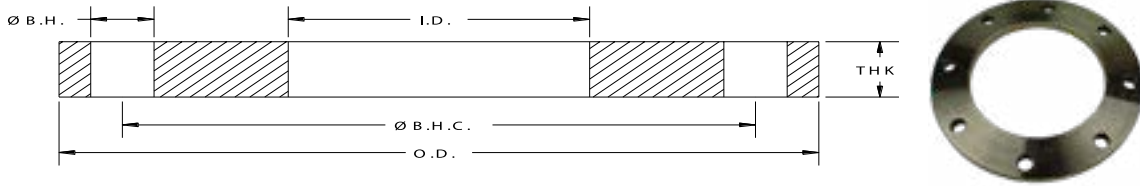
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



# Exhaust Flanges

## Domestic & Import





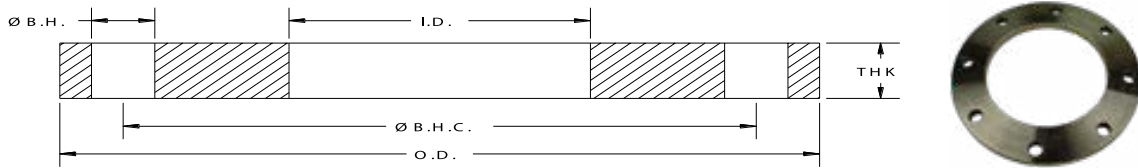
## Round Exhaust Steel Flanges

| API Part Number | Type       | Size | O.D.  | I.D.  | Ø B.H.C | Ø B.H | # B.H | THK   | Weight lbs |
|-----------------|------------|------|-------|-------|---------|-------|-------|-------|------------|
| PFE0500         | CAT        | 5    | 7.72  | 5.06  | 6.86    | 0.410 | 8     | 0.500 | 3.90       |
| PFE0800         | CAT        | 8    | 11.00 | 8.13  | 9.88    | 0.560 | 8     | 0.500 | 6.25       |
| PFE1000         | CAT        | 10   | 13.50 | 10.13 | 12.44   | 0.500 | 12    | 0.500 | 9.00       |
| PFE1200         | CAT        | 12   | 16.00 | 12.06 | 14.80   | 0.560 | 12    | 0.500 | 7.25       |
| PFE1400         | CAT        | 14   | 18.00 | 14.06 | 17.00   | 0.560 | 12    | 0.500 | 14.50      |
| PFE1600         | CAT        | 16   | 23.50 | 16.10 | 21.25   | 0.810 | 16    | 0.500 | 28.80      |
| PFE1800         | CAT        | 18   | 22.50 | 18.13 | 20.88   | 0.630 | 16    | 0.500 | 19.00      |
| PFE0500C        | CUMMINS    | 5    | 8.00  | 5.13  | 7.19    | 0.560 | 8     | 0.500 | 3.30       |
| PFE0600C        | CUMMINS    | 6    | 8.00  | 6.13  | 7.19    | 0.560 | 8     | 0.500 | 2.80       |
| PFE0600D        | DETROIT    | 6    | 9.50  | 6.06  | 8.19    | 0.440 | 6     | 0.500 | 6.00       |
| PFE1000D        | DETROIT    | 10   | 13.00 | 10.06 | 11.88   | 0.630 | 8     | 0.500 | 8.00       |
| MIT0800         | MITSUBISHI | 8    | 12.60 | 8.06  | 11.02   | 0.860 | 8     | 0.500 | N/A        |
| MIT1000         | MITSUBISHI | 10   | 15.16 | 10.00 | 13.56   | 0.870 | 12    | 0.500 | N/A        |
| MIT1200         | MITSUBISHI | 12   | 16.93 | 11.97 | 15.35   | 1.000 | 12    | 0.500 | N/A        |
| MIT1400         | MITSUBISHI | 14   | 18.90 | 14.06 | 17.13   | 1.000 | 12    | 0.500 | N/A        |

Notes:

- a. Flange material is steel (to AWWA C207-13 specifications). Specific grades of steel for structural or critical applications are available upon request.
- b. Meets ANSI Class 150 pattern

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



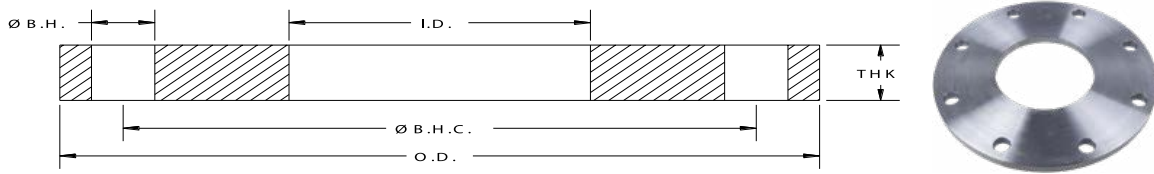
## 1/2" Thick Reducing Steel Flanges

| API Part Number | Size    | O.D.  | I.D.  | Ø B.H.C | Ø B.H | # B.H | THK   | Weight lbs |
|-----------------|---------|-------|-------|---------|-------|-------|-------|------------|
| PFHR0300-206    | 3 x 2   | 7.50  | 2.06  | 6.00    | 0.750 | 4     | 0.500 | 5.5        |
| PFHR0400-306    | 4 x 3   | 9.00  | 3.06  | 7.50    | 0.750 | 8     | 0.500 | 8.0        |
| PFHR0400-357    | 4 x 3   | 9.00  | 3.57  | 7.50    | 0.750 | 8     | 0.500 | 7.2        |
| PFHR0500-306    | 5 x 3   | 10.00 | 3.06  | 8.50    | 0.875 | 8     | 0.500 | 9.5        |
| PFHR0500-357    | 5 x 3   | 10.00 | 3.57  | 8.50    | 0.850 | 8     | 0.500 | 9.3        |
| PFHR0500-406    | 5 x 4   | 10.00 | 4.06  | 8.50    | 0.875 | 8     | 0.500 | 8.8        |
| PFHR0500-457    | 5 x 4   | 10.00 | 4.57  | 8.50    | 0.875 | 8     | 0.500 | 8.2        |
| PFHR0600-406    | 6 x 4   | 11.00 | 4.06  | 9.50    | 0.875 | 8     | 0.500 | 12.0       |
| PFHR0600-457    | 6 x 4   | 11.00 | 4.57  | 9.50    | 0.875 | 8     | 0.500 | 11.4       |
| PFHR0600-506    | 6 x 5   | 11.00 | 5.06  | 9.50    | 0.875 | 8     | 0.500 | 10.8       |
| PFHR0600-563    | 6 x 5   | 11.00 | 5.63  | 9.50    | 0.875 | 8     | 0.500 | 9.6        |
| PFHR0800-406    | 8 x 4   | 13.50 | 4.06  | 11.75   | 0.875 | 8     | 0.500 | 17.7       |
| PFHR0800-506    | 8 x 5   | 13.50 | 5.06  | 11.75   | 0.875 | 8     | 0.500 | 16.8       |
| PFHR0800-563    | 8 x 5   | 13.50 | 5.63  | 11.75   | 0.875 | 8     | 0.500 | 16.1       |
| PFHR0800-606    | 8 x 6   | 13.50 | 6.06  | 11.75   | 0.875 | 8     | 0.500 | 15.6       |
| PFHR0800-672    | 8 x 6   | 13.50 | 6.72  | 11.75   | 0.875 | 8     | 0.500 | 14.7       |
| PFHR1000-606    | 10 x 6  | 16.00 | 6.06  | 14.25   | 1.000 | 12    | 0.500 | 23.4       |
| PFHR1000-672    | 10 x 6  | 16.00 | 6.72  | 14.25   | 1.000 | 12    | 0.500 | 26.0       |
| PFHR1000-806    | 10 x 8  | 16.00 | 8.06  | 14.25   | 1.000 | 12    | 0.500 | 20.0       |
| PFHR1000-872    | 10 x 8  | 16.00 | 8.72  | 14.25   | 1.000 | 12    | 0.500 | 19.3       |
| PFHR1200-806    | 12 x 8  | 19.00 | 8.06  | 17.00   | 1.000 | 12    | 0.500 | 32.0       |
| PFHR1200-1006   | 12 x 10 | 19.00 | 10.06 | 17.00   | 1.000 | 12    | 0.500 | 28.5       |
| PFHR1200-1075   | 12 x 10 | 19.00 | 10.75 | 17.00   | 1.000 | 12    | 0.500 | 27.0       |
| PFHR1200-1088   | 12 x 10 | 19.00 | 10.88 | 17.00   | 1.000 | 12    | 0.500 | 26.0       |
| PFHR1400-806    | 14 x 8  | 21.00 | 8.06  | 18.75   | 1.125 | 12    | 0.500 | 40.1       |
| PFHR1400-1006   | 14 x 10 | 21.00 | 10.06 | 18.75   | 1.125 | 12    | 0.500 | 36.1       |
| PFHR1400-1206   | 14 x 12 | 21.00 | 12.06 | 18.75   | 1.125 | 12    | 0.500 | 32.0       |
| PFHR1600-806    | 16 x 8  | 23.50 | 8.06  | 21.25   | 1.125 | 16    | 0.500 | 52.5       |
| PFHR1600-1006   | 16 x 10 | 23.50 | 10.06 | 21.25   | 1.125 | 16    | 0.500 | 34.0       |
| PFHR1600-1206   | 16 x 12 | 23.50 | 12.06 | 21.25   | 1.125 | 16    | 0.500 | 41.0       |
| PFHR1600-1406   | 16 x 14 | 23.50 | 14.06 | 21.25   | 1.125 | 16    | 0.500 | 40.0       |
| PFHR1800-1406   | 18 x 14 | 25.00 | 14.06 | 22.75   | 1.250 | 16    | 0.500 | 44.9       |
| PFHR2000-1206   | 20 x 12 | 27.50 | 14.06 | 25.00   | 1.250 | 20    | 0.500 | 48.0       |
| PFHR2200-2019   | 20x 22  | 29.50 | 20.19 | 27.25   | 1.380 | 20    | 0.500 | 48.5       |

Notes:

- a. Flange material is steel (to AWWA C207-13 specifications). Specific grades of steel for structural or critical applications are available upon request.
- b. Meets ANSI Class 150 pattern

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



# 1/2" Thick Reducing Stainless Steel Flanges

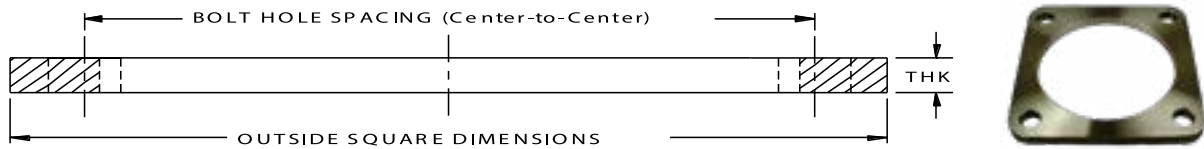
| API Part Number | Size    | O.D.  | I.D.  | Ø B.H.C | Ø B.H | # B.H | THK   | Weight lbs |
|-----------------|---------|-------|-------|---------|-------|-------|-------|------------|
| SPFHR0500-406   | 5 x 4   | 10.00 | 4.06  | 8.50    | 0.88  | 8     | 0.500 | 9.0        |
| SPFHR0600-406   | 6 x 4   | 11.00 | 4.06  | 9.50    | 0.88  | 8     | 0.500 | 11.0       |
| SPFHR0600-506   | 6 x 5   | 11.00 | 5.06  | 9.50    | 0.88  | 8     | 0.500 | 10.5       |
| SPFHR0800-506   | 8 x 5   | 13.50 | 5.06  | 11.75   | 0.88  | 8     | 0.500 | 18.0       |
| SPFHR0800-606   | 8 x 6   | 13.50 | 6.06  | 11.75   | 0.88  | 8     | 0.500 | 16.5       |
| SPFHR0800-672   | 8 x 6   | 13.50 | 6.72  | 11.75   | 0.88  | 8     | 0.500 | 15.0       |
| SPFHR1000-606   | 10 x 6  | 16.00 | 6.06  | 14.25   | 1.00  | 12    | 0.500 | 18.0       |
| SPFHR1000-806   | 10 x 8  | 16.00 | 8.06  | 14.25   | 1.00  | 12    | 0.500 | 20.0       |
| SPFHR1200-1006  | 12 x 10 | 19.00 | 10.06 | 17.00   | 1.00  | 12    | 0.500 | 31.0       |
| SPFHR1200-806   | 12 x 8  | 19.00 | 8.06  | 17.00   | 1.00  | 12    | 0.500 | 34.0       |
| SPFHR1400-1288  | 14 x 12 | 21.00 | 12.88 | 18.75   | 1.13  | 12    | 0.500 | 28.0       |

Notes:

- a. Flange material is steel (to AWWA C207-13 specifications). Specific grades of steel for structural or critical applications are available upon request.
- b. Meets ANSI Class 150 pattern

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**





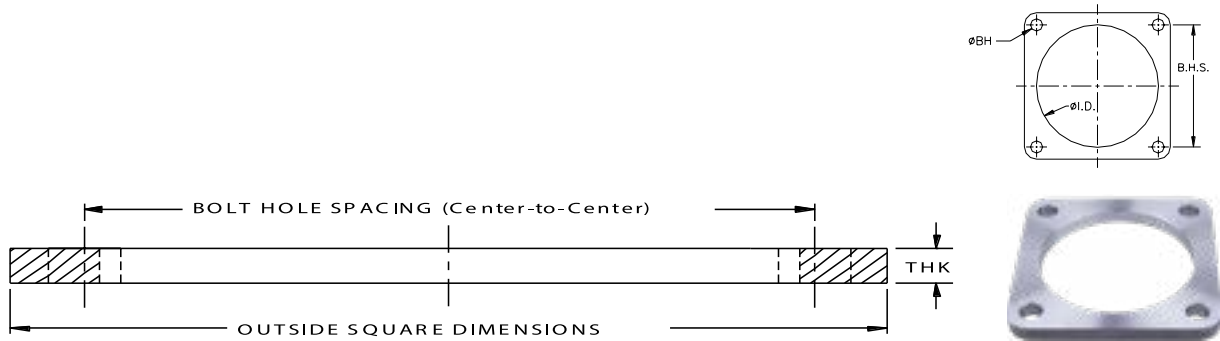
## Square Exhaust Steel Flanges

| API Part Number | Size | Outside Square | I.D. | Bolt Hole Spacing CTR-to-CTR | Ø B.H | # B.H | THK   | Corner Radius | Weight lbs |
|-----------------|------|----------------|------|------------------------------|-------|-------|-------|---------------|------------|
| PFES0313        | 3    | 5.50 X 5.50    | 3.12 | 4.13                         | 0.560 | 4     | 0.500 | 0.688         | 3.0        |
| PFES0357        | 3    | 5.50 X 5.50    | 3.57 | 4.13                         | 0.560 | 4     | 0.500 | 0.688         | 3.0        |
| PFES0400        | 4    | 5.50 X 5.50    | 4.06 | 4.13                         | 0.560 | 4     | 0.500 | 0.688         | 2.6        |
| PFES0500        | 5    | 6.50 X 6.50    | 5.06 | 5.00                         | 0.660 | 4     | 0.500 | 0.688         | 3.0        |
| PFES0500-75BH   | 5    | 6.50 X 6.50    | 5.06 | 5.00                         | 0.750 | 4     | 0.500 | 0.688         | 3.0        |
| PFES0600        | 6    | 7.75 X 7.75    | 6.06 | 6.00                         | 0.810 | 4     | 0.500 | 1.000         | 4.5        |

Notes:

a. Flange material is steel (to AWWA C207-13 specifications).

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



## Square Exhaust Stainless Steel Flanges

| API Part Number | Size | Outside Square | I.D. | Bolt Hole Spacing CTR-to-CTR | Ø B.H | # B.H | THK   | Corner Radius | Weight lbs |
|-----------------|------|----------------|------|------------------------------|-------|-------|-------|---------------|------------|
| SPFES0313       | 3    | 5.50 x 5.50    | 3.12 | 4.13                         | 0.560 | 4     | 0.500 | 0.688         | 3.0        |
| SPFES0357       | 3    | 5.50 x 5.50    | 3.57 | 4.13                         | 0.560 | 4     | 0.500 | 0.688         | 3.0        |
| SPFES0400       | 4    | 5.50 x 5.50    | 4.06 | 4.13                         | 0.560 | 4     | 0.500 | 0.688         | 2.6        |
| SPFES0500       | 5    | 6.50 x 6.50    | 5.06 | 5.00                         | 0.660 | 4     | 0.500 | 0.688         | 3.0        |
| SPFES0500-75BH  | 5    | 6.50 x 6.50    | 5.06 | 5.00                         | 0.750 | 4     | 0.500 | 0.688         | 3.0        |
| SPFES0600       | 6    | 7.75 x 7.75    | 6.06 | 6.00                         | 0.810 | 4     | 0.500 | 1.000         | 4.5        |

Notes:

a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.

b. Meets ANSI class 150 pattern.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



# DIN Metric Flanges

## Domestic & Import



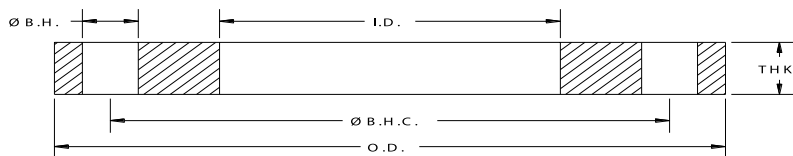
|   |                   |
|---|-------------------|
| = | Identical         |
| ≈ | Approximate       |
| ≠ | Different         |
| ∅ | No Size Available |

## DIN (Metric) Flange Dimensions Table

### CLASSES

PN10, PN16 and PN25 are classes within the Deutsches Institute fur Normung (DIN) flange specification for the pressure class and metric flange dimensions, including bolt hole diameter. We can also offer other classes upon request.

| Size | PN10  |         |       |         | PN16  |         |       |         | PN25  |         |       |         |
|------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|
|      | STOCK | EN-1092 | STOCK | EN-1092 | STOCK | EN-1092 | STOCK | EN-1092 | STOCK | EN-1092 | STOCK | EN-1092 |
| 25   | 1.38  | 1.36    | 0.630 | 0.630   |       |         |       |         |       |         |       |         |
| 32   | 1.69  | 1.71    | 0.710 | 0.710   |       |         |       |         |       |         |       |         |
| 40   | 1.97  | 1.95    | 0.710 | 0.710   |       |         |       |         |       |         |       |         |
| 50   | 2.44  | 2.42    | 0.750 | 0.790   |       |         |       |         |       |         |       |         |
| 65   | 2.95  | 3.05    | 0.790 | 0.790   |       |         |       |         |       |         |       |         |
| 80   | 3.57  | 3.56    | 0.790 | 0.790   |       |         |       |         |       |         |       |         |
| 100  | 4.57  | 4.57    | 0.870 | 0.870   |       |         |       |         |       |         |       |         |
| 125  | 5.66  | 5.57    | 0.870 | 0.870   |       |         |       |         |       |         |       |         |
| 150  | 6.72  | 6.71    | 0.950 | 0.950   |       |         |       |         |       |         |       |         |
| 200  | 8.72  | 8.72    | 0.950 | 0.950   |       |         |       |         |       |         |       |         |
| 250  | 10.88 | 10.89   | 1.020 | 1.030   |       |         |       |         |       |         |       |         |
| 300  | 12.88 | 12.89   | 1.020 | 1.030   |       |         |       |         |       |         |       |         |
| 350  | 14.19 | 14.15   | 1.180 | 1.190   |       |         |       |         |       |         |       |         |
| 400  | 16.19 | 16.18   | 1.260 | 1.260   |       |         |       |         |       |         |       |         |
| 450  | 18.19 | 18.19   | 1.380 | 1.420   |       |         |       |         |       |         |       |         |
| 500  | 20.19 | 20.22   | 1.500 | 1.500   |       |         |       |         |       |         |       |         |
| 600  | 24.19 | 24.27   | 1.650 | 1.660   |       |         |       |         |       |         |       |         |
| 700  | 28.19 | 28.19   | 1.832 | 1.970   |       |         |       |         |       |         |       |         |
| 800  | 32.19 | 32.19   | 2.013 | 2.200   |       |         |       |         |       |         |       |         |
| 900  | 36.19 | 35.19   | 2.148 | 2.440   |       |         |       |         |       |         |       |         |
| 1000 | 40.19 | 39.19   | 2.329 | 2.760   |       |         |       |         |       |         |       |         |

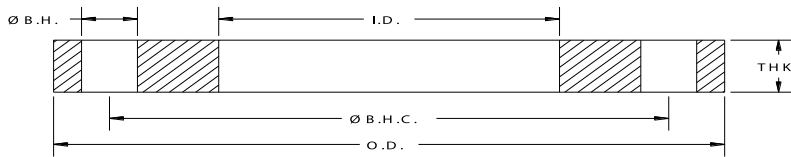


## DIN Metric PN10 Steel Slip-on Flanges - EN 1092-1:2007 Spec's

| API Part Number | Size |      | O.D.  |      | I.D.  |       | Ø B.H.C. |      | Ø B.H. |    | # B.H | THK   |      | Weight |       |
|-----------------|------|------|-------|------|-------|-------|----------|------|--------|----|-------|-------|------|--------|-------|
|                 | in   | mm   | in    | mm   | in    | mm    | in       | mm   | in     | mm |       | in    | mm   | lb     | kg    |
| DN0025-PN10     | 1    | 25   | 4.53  | 115  | 1.36  | 34.5  | 3.35     | 85   | 0.550  | 14 | 4     | 0.630 | 16.0 | 2.5    | 1.1   |
| DN0032-PN10     | 1.25 | 32   | 5.51  | 140  | 1.71  | 43.5  | 3.94     | 100  | 0.710  | 18 | 4     | 0.710 | 18.0 | 4.1    | 1.9   |
| DN0040-PN10     | 1.5  | 40   | 5.91  | 150  | 1.95  | 49.5  | 4.33     | 110  | 0.710  | 18 | 4     | 0.710 | 18.0 | 4.6    | 2.1   |
| DN0050-PN10     | 2    | 50   | 6.50  | 165  | 2.42  | 61.5  | 4.92     | 125  | 0.710  | 18 | 4     | 0.790 | 20.0 | 6.1    | 2.8   |
| DN0065-PN10     | 2.5  | 65   | 7.28  | 185  | 3.05  | 77.5  | 5.71     | 145  | 0.710  | 18 | 4     | 0.790 | 20.0 | 7.3    | 3.3   |
| DN0080-PN10     | 3    | 80   | 7.87  | 200  | 3.56  | 90.5  | 6.30     | 160  | 0.710  | 18 | 8     | 0.790 | 20.0 | 8.0    | 3.6   |
| DN0100-PN10     | 4    | 100  | 8.66  | 220  | 4.57  | 116.0 | 7.09     | 180  | 0.710  | 18 | 8     | 0.870 | 22.0 | 9.7    | 4.4   |
| DN0125-PN10     | 5    | 125  | 9.84  | 250  | 5.57  | 141.5 | 8.27     | 210  | 0.710  | 18 | 8     | 0.870 | 22.0 | 12.0   | 5.4   |
| DN0150-PN10     | 6    | 150  | 11.22 | 285  | 6.71  | 170.4 | 9.45     | 240  | 0.870  | 22 | 8     | 0.944 | 24.0 | 16.0   | 7.3   |
| DN0200-PN10     | 8    | 200  | 13.39 | 340  | 8.72  | 221.5 | 11.61    | 295  | 0.870  | 22 | 8     | 0.944 | 24.0 | 21.0   | 9.5   |
| DN0250-PN10     | 10   | 250  | 15.55 | 395  | 10.89 | 276.5 | 13.78    | 350  | 0.870  | 22 | 12    | 1.024 | 26.0 | 26.5   | 12.0  |
| DN0300-PN10     | 12   | 300  | 17.52 | 445  | 12.89 | 327.5 | 15.75    | 400  | 0.870  | 22 | 12    | 1.024 | 26.0 | 30.5   | 13.8  |
| DN0350-PN10     | 14   | 350  | 19.88 | 505  | 14.15 | 359.5 | 18.11    | 460  | 0.870  | 22 | 16    | 1.181 | 30.0 | 48.0   | 21.8  |
| DN0400-PN10     | 16   | 400  | 22.24 | 565  | 16.18 | 411.0 | 20.28    | 515  | 1.020  | 26 | 16    | 1.260 | 32.0 | 61.0   | 27.7  |
| DN0450-PN10     | 18   | 450  | 24.21 | 615  | 18.19 | 462.0 | 22.24    | 565  | 1.020  | 26 | 20    | 1.417 | 36.0 | 74.5   | 33.8  |
| DN0500-PN10     | 20   | 500  | 26.38 | 670  | 20.22 | 513.5 | 24.41    | 620  | 1.020  | 26 | 20    | 1.496 | 38.0 | 89.0   | 40.4  |
| DN0600-PN10     | 24   | 600  | 30.71 | 780  | 24.27 | 616.5 | 28.54    | 725  | 1.180  | 30 | 20    | 1.654 | 42.0 | 120.0  | 54.5  |
| DN0700-PN10     | 28   | 700  | 35.24 | 895  | 28.19 | 716.0 | 33.07    | 840  | 1.180  | 30 | 24    | 1.969 | 50.0 | 181.5  | 82.4  |
| DN0800-PN10     | 32   | 800  | 39.96 | 1015 | 32.19 | 817.6 | 37.40    | 950  | 1.300  | 33 | 24    | 2.200 | 56.0 | 254.5  | 115.5 |
| DN0900-PN10     | 36   | 900  | 43.90 | 1115 | 35.19 | 893.8 | 41.34    | 1050 | 1.300  | 33 | 28    | 2.440 | 62.0 | 348.5  | 158.2 |
| DN1000-PN10     | 40   | 1000 | 48.42 | 1230 | 39.19 | 995.4 | 45.67    | 1160 | 1.420  | 36 | 28    | 2.760 | 70.0 | 462.5  | 210.0 |

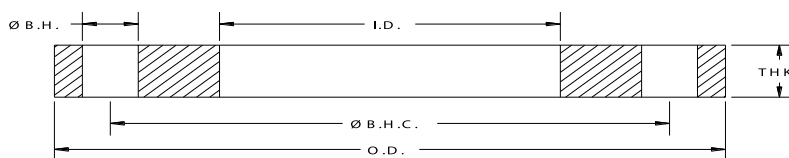
## DIN Metric PN16 Steel Slip-on Flanges - EN 1092-1:2007 Spec's

| API Part Number | Size |      | O.D.  |      | I.D.  |       | Ø B.H.C. |      | Ø B.H. |    | # B.H | THK   |    | Weight |       |
|-----------------|------|------|-------|------|-------|-------|----------|------|--------|----|-------|-------|----|--------|-------|
|                 | in   | mm   | in    | mm   | in    | mm    | in       | mm   | in     | mm |       | in    | mm | lb     | kg    |
| DN0200-PN16     | 8    | 200  | 13.39 | 340  | 8.72  | 221.5 | 11.61    | 295  | 0.870  | 22 | 12    | 1.030 | 26 | 22.00  | 10.0  |
| DN0250-PN16     | 10   | 250  | 15.94 | 405  | 10.89 | 276.5 | 13.98    | 355  | 1.020  | 26 | 12    | 1.150 | 29 | 31.50  | 14.3  |
| DN0300-PN16     | 12   | 300  | 18.11 | 460  | 12.89 | 327.5 | 16.14    | 410  | 1.020  | 26 | 12    | 1.260 | 32 | 42.00  | 19.1  |
| DN0350-PN16     | 14   | 350  | 20.47 | 520  | 14.14 | 359.0 | 18.50    | 470  | 1.020  | 26 | 16    | 1.380 | 35 | 62.50  | 28.4  |
| DN0400-PN16     | 16   | 400  | 22.83 | 580  | 16.18 | 411.0 | 20.67    | 525  | 1.180  | 30 | 16    | 1.500 | 38 | 79.50  | 36.1  |
| DN0450-PN16     | 18   | 450  | 25.20 | 640  | 18.19 | 462.0 | 23.03    | 585  | 1.180  | 30 | 20    | 1.660 | 42 | 102.00 | 46.3  |
| DN0500-PN16     | 20   | 500  | 28.15 | 715  | 20.22 | 513.5 | 25.59    | 650  | 1.300  | 33 | 20    | 1.820 | 46 | 142.00 | 64.5  |
| DN0600-PN16     | 24   | 600  | 33.07 | 840  | 24.27 | 616.5 | 30.31    | 770  | 1.420  | 36 | 20    | 2.170 | 55 | 224.50 | 101.9 |
| DN0700-PN16     | 28   | 700  | 35.83 | 910  | 28.19 | 716.0 | 33.07    | 840  | 1.420  | 36 | 24    | 2.480 | 63 | 243.50 | 110.5 |
| DN0800-PN16     | 32   | 800  | 40.35 | 1025 | 32.19 | 817.6 | 37.40    | 950  | 1.540  | 39 | 24    | 2.920 | 74 | 347.50 | 157.8 |
| DN0900-PN16     | 36   | 900  | 44.29 | 1125 | 35.19 | 893.8 | 41.34    | 1050 | 1.540  | 39 | 28    | 3.230 | 82 | 472.00 | 214.3 |
| DN1000-PN16     | 40   | 1000 | 49.41 | 1255 | 39.19 | 995.4 | 46.06    | 1170 | 1.650  | 42 | 28    | 3.550 | 90 | 655.00 | 297.4 |



## DIN Metric PN25 Steel Slip-on Flanges - EN 1092-1:2007 Spec's

| API Part Number | Size |     | O.D.  |     | I.D.  |       | Ø B.H.C. |     | Ø B.H. |    | # B.H | THK   |    | Weight |       |
|-----------------|------|-----|-------|-----|-------|-------|----------|-----|--------|----|-------|-------|----|--------|-------|
|                 | in   | mm  | in    | mm  | in    | mm    | in       | mm  | in     | mm |       | in    | mm | lb     | kg    |
| DN0100-PN25     | 4    | 100 | 9.25  | 235 | 4.57  | 116.0 | 7.48     | 190 | 0.870  | 22 | 8     | 1.030 | 26 | 13.5   | 6.1   |
| DN0125-PN25     | 5    | 125 | 10.63 | 270 | 5.57  | 141.5 | 8.66     | 220 | 1.020  | 26 | 8     | 1.110 | 28 | 18.0   | 8.2   |
| DN0150-PN25     | 6    | 150 | 11.81 | 300 | 6.71  | 170.5 | 9.84     | 250 | 1.020  | 26 | 8     | 1.180 | 30 | 23.0   | 10.4  |
| DN0200-PN25     | 8    | 200 | 14.17 | 360 | 8.72  | 221.5 | 12.20    | 310 | 1.020  | 26 | 12    | 1.260 | 32 | 31.5   | 14.3  |
| DN0250-PN25     | 10   | 250 | 16.73 | 425 | 10.89 | 276.5 | 14.57    | 370 | 1.180  | 30 | 12    | 1.380 | 35 | 44.5   | 20.2  |
| DN0300-PN25     | 12   | 300 | 19.09 | 485 | 12.89 | 327.5 | 16.93    | 430 | 1.180  | 30 | 16    | 1.500 | 38 | 59.0   | 26.8  |
| DN0350-PN25     | 14   | 350 | 21.85 | 555 | 14.15 | 359.5 | 19.29    | 490 | 1.300  | 33 | 16    | 1.660 | 42 | 92.0   | 41.8  |
| DN0400-PN25     | 16   | 400 | 24.41 | 620 | 16.18 | 411.0 | 21.65    | 550 | 1.420  | 36 | 16    | 1.890 | 48 | 127.0  | 57.7  |
| DN0450-PN25     | 18   | 450 | 26.38 | 670 | 18.19 | 462.0 | 23.62    | 600 | 1.420  | 36 | 20    | 2.130 | 54 | 154.0  | 69.9  |
| DN0500-PN25     | 20   | 500 | 28.74 | 730 | 20.22 | 513.5 | 25.98    | 660 | 1.420  | 36 | 20    | 2.290 | 58 | 191.5  | 86.9  |
| DN0600-PN25     | 24   | 600 | 33.27 | 845 | 24.27 | 616.5 | 30.31    | 770 | 1.540  | 39 | 20    | 2.680 | 68 | 280.5  | 127.3 |
| DN0700-PN25     | 28   | 700 | 37.80 | 960 | 28.19 | 716.0 | 34.45    | 875 | 1.650  | 42 | 24    | 3.350 | 85 | 424.0  | 192.5 |



## DIN Metric (PN10 Drilled) Stainless Steel Slip-on Flanges

| API Part Number | Size |     | O.D.  |     | I.D.  |        | Ø B.H.C. |     | Ø B.H. |    | # B.H | THK   |    | Weight |      |
|-----------------|------|-----|-------|-----|-------|--------|----------|-----|--------|----|-------|-------|----|--------|------|
|                 | in   | mm  | in    | mm  | in    | mm     | in       | mm  | in     | mm |       | in    | mm | Lb     | kg   |
| SDN0025-PN10    | 1    | 25  | 4.53  | 115 | 1.38  | 35.10  | 3.35     | 85  | 0.550  | 14 | 4     | 0.630 | 16 | 2.5    | 1.1  |
| SDN0032-PN10    | 1.3  | 32  | 5.51  | 140 | 1.69  | 42.90  | 3.94     | 100 | 0.710  | 18 | 4     | 0.710 | 18 | 3.8    | 1.7  |
| SDN0040-PN10    | 1.5  | 40  | 5.91  | 150 | 1.97  | 50.00  | 4.33     | 110 | 0.710  | 18 | 4     | 0.710 | 18 | 4.3    | 2.0  |
| SDN0050-PN10    | 2    | 50  | 6.50  | 165 | 2.44  | 62.00  | 4.92     | 125 | 0.710  | 18 | 4     | 0.750 | 19 | 5.8    | 2.6  |
| SDN0065-PN10    | 2.5  | 65  | 7.28  | 185 | 2.94  | 74.90  | 5.71     | 145 | 0.710  | 18 | 4     | 0.790 | 20 | 7.3    | 3.3  |
| SDN0080-PN10    | 3    | 80  | 7.87  | 200 | 3.57  | 90.70  | 6.30     | 160 | 0.710  | 18 | 8     | 0.790 | 20 | 8.0    | 3.6  |
| SDN0100-PN10    | 4    | 100 | 8.66  | 220 | 4.57  | 116.10 | 7.09     | 180 | 0.710  | 18 | 8     | 0.870 | 22 | 9.0    | 4.1  |
| SDN0125-PN10    | 5    | 125 | 9.84  | 250 | 5.66  | 143.80 | 8.27     | 210 | 0.710  | 18 | 8     | 0.870 | 22 | 13.0   | 5.9  |
| SDN0150-PN10    | 6    | 150 | 11.22 | 285 | 6.72  | 170.70 | 9.45     | 240 | 0.870  | 22 | 8     | 0.950 | 24 | 15.3   | 6.9  |
| SDN0200-PN10    | 8    | 200 | 13.39 | 340 | 8.72  | 221.50 | 11.61    | 295 | 0.870  | 22 | 8     | 0.950 | 24 | 21.0   | 9.5  |
| SDN0250-PN10    | 10   | 250 | 15.55 | 395 | 10.88 | 276.40 | 13.78    | 350 | 0.870  | 22 | 12    | 1.020 | 26 | 26.5   | 12.0 |
| SDN0300-PN10    | 12   | 300 | 17.52 | 445 | 12.88 | 327.20 | 15.75    | 400 | 0.870  | 22 | 12    | 1.020 | 28 | 30.0   | 13.6 |
| SDN0350-PN10    | 14   | 350 | 19.88 | 505 | 14.19 | 360.40 | 18.11    | 460 | 0.870  | 22 | 16    | 1.180 | 30 | 44.7   | 20.3 |
| SDN0400-PN10    | 16   | 400 | 22.24 | 565 | 16.19 | 411.20 | 20.28    | 515 | 1.020  | 26 | 16    | 1.260 | 32 | 60.5   | 27.5 |
| SDN0450-PN10    | 18   | 450 | 24.21 | 615 | 18.19 | 462.00 | 22.24    | 565 | 1.020  | 26 | 20    | 1.380 | 35 | 72.0   | 32.7 |
| SDN0500-PN10    | 20   | 500 | 26.38 | 670 | 20.19 | 512.80 | 24.41    | 620 | 1.020  | 26 | 20    | 1.500 | 38 | 90.0   | 40.9 |
| SDN0600-PN10    | 24   | 600 | 30.71 | 780 | 24.19 | 614.40 | 28.54    | 725 | 1.160  | 29 | 20    | 1.650 | 42 | 121.5  | 55.2 |

## DIN Metric (PN16 Drilled) Stainless Steel Slip-on Flanges

| API Part Number | Size |     | O.D.  |     | I.D.  |        | Ø B.H.C. |     | Ø B.H. |    | # B.H | THK   |    | Weight |      |
|-----------------|------|-----|-------|-----|-------|--------|----------|-----|--------|----|-------|-------|----|--------|------|
|                 | in   | mm  | in    | mm  | in    | mm     | in       | mm  | in     | mm |       | in    | mm | Lb     | kg   |
| SDN0200-PN16    | 8    | 200 | 13.39 | 340 | 8.72  | 221.50 | 11.61    | 295 | 0.870  | 22 | 12    | 1.020 | 26 | 21.0   | 9.5  |
| SDN0250-PN16    | 10   | 250 | 15.94 | 405 | 10.88 | 276.40 | 13.97    | 355 | 1.020  | 26 | 12    | 1.140 | 29 | 31.0   | 14.1 |
| SDN0300-PN16    | 12   | 300 | 18.11 | 460 | 12.88 | 327.20 | 16.14    | 410 | 1.020  | 26 | 12    | 1.260 | 32 | 42.7   | 19.4 |
| SDN0350-PN16    | 14   | 350 | 20.47 | 520 | 14.19 | 360.40 | 18.50    | 470 | 1.020  | 26 | 16    | 1.380 | 35 | 62.3   | 28.3 |
| SDN0400-PN16    | 16   | 400 | 22.83 | 580 | 16.19 | 411.20 | 20.67    | 525 | 1.180  | 30 | 16    | 1.500 | 38 | 80.5   | 36.5 |
| SDN0450-PN16    | 18   | 450 | 25.20 | 640 | 18.19 | 462.00 | 23.03    | 585 | 1.180  | 30 | 20    | 1.650 | 42 | 110.3  | 50.1 |
| SDN0500-PN16    | 20   | 500 | 28.15 | 715 | 20.19 | 512.80 | 25.59    | 650 | 1.300  | 33 | 20    | 1.810 | 46 | 141.5  | 64.2 |
| SDN0600-PN16    | 24   | 600 | 33.07 | 840 | 24.19 | 614.40 | 30.32    | 770 | 1.420  | 36 | 20    | 2.050 | 52 | 213.5  | 96.9 |

Note:

All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.





# Backing Flanges & Stub Ends

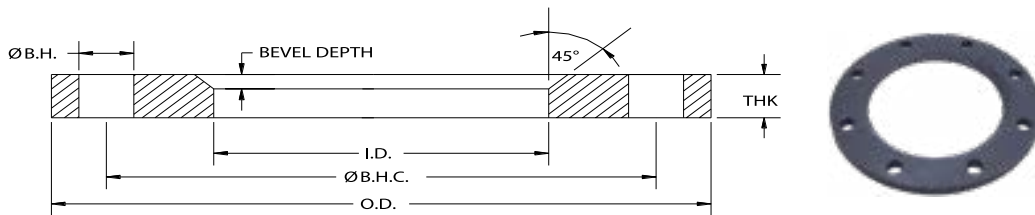
Domestic & Import



# Backing Flanges

## PART NUMBER STRUCTURE

| Part Number Section | Options  |
|---------------------|--|
| Type                | <b>Backing Flange for Angle Face Ring:</b><br>ABF = Ductile Iron (Painted)<br>SABF = Stainless Steel<br><br><b>Backing Flange for Stub End</b><br>BF = Ductile Iron (Painted)<br>GBF = Ductile Iron (Hot Dip Galvanized) |
| Size                | XXXX = Size in inches going out 2 decimal places   |
| Other               | 16 = O.D. Tube Size<br>DI = Ductile Iron   |



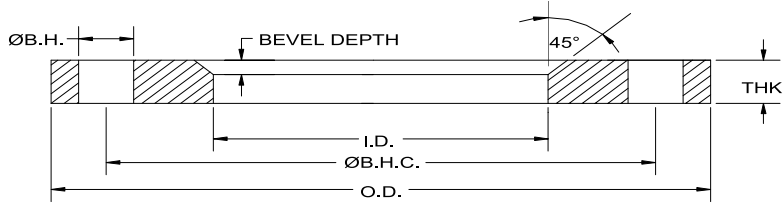
## DUCTILE IRON BACKING FLANGES FOR ANGLE FACE RINGS

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H | THK   | Bevel Depth | Weight lbs |
|-----------------|------|-------|-------|----------|--------|-------|-------|-------------|------------|
| ABF0050-DI      | 0.5  | 3.50  | 1.25  | 2.38     | 0.630  | 4     | 0.500 | 0.250       | 0.9        |
| ABF0075-DI      | 0.75 | 3.88  | 1.44  | 2.75     | 0.630  | 4     | 0.500 | 0.250       | 1.1        |
| ABF0100-DI      | 1    | 4.25  | 1.69  | 3.13     | 0.630  | 4     | 0.500 | 0.250       | 1.3        |
| ABF0125-DI      | 1.25 | 4.63  | 2.06  | 3.50     | 0.630  | 4     | 0.500 | 0.250       | 1.5        |
| ABF0150-DI      | 1.5  | 5.00  | 2.25  | 3.88     | 0.630  | 4     | 0.500 | 0.250       | 1.9        |
| ABF0200-DI      | 2    | 6.00  | 2.88  | 4.75     | 0.750  | 4     | 0.500 | 0.250       | 2.5        |
| ABF0250-DI      | 2.5  | 7.00  | 3.38  | 5.50     | 0.750  | 4     | 0.500 | 0.250       | 3.5        |
| ABF0300-DI      | 3    | 7.50  | 4.00  | 6.00     | 0.750  | 4     | 0.500 | 0.250       | 4.0        |
| ABF0400-DI      | 4    | 9.00  | 5.00  | 7.50     | 0.750  | 8     | 0.562 | 0.250       | 6.5        |
| ABF0600-DI      | 6    | 11.00 | 7.25  | 9.50     | 0.875  | 8     | 0.630 | 0.250       | 8.0        |
| ABF0800-DI      | 8    | 13.50 | 9.25  | 11.75    | 0.875  | 8     | 0.630 | 0.250       | 11.5       |
| ABF1000-DI      | 10   | 16.00 | 11.44 | 14.25    | 1.000  | 12    | 0.630 | 0.312       | 15.0       |
| ABF1200-DI      | 12   | 19.00 | 13.63 | 17.00    | 1.000  | 12    | 0.750 | 0.312       | 26.0       |
| ABF1400-DI      | 14   | 21.00 | 14.88 | 18.75    | 1.125  | 12    | 0.750 | 0.312       | 26.5       |
| ABF1600-DI      | 16   | 23.50 | 16.88 | 21.25    | 1.125  | 16    | 0.750 | 0.312       | 37.0       |
| ABF1800-DI      | 18   | 25.00 | 18.88 | 22.75    | 1.250  | 16    | 0.880 | 0.375       | 42.0       |
| ABF2000-DI      | 20   | 27.50 | 20.88 | 25.00    | 1.250  | 20    | 0.880 | 0.375       | 51.0       |
| ABF2400-DI      | 24   | 32.00 | 24.88 | 29.50    | 1.375  | 20    | 1.000 | 0.375       | 76.0       |
| ABF3000-DI      | 30   | 38.75 | 30.88 | 36.00    | 1.375  | 28    | 1.000 | 0.500       | 104.0      |
| ABF3600-DI      | 36   | 46.00 | 36.88 | 42.75    | 1.625  | 32    | 1.250 | 0.500       | 166.0      |
| ABF4200-DI      | 42   | 53.00 | 42.91 | 49.50    | 1.625  | 36    | 1.250 | 0.500       | 208.0      |
| ABF4800-DI      | 48   | 59.50 | 48.91 | 56.00    | 1.625  | 44    | 1.250 | 0.500       | 246.0      |

Notes:

- a. Material conforms to ASTM A536.
- b. Meets ANSI class 150 pattern.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



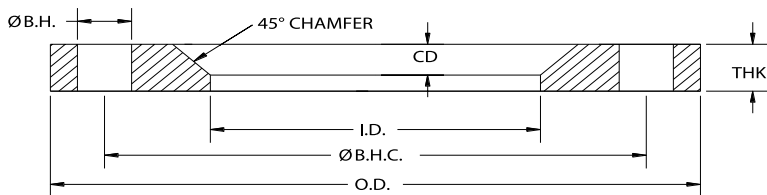
**STAINLESS STEEL BACKING FLANGES FOR ANGLE FACE RINGS**

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H | THK   | Bevel Depth | Weight lbs |
|-----------------|------|-------|-------|----------|--------|-------|-------|-------------|------------|
| SABF0050        | 0.5  | 3.50  | 1.25  | 2.38     | 0.630  | 4     | 0.500 | 0.250       | 0.9        |
| SABF0075        | 0.75 | 3.88  | 1.44  | 2.75     | 0.630  | 4     | 0.500 | 0.250       | 1.1        |
| SABF0100        | 1    | 4.25  | 1.69  | 3.13     | 0.630  | 4     | 0.500 | 0.250       | 1.3        |
| SABF0125        | 1.25 | 4.63  | 2.06  | 3.50     | 0.630  | 4     | 0.500 | 0.250       | 1.5        |
| SABF0150        | 1.5  | 5.00  | 2.25  | 3.88     | 0.630  | 4     | 0.500 | 0.250       | 1.9        |
| SABF0200        | 2    | 6.00  | 2.88  | 4.75     | 0.750  | 4     | 0.500 | 0.250       | 2.5        |
| SABF0250        | 2.5  | 7.00  | 3.38  | 5.50     | 0.750  | 4     | 0.500 | 0.250       | 3.5        |
| SABF0300        | 3    | 7.50  | 4.00  | 6.00     | 0.750  | 4     | 0.500 | 0.250       | 4.0        |
| SABF0400        | 4    | 9.00  | 5.00  | 7.50     | 0.750  | 8     | 0.562 | 0.250       | 6.5        |
| SABF0600        | 6    | 11.00 | 7.25  | 9.50     | 0.875  | 8     | 0.630 | 0.250       | 8.0        |
| SABF0800        | 8    | 13.50 | 9.25  | 11.75    | 0.875  | 8     | 0.630 | 0.250       | 11.5       |
| SABF1000        | 10   | 16.00 | 11.44 | 14.25    | 1.000  | 12    | 0.630 | 0.312       | 15.0       |
| SABF1200        | 12   | 19.00 | 13.63 | 17.00    | 1.000  | 12    | 0.630 | 0.312       | 26.0       |
| SABF1400        | 14   | 21.00 | 14.88 | 18.75    | 1.125  | 12    | 0.630 | 0.312       | 26.5       |
| SABF1600        | 16   | 23.50 | 16.88 | 21.25    | 1.125  | 16    | 0.750 | 0.312       | 37.0       |
| SABF1800        | 18   | 25.00 | 18.88 | 22.75    | 1.250  | 16    | 0.880 | 0.375       | 42.0       |
| SABF2000        | 20   | 27.50 | 20.88 | 25.00    | 1.250  | 20    | 0.880 | 0.375       | 51.0       |
| SABF2400        | 24   | 32.00 | 24.88 | 29.50    | 1.375  | 20    | 1.000 | 0.375       | 76.0       |
| SABF3000        | 30   | 38.75 | 30.88 | 36.00    | 1.375  | 28    | 1.000 | 0.500       | 104.0      |
| SABF3600        | 36   | 46.00 | 36.88 | 42.75    | 1.625  | 32    | 1.250 | 0.500       | 166.0      |
| SABF4200        | 42   | 53.00 | 42.91 | 49.50    | 1.625  | 36    | 1.250 | 0.500       | 220.0      |
| SABF4800        | 48   | 59.50 | 48.91 | 56.00    | 1.625  | 44    | 1.250 | 0.500       | 262.0      |

Note:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
- b. Meets ANSI class 150 pattern.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



**DUCTILE IRON BACKING FLANGES FOR STUB ENDS**

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H | THK   | Bevel Depth | Weight lbs |
|-----------------|------|-------|-------|----------|--------|-------|-------|-------------|------------|
| (G)BF0050-DI    | 0.5  | 3.50  | 0.91  | 2.38     | 0.630  | 4     | 0.438 | 0.130       | 1.2        |
| (G)BF0075-DI    | 0.75 | 3.88  | 1.11  | 2.75     | 0.630  | 4     | 0.500 | 0.130       | 1.3        |
| (G)BF0100-DI    | 1    | 4.25  | 1.38  | 3.13     | 0.630  | 4     | 0.500 | 0.130       | 1.6        |
| (G)BF0125-DI    | 1.25 | 4.63  | 1.72  | 3.50     | 0.630  | 4     | 0.500 | 0.190       | 1.9        |
| (G)BF0150-DI    | 1.5  | 5.00  | 1.97  | 3.88     | 0.630  | 4     | 0.500 | 0.250       | 2.6        |
| (G)BF0200-DI    | 2    | 6.00  | 2.46  | 4.75     | 0.750  | 4     | 0.500 | 0.320       | 2.7        |
| (G)BF0250-DI    | 2.5  | 7.00  | 2.97  | 5.50     | 0.750  | 4     | 0.500 | 0.320       | 2.8        |
| (G)BF0300-DI    | 3    | 7.50  | 3.60  | 6.00     | 0.750  | 4     | 0.500 | 0.380       | 4.5        |
| (G)BF0400-DI    | 4    | 9.00  | 4.60  | 7.50     | 0.750  | 8     | 0.563 | 0.440       | 6.1        |
| (G)BF0500-DI    | 5    | 10.00 | 5.69  | 8.50     | 0.875  | 8     | 0.630 | 0.440       | 7.2        |
| (G)BF0600-DI    | 6    | 11.00 | 6.75  | 9.50     | 0.875  | 8     | 0.630 | 0.440       | 8.4        |
| (G)BF0800-DI    | 8    | 13.50 | 8.75  | 11.75    | 0.875  | 8     | 0.630 | 0.440       | 12.8       |
| (G)BF1000-DI    | 10   | 16.00 | 10.92 | 14.25    | 1.000  | 12    | 0.630 | 0.440       | 14.2       |
| (G)BF1200-DI    | 12   | 19.00 | 12.92 | 17.00    | 1.000  | 12    | 0.750 | 0.440       | 26.8       |
| (G)BF1400-DI    | 14   | 21.00 | 14.19 | 18.75    | 1.125  | 12    | 0.750 | 0.440       | 38.0       |
| (G)BF1600-DI    | 16   | 23.50 | 16.19 | 21.25    | 1.125  | 16    | 0.750 | 0.440       | 39.0       |
| (G)BF1800-DI    | 18   | 25.00 | 18.20 | 22.75    | 1.250  | 16    | 0.880 | 0.440       | 47.0       |
| (G)BF2000-DI    | 20   | 27.50 | 20.25 | 25.00    | 1.250  | 20    | 0.880 | 0.440       | 57.0       |
| (G)BF2400-DI    | 24   | 32.00 | 24.25 | 29.50    | 1.375  | 20    | 1.000 | 0.440       | 79.0       |
| (G)BF3000-DI    | 30   | 38.75 | 30.38 | 36.00    | 1.375  | 28    | 1.000 | 0.440       | 117.0      |
| (G)BF3600-DI    | 36   | 46.00 | 36.50 | 42.75    | 1.625  | 32    | 1.125 | 0.440       | 181.0      |

**DUCTILE IRON BACKING FLANGES FOR O.D. STUB ENDS**

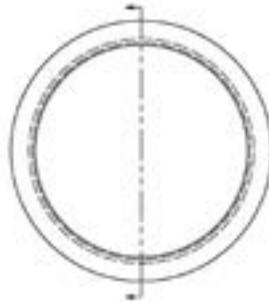
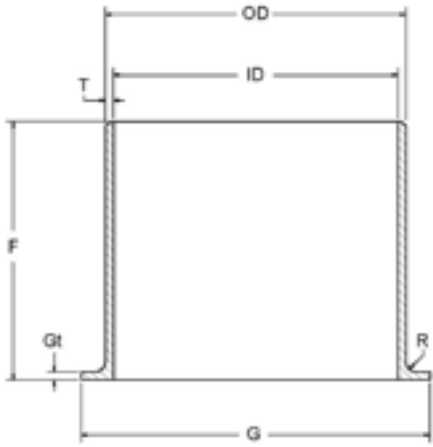
| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H | THK   | Bevel Depth | Weight lbs |
|-----------------|------|-------|-------|----------|--------|-------|-------|-------------|------------|
| (G)BF0050-16-DI | 0.5  | 3.50  | 0.63  | 2.38     | 0.630  | 4     | 0.438 | 0.130       | 1.2        |
| (G)BF0075-16-DI | 0.75 | 3.88  | 0.88  | 2.75     | 0.630  | 4     | 0.500 | 0.130       | 1.3        |
| (G)BF0100-16-DI | 1    | 4.25  | 1.13  | 3.13     | 0.630  | 4     | 0.500 | 0.130       | 1.6        |
| (G)BF0125-16-DI | 1.25 | 4.63  | 1.38  | 3.50     | 0.630  | 4     | 0.500 | 0.190       | 1.9        |
| (G)BF0150-16-DI | 1.5  | 5.00  | 1.63  | 3.88     | 0.630  | 4     | 0.500 | 0.250       | 2.6        |
| (G)BF0200-16-DI | 2    | 6.00  | 2.25  | 4.75     | 0.750  | 4     | 0.500 | 0.320       | 2.7        |
| (G)BF0250-16-DI | 2.5  | 7.00  | 2.75  | 5.50     | 0.750  | 4     | 0.500 | 0.320       | 2.8        |
| (G)BF0300-16-DI | 3    | 7.50  | 3.25  | 6.00     | 0.750  | 4     | 0.500 | 0.380       | 4.5        |
| (G)BF0400-16-DI | 4    | 9.00  | 4.25  | 7.50     | 0.750  | 8     | 0.563 | 0.440       | 6.1        |
| (G)BF0500-16-DI | 5    | 10.00 | 5.25  | 8.50     | 0.875  | 8     | 0.630 | 0.440       | 7.2        |
| (G)BF0600-16-DI | 6    | 11.00 | 6.25  | 9.50     | 0.875  | 8     | 0.630 | 0.440       | 8.4        |
| (G)BF0800-16-DI | 8    | 13.50 | 8.25  | 11.75    | 0.875  | 8     | 0.630 | 0.440       | 12.8       |
| (G)BF1000-16-DI | 10   | 16.00 | 10.25 | 14.25    | 1.000  | 12    | 0.630 | 0.440       | 14.2       |
| (G)BF1200-16-DI | 12   | 19.00 | 12.25 | 17.00    | 1.000  | 12    | 0.750 | 0.440       | 26.8       |

Notes:

- a. Material conforms to ASTM A536.
- b. Meets ANSI class 150 pattern.
- c. Available with a paint or hot dip galvanized coating.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

# Stub Ends



| Size | Outside Diameter (O.D.) |        | Inside Diameter (I.D.) |        | Wall thickness (T) |       | Diameter (G) |        | Thickness (Gt) |       | Length (F) |       | Radius (R) |       |       |       |       |       |       |       |       |       |       |       |
|------|-------------------------|--------|------------------------|--------|--------------------|-------|--------------|--------|----------------|-------|------------|-------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|      | Std                     |        | Std                    |        | Std                |       | Std          |        | Std            |       | Std        |       | Min        | Max   |       |       |       |       |       |       |       |       |       |       |
|      | Min                     | Max    | Min                    | Max    | Min                | Max   | Min          | Max    | Min            | Max   | Min        | Max   |            |       |       |       |       |       |       |       |       |       |       |       |
| 1    | 1.315                   |        | 1.097                  |        | 0.109              |       | 2.000        |        | 0.109          |       | 2          |       | 0.059      | 0.157 |       |       |       |       |       |       |       |       |       |       |
|      | 1.283                   | 1.346  | 1.067                  | 1.126  | 0.098              | 0.122 | 1.969        | 2.031  | 0.098          | 0.165 | 1.941      | 2.059 |            |       |       |       |       |       |       |       |       |       |       |       |
| 1.5  | 1.902                   |        | 1.683                  |        | 0.109              |       | 2.874        |        | 0.109          |       | 2          |       |            |       | 0.079 | 0.197 |       |       |       |       |       |       |       |       |
|      | 1.871                   | 1.933  | 1.654                  | 1.713  | 0.098              | 0.122 | 2.843        | 2.906  | 0.098          | 0.165 | 1.941      | 2.059 |            |       |       |       |       |       |       |       |       |       |       |       |
| 2    | 2.374                   |        | 2.156                  |        | 0.109              |       | 3.626        |        | 0.109          |       | 2.5        |       |            |       |       |       | 0.079 | 0.197 |       |       |       |       |       |       |
|      | 2.343                   | 2.421  | 2.126                  | 2.201  | 0.098              | 0.122 | 3.594        | 3.657  | 0.098          | 0.165 | 2.441      | 2.559 |            |       |       |       |       |       |       |       |       |       |       |       |
| 2.5  | 2.874                   |        | 2.634                  |        | 0.120              |       | 4.106        |        | 0.120          |       | 2.5        |       |            |       |       |       |       |       | 0.079 | 0.197 |       |       |       |       |
|      | 2.843                   | 2.921  | 2.602                  | 2.681  | 0.106              | 0.134 | 4.075        | 4.138  | 0.106          | 0.177 | 2.441      | 2.559 |            |       |       |       |       |       |       |       |       |       |       |       |
| 3    | 3.500                   |        | 3.260                  |        | 0.120              |       | 5.000        |        | 0.122          |       | 2.5        |       |            |       |       |       |       |       |       |       | 0.079 | 0.197 |       |       |
|      | 3.469                   | 3.547  | 3.197                  | 3.323  | 0.106              | 0.134 | 4.969        | 5.031  | 0.106          | 0.177 | 2.441      | 2.559 |            |       |       |       |       |       |       |       |       |       |       |       |
| 4    | 4.500                   |        | 4.260                  |        | 0.120              |       | 6.189        |        | 0.120          |       | 3          |       |            |       |       |       |       |       |       |       |       |       | 0.079 | 0.197 |
|      | 4.469                   | 4.547  | 4.197                  | 4.323  | 0.106              | 0.134 | 6.157        | 6.220  | 0.106          | 0.177 | 2.941      | 3.059 |            |       |       |       |       |       |       |       |       |       |       |       |
| 5    | 5.563                   |        | 5.295                  |        | 0.134              |       | 7.315        |        | 0.134          |       | 3          |       | 0.079      | 0.197 |       |       |       |       |       |       |       |       |       |       |
|      | 5.531                   | 5.622  | 5.232                  | 5.358  | 0.118              | 0.150 | 7.283        | 7.349  | 0.118          | 0.193 | 2.941      | 3.059 |            |       |       |       |       |       |       |       |       |       |       |       |
| 6    | 6.626                   |        | 6.358                  |        | 0.134              |       | 8.500        |        | 0.134          |       | 3.5        |       |            |       | 0.079 | 0.197 |       |       |       |       |       |       |       |       |
|      | 6.594                   | 6.685  | 6.295                  | 6.421  | 0.118              | 0.150 | 8.469        | 8.531  | 0.118          | 0.193 | 3.441      | 3.559 |            |       |       |       |       |       |       |       |       |       |       |       |
| 8    | 8.626                   |        | 8.330                  |        | 0.148              |       | 10.626       |        | 0.148          |       | 4          |       |            |       |       |       | 0.079 | 0.197 |       |       |       |       |       |       |
|      | 8.594                   | 8.720  | 8.268                  | 8.390  | 0.130              | 0.165 | 10.591       | 10.660 | 0.131          | 0.204 | 3.909      | 4.091 |            |       |       |       |       |       |       |       |       |       |       |       |
| 10   | 10.752                  |        | 10.422                 |        | 0.1649             |       | 12.752       |        | 0.165          |       | 5          |       |            |       |       |       |       |       | 0.079 | 0.197 |       |       |       |       |
|      | 10.721                  | 10.850 | 10.300                 | 10.540 | 0.146              | 0.185 | 12.721       | 12.78  | 0.146          | 0.224 | 4.909      | 5.091 |            |       |       |       |       |       |       |       |       |       |       |       |
| 12   | 12.752                  |        | 12.392                 |        | 0.180              |       | 15.000       |        | 0.180          |       | 6          |       |            |       |       |       |       |       |       |       | 0.079 | 0.197 |       |       |
|      | 12.721                  | 12.850 | 12.271                 | 12.510 | 0.157              | 0.201 | 14.971       | 15.030 | 0.157          | 0.236 | 5.909      | 6.091 |            |       |       |       |       |       |       |       |       |       |       |       |

## PART NUMBER STRUCTURE

| Part Number Section | Options  |
|---------------------|--|
| Category            | SE = Stub End  |
| Size                | XXXX = Size in inches going out 2 decimal places                           |
| Type                | C = Type C   |
| Schedule            | 10S = Schedule 10  |
| Material            | 304L = 304L Stainless Steel  |
| <b>Example</b>      | SE0100-C-10S-304L = 1" Stub End, Type C, Schedule 10, 304L Stainless Steel |

Notes:

- a. Product Specification For Lap Joint Type C MSS SP--43 Schedule:10S. Other Types, Schedules and sizes available upon request.
- b. Standard material is 304L Stainless Steel, but available in other materials on request.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



# Valves & Accessories



# Wafer Style Butterfly Valves

## PART NUMBER STRUCTURE

| Part Number Section | Options   |
|---------------------|---|
| Type                | BVG = Gear Operated Butterfly Valve<br>BVL = Lever Operated Butterfly Valve |
| Size                | XXXX = Size in inches going out 2 decimal places                            |
| Disc Material       | NPDI = Nickel Plated Ductile Iron   |
| Seat Material       | BN = NBR  |

## FEATURES

- Operator flange conforms to ISO 5211. Designed to work with manual, pneumatic or electric actuators.
- The rubber seat is non-collapsible, stretch resistant, and blowout proof.
- The precision machined disc ensures low operating torque and effective sealing up to 200 psi. The hydro-dynamically designed disc allows for high capacity flow.
- One piece shaft design ensures dependability and positive disc positioning.
- Valves are epoxy coated and incorporate “zerk” style grease fittings for easy lubrication on neck & gearbox (if applicable).

## MATERIALS

| Part  | Material                   |
|-------|----------------------------|
| Body  | Epoxy Coated Cast Iron     |
| Disc  | Nickel Plated Ductile Iron |
| Shaft | 400 Series Stainless       |
| Seat  | NBR                        |
| Pin   | Stainless Steel            |

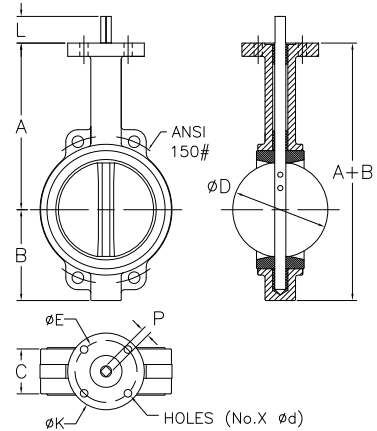
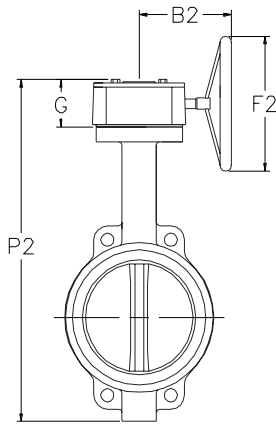
## OPERATING CONDITIONS

| Nominal Size     |          | 2 - 12      | 14 - 28     |
|------------------|----------|-------------|-------------|
| Working Pressure |          | 200 psi     | 150 psi     |
| Test Pressure    | Shell    | 300 psi     | 300 psi     |
|                  | Seat     | 220 psi     | 170 psi     |
| Working Temp.    | NBR Seat | 25° - 190°F | 25° - 190°F |

### Notes:

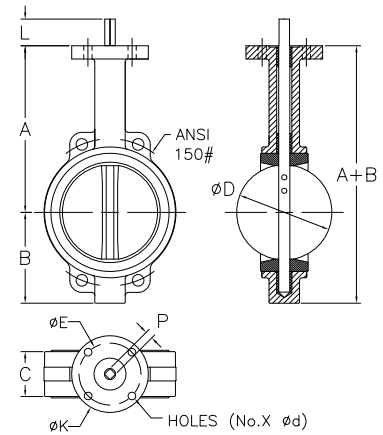
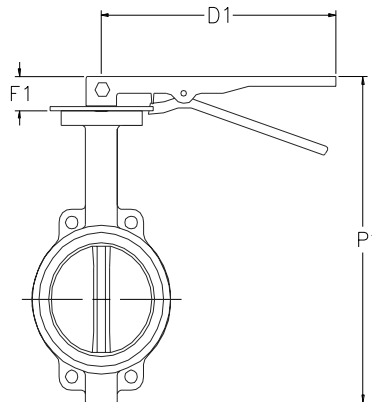
- Disc materials is also available in Aluminum Bronze and Stainless Steel (may be subject to minimum order quantity)
- Seat is available in other materials including EPDM (may be subject to minimum order quantity)
- Shorter levers are available for sizes 6" to 12".





**WAFER STYLE BUTTERFLY VALVE - GEAR OPERATOR**

| API Part Number | Size | A     | B     | A + B | C    | ØE    | ØK    | L    | P     | Holes (No. x Ød) | B2    | G    | P2    | F2    |
|-----------------|------|-------|-------|-------|------|-------|-------|------|-------|------------------|-------|------|-------|-------|
| BVG0200-NPDI-BN | 2    | 5.56  | 2.70  | 8.26  | 1.65 | 1.97  | 3.03  | 1.18 | 0.354 | 4 x 0.276        | 6.06  | 2.52 | 10.78 | 5.91  |
| BVG0250-NPDI-BN | 2.5  | 5.92  | 2.99  | 8.91  | 1.75 | 1.97  | 3.03  | 1.18 | 0.354 | 4 x 0.276        | 6.06  | 2.52 | 11.43 | 5.91  |
| BVG0300-NPDI-BN | 3    | 6.16  | 3.88  | 10.04 | 1.75 | 1.97  | 3.03  | 1.18 | 0.354 | 4 x 0.276        | 6.06  | 2.52 | 12.56 | 5.91  |
| BVG0400-NPDI-BN | 4    | 6.61  | 4.68  | 11.29 | 2.01 | 2.76  | 3.54  | 1.18 | 0.433 | 4 x 0.394        | 6.06  | 2.52 | 13.81 | 5.91  |
| BVG0500-NPDI-BN | 5    | 7.34  | 5.09  | 12.44 | 2.15 | 2.76  | 3.54  | 1.18 | 0.551 | 4 x 0.394        | 6.06  | 2.52 | 14.96 | 5.91  |
| BVG0600-NPDI-BN | 6    | 8.10  | 5.59  | 13.69 | 2.15 | 2.76  | 3.54  | 1.18 | 0.551 | 4 x 0.394        | 6.06  | 2.52 | 16.21 | 5.91  |
| BVG0800-NPDI-BN | 8    | 9.08  | 6.93  | 16.01 | 2.35 | 4.02  | 4.92  | 1.34 | 0.669 | 4 x 0.472        | 8.82  | 2.91 | 18.92 | 11.22 |
| BVG1000-NPDI-BN | 10   | 10.63 | 8.22  | 18.85 | 2.64 | 4.02  | 4.92  | 1.34 | 0.866 | 4 x 0.472        | 8.82  | 2.91 | 21.76 | 11.22 |
| BVG1200-NPDI-BN | 12   | 12.91 | 9.78  | 22.69 | 2.97 | 4.02  | 4.92  | 1.34 | 0.866 | 4 x 0.472        | 8.46  | 2.95 | 25.64 | 11.22 |
| BVG1400-NPDI-BN | 14   | 14.49 | 10.51 | 25.00 | 2.99 | 4.02  | 5.51  | 1.77 | 0.866 | 4 x 0.472        | 8.27  | 5.04 | 30.04 | 11.22 |
| BVG1600-NPDI-BN | 16   | 15.75 | 12.44 | 28.19 | 4.02 | 5.51  | 7.76  | 2.05 | 0.945 | 4 x 0.709        | 10.16 | 5.04 | 33.23 | 11.22 |
| BVG1800-NPDI-BN | 18   | 16.61 | 13.15 | 29.76 | 4.49 | 5.51  | 7.76  | 2.05 | 1.063 | 4 x 0.709        | 10.16 | 5.04 | 34.80 | 11.22 |
| BVG2000-NPDI-BN | 20   | 18.90 | 14.56 | 33.46 | 5.00 | 5.51  | 7.76  | 2.52 | 1.417 | 4 x 0.709        | 11.22 | 5.04 | 38.50 | 15.16 |
| BVG2400-NPDI-BN | 24   | 22.13 | 18.42 | 40.55 | 5.94 | 6.50  | 10.86 | 2.76 | 1.417 | 4 x 0.906        | 11.22 | 5.51 | 46.85 | 15.16 |
| BVG2800-NPDI-BN | 28   | 24.63 | 20.50 | 45.13 | 6.50 | 10.00 | 11.81 | 3.74 | 2.490 | 8 x 0.709        | 14.13 | 6.22 | 51.38 | 16.75 |



**WAFER STYLE BUTTERFLY VALVE - LEVER OPERATOR**

| API Part Number | Size | A     | B    | A + B | C    | ØE   | ØK   | L    | P     | Holes (No. x Ød) | P1    | D1    | F1   |
|-----------------|------|-------|------|-------|------|------|------|------|-------|------------------|-------|-------|------|
| BVLO200-NPDI-BN | 2    | 5.56  | 2.70 | 8.26  | 1.65 | 1.97 | 3.03 | 1.18 | 0.354 | 4 x 0.276        | 9.44  | 10.47 | 1.18 |
| BVLO250-NPDI-BN | 2.5  | 5.92  | 2.99 | 8.91  | 1.75 | 1.97 | 3.03 | 1.18 | 0.354 | 4 x 0.276        | 10.09 | 10.47 | 1.18 |
| BVLO300-NPDI-BN | 3    | 6.16  | 3.88 | 10.04 | 1.75 | 1.97 | 3.03 | 1.18 | 0.354 | 4 x 0.276        | 11.22 | 10.47 | 1.18 |
| BVLO400-NPDI-BN | 4    | 6.61  | 4.68 | 11.29 | 2.01 | 2.76 | 3.54 | 1.18 | 0.433 | 4 x 0.394        | 12.47 | 10.47 | 1.18 |
| BVLO500-NPDI-BN | 5    | 7.34  | 5.09 | 12.44 | 2.15 | 2.76 | 3.54 | 1.18 | 0.551 | 4 x 0.394        | 13.62 | 10.47 | 1.18 |
| BVLO600-NPDI-BN | 6    | 8.10  | 5.59 | 13.69 | 2.15 | 2.76 | 3.54 | 1.18 | 0.551 | 4 x 0.394        | 14.87 | 10.47 | 1.18 |
| BVLO800-NPDI-BN | 8    | 9.08  | 6.93 | 16.01 | 2.35 | 4.02 | 4.92 | 1.34 | 0.669 | 4 x 0.472        | 17.35 | 14.17 | 1.34 |
| BVL1000-NPDI-BN | 10   | 10.63 | 8.22 | 18.85 | 2.64 | 4.02 | 4.92 | 1.34 | 0.866 | 4 x 0.472        | 20.19 | 14.17 | 1.34 |
| BVL1200-NPDI-BN | 12   | 12.91 | 9.78 | 22.69 | 3.03 | 4.02 | 4.92 | 1.34 | 0.866 | 4 x 0.472        | 24.03 | 19.69 | 1.34 |

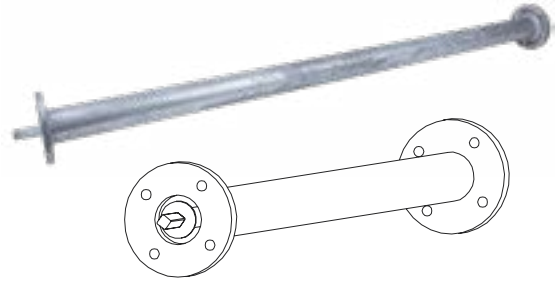
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

DC# 0324

# Valve Extensions (For Butterfly Valves)

## FEATURES

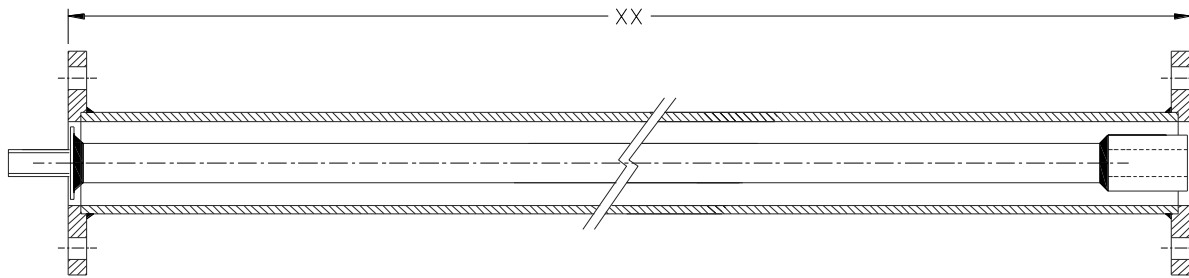
- Valve extensions can be used for underground service or in riser systems to enable easier access for opening and shutting butterfly valves.
- Galvanized steel for excellent corrosion resistance.



ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

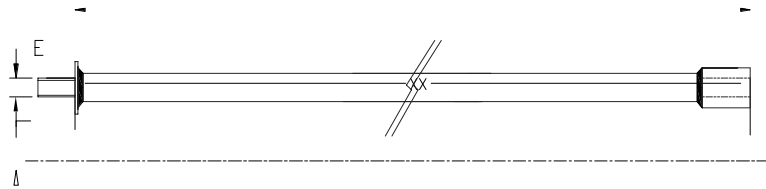
## COMPLETE SET INFORMATION (VE-D):

| Complete Set Part Number | Valve/Extension Size | Extension Shaft Part Number | Extension Housing Part Number |
|--------------------------|----------------------|-----------------------------|-------------------------------|
| VE0400D-XX               | 4                    | VEIS4D-XX                   | VEHS-XX                       |
| VE0500D-XX               | 5                    | VEIS56D-XX                  | VEHS-XX                       |
| VE0600D-XX               | 6                    | VEIS56D-XX                  | VEHS-XX                       |
| VE0800D-XX               | 8                    | VEIS8D-XX                   | VEHL-XX                       |
| VE1000D-XX               | 10                   | VEIS1012D-XX                | VEHL-XX                       |
| VE1200D-XX               | 12                   | VEIS1012D-XX                | VEHL-XX                       |



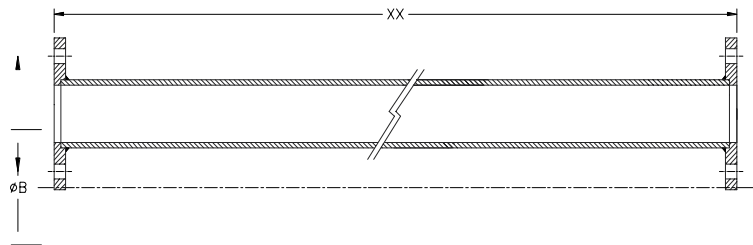
## Shaft Information (VEIS-D)

| Housing Part Number | Size | Diagonal Head Size (E) |
|---------------------|------|------------------------|
| VEIS4D-XX           | 4    | 0.433                  |
| VEIS56D-XX          | 5    | 0.551                  |
| VEIS56D-XX          | 6    | 0.551                  |
| VEIS8D-XX           | 8    | 0.669                  |
| VEIS1012D-XX        | 10   | 0.866                  |
| VEIS1012D-XX        | 12   | 0.866                  |



## Housing Information (VEH)

| Housing Part Number | Size | Bolt Circle Diameter (Øb) |
|---------------------|------|---------------------------|
| VEHS-XX             | 4    | 2.76                      |
| VEHS-XX             | 5    | 2.76                      |
| VEHS-XX             | 6    | 2.76                      |
| VEHL-XX             | 8    | 4.02                      |
| VEHL-XX             | 10   | 4.02                      |
| VEHL-XX             | 12   | 4.02                      |

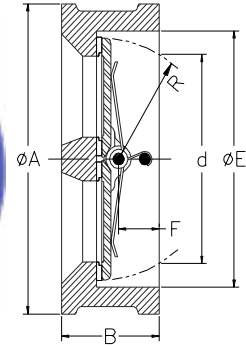


Note:  
a. "XX" = Length of Valve Extension (36", 48", or 72").  
b. Valve extensions are for BVL and BVG product lines.

# Double Door Check Valves

## FEATURES

- Small, lightweight, and easy to maintain.
- Two torsion springs close valve plates quickly and automatically.
- Quick spring action prevents back-flow, eliminates water hammering, and provides minimal head loss.
- Valve can be installed vertically or horizontally.
- Applications include HVAC, compressed air; Water supply and discharge; Irrigation and reclaim water; Process water.



ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

## DIMENSIONS

| API Part Number | Size | B    | ØE    | ØA    | Approximate Weight lbs |
|-----------------|------|------|-------|-------|------------------------|
| CV0200-XXXX-EP  | 2    | 1.70 | 2.56  | 4.13  | 3.3                    |
| CV0250-XXXX-EP  | 2.5  | 1.81 | 3.15  | 4.80  | 5.3                    |
| CV0300-XXXX-EP  | 3    | 2.52 | 3.70  | 5.38  | 7.9                    |
| CV0400-XXXX-EP  | 4    | 2.52 | 4.61  | 6.90  | 12.6                   |
| CV0500-XXXX-EP  | 5    | 2.76 | 5.71  | 7.75  | 16.1                   |
| CV0600-XXXX-EP  | 6    | 2.99 | 6.69  | 8.75  | 19.8                   |
| CV0800-XXXX-EP  | 8    | 3.50 | 8.82  | 11.00 | 37.5                   |
| CV1000-XXXX-EP  | 10   | 4.49 | 10.43 | 13.38 | 57.3                   |
| CV1200-XXXX-EP  | 12   | 4.49 | 12.20 | 16.13 | 92.6                   |
| CV1400-XXXX-EP  | 14   | 5.00 | 14.17 | 17.50 | 121.3                  |
| CV1600-XXXX-EP  | 16   | 5.51 | 16.14 | 20.25 | 165.3                  |
| CV1800-XXXX-EP  | 18   | 5.98 | 17.72 | 21.50 | 225.0                  |
| CV2000-XXXX-EP  | 20   | 5.98 | 19.88 | 23.78 | 236.0                  |
| CV2400-XXXX-EP  | 24   | 7.01 | 24.57 | 28.25 | 365.0                  |

## PART NUMBER STRUCTURE

| Part Number Section                   | Options  |
|---------------------------------------|--|
| Type                                  | CV = Check Valve   |
| Size                                  | XXXX = Size in inches going out 2 decimal places               |
| Disc Material<br>*Denoted with "XXXX" | NPDI = Nickel Plated Ductile Iron<br>304 = 304 Stainless Steel |
| Seat Material                         | EP = EPDM  |

## OPERATING CONDITIONS

| Nominal Size  | 2 - 18           |              | 20 - 24      |         |
|---------------|------------------|--------------|--------------|---------|
|               | Working Pressure | 200 psi      |              | 150 psi |
| Test Pressure | Shell            | 300 psi      | 225 psi      |         |
|               | Seat             | 220 psi      | 168 psi      |         |
| Working Temp. | EPDM Seat        | 10° - 250° F | 10° - 250° F |         |

Notes:

- Not for use in Oil & Gas industries.
- Valve seat is available in other materials including Neoprene and NBR (may be subject to minimum order quantity)

## MATERIALS

| Part           | Material  |
|----------------|---|
| Body           | Cast Iron - ASTM A126 Cl. B                       |
| Disc           | Nickel Plated Ductile Iron or 304 Stainless Steel |
| Hinge Pin      | Stainless Steel                                   |
| Stop Pin       | Stainless Steel                                   |
| Spring         | Stainless Steel                                   |
| Seat           | EPDM  |
| Shaft end Plug | Mild/Carbon Steel                                 |
| Finish         | Epoxy Coated - Blue                               |

## REPLACEMENT SPRING KITS

| API Part Number | DESCRIPTION                  |
|-----------------|------------------------------|
| CVK0400         | 4" KIT (1 SHAFT; 2 SPRINGS)  |
| CVK0600         | 6" KIT (1 SHAFT; 2 SPRINGS)  |
| CVK0800         | 8" KIT (1 SHAFT; 2 SPRINGS)  |
| CVK1000         | 10" KIT (1 SHAFT; 2 SPRINGS) |
| CVK1200         | 12" KIT (1 SHAFT; 2 SPRINGS) |
| CVK1400         | 14" KIT (1 SHAFT; 2 SPRINGS) |
| CVK1600         | 16" KIT (1 SHAFT; 2 SPRINGS) |

# Pressure Relief Valves

## USES

- PRV series pressure relief valves are suitable for most aluminum sprinklers and higher pressure plastic pipe.

## FEATURES

- Constructed from high strength aluminum castings with stainless steel shaft, tempered steel spring, and nonsticking Teflon seal and bushings.
- Dependable, top spring design (out of flow) assures longer & more accurate operation.
- Valves can be ordered factory set and sealed under actual hydrostatic conditions, or shipped for final field adjustment.
- End connection is with standard Female pipe threads.



ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

## RATINGS / CAPACITIES

| API Part Number | Size | Pressure Relief Settings Range | Body     | Shaft           | Spring         | No. |
|-----------------|------|--------------------------------|----------|-----------------|----------------|-----|
| PRV0200-L       | 2    | 22 - 50 psi                    | Aluminum | Stainless Steel | Tempered Steel | 1   |
| PRV0200-S       | 2    | 40 - 120 psi                   | Aluminum | Stainless Steel | Tempered Steel | 1   |
| PRV0300-L       | 3    | 22 - 40 psi                    | Aluminum | Stainless Steel | Tempered Steel | 1   |
| PRV0300-S       | 3    | 40 - 100 psi                   | Aluminum | Stainless Steel | Tempered Steel | 1   |
| PRV0300-H       | 3    | 101 - 150 psi                  | Aluminum | Stainless Steel | Tempered Steel | 2   |
| PRV0400-L       | 4    | 40 - 60 psi                    | Aluminum | Stainless Steel | Tempered Steel | 1   |
| PRV0400-S       | 4    | 70 - 110 psi                   | Aluminum | Stainless Steel | Tempered Steel | 2   |
| PRV0400-H       | 4    | 81 - 150 psi                   | Steel    | Stainless Steel | Tempered Steel | 2   |

## PART NUMBER STRUCTURE

| Part Number Section | Options  |
|---------------------|--|
| Type                | PRV = Pressure Relieve Valve                     |
| Size                | XXXX = Size in inches going out 2 decimal places |
| Pressure Rating     | L = Low<br>S = Standard<br>H = High              |
| Pressure Setting    | XXX = Pressure setting in PSI                    |

\*Please contact API Sales for additional pressure ratings.

# Rubber Expansion Joints & Accessories



# Rubber Expansion Joints - *Flange x Flange* For Series: AMS, AMT, SAMS, & SAMT

## PART NUMBER STRUCTURE

| Part Number Section | Options  |
|---------------------|--|
| Type                | AMS = Single Sphere (Steel)<br>SAMS = Single Sphere (Stainless Steel)<br>AMT = Twin Sphere (Steel)<br>SAMT = Twin Sphere (Stainless Steel) |
| Size                | XXXX = Size in inches going out 2 decimal places   |
| Body Material       | NE = Neoprene<br>EP = EPDM<br>BN = Buna-N/Nitrile/NBR  |
| Flange Material     | STL = Zinc Plated Steel 304L<br>= 304L Stainless Steel 316L<br>= 316L Stainless Steel  |
| Class               | 150 = 150# Drilling<br>300 = 300# Drilling<br>PXX = DIN PN10/PN16Drilling (available upon request)   |
| Example             | AMSO200-NE-STL-150 =<br>Single Sphere Expansion Joint with Neoprene Body and Steel Flanges with 150# Drill Pattern                         |

## OPERATING CONDITIONS

| Size Range            | 1" - 12"  | 14" - 24"   |
|-----------------------|---|---|
| Operating Pressure    | up to 214 psi   | up to 114 psi   |
| Operating Temp Range* | 14°F- 170°F<br>(Neoprene) 14°F- 210°F<br>F (EPDM) 14°F- 170°F<br>(Buna-N/Nitrile/NBR) | 14°F- 170°F<br>(Neoprene) 14°F- 210°F<br>F (EPDM) 14°F- 170°F<br>(Buna-N/Nitrile/NBR) |
| Burst Pressure        | 853 psi   | 340 psi   |
| Vacuum Rating*        | Contact API Sales   | Contact API Sales   |

## MATERIALS

| Part | Part Description | Material  |
|------|------------------|---|
| 1    | Flanges          | Mild Steel - Zinc Plated steel or Stainless Steel |
| 2    | Reinforcing Wire | Mild Steel  |
| 3    | Tube             | Synthetic Rubber                                  |
| 4    | Cover            | Synthetic Rubber                                  |
| 5    | Reinforcing Cord | Synthetic Fiber                                   |

**\*\* - Warnings:**

- a. Pressure ratings listed in the above table are for up to 110 °F (for Neoprene), and 125 °F (for EPDM). For elevated temperature service, please contact API Sales for actual working pressure ratings.
- b. Limit rods are required in systems that are unanchored and recommended in all other applications.
- c. Not for use in steam applications

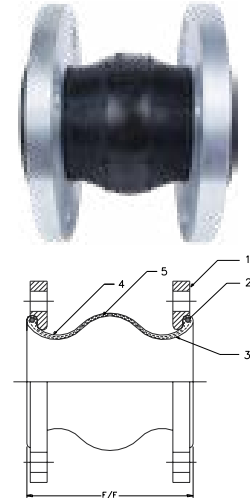
# Single Sphere Rubber Expansion Joints - *Flange x Flange* (AMS & SAMS Series)

## FEATURES

- Applicable for suction and delivery (discharge).
- Provides sound and vibration isolation.
- Gaskets and packing are not required.
- Floating flanges allow for easy installation.
- Prevents piping system and equipment breakdown by absorbing elongation and contraction caused by temperature variances.
- Absorbs water pulsation and minimizes water hammering.
- DIN drilled flanges available upon request (See DIN Flange section for dimensions)

## APPLICATIONS

- Pumps & air compressors in air conditioning system & sanitary equipment.
- Refrigeration systems and blowers in industrial plant equipment.
- Feed-water and drainage equipment in marine piping systems.
- Applicable for use in power generation and chemical plants.



## DIMENSION & ALLOWABLE MOVEMENTS ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

| API Part Number | Size<br>in | Face to Face<br>Dimensions<br>in | Allowable Motion Ratings* |            |         |         | Installation Tolerances |            |         |         |
|-----------------|------------|----------------------------------|---------------------------|------------|---------|---------|-------------------------|------------|---------|---------|
|                 |            |                                  | Compression               | Elongation | Lateral | Angular | Compression             | Elongation | Lateral | Angular |
| (S)AMS0100      | 1          | 6                                | 0.50                      | 0.38       | 0.50    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |
| (S)AMS0125      | 1.25       | 6                                | 0.50                      | 0.38       | 0.50    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |
| (S)AMS0150      | 1.5        | 6                                | 0.50                      | 0.38       | 0.50    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |
| (S)AMS0200      | 2          | 6                                | 0.50                      | 0.38       | 0.50    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |
| (S)AMS0250      | 2.5        | 6                                | 0.50                      | 0.38       | 0.50    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |
| (S)AMS0300      | 3          | 6                                | 0.50                      | 0.38       | 0.50    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |
| (S)AMS0400      | 4          | 6                                | 0.63                      | 0.38       | 0.50    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |
| (S)AMS0500      | 5          | 6                                | 0.63                      | 0.38       | 0.50    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |
| (S)AMS0600      | 6          | 6                                | 0.63                      | 0.38       | 0.50    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |
| (S)AMS0800      | 8          | 6                                | 0.63                      | 0.38       | 0.50    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |
| (S)AMS1000      | 10         | 8                                | 0.63                      | 0.50       | 0.75    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |
| (S)AMS1200      | 12         | 8                                | 0.75                      | 0.50       | 0.75    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |
| (S)AMS1400      | 14         | 8                                | 0.75                      | 0.50       | 0.75    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |
| (S)AMS1600      | 16         | 8                                | 0.75                      | 0.50       | 0.75    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |
| (S)AMS1800      | 18         | 8                                | 0.75                      | 0.50       | 0.75    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |
| (S)AMS2000      | 20         | 8                                | 0.75                      | 0.50       | 0.75    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |
| (S)AMS2400      | 24         | 10                               | 0.75                      | 0.50       | 0.75    | 15°     | 0.19                    | 0.13       | 0.25    | 5°      |

**Warning:** Do not elongate rubber expansion joints when installing for suction service.

“\*” - Non Concurrent Ratings.

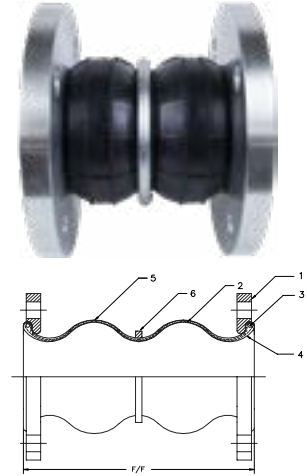
Notes:

- a. For all expansion joint configurations - See section 10.2

# Twin Sphere Rubber Expansion Joints - *Flange x Flange* (AMT & SAMT Series)

## FEATURES

- Applicable for suction and delivery (discharge).
- Designed for greater compression, elongation, and angular movement than the single sphere expansion joint.
- Excellent for absorbing thermal expansion and eliminating sound and vibration.
- Gaskets and packing not required.
- Good electrical insulator.
- Absorbs water pulsation and minimizes water hammering.
- DIN drilled flanges available upon request (See DIN Flange section for dimensions)



## APPLICATIONS

- Pressure piping systems in building equipment and general industrial plants.
- Pump and turbine lines used for power generation plants, industrial machinery and universal pump blowers.
- Feed-water & drainage lines for waterworks & sanitary piping systems.
- Pipelines for industrial plants and shipbuilding yards.

## DIMENSION & ALLOWABLE MOVEMENTS

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

| API Part Number | Size | Face to Face Dimension | Allowable Motion Ratings* |            |         |         | Installation Tolerances |            |         |         |
|-----------------|------|------------------------|---------------------------|------------|---------|---------|-------------------------|------------|---------|---------|
|                 |      |                        | Compression               | Elongation | Lateral | Angular | Compression             | Elongation | Lateral | Angular |
| (S)AMT0100      | 1    | 7.00                   | 1.50                      | 0.75       | 1.25    | 35°     | 0.25                    | 0.13       | 0.31    | 10°     |
| (S)AMT0125      | 1.25 | 7.00                   | 1.50                      | 0.75       | 1.25    | 35°     | 0.25                    | 0.13       | 0.31    | 10°     |
| (S)AMT0150      | 1.5  | 7.00                   | 2.00                      | 1.13       | 1.75    | 35°     | 0.25                    | 0.13       | 0.31    | 10°     |
| (S)AMT0200      | 2    | 7.00                   | 2.00                      | 1.13       | 1.75    | 35°     | 0.25                    | 0.13       | 0.31    | 10°     |
| (S)AMT0250      | 2.5  | 7.00                   | 2.00                      | 1.13       | 1.75    | 35°     | 0.25                    | 0.13       | 0.31    | 10°     |
| (S)AMT0300      | 3    | 7.00                   | 2.00                      | 1.38       | 1.75    | 35°     | 0.25                    | 0.13       | 0.31    | 10°     |
| (S)AMT0400      | 4    | 9.00                   | 2.00                      | 1.38       | 1.56    | 35°     | 0.25                    | 0.13       | 0.31    | 10°     |
| (S)AMT0500      | 5    | 9.00                   | 2.00                      | 1.38       | 1.56    | 30°     | 0.25                    | 0.13       | 0.38    | 10°     |
| (S)AMT0600      | 6    | 9.00                   | 2.00                      | 1.38       | 1.56    | 30°     | 0.25                    | 0.13       | 0.38    | 10°     |
| (S)AMT0800      | 8    | 13.00                  | 2.38                      | 1.38       | 1.38    | 30°     | 0.25                    | 0.13       | 0.50    | 10°     |
| (S)AMT1000      | 10   | 13.00                  | 2.38                      | 1.38       | 1.38    | 30°     | 0.25                    | 0.13       | 0.50    | 10°     |
| (S)AMT1200      | 12   | 13.00                  | 2.38                      | 1.38       | 1.38    | 20°     | 0.25                    | 0.13       | 0.50    | 10°     |
| (S)AMT1400      | 14   | 13.75                  | 1.56                      | 1.13       | 1.13    | 20°     | 0.25                    | 0.13       | 0.31    | 10°     |
| (S)AMT1600      | 16   | 13.75                  | 1.56                      | 1.13       | 1.13    | 20°     | 0.25                    | 0.13       | 0.31    | 10°     |
| (S)AMT1800      | 18   | 13.75                  | 1.56                      | 1.13       | 1.13    | 20°     | 0.25                    | 0.13       | 0.31    | 10°     |
| (S)AMT2000      | 20   | 13.75                  | 1.56                      | 1.13       | 1.13    | 20°     | 0.25                    | 0.13       | 0.31    | 10°     |
| (S)AMT2400      | 24   | 13.75                  | 1.56                      | 1.13       | 1.13    | 20°     | 0.25                    | 0.13       | 0.31    | 10°     |

**Warning:** Do not elongate rubber expansion joints when installing for suction service.

“\*” - Non Concurrent Ratings.

Notes:

- a. For all expansion joint configurations - See section 10.2



# Twin Sphere Rubber Expansion Joints - *Union x Union*

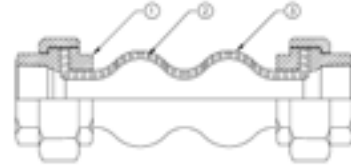
## FEATURES

- Efficient noise and vibration isolation.
- Ability to absorb large displacement due to eccentric, axial, and angular movement.
- Applicable for both suction and discharge.
- Female Threaded Unions allow for easy installation.



## APPLICATIONS

- Vibration isolation for small pumps and circular pumps.
- Sewage disposal purifier line.
- Vibration isolation for air-conditioners and pipes.



## DIMENSION & ALLOWABLE MOVEMENTS

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

| API Part Number | Size | Face to Face dimension (L) | Allowable Motion Ratings |            |         |         | Approximate Weight (lbs) |
|-----------------|------|----------------------------|--------------------------|------------|---------|---------|--------------------------|
|                 |      |                            | Compression              | Elongation | Lateral | Angular |                          |
| AMU0050-XX      | 0.5  | 8.00                       | 0.88                     | 0.25       | 0.88    | 45°     | 1.5                      |
| AMU0075-XX      | 0.75 | 8.00                       | 0.88                     | 0.25       | 0.88    | 45°     | 1.8                      |
| AMU0100-XX      | 1    | 8.00                       | 0.88                     | 0.25       | 0.88    | 45°     | 2.8                      |
| AMU0125-XX      | 1.25 | 8.00                       | 0.88                     | 0.25       | 0.88    | 45°     | 3.5                      |
| AMU0150-XX      | 1.5  | 8.00                       | 0.88                     | 0.25       | 0.88    | 45°     | 4.0                      |
| AMU0200-XX      | 2    | 8.00                       | 0.88                     | 0.25       | 0.88    | 45°     | 5.0                      |

**Warning:** Do not elongate rubber expansion joints when installing for suction service.

\*\*\* - Non Concurrent Ratings.

## PART NUMBER STRUCTURE

| Part Number Section                 | Options  |
|-------------------------------------|--|
| Type                                | AMU = Twin Sphere Union Expansion Joint          |
| Size                                | XXXX = Size in inches going out 2 decimal places |
| Body Material<br>*Denoted with "XX" | EP = EPDM<br>NE = Neoprene                       |

## OPERATING CONDITIONS

|                        |               |
|------------------------|---------------|
| Operating Pressure     | up to 150 psi |
| Normal Operating Temp. | 14°- 158° F   |
| Vacuum Rating          | 25" Hg        |
| Burst Pressure         | 750 psi       |

## MATERIALS

| Part | Part Description  | Material       |
|------|-------------------|----------------|
| 1    | Threaded Union    | Malleable Iron |
| 2    | Reinforcing Cloth | Nylon Fabric   |
| 3    | Elastomer         | EPDM           |

\*\*\* - Warning:

Pressure ratings listed in the above table are for up to 110 °F (for Neoprene), and 125 °F (for EPDM). For elevated temperature service, please contact API Sales for actual working pressure ratings.

## Control Units - Mild Steel (Zinc Plated)\*\*



ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

| Complete unit*<br>API Part Number | Size | Expansion Joint<br>Application | Gusset Plate<br>Part Number | Plate THK. | Plate Weight<br>(lbs) | Control ROD Part<br>Number*** | Approximate<br>Weight (lbs) |
|-----------------------------------|------|--------------------------------|-----------------------------|------------|-----------------------|-------------------------------|-----------------------------|
| CRU0150                           | 1.5  | SINGLE/TWIN                    | CRP0150                     | 0.50       | 0.8                   | CR0625-14S                    | 6.4                         |
| CRU0200                           | 2    | SINGLE/TWIN                    | CRP0200                     | 0.50       | 1.0                   | CR0625-14S                    | 7.2                         |
| CRU0250                           | 2.5  | SINGLE/TWIN                    | CRP0250                     | 0.50       | 1.3                   | CR0625-14S                    | 8.4                         |
| CRU0300                           | 3    | SINGLE/TWIN                    | CRP0300                     | 0.50       | 1.6                   | CR0625-14S                    | 9.6                         |
| CRUS0400                          | 4    | SINGLE                         | CRP0400                     | 0.50       | 1.4                   | CR0625-14S                    | 8.8                         |
| CRUT0400                          | 4    | TWIN                           | CRP0400                     | 0.50       | 1.4                   | CR0625-17T                    | 9.2                         |
| CRUS0500                          | 5    | SINGLE                         | CRP0500                     | 0.50       | 1.5                   | CR0625-14S                    | 9.2                         |
| CRUT0500                          | 5    | TWIN                           | CRP0500                     | 0.50       | 1.5                   | CR0625-17T                    | 9.6                         |
| CRUS0600                          | 6    | SINGLE                         | CRP0600                     | 0.50       | 1.7                   | CR0625-14S                    | 10.0                        |
| CRUT0600                          | 6    | TWIN                           | CRP0600                     | 0.50       | 1.7                   | CR0625-17T                    | 10.4                        |
| CRUS0800                          | 8    | SINGLE                         | CRP0800                     | 0.50       | 2.1                   | CR0875-18S                    | 16.4                        |
| CRUT0800                          | 8    | TWIN                           | CRP0800                     | 0.50       | 2.1                   | CR0875-23T                    | 17.6                        |
| CRUS1000                          | 10   | SINGLE                         | CRP1000                     | 0.75       | 3.5                   | CR0875-18S                    | 22.0                        |
| CRUT1000                          | 10   | TWIN                           | CRP1000                     | 0.75       | 3.5                   | CR0875-23T                    | 23.2                        |
| CRUS1200                          | 12   | SINGLE                         | CRP1200                     | 0.75       | 5.0                   | CR1125-18S                    | 34.0                        |
| CRUT1200                          | 12   | TWIN                           | CRP1200                     | 0.75       | 5.0                   | CR1125-23T                    | 36.0                        |
| CRUS1400                          | 14   | SINGLE                         | CRP1416                     | 0.75       | 5.0                   | CR1125-18S                    | 34.0                        |
| CRUT1400                          | 14   | TWIN                           | CRP1416                     | 0.75       | 5.0                   | CR1125-23T                    | 36.0                        |
| CRUS1600                          | 16   | SINGLE                         | CRP1416                     | 0.75       | 5.0                   | CR1125-18S                    | 34.0                        |
| CRUT1600                          | 16   | TWIN                           | CRP1416                     | 0.75       | 5.0                   | CR1125-23T                    | 36.0                        |
| CRUS1800                          | 18   | SINGLE                         | CRP1820                     | 0.75       | 6.0                   | CR1125-18S                    | 38.0                        |
| CRUT1800                          | 18   | TWIN                           | CRP1820                     | 0.75       | 6.0                   | CR1125-23T                    | 40.0                        |
| CRUS2000                          | 20   | SINGLE                         | CRP1820                     | 0.75       | 6.0                   | CR1125-18S                    | 38.0                        |
| CRUT2000                          | 20   | TWIN                           | CRP1820                     | 0.75       | 6.0                   | CR1125-23T                    | 40.0                        |
| CRUS2400                          | 24   | SINGLE                         | CRP2400                     | 1.00       | 7.5                   | CR1250-18S                    | 47.0                        |
| CRUT2400                          | 24   | TWIN                           | CRP2400                     | 1.00       | 7.5                   | CR1250-23T                    | 49.0                        |

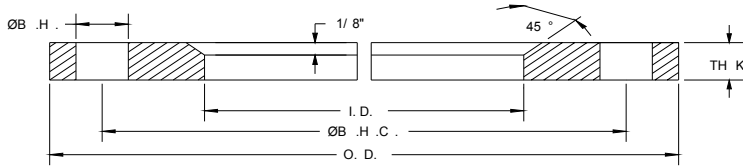
**Warning:** Do not elongate rubber expansion joints when installing for suction service.

\*\* - Complete units consist of the following: 2 Rods; 4 Plates; 8 Nuts; 8 Steel Washers; & 8 Neoprene Washers.

If needed, 3 or more rod sets are available upon request.

\*\*\* - Sets are also available in 304/316 Stainless Steel.

\*\*\*\* - Single (S); Twin (T).



## Split Retaining Rings - Class 150 Drill Pattern

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H | THK   |
|-----------------|------|-------|-------|----------|--------|-------|-------|
| (S)RR0050       | 0.5  | 3.50  | 1.50  | 2.38     | 0.630  | 4     | 0.375 |
| (S)RR0075       | 0.75 | 3.88  | 1.88  | 2.75     | 0.630  | 4     | 0.375 |
| (S)RR0100       | 1    | 4.25  | 2.38  | 3.13     | 0.630  | 4     | 0.375 |
| (S)RR0125       | 1.25 | 4.63  | 2.63  | 3.50     | 0.630  | 4     | 0.375 |
| (S)RR0150       | 1.5  | 5.00  | 2.88  | 3.88     | 0.630  | 4     | 0.375 |
| (S)RR0200       | 2    | 6.00  | 3.63  | 4.75     | 0.750  | 4     | 0.375 |
| (S)RR0250       | 2.5  | 7.00  | 4.13  | 5.50     | 0.750  | 4     | 0.375 |
| (S)RR0300       | 3    | 7.50  | 4.63  | 6.00     | 0.750  | 4     | 0.375 |
| (S)RR0400       | 4    | 9.00  | 5.88  | 7.50     | 0.750  | 8     | 0.375 |
| (S)RR0500       | 5    | 10.00 | 6.88  | 8.50     | 0.880  | 8     | 0.375 |
| (S)RR0600       | 6    | 11.00 | 7.88  | 9.50     | 0.880  | 8     | 0.375 |
| (S)RR0800       | 8    | 13.50 | 9.88  | 11.75    | 0.880  | 8     | 0.375 |
| (S)RR1000       | 10   | 16.00 | 12.13 | 14.25    | 1.000  | 12    | 0.375 |
| (S)RR1200       | 12   | 19.00 | 14.50 | 17.00    | 1.000  | 12    | 0.375 |
| (S)RR1400       | 14   | 21.00 | 16.50 | 18.75    | 1.130  | 12    | 0.375 |
| (S)RR1600       | 16   | 23.50 | 18.50 | 21.25    | 1.130  | 16    | 0.375 |
| (S)RR1800       | 18   | 25.00 | 20.50 | 22.75    | 1.250  | 16    | 0.375 |
| (S)RR2000       | 20   | 27.50 | 22.63 | 25.00    | 1.250  | 20    | 0.375 |
| (S)RR2200       | 22   | 29.50 | 24.63 | 27.25    | 1.380  | 20    | 0.375 |
| (S)RR2400       | 24   | 32.00 | 26.63 | 29.50    | 1.380  | 20    | 0.375 |
| (S)RR2600       | 26   | 34.25 | 28.88 | 31.75    | 1.380  | 24    | 0.375 |
| (S)RR2800       | 28   | 36.50 | 30.88 | 34.00    | 1.380  | 28    | 0.375 |
| (S)RR3000       | 30   | 38.75 | 32.88 | 36.00    | 1.380  | 28    | 0.375 |
| (S)RR3200       | 32   | 41.75 | 34.88 | 38.50    | 1.630  | 28    | 0.375 |
| (S)RR3400       | 34   | 43.75 | 37.00 | 40.50    | 1.630  | 32    | 0.375 |
| (S)RR3600       | 36   | 46.00 | 39.00 | 42.75    | 1.630  | 32    | 0.375 |
| (S)RR4000       | 40   | 50.75 | 43.00 | 47.25    | 1.630  | 36    | 0.375 |
| (S)RR4200       | 42   | 53.00 | 45.25 | 49.50    | 1.630  | 36    | 0.375 |
| (S)RR4400       | 44   | 55.25 | 47.25 | 51.75    | 1.630  | 40    | 0.375 |
| (S)RR4800       | 48   | 59.50 | 51.25 | 56.00    | 1.630  | 44    | 0.375 |
| (S)RR5000       | 50   | 61.75 | 53.25 | 58.25    | 1.880  | 44    | 0.375 |
| (S)RR5200       | 52   | 64.00 | 55.25 | 60.50    | 1.880  | 44    | 0.375 |
| (S)RR5400       | 54   | 66.25 | 57.25 | 62.75    | 2.000  | 44    | 0.375 |

1 Set = 4 Split Ring Halves (thru 28") and 8 Split Ring Quarters (for 30" or greater)

Notes:

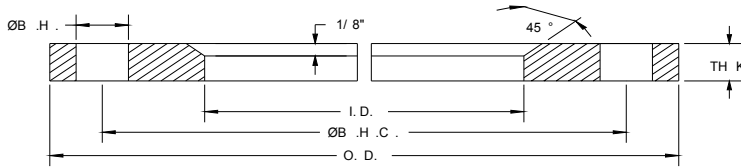
- a. Available in are Silver Zinc Plated Steel, Standard Grade 304 and Dual Grade 316/316L Stainless Steel.
- b. Navy or DIN drilling available on special order basis.

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**

### PART NUMBER STRUCTURE

| Part Number Section | Options  |
|---------------------|--|
| Type                | RR = Zinc Plated Steel<br>SRR = Stainless Steel                                      |
| Size                | XXXX = Size in inches going out 2 decimal places                                     |
| Material            | 4L = Standard Grade 304 Stainless Steel<br>16L = Dual Grade 316/316L Stainless Steel |
| Other               | S = Set  |
| Example             | SRR2000-16L-S  |

DC# 0324



## Split Retaining Rings - Class 300 Drill Pattern (Zinc Plated Steel)

| API Part Number | Size | O.D.  | I.D.  | Ø B.H.C. | Ø B.H. | # B.H | THK   |
|-----------------|------|-------|-------|----------|--------|-------|-------|
| RR0100-30       | 1    | 4.88  | 2.38  | 3.50     | 0.750  | 4     | 0.375 |
| RR0125-30       | 1.25 | 5.20  | 2.63  | 3.88     | 0.750  | 4     | 0.375 |
| RR0150-30       | 1.5  | 6.13  | 2.88  | 4.50     | 0.880  | 4     | 0.375 |
| RR0200-30       | 2    | 6.50  | 3.63  | 5.00     | 0.880  | 8     | 0.375 |
| RR0250-30       | 2.5  | 7.50  | 4.13  | 5.88     | 0.880  | 8     | 0.375 |
| RR0300-30       | 3    | 8.25  | 4.63  | 6.63     | 0.880  | 8     | 0.375 |
| RR0400-30       | 4    | 10.00 | 5.88  | 7.88     | 0.880  | 8     | 0.375 |
| RR0500-30       | 5    | 11.00 | 6.88  | 9.25     | 0.880  | 8     | 0.375 |
| RR0600-30       | 6    | 12.50 | 7.88  | 10.63    | 0.880  | 12    | 0.375 |
| RR0800-30       | 8    | 15.00 | 9.88  | 13.00    | 1.000  | 12    | 0.375 |
| RR1000-30       | 10   | 17.50 | 12.13 | 15.25    | 1.130  | 16    | 0.375 |
| RR1200-30       | 12   | 20.50 | 14.50 | 17.75    | 1.250  | 16    | 0.375 |
| RR1400-30       | 14   | 23.00 | 16.50 | 20.25    | 1.250  | 20    | 0.375 |
| RR1600-30       | 16   | 25.50 | 18.50 | 22.50    | 1.250  | 20    | 0.375 |
| RR1800-30       | 18   | 28.00 | 20.50 | 24.75    | 1.250  | 24    | 0.375 |
| RR2000-30       | 20   | 30.50 | 22.63 | 27.00    | 1.250  | 24    | 0.375 |
| RR2400-30       | 24   | 36.00 | 26.63 | 32.00    | 1.500  | 24    | 0.375 |

1 Set = 4 Split Ring Halves.

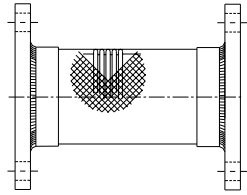
Notes:

- a. Rings are Steel & Silver Zinc Plated.
- b. Navy or DIN drilling available on special order basis.

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**

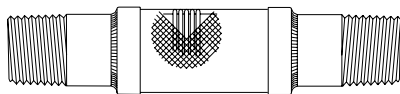
# Pump Connectors





## Stainless Steel Braided - Flanged Pump Connectors

| API Part Number | Size | Overall Length | Working Pressure (PSI) |            | Flange Thickness | Approx. Weight (lbs) |
|-----------------|------|----------------|------------------------|------------|------------------|----------------------|
|                 |      |                | At 70° F.              | At 250° F. |                  |                      |
| PCF0200-SSB     | 2    | 9.0            | 300                    | 276        | 0.625            | 11.0                 |
| PCF0250-SSB     | 2.5  | 9.0            | 350                    | 322        | 0.625            | 14.0                 |
| PCF0300-SSB     | 3    | 9.0            | 300                    | 276        | 0.625            | 15.0                 |
| PCF0400-SSB     | 4    | 9.0            | 250                    | 230        | 0.625            | 20.0                 |
| PCF0500-SSB     | 5    | 11.0           | 175                    | 161        | 0.750            | 28.0                 |
| PCF0600-SSB     | 6    | 11.0           | 165                    | 152        | 0.750            | 33.0                 |
| PCF0800-SBB     | 8    | 12.0           | 150                    | 138        | 1.000            | 51.0                 |
| PCF0800-SSB     | 8    | 12.0           | 174                    | 160        | 1.000            | 52.0                 |
| PCF1000-SBB     | 10   | 13.0           | 140                    | 129        | 1.000            | 73.0                 |
| PCF1000-SSB     | 10   | 13.0           | 180                    | 165        | 1.000            | 74.0                 |
| PCF1200-SSB     | 12   | 14.0           | 130                    | 119        | 1.000            | 100.0                |
| PCF1400-SSB     | 14   | 14.0           | 125                    | 115        | 1.000            | 108.0                |



## Stainless Steel Braided - Threaded Pump Connectors

| API Part Number | Size | Overall Length | Working Pressure (PSI) |            | Approx. Weight (Lbs) |
|-----------------|------|----------------|------------------------|------------|----------------------|
|                 |      |                | At 70° F.              | At 250° F. |                      |
| PCT0050-SSB     | 0.5  | 6.5            | 825                    | 760        | 0.5                  |
| PCT0075-SSB     | 0.75 | 7.0            | 487                    | 448        | 0.8                  |
| PCT0100-SSB     | 1    | 8.0            | 475                    | 437        | 1.0                  |
| PCT0125-SSB     | 1.25 | 8.5            | 425                    | 391        | 1.5                  |
| PCT0150-SSB     | 1.5  | 9.0            | 425                    | 391        | 2.0                  |
| PCT0200-SSB     | 2    | 10.5           | 300                    | 276        | 2.5                  |
| PCT0250-SSB     | 2.5  | 12.0           | 350                    | 322        | 3.0                  |
| PCT0300-SSB     | 3    | 14.0           | 300                    | 276        | 5.0                  |
| PCT0400-SSB     | 4    | 16.0           | 250                    | 230        | 8.0                  |

**Notes:**

- a. Pump Connectors are designed to absorb pump vibration, plus 1/8" misalignment.
- b. Working pressures are based on simple pump vibration in a static installation and may vary based on specific application.
- c. Threads on PCT series Pump Connectors are Male x Male NPT.
- d. For elevated temperature service (above 250°F.) please contact API Sales for actual working pressure ratings.
- e. All flanged Pump Connectors have a 150# drilling pattern.

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**

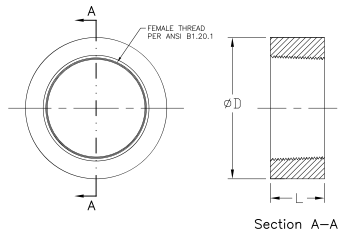
| Part                   | Material                   |
|------------------------|----------------------------|
| Hose                   | 300 Series Stainless Steel |
| Braid                  | 300 Series Stainless Steel |
| Collar                 | 300 Series Stainless Steel |
| Flange or Threaded End | Steel                      |

### PART NUMBER STRUCTURE

| Part Number Section | Options   |
|---------------------|---|
| Type                | PCF = Flanged Pump Connector<br>PCT = Threaded Pump Connector |
| Size                | XXXX = Size in inches going out 2 decimal places              |
| Braid Type          | SSB = Single Standard Braid<br>SBB = Single Braided Braid     |

# Fittings & Accessories





## Half Couplings

### O.D. TUBE SIZES

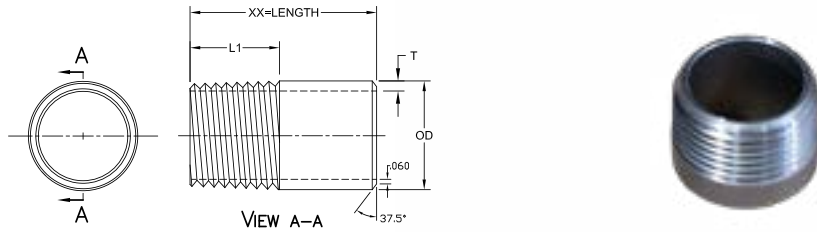
| API Part Number | Nominal Pipe Size (inches) | OD    | End to End Length | Threads per Inch |
|-----------------|----------------------------|-------|-------------------|------------------|
| THC0025         | 0.25                       | 0.710 | 0.57              | 18.0             |
| THC0050         | 0.5                        | 1.060 | 0.75              | 14.0             |
| THC0075         | 0.75                       | 1.310 | 0.81              | 14.0             |
| THC0100         | 1                          | 1.570 | 1.00              | 11.5             |
| THC0125         | 1.25                       | 1.900 | 1.00              | 11.5             |
| THC0150         | 1.5                        | 2.200 | 1.00              | 11.5             |
| THC0200         | 2                          | 2.750 | 1.06              | 11.5             |
| THC0250         | 2.5                        | 3.250 | 1.06              | 8.0              |
| THC0300         | 3                          | 4.000 | 1.63              | 8.0              |
| THC0400         | 4                          | 5.000 | 1.75              | 8.0              |
| THC0500         | 5                          | 6.290 | 1.90              | 8.0              |
| THC0600         | 6                          | 7.390 | 2.00              | 8.0              |
| THC0800         | 8                          | 9.610 | 2.63              | 8.0              |

Notes:

- a. Coupling material is mild steel.
- b. Threads conform to ANSI B1.20.1.

**ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**





## Thread One End Nipples

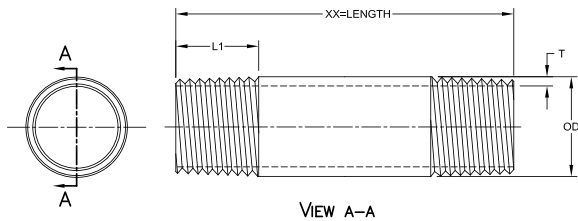
### O.D. TUBE SIZES

| API Part Number | Nominal Pipe Size (inches) | OD    | End to End Length | Threads Per Inch | Min. Thread Length | Min. Wall Thickness |
|-----------------|----------------------------|-------|-------------------|------------------|--------------------|---------------------|
| TOE0075-1.0     | 0.75                       | 1.050 | 1.00              | 14.0             | 0.65               | 0.113               |
| TOE0100-1.0     | 1                          | 1.315 | 1.00              | 11.5             | 0.65               | 0.133               |
| TOE0100-6.0     | 1                          | 1.315 | 6.00              | 11.5             | 1.00               | 0.133               |
| TOE0125-1.5     | 1.25                       | 1.66  | 1.50              | 11.5             | 0.93               | 0.140               |
| TOE0150-1.5     | 1.5                        | 1.900 | 1.50              | 11.5             | 1.00               | 0.145               |
| TOE0200-2.0     | 2                          | 2.375 | 2.00              | 11.5             | 1.10               | 0.154               |
| TOE0250-2.0     | 2.5                        | 2.875 | 2.00              | 8.0              | 1.30               | 0.203               |
| TOE0300-3.0     | 3                          | 3.500 | 3.00              | 8.0              | 1.65               | 0.216               |
| TOE0300-4.0     | 3                          | 3.500 | 4.00              | 8.0              | 1.65               | 0.216               |
| TOE0400-3.0     | 4                          | 4.500 | 3.00              | 8.0              | 1.75               | 0.237               |
| TOE0400-4.0     | 4                          | 4.500 | 4.00              | 8.0              | 1.75               | 0.237               |
| TOE0400-5.0     | 4                          | 4.500 | 5.00              | 8.0              | 1.75               | 0.237               |
| TOE0500-4.0     | 5                          | 5.563 | 4.00              | 8.0              | 1.85               | 0.258               |
| TOE0600-4.0     | 6                          | 6.625 | 4.00              | 8.0              | 2.00               | 0.280               |
| TOE0600-4.5     | 6                          | 6.625 | 4.50              | 8.0              | 2.00               | 0.280               |
| TOE0600-6.0     | 6                          | 6.625 | 6.00              | 8.0              | 2.00               | 0.280               |
| TOE0800-4.0     | 8                          | 8.625 | 4.00              | 8.0              | 2.15               | 0.322               |
| TOE0800-6.0     | 8                          | 8.625 | 6.00              | 8.0              | 2.15               | 0.322               |

Notes:

- a. Nipple material is mild steel.
- b. NPT threads in accordance with ANSI B2.1.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



## Threaded Both End Nipples

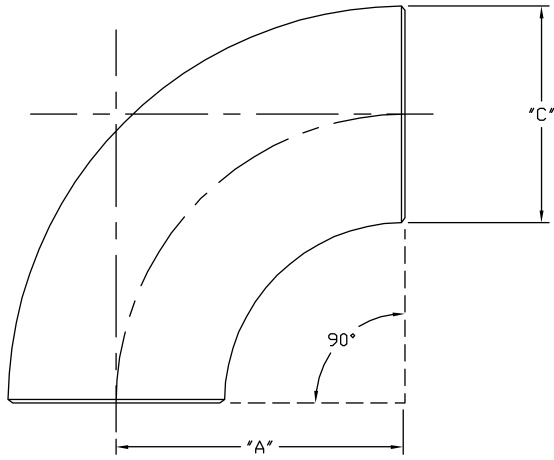
### O.D. TUBE SIZES

| API Part Number | Nominal Pipe Size (inches) | OD    | End to End Length | Threads per Inch | Min. Thread Length | Min. Wall Thickness |
|-----------------|----------------------------|-------|-------------------|------------------|--------------------|---------------------|
| TBE0075-1.38    | 0.75                       | 1.050 | 1.38              | 14.0             | 0.75               | 0.113               |
| TBE0075-2.0     | 0.75                       | 1.050 | 2.00              | 14.0             | 0.75               | 0.113               |
| TBE0075-3.0     | 0.75                       | 1.050 | 3.00              | 14.0             | 0.75               | 0.113               |
| TBE0100-4.0     | 1                          | 1.315 | 4.00              | 11.5             | 1.00               | 0.133               |
| TBE0100-12.0    | 1                          | 1.315 | 12.00             | 11.5             | 1.00               | 0.133               |
| TBE0250-6.0     | 2.5                        | 2.875 | 6.00              | 8.0              | 1.60               | 0.209               |
| TBE0400-8.0     | 4                          | 4.500 | 8.00              | 8.0              | 1.75               | 0.237               |

Notes:

- a. Nipple material is mild steel.
- b. NPT threads in accordance with ANSI B2.1.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



LONG RADIUS 90°

## Long Radius 304L Stainless Steel 90° Elbows (LRE Series)

### DIMENSIONS

| API Part Number | NOM. PIPE SIZE | OUTSIDE DIAMETER (O.D) | CENTER TO END (C to E) | INSIDE DIAMETER (I.D) | WALL THICKNESS (T) |
|-----------------|----------------|------------------------|------------------------|-----------------------|--------------------|
| LRE0100-90      | 1              | 1.315                  | 1.500                  | 1.097                 | 0.109              |
| LRE0125-90      | 1.25           | 1.660                  | 1.875                  | 1.442                 | 0.109              |
| LRE0150-90      | 1.5            | 1.900                  | 2.250                  | 1.682                 | 0.109              |
| LRE0200-90      | 2              | 2.375                  | 3.000                  | 2.157                 | 0.109              |
| LRE0250-90      | 2.5            | 2.875                  | 3.750                  | 2.635                 | 0.120              |
| LRE0300-90      | 3              | 3.500                  | 4.500                  | 3.260                 | 0.120              |
| LRE0400-90      | 4              | 4.500                  | 6.000                  | 4.260                 | 0.120              |
| LRE0500-90      | 5              | 5.563                  | 7.500                  | 5.295                 | 0.134              |
| LRE0600-90      | 6              | 6.625                  | 9.000                  | 6.357                 | 0.134              |
| LRE0800-90      | 8              | 8.625                  | 12.000                 | 8.329                 | 0.148              |
| LRE1000-90      | 10             | 10.750                 | 15.000                 | 10.420                | 0.165              |
| LRE1200-90      | 12             | 12.750                 | 18.000                 | 12.390                | 0.180              |

- ANSI B16.9
- MSS SP-43
- Schedule 10S

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

### MATERIALS

- ASTM A403
- WP304
- WP304H
- WP304L
- WP316
- WP316L



## Gaskets

API stocks a variety of sizes of full face and ring gaskets in green Non-Asbestos (GNA Series) and SBR (GRR Series) materials.

| Nominal Pipe Size I.D. (old style) | ANSI Size I.D. (new style) | Full Face Gaskets - (125/150#) |       |        |          | Full Face Gaskets - (250/300#) |       |        |          | Ring Gaskets  |               |
|------------------------------------|----------------------------|--------------------------------|-------|--------|----------|--------------------------------|-------|--------|----------|---------------|---------------|
|                                    |                            | O.D                            | # B.H | Ø B.H. | Ø B.H.C. | O.D                            | # B.H | Ø B.H. | Ø B.H.C. | 125/150# (OD) | 250/300# (OD) |
| 0.5                                | 0.878                      | 3.50                           | 4     | 0.625  | 2.375    | 3.750                          | 4     | 0.625  | 2.625    | 1.875         | 2.125         |
| 0.75                               | 1.062                      | 3.88                           | 4     | 0.625  | 2.750    | 4.625                          | 4     | 0.750  | 3.250    | 2.250         | 2.625         |
| 1                                  | 1.313                      | 4.25                           | 4     | 0.625  | 3.125    | 4.875                          | 4     | 0.750  | 3.500    | 2.625         | 2.875         |
| 1.25                               | 1.683                      | 4.63                           | 4     | 0.625  | 3.500    | 5.250                          | 4     | 0.750  | 3.875    | 3.000         | 3.250         |
| 1.5                                | 1.943                      | 5.00                           | 4     | 0.625  | 3.875    | 6.125                          | 4     | 0.875  | 4.500    | 3.375         | 3.750         |
| 2                                  | 2.375                      | 6.00                           | 4     | 0.750  | 4.750    | 6.500                          | 8     | 0.875  | 5.000    | 4.125         | 4.375         |
| 2.5                                | 2.875                      | 7.00                           | 4     | 0.750  | 5.500    | 7.500                          | 8     | 0.875  | 5.875    | 4.875         | 5.125         |
| 3                                  | 3.500                      | 7.50                           | 4     | 0.750  | 6.000    | 8.250                          | 8     | 0.875  | 6.625    | 5.375         | 5.875         |
| 3.5                                | 4.000                      | 8.50                           | 8     | 0.750  | 7.000    | 9.000                          | 8     | 0.875  | 7.250    | 6.375         | 6.500         |
| 4                                  | 4.500                      | 9.00                           | 8     | 0.750  | 7.500    | 10.00                          | 8     | 0.875  | 7.875    | 6.875         | 7.125         |
| 5                                  | 5.563                      | 10.00                          | 8     | 0.875  | 8.500    | 11.00                          | 8     | 0.875  | 9.250    | 7.750         | 8.500         |
| 6                                  | 6.625                      | 11.00                          | 8     | 0.875  | 9.500    | 12.50                          | 12    | 0.875  | 10.63    | 8.750         | 9.875         |
| 8                                  | 8.650                      | 13.50                          | 8     | 0.875  | 11.75    | 15.00                          | 12    | 1.000  | 13.00    | 11.00         | 12.125        |
| 10                                 | 10.75                      | 16.00                          | 12    | 1.000  | 14.25    | 17.50                          | 16    | 1.125  | 15.25    | 13.38         | 14.250        |
| 12                                 | 12.75                      | 19.00                          | 12    | 1.000  | 17.00    | 20.50                          | 16    | 1.250  | 17.75    | 16.13         | 16.625        |
| 14                                 | 14.00                      | 21.00                          | 12    | 1.125  | 18.75    | 23.00                          | 20    | 1.250  | 20.25    | 17.75         | 19.125        |
| 16                                 | 16.00                      | 23.50                          | 16    | 1.125  | 21.25    | 25.50                          | 20    | 1.375  | 22.50    | 20.50         | 21.250        |
| 18                                 | 18.00                      | 25.00                          | 16    | 1.250  | 22.75    | 28.00                          | 24    | 1.375  | 24.75    | 21.63         | 23.500        |
| 20                                 | 20.00                      | 27.50                          | 20    | 1.250  | 25.00    | 30.50                          | 24    | 1.375  | 27.00    | 23.88         | 25.750        |
| 22                                 | 22.00                      | 29.50                          | 20    | 1.375  | 27.25    | 33.00                          | 24    | 1.625  | 29.25    | 26.00         | 27.625        |
| 24                                 | 24.00                      | 32.00                          | 20    | 1.375  | 29.50    | 36.00                          | 24    | 1.625  | 32.00    | 28.25         | 30.500        |
| 26                                 | 26.00                      | 34.75                          | 24    | 1.375  | 31.75    | 38.25                          | 28    | 1.750  | 34.50    | 30.50         | 32.875        |
| 28                                 | 28.00                      | 36.50                          | 28    | 1.375  | 34.00    | 40.75                          | 28    | 1.750  | 37.00    | 32.75         | 35.375        |
| 30                                 | 30.00                      | 38.75                          | 28    | 1.375  | 36.00    | 43.00                          | 28    | 1.875  | 39.50    | 34.75         | 37.500        |
| 32                                 | 32.00                      | 41.75                          | 28    | 1.625  | 38.50    | 45.25                          | 28    | 2.000  | 41.50    | 38.00         | 39.625        |
| 34                                 | 34.00                      | 43.75                          | 32    | 1.625  | 40.50    | 47.50                          | 28    | 2.000  | 43.50    | 39.00         | 41.625        |
| 36                                 | 36.00                      | 46.00                          | 32    | 1.625  | 42.75    | 50.00                          | 32    | 2.125  | 46.00    | 41.25         | 44.000        |
| 38                                 | 38.00                      | 48.75                          | 36    | 1.625  | 45.25    | 52.25                          | 32    | 2.250  | 48.00    | 43.63         | 46.125        |
| 40                                 | 40.00                      | 50.75                          | 36    | 1.625  | 47.25    | 54.25                          | 36    | 2.250  | 50.25    | 45.63         | 48.750        |
| 42                                 | 42.00                      | 53.00                          | 36    | 1.625  | 49.50    | 57.00                          | 36    | 2.250  | 52.75    | 48.00         | 50.750        |
| 44                                 | 44.00                      | 55.25                          | 40    | 1.625  | 51.75    | 59.25                          | 36    | 2.250  | 55.00    | 50.13         | 53.000        |
| 46                                 | 46.00                      | 57.25                          | 40    | 1.625  | 53.75    | 61.50                          | 40    | 2.250  | 57.75    | 52.13         | 55.250        |
| 48                                 | 48.00                      | 59.50                          | 44    | 1.625  | 56.00    | 65.00                          | 40    | 2.250  | 60.75    | 54.50         | 58.500        |

Note:

- a. Dimensions per ANSI B 16.5 and AWWA C110 standards for pipe flanges and gaskets.
- b. Dimensional tolerances (unless otherwise stated): Up to 1" @ +/- .0325"; 1.25" thru 12" @ +/- .0625"; 14" thru 24" @ +/- .0975"; 24" and above @ +/- .25".
- c. Standard gasket material is SBR (Red Rubber) or Non-Asbestos (Green), but Neoprene, EPDM, Buna N, Silicone, Viton Teflon and other compounds are readily available.
- d. Standard thicknesses are 1/16" and 1/8", but other thickness are available.
- e. Sizes above 24" available upon request (minimum order quantity may apply).

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

# Gaskets - Basic Compounds & Properties

|                                 |             |  |   | General Chemical Resistance   |  |
|---------------------------------|-------------|--|---|---|--|
| Common Name (s)                 | Designation | Composition  | General Properties  | Resistance to   | Attacked by:   |
| Neoprene                        | CR          | Chloroprene  | Good weathering resistance and flame retarding. Good resistance to petroleum based fluids.                            | Moderate chemicals and acids, ozone, oils, fats, greases and many solvents.                 | Strong oxidizing acids, esters, ketones, chlorinated, aromatic and nitro hydrocarbons.     |
| EPDM                            | EPM         | Ethylene-propylene-diene-molimers                  | Excellent ozone, chemical and aging resistance. Excellent heat resistance. Poor resistance to petroleum based fluids. | Heat, ozone, strong oxidizing chemicals and acetone.  | Petroleum based fluids, animal fats, solvents and greases.                                 |
| Buna-N                          | NBR         | Nitrile-butadiene                                  | Excellent resistance to petroleum based fluids. Good physical properties.   | Many hydrocarbons, fats, oils, hydraulic fluids and chemicals.                              | Ozone (except PVC blends), ketones, esters, aldehydes, chlorinated and nitro hydrocarbons. |
| Silicones                       | Q, Si       | Polysiloxane                                       | Excellent high and low temperature properties. Good oil resistance. FDA compound. Good physical properties.           | Moderate chemicals and acids, ozone, oils, fats, greases and concentrated sodium hydroxide. | Many solvents, high aromatic hydrocarbons, concentrated acids, dilute sodium hydroxide.    |
| SBR<br>(Red Rubber)             | SBR         | Styrene-butadiene                                  | Good physical properties and abrasion resistance. Poor resistance to petroleum based fluids.                          | Most moderate chemicals wet or dry, organic acids, alcohols, ketones and aldehydes.         | Ozone, strong acids, animal fats, oils, greases and most hydrocarbons.                     |
| Viton<br>(Fluoro-elastomer)     | FPM         | Hexafluoropropylene-vinylidene fluoride            | Excellent oil and air resistance at low and high temperatures. Excellent chemical resistance.                         | All aliphatic, aromatic and halogenated hydrocarbons, acids, animal and vegetable oils.     | Ketones, low molecular weight esters and nitro containing compounds                        |
| Teflon®<br>(Fluorocarbon resin) | TFE         | Polytetra-fluoroethylene                           | Excellent chemical and solvent resistance. Resistant to very high temperatures.                                       | Inert to most chemicals, smooth anti-adhesive surface. Easily cleaned.                      | Acetates, NA-K and some amino acids.   |
| Non-Asbestos                    | NA          | Aramid fiber and synthetic fibers bonded with NBR. | General service water & oil gasket. Pressures to 1595 psi, Temp to 750o F.  | Mild acids, Alkalis, Oils, general chemicals & petroleum derivatives and steam.             | Consult customer service for chemical compatibility.                                       |

## Notes:

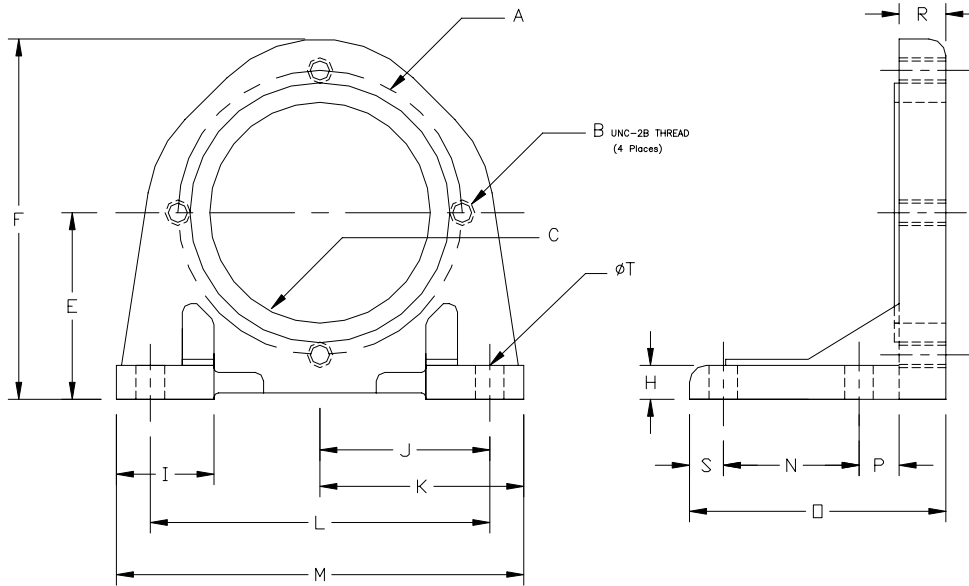
- The chemical guidelines in this table are offered as a general indication of the compatibility of various materials with chemicals and fluids listed.
- When in doubt a sample of the compound should always be tested with the particular chemical it is to handle.
- API stocks Non-Asbestos (GNA Series) and SBR (GRR Series) gaskets, but others are available upon request (minimum order quantity may apply).

## PART NUMBER STRUCTURE

| Part Number Section | Options  |
|---------------------|--|
| Material            | GNA = Green Non-Asbestos<br>GRR = Red Rubber     |
| Size                | XXXX = Size in inches going out 2 decimal places |
| Type                | FF = Full Face<br>R = Ring                       |
| Thickness           | XXX = Size in inches going out 3 decimal places  |

DC# 0324

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## Hydraulic Motor Pump Brackets

### DIMENSIONS

| API Part Number | A    | B      | C    | E    | F    | H    | I    | J    | K    | L    | M     | N    | O    | P    | R    | S    | T    | Weight (lbs) |
|-----------------|------|--------|------|------|------|------|------|------|------|------|-------|------|------|------|------|------|------|--------------|
| HB-A            | 4.19 | .38-16 | 3.25 | 2.75 | 5.31 | 0.50 | 1.44 | 2.50 | 3.00 | 5.00 | 6.00  | 2.00 | 3.78 | 0.59 | 0.69 | 0.50 | 0.43 | 4            |
| HB-B            | 5.75 | .50-13 | 4.00 | 3.63 | 7.12 | 0.50 | 1.44 | 2.88 | 3.38 | 5.75 | 6.75  | 2.00 | 3.77 | 0.59 | 0.69 | 0.50 | 0.43 | 5            |
| HB-C            | 7.13 | .62-11 | 5.00 | 4.31 | 8.50 | 0.62 | 2.00 | 4.63 | 5.22 | 9.25 | 10.44 | 3.00 | 5.18 | 0.75 | 0.75 | 0.68 | 0.69 | 12           |

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

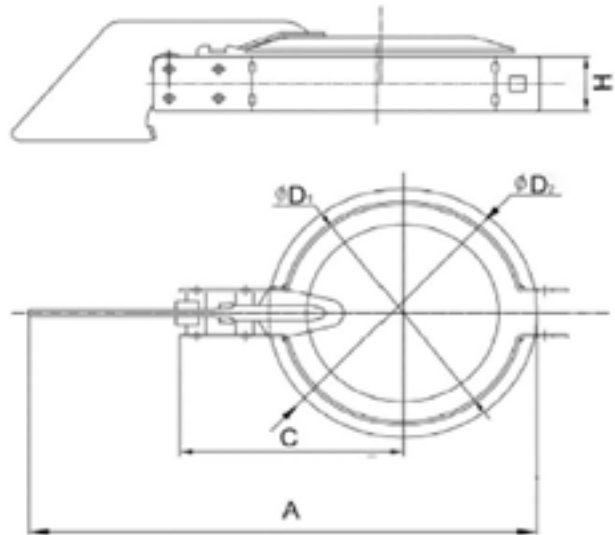
### MATERIALS

| Part | Material  |
|------|-----------|
| Body | Cast Iron |



Notes:

SAE-J744, 3 sizes for the same specification for Gear Pump, Vickers Piston Pump, or Vane Pump & Motors.



## Exhaust Rain Caps

### DIMENSIONS

| API Part Number | Size | "A"   | "C"  | "H"  | "D1" | "D2" |
|-----------------|------|-------|------|------|------|------|
| RC0100-x        | 1    | 5.63  | 2.91 | 1.26 | 1.14 | 1.57 |
| RC0150-x        | 1.5  | 5.98  | 2.95 | 1.26 | 1.50 | 1.65 |
| RC0200-x        | 2    | 6.69  | 3.19 | 1.26 | 2.03 | 2.52 |
| RC0250-x        | 2.5  | 7.17  | 3.46 | 1.26 | 2.52 | 2.99 |
| RC0300-x        | 3    | 7.68  | 3.74 | 1.26 | 3.01 | 3.50 |
| RC0350-x        | 3.5  | 8.19  | 3.94 | 1.26 | 3.52 | 4.02 |
| RC0400-x        | 4    | 9.61  | 4.27 | 1.26 | 4.02 | 4.72 |
| RC0450-x        | 4.5  | 10.43 | 4.61 | 1.26 | 4.50 | 5.31 |
| RC0500-x        | 5    | 10.81 | 4.78 | 1.26 | 5.02 | 5.75 |
| RC0550-x        | 5.5  | 11.30 | 5.20 | 1.26 | 5.63 | 6.26 |
| RC0600-x        | 6    | 11.61 | 5.31 | 1.26 | 5.98 | 6.69 |
| RC0650-x        | 6.5  | 12.36 | 5.71 | 1.26 | 6.61 | 7.64 |
| RC0800-x        | 8    | 13.78 | 6.30 | 1.26 | 7.99 | 8.66 |

"x" = **G** (Electro-Galvanized/Zink-Plated Q235 Steel)  
**S** (304 Stainless Steel)

### TEMPERATURE RATINGS

|   |         |
|---|---------|
| Electro-Galvanized/<br>Zink-Plated Q235 Steel | 750° F  |
| 304 Stainless Steel                           | 1100° F |

### APPLICATIONS

- Used to prevent dirt, dust, rain and other debris from falling into exposed stack pipes

Notes:

- a. Rain Caps rated for 2,000,000 cycles.





# KLAMPZ<sup>®</sup>



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## Grooved Piping System



DC# 0324

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# KLAMPz®

## Grooved Piping System



**AVAILABLE IN:**  
 • UL/FM APPROVED  
 • NON-UL/FM VERSIONS

### Quick Reference Part Number

| SHURJOINT   | ANVIL | VICTAULIC |  |      |    |   |      |    |  |      |    |  |  |  |
|---|-------|-----------|--|------|----|---|------|----|--|------|----|--|--|--|
| <b>#K05 lt Weight Flexible Coupling</b>   |       |           | <b>#K10 90 Degree Elbow</b>  |      |    | <b>#K11 45 Degree Elbow</b>   |      |    | <b>#K20 Straight Tee</b>   |      |    |  |  |  |
|    |       |           |   |      |    |   |      |    |   |      |    |  |  |  |
| 7705  | C3    | 75        | 7110   | 7050 | 10 | 7111  | 7051 | 11 | 7120   | 7060 | 20 |  |  |  |
| <b>#K41 Flange Adapter</b>  |       |           | <b>#K58 Adapter Nipples</b>  |      |    | <b>#K60 Cap</b>   |      |    | <b>#KGE EPDM Gaskets</b>   |      |    |  |  |  |
|   |       |           |  |      |    |  |      |    |  |      |    |  |  |  |
| 7141  | 7012  | 741       | 58   | 7082 | 42 | 7160  | 7074 | 60 |  |      |    |  |  |  |
| <b>#KTB ASTM A183 Track Head Bolts</b>  |       |           |  |      |    |   |      |    |  |      |    |  |  |  |
|  |       |           |  |      |    |   |      |    |  |      |    |  |  |  |



KLAMPz On... Stayz On!

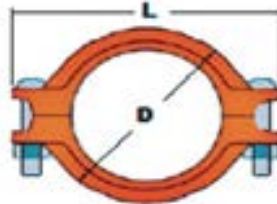
| PIPE SIZE    |         | PIPE SCHEDULE |                |                |                |                |                |                |                 |                |                 |                 |                 |                 |                 |
|--------------|---------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| NOMINAL (in) | OD (in) | 5             | 10             | 20             | 30             | 40             | STD            | 60             | 80              | XH             | 100             | 120             | 140             | 160             | XXH             |
| 0.125        | 0.405   | .035<br>.14   | .049<br>.19    |                |                | .068<br>.24    | .068<br>.24    |                | .095<br>.31     | .095<br>.31    |                 |                 |                 |                 |                 |
| 0.25         | 0.504   | .049<br>.26   | .065<br>.33    |                |                | .088<br>.43    | .088<br>.43    |                | .119<br>.54     | .119<br>.54    |                 |                 |                 |                 |                 |
| 0.375        | 0.675   | .049<br>.33   | .065<br>.42    |                |                | .091<br>.57    | .091<br>.57    |                | .126<br>.74     | .126<br>.74    |                 |                 |                 |                 |                 |
| 0.5          | 0.840   | .065<br>.54   | .083<br>.67    |                |                | .109<br>.85    | .109<br>.85    |                | .147<br>1.09    | .147<br>1.09   |                 |                 |                 | .187<br>1.31    | .294<br>1.72    |
| 0.75         | 1.050   | .065<br>.68   | .083<br>.86    |                |                | .113<br>1.13   | .113<br>1.13   |                | .154<br>1.48    | .154<br>1.48   |                 |                 |                 | .218<br>1.94    | .308<br>2.44    |
| 1            | 1.315   | .065<br>.87   | .109<br>1.41   |                |                | .133<br>1.68   | .133<br>1.68   |                | .179<br>2.17    | .179<br>2.17   |                 |                 |                 | .250<br>2.85    | .358<br>3.66    |
| 1.25         | 1.660   | .065<br>1.11  | .109<br>1.81   |                |                | .140<br>2.27   | .140<br>2.27   |                | .191<br>3.00    | .191<br>3.00   |                 |                 |                 | .250<br>3.77    | .382<br>5.22    |
| 1.5          | 1.900   | .065<br>1.27  | .109<br>2.09   |                |                | .145<br>2.72   | .145<br>2.72   |                | .200<br>3.63    | .200<br>3.63   |                 |                 |                 | .281<br>4.86    | .400<br>6.41    |
| 2            | 2.375   | .065<br>1.60  | .109<br>2.64   |                |                | .154<br>3.66   | .154<br>3.66   |                | .218<br>5.03    | .218<br>5.03   |                 |                 |                 | .344<br>7.45    | .436<br>9.04    |
| 2.5          | 2.875   | .083<br>2.48  | .120<br>3.53   |                |                | .203<br>5.80   | .203<br>5.80   |                | .276<br>7.67    | .276<br>7.67   |                 |                 |                 | .375<br>10.02   | .552<br>13.71   |
| 3            | 3.50    | .083<br>3.03  | .120<br>4.34   |                |                | .216<br>7.58   | .216<br>7.58   |                | .300<br>10.26   | .300<br>10.26  |                 |                 |                 | .438<br>14.31   | 0.600<br>18.60  |
| 3.5          | 4.00    | .083<br>3.48  | .120<br>4.98   |                |                | .226<br>9.12   | .226<br>9.12   |                | .318<br>12.52   | .318<br>12.52  |                 |                 |                 | .636<br>14.31   | 22.87           |
| 4            | 4.50    | .083<br>3.92  | .120<br>5.62   |                |                | .237<br>10.80  | .237<br>10.80  |                | .337<br>15.00   | .337<br>15.00  |                 | 4.38<br>19.02   |                 | .531<br>22.53   | .674<br>27.57   |
| 5            | 5.56    | .109<br>6.63  | .134<br>7.78   |                |                | .258<br>14.63  | .258<br>14.63  |                | .375<br>20.80   | .375<br>20.80  |                 | .500<br>27.06   |                 | .625<br>32.99   | .750<br>38.59   |
| 6            | 6.63    | .109<br>7.59  | .134<br>9.30   |                | .250<br>17.04  | .280<br>18.99  | .280<br>18.99  |                | .432<br>28.00   | .432<br>28.00  |                 | .562<br>36.43   |                 | .718<br>45.39   | .864<br>53.21   |
| 8            | 8.63    | .109<br>9.92  | .148<br>13.41  | .250<br>22.38  | .277<br>24.72  | .322<br>28.58  | .322<br>28.58  | .406<br>35.67  | .500<br>43.43   | .500<br>43.43  | .594<br>50.91   | .719<br>60.77   | .812<br>67.82   | .906<br>74.76   | .875<br>72.49   |
| 10           | 10.75   | .134<br>15.21 | .165<br>18.67  | .250<br>28.06  | .307<br>34.27  | .365<br>40.52  | .365<br>40.52  | .500<br>54.79  | .594<br>64.39   | .500<br>54.79  | .718<br>77.10   | .844<br>89.28   | 1.000<br>104.23 | 1.125<br>115.75 | 1.000<br>104.23 |
| 12           | 12.75   | .165<br>22.20 | .180<br>24.19  | .250<br>33.41  | .330<br>43.81  | .406<br>53.37  | .375<br>49.61  | .562<br>73.22  | .688<br>88.71   | .500<br>65.48  | .844<br>107.42  | 1.000<br>125.61 | 1.125<br>139.81 | 1.312<br>164.42 | 1.000<br>125.61 |
| 14           | 14.00   |               | .250<br>36.75  | .312<br>45.65  | .375<br>54.62  | .438<br>63.50  | .375<br>54.62  | .593<br>84.99  | .750<br>103.23  | .500<br>72.16  | .938<br>130.98  | 1.094<br>150.81 | 1.250<br>170.37 | 1.406<br>189.29 |                 |
| 16           | 16.00   |               | .250<br>42.09  | .312<br>52.32  | .375<br>62.65  | .500<br>82.85  | .375<br>62.65  | .656<br>107.60 | .844<br>136.59  | .500<br>82.85  | 1.031<br>164.98 | 1.219<br>192.47 | 1.438<br>223.71 | 1.594<br>245.34 |                 |
| 18           | 18.00   |               | .250<br>47.44  | .312<br>58.99  | .437<br>82.23  | .562<br>104.76 | .375<br>70.65  | .750<br>138.30 | .938<br>171.08  | .500<br>93.45  | 1.156<br>208.15 | 1.375<br>244.37 | 1.562<br>274.48 | 1.781<br>308.79 |                 |
| 20           | 20.00   |               | .250<br>52.78  | .375<br>78.67  | .500<br>104.23 | .594<br>123.02 | .375<br>78.67  | .812<br>166.56 | 1.031<br>209.06 | .500<br>104.23 | 1.281<br>256.15 | 1.500<br>296.65 | 1.750<br>341.41 | 1.969<br>379.36 |                 |
| 22           | 22.00   |               | .250<br>58.13  | .375<br>86.69  | .500<br>114.92 |                | .375<br>86.69  | .875<br>197.60 | 1.125<br>251.05 | .500<br>114.92 | 1.375<br>303.16 | 1.625<br>353.94 | 1.875<br>403.38 | 2.125<br>451.49 |                 |
| 24           | 24.00   |               | .250<br>63.47  | .375<br>94.71  | .562<br>140.81 |                | .375<br>94.71  | .969<br>238.33 | 1.219<br>296.63 | .500<br>125.61 | 1.531<br>367.64 | 1.812<br>429.99 | 2.062<br>483.57 | 2.344<br>542.44 |                 |
| 26           | 26.00   |               | .312<br>85.68  | .500<br>136.30 |                |                | .375<br>102.72 |                |                 | .500<br>136.30 |                 |                 |                 |                 |                 |
| 28           | 28.00   |               | .312<br>92.35  | .500<br>146.99 | .625<br>182.90 |                | .375<br>110.74 |                |                 | .500<br>146.99 |                 |                 |                 |                 |                 |
| 30           | 30.00   |               | .312<br>99.02  | .500<br>157.68 | .625<br>196.26 |                | .375<br>118.76 |                |                 | .500<br>157.88 |                 |                 |                 |                 |                 |
| 32           | 32.00   |               | .312<br>105.69 | .500<br>168.37 | .625<br>209.62 | .688<br>230.29 | .375<br>126.75 |                |                 | .500<br>168.37 |                 |                 |                 |                 |                 |
| 34           | 34.00   |               | .344<br>123.77 | .500<br>179.06 | .625<br>22.99  | .688<br>245.0  | .375<br>134.79 |                |                 | .500<br>179.06 |                 |                 |                 |                 |                 |
| 36           | 36.00   |               | .312<br>19.03  | .500<br>189.75 | .625<br>236.50 | .750<br>282.62 | .375<br>142.81 |                |                 | .500<br>189.75 |                 |                 |                 |                 |                 |
| 42           | 42.00   |               |                |                |                |                | .375<br>166.86 |                |                 | .500<br>221.82 |                 |                 |                 |                 |                 |
| 48           | 48.00   |               |                |                |                |                | .375<br>190.92 |                |                 | .500<br>253.89 |                 |                 |                 |                 |                 |

TOP NUMBER = WALL THICKNESS

BOTTOM NUMBER = WEIGHT PER FOOT

# K05 Light Weight Flexible Coupling

# KLAMPz



| Part Number      | Nominal Size | Pipe O.D. | UL/FM Working Pressure | Non-UL/FM Working Pressure | Dimensions (in) |       |      | Bolt/Nut Size   |
|------------------|--------------|-----------|------------------------|----------------------------|-----------------|-------|------|-----------------|
|                  |              |           |                        |                            | D               | L     | W    |                 |
| K050150PE(-ULFM) | 1.5          | 1.900     | 300 psi                | 500 psi                    | 2.72            | 4.49  | 1.77 | 0.375" x 1.5"   |
| K050200PE(-ULFM) | 2            | 2.375     |                        |                            | 3.29            | 4.88  | 1.81 | 0.375" X 2.125" |
| K050250PE(-ULFM) | 2.5          | 2.875     |                        |                            | 3.74            | 5.51  | 1.81 | 0.375" X 2.125" |
| K050300PE(-ULFM) | 3            | 3.500     |                        |                            | 4.49            | 6.14  | 1.81 | 0.375" X 2.125" |
| K050400PE(-ULFM) | 4            | 4.500     |                        |                            | 5.59            | 7.44  | 1.97 | 0.5" X 2.5"     |
| K050500PE(-ULFM) | 5            | 5.563     |                        |                            | 6.69            | 8.74  | 1.97 | 0.5" X 2.5"     |
| K050600PE(-ULFM) | 6            | 6.625     |                        |                            | 7.72            | 9.61  | 1.97 | 0.5" X 2.5"     |
| K050800PE(-ULFM) | 8            | 8.625     |                        |                            | 9.92            | 12.44 | 2.36 | 0.625" X 3.125" |
| K051000PE(-ULFM) | 10           | 10.750    |                        |                            | 12.56           | 15.47 | 2.52 | 0.75" X 3.5"    |
| K051200PE(-ULFM) | 12           | 12.750    |                        |                            | 14.72           | 17.83 | 2.56 | 0.75" X 4.25"   |
| K051400PE(-ULFM) | 14           | 14.000    |                        |                            | 18.09           | 20.08 | 2.95 | 0.875" x 4.375" |

## AVAILABLE IN:

- UL/FM APPROVED
- NON-UL/FM VERSION

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

- 1) Flexible Couplings in straight runs should be supported as close to the coupling as possible, or within the distance.
- 2) Flexible couplings provide either axial or longitudinal movement. The available movement for roll-grooved joints is 1/2 of cut-groove dimensions per ANSI/AWWA C606-06.
- 3) When pre-setting power nut-drivers, the following torque should not be exceeded. Excessive tightening of the nuts could result in joint failure. (Values Lbs-Ft.) 0.375"= 50-59 ; 0.5"=81-92 ; 0.625"= 147-190; 0.75"=177-179; 0.875"=202-221.
- 4) The standard finish is Epoxy Powder Coat, but other finishes are available upon request, including Paint, Dacromet and Hot-Dip Galvanized.
- 5) Compatible with KLAMPz KGE product line.

# K10 90° Elbow

# K11 45° Elbow



| Nominal Size | Pipe O.D. | UL/FM Working Pressure | Non-UL/FM Working Pressure | "C to E" Dimensions |      |
|--------------|-----------|------------------------|----------------------------|---------------------|------|
|              |           |                        |                            | K10                 | K11  |
| 1.5          | 1.900     | 300 psi                | 500 psi                    | 2.75                | 1.75 |
| 2            | 2.375     |                        |                            | 3.25                | 2.00 |
| 2.5          | 2.875     |                        |                            | 3.75                | 2.25 |
| 3            | 3.500     |                        |                            | 4.25                | 2.50 |
| 4            | 4.500     |                        |                            | 5.00                | 3.00 |
| 5            | 5.563     |                        |                            | 5.50                | 3.25 |
| 6            | 6.625     |                        |                            | 6.50                | 3.50 |
| 8            | 8.625     |                        |                            | 7.75                | 4.25 |
| 10           | 10.750    |                        |                            | 9.00                | 4.75 |
| 12           | 12.750    |                        |                            | 10.00               | 5.25 |

### PART NUMBER STRUCTURE

## AVAILABLE IN:

- UL/FM APPROVED
- NON-UL/FM VERSION

| Part Number Section | Options                                       |
|---------------------|---|
| Model               | K10, K11                                      |
| Size                | xxxx (4-digits) / (Example: Size=1.25 = 0125) |
| UL/FM Certification | -ULFM   |
| Example             | K100400-ULFM / K110125                        |

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

- 1) Fittings are cast ductile iron conforming to ASTM A536, Gr. 65-45-12 Ductile Iron
- 2) Dimensions meet ANSI/AWWA C606-06.
- 3) Center to End Dimensions are manufacture's standard.
- 4) Fittings larger than 14" may be fabricated from steel pipe to ASTM A53, Gr. B or equivalent.
- 5) The standard finish is Epoxy Powder Coat, but other finishes are available upon request, including Paint, Dacromet and Hot-Dip Galvanized.

# K20 Tee

# KLAMPz



| Part Number     | Nominal Size | Pipe O.D. | UL/FM Working Pressure | Non-UL/FM Working Pressure | C to E |
|-----------------|--------------|-----------|------------------------|----------------------------|--------|
| K200125P(-ULFM) | 1.25         | 1.660     | 300 psi                | 500 psi                    | 2.75   |
| K200150P(-ULFM) | 1.5          | 1.900     |                        |                            | 2.75   |
| K200200P(-ULFM) | 2            | 2.375     |                        |                            | 3.25   |
| K200250P(-ULFM) | 2.5          | 2.875     |                        |                            | 3.75   |
| K200300P(-ULFM) | 3            | 3.500     |                        |                            | 4.25   |
| K200400P(-ULFM) | 4            | 4.500     |                        |                            | 5.00   |
| K200500(-ULFM)  | 5            | 5.563     |                        |                            | 5.50   |
| K200600P(-ULFM) | 6            | 6.625     |                        |                            | 6.50   |
| K200800P(-ULFM) | 8            | 8.625     |                        |                            | 7.75   |
| K201000P(-ULFM) | 10           | 10.750    |                        |                            | 9.00   |
| K201200P(-ULFM) | 12           | 12.750    |                        |                            | 10.00  |

## AVAILABLE IN:

- UL/FM APPROVED
- NON-UL/FM VERSION

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

- 1) Fittings are cast ductile iron conforming to ASTM A536, Gr. 65-45-12 Ductile Iron.
- 2) Dimensions adhere to ANSI/AWWA C606-06.
- 3) Center to End Dimensions are manufacture's standard.
- 4) Fittings larger than 14" may be fabricated from steel pipe A,STM A53, Gr. B or equivalent.
- 5) The standard finish is Epoxy Powder Coat, but other finishes are available upon request, including Paint, Dacromet and Hot-Dip Galvanized.

# K41 Flange Adapter



| Part Number      | Nominal Size | Pipe O.D. | UL/FM Working Pressure | Non-UL/FM Working Pressure | Dimensions (Inches) |       | # B.H. | Bolt/Nut Size   |
|------------------|--------------|-----------|------------------------|----------------------------|---------------------|-------|--------|-----------------|
|                  |              |           |                        |                            | D                   | L     |        |                 |
| K410200PE(-ULFM) | 2            | 2.375     | 250 psi                | 250 psi                    | 6.46                | 8.27  | 4      | 0.375" x 2.750" |
| K410250PE(-ULFM) | 2.5          | 2.875     |                        |                            | 6.93                | 9.45  | 4      | 0.375" x 2.750" |
| K410300PE(-ULFM) | 3            | 3.500     |                        |                            | 7.56                | 9.84  | 4      | 0.375" x 2.750" |
| K410400PE(-ULFM) | 4            | 4.500     |                        |                            | 8.82                | 10.94 | 8      | 0.375" x 2.750" |
| K410500PE(-ULFM) | 5            | 5.563     |                        |                            | 10.00               | 12.20 | 8      | 0.375" x 2.750" |
| K410600PE(-ULFM) | 6            | 6.625     |                        |                            | 11.10               | 13.23 | 8      | 0.500" x 3.125" |
| K410800PE(-ULFM) | 8            | 8.625     |                        |                            | 13.50               | 15.55 | 8      | 0.500" x 3.125" |
| K411000PE(-ULFM) | 10           | 10.750    |                        |                            | 15.91               | 18.50 | 12     | 0.625" x 3.875" |
| K411200PE(-ULFM) | 12           | 12.750    |                        |                            | 19.20               | 23.00 | 12     | 0.625" x 3.875" |

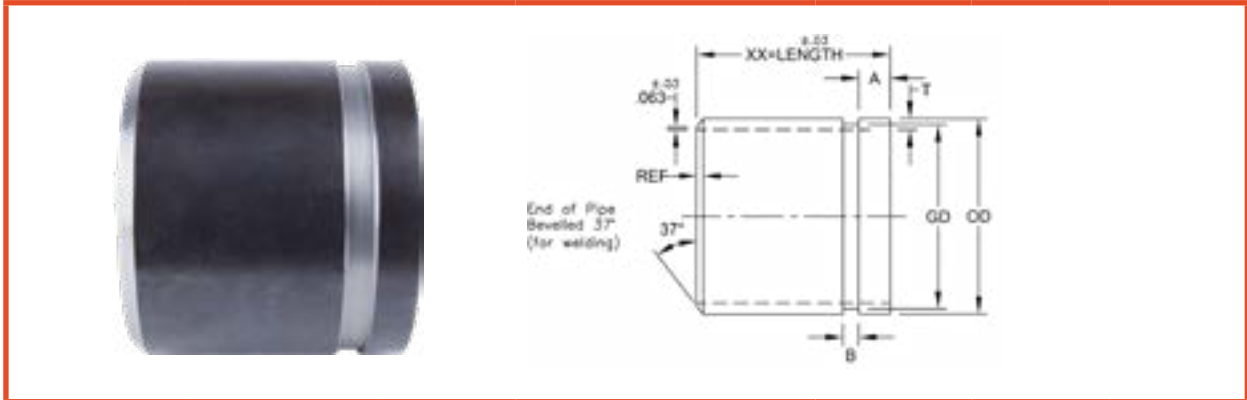
## AVAILABLE IN:

- UL/FM APPROVED
- NON-UL/FM VERSION

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

- 1) A hard metal washer is required between the # K41 gasket and any rubber mating surface, i.e. wafer and lug butterfly valves, flexible connectors, etc.
- 2) Two factory supplied closure bolts are included with the Model K41 Grooved Flange Adapter.
- 3) The Model K41 Grooved Flange Adapters should not be used as an anchor point for tie-rods on un-restrained joints
- 4) When mounting the Model K41 Grooved Flange Adapter to valves, assure that there is adequate clearance between the flange and valve handle, operator, etc.
- 5) The standard finish is Epoxy Powder Coat, but other finishes are available upon request, including Paint, Dacromet and Hot-Dip Galvanized.
- 6) Compatible with KLAMPz KGE product line.
- 7) Flange drilling pattern meets ANSI 125/150#

# K58 Groove x Bevel Adapter Nipple



| Nominal Pipe Size | O.D.   | Wall Thickness | Groove Diameter | "A"<br>(+/-0.03) | "B"<br>(+/-0.03) | "E to E"<br>Length |
|-------------------|--------|----------------|-----------------|------------------|------------------|--------------------|
| 1.5               | 1.190  | 0.145          | 1.775 (-.015)   | 0.625            | 0.313            | 4                  |
| 2                 | 2.375  | 0.154          | 2.250 (-0.15)   | 0.625            | 0.313            | 4                  |
| 2.5               | 2.875  | 0.203          | 2.720 (-.018)   | 0.625            | 0.313            | 4                  |
| 3                 | 3.500  | 0.216          | 3.344 (-.018)   | 0.625            | 0.313            | 4                  |
| 4                 | 4.500  | 0.237          | 4.334 (-.020)   | 0.625            | 0.375            | 4                  |
| 5                 | 5.563  | 0.258          | 5.395 (-.020)   | 0.625            | 0.375            | 4                  |
| 6                 | 6.625  | 0.280          | 6.455 (-.022)   | 0.625            | 0.375            | 4                  |
| 8                 | 8.625  | 0.322          | 8.441 (-.025)   | 0.750            | 0.438            | 4                  |
| 10                | 10.750 | 0.365          | 10.562 (-.027)  | 0.750            | 0.500            | 4                  |
| 12                | 12.750 | 0.375          | 12.531 (-.030)  | 0.750            | 0.500            | 4                  |
| 14                | 14.000 | 0.375          | 13.781 (-.030)  | 0.938            | 0.500            | 4                  |

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

- 1) Pipe nipples are cut-grooved per ANSI /AWWA C606-06.
- 2) Pressure ratings are dependent upon coupling selected.
- 3) Schedule 40 sand blased ASTM A538 black pipe is standard, but different schedules and materials are available upon request.



**K60** Grooved Cap

**KLAMPz**



| Part Number     | Nominal Size | Pipe O.D | "L"  | UL/FM Working Pressure | Non-UL/FM Working Pressure |
|-----------------|--------------|----------|------|------------------------|----------------------------|
| K600125P(-ULFM) | 1.25         | 1.660    | 0.94 | 300 psi                | 500 psi                    |
| K600150P(-ULFM) | 1.5          | 1.900    | 0.94 |                        |                            |
| K600200P(-ULFM) | 2            | 2.375    | 0.94 |                        |                            |
| K600250P(-ULFM) | 2.5          | 2.875    | 0.94 |                        |                            |
| K600300P(-ULFM) | 3            | 3.500    | 0.94 |                        |                            |
| K600400P(-ULFM) | 4            | 4.500    | 1.00 |                        |                            |
| K600500P(-ULFM) | 5            | 5.563    | 1.00 |                        |                            |
| K600600P(-ULFM) | 6            | 6.625    | 1.00 |                        |                            |
| K600800P(-ULFM) | 8            | 8.625    | 1.26 |                        |                            |
| K601000P(-ULFM) | 10           | 10.750   | 1.26 |                        |                            |
| K601200P(-ULFM) | 12           | 12.750   | 1.26 |                        |                            |

**AVAILABLE IN:**

- **UL/FM APPROVED**
- **NON-UL/FM VERSION**

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

- 1) Model K60 are cast ductile iron conforming to ASTM A536, Gr. 65.45.12.
- 2) Dimensions adhere to ANSI/AWWA C606-06.
- 3) The standard finish is Epoxy Powder Coat, but other finishes are available upon request, including Paint, Dacromet and Hot-Dip Galvanized.

**KGE** EPDM Gaskets

**KLAMPz**




| Nominal Size | Pipe O.D |
|--------------|----------|
| 1.5          | 1.900    |
| 2            | 2.375    |
| 2.5          | 2.875    |
| 3            | 3.500    |
| 4            | 4.500    |
| 5            | 5.563    |
| 6            | 6.625    |
| 8            | 8.625    |
| 10           | 10.750   |
| 12           | 12.750   |
| 14           | 14.000   |



**PART NUMBER STRUCTURE**

| Part Number Section | Options                                       |
|---------------------|---|
| Type                | KGE   |
| Size                | xxxx (4-digits) / (Example: Size=1.25 = 0125) |
| Model               | K05 & K07 = BLANK<br>K41 = -K41               |
| Example             | KGE0400-41 (K41) / KGE0125 (K05 & K07)        |

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

- 1) EPDM: TEMPERATURE RANGE ( -34°C) -30°F (+110°C) +230°F.  
Suitable for water, non-oil, dilute acids, alkaline salt and many non-hydrocarbon chemicals. **DO NOT USE FOR HYDROCARBON SERVICES.**
- 2) Always lubricate gaskets with inert soap-based lube to avoid pinching during installation.
- 3) KGE Series Gaskets are made for KLAMPz K05, K07, and K41 product lines.

**KTB** Track Head Bolts

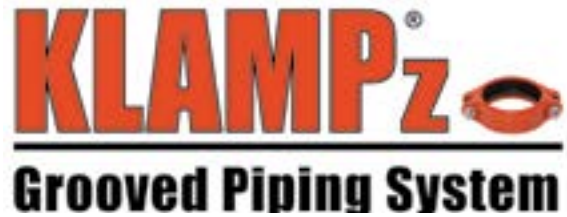


| ANSI            |
|-----------------|
| 0.375" X 1.5"   |
| 0.375" X 2.25"  |
| 0.5" X 2.5"     |
| 0.625" X 3.125" |
| 0.75" X 3.5"    |
| 0.75" X 4.25"   |
| 0.75" X 5"      |

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

- 1) Bolts are mild steel, heat treated & Zinc electroplated conforming to ASTM A183, Gr.2.
- 2) Hex Nuts conform to ASTM A563 Br. B.
- 3) Threads adhere to UNC (Unified National Coarse) as put forth by ASME/ANSI.
- 4) Tensile strength = 110,000 psi; Yield = 80,000 psi; Elongation = 12%.

# WARRANTY



We warrant all KLAMPz products to be free from defects in materials and workmanship under normal conditions of use and service. Our obligation under this warranty is limited to repairing or replacing at our option at our factory or designated facility any product which shall within **one year** after delivery to the original buyer be returned with transportation charges prepaid, and which our examination and inspection shall show to our satisfaction to have been defective.

This warranty is made expressly in lieu of any other warranties, express or implied, including any implied warranty of merchantability or fitness for particular purpose. The buyer's sole and exclusive remedy shall be for the replacement or repair of defective products as provided herein. The buyer agrees that no other remedy (including but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property or any other incidental or consequential loss) shall be available to him/her.

KLAMPz neither assumes nor authorizes any person to assume for it any other liability in connection with the sale of such products.

This warranty shall not apply to any product which has been the subject to misuse, negligence or accident, which has been repaired or altered in any manner outside of KLAMPz factory or designated facility or which has been used in manner contrary to KLAMPz instructions, recommendations or generally accepted practices. KLAMPz shall not be responsible for design errors due to inaccurate or incomplete information supplied by the buyer or his representatives.

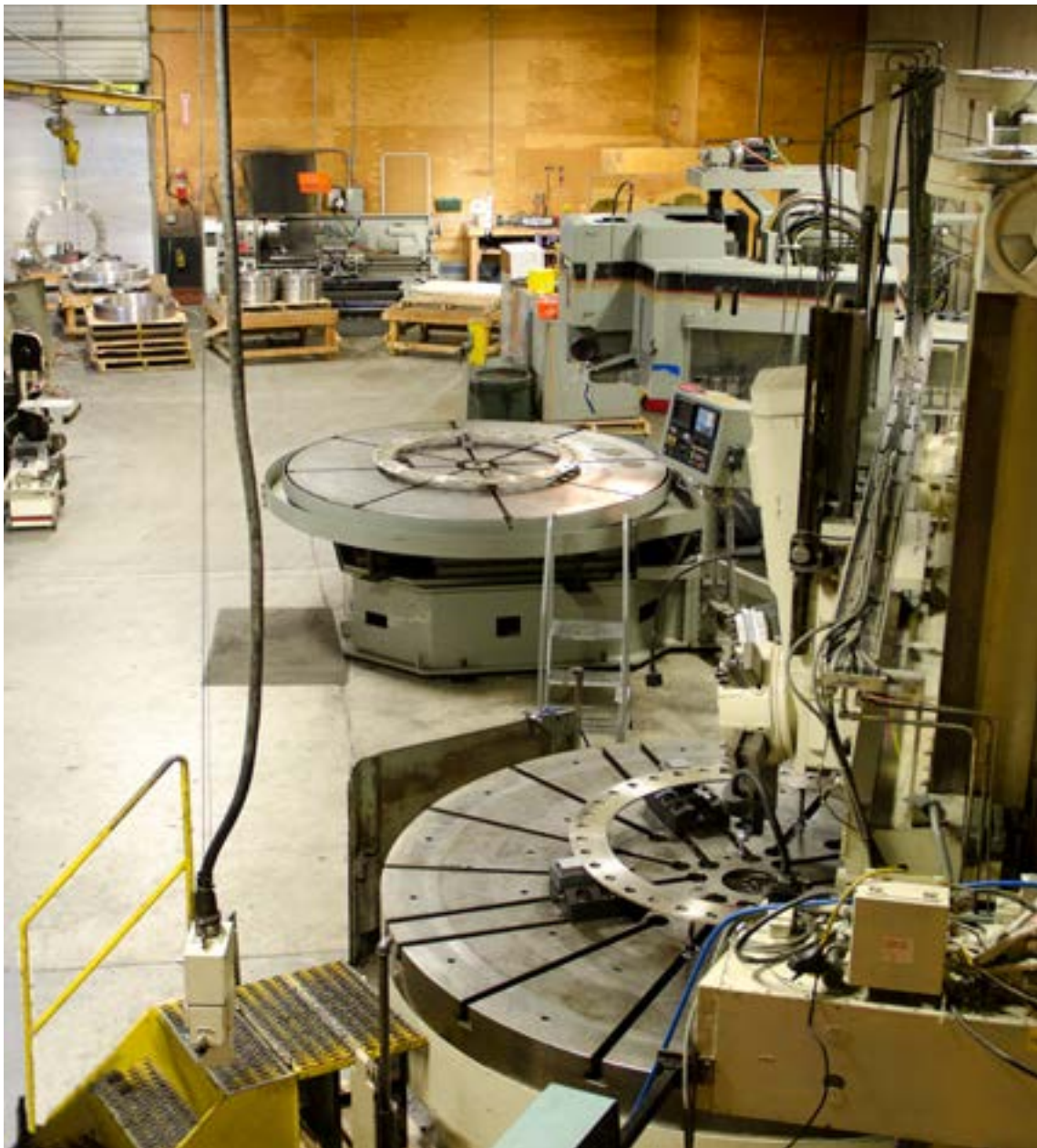


**2 YEAR**  
**Warranty**



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# Machining Services



# Machining Services - Features & Capabilities

Our machine shop enables API to manufacture product that meets a wide variety of specifications utilizing Buy America, AIS or Import materials. We also support fast turn modifications to our stock items in order to meet customer needs. Whether you have a CAD drawing or sample that needs to be reverse engineered, we can work with you on prototyping, production quantity manufacturing and even warehousing product.

## MILLING

- Variety of 3-axis vertical mills allows efficient machining of your part
- Open work envelope of 4-axis horizontal Boring Mill allows machining of parts up to 59"(X) x 39"(Y) x 29"(Z) in size, with the ability to work with larger parts by repositioning

## MATERIAL

- Carbon & Mild Steel
- Stainless Steel
- Aluminum
- Duplex
- Super Duplex
- Alloy 20

\*Tooling can be added quickly in order to work with almost any material.

## TURNING

- Versatile array of lathes can handle your small to medium size parts
- Two CNC lathes with the ability to turn parts with diameters from 3" to 43"
- Selection of manual lathes supports a turning range of 3" to 108" (118" when ID >= 24")

## TOLERANCES

| Part Size (max) | Tolerance |
|-----------------|-----------|
| 21"             | ±.001     |
| 42"             | ±.010     |
| 60"             | ± 1/32    |
| 118"            | ± 1/16    |

## OUR ADVANTAGE

### Range of Capabilities:

Experience with a wide variety of products, sizes, materials and specifications.

### Quick Turnaround:

Short lead times that allow you to get products to customers when they need them.

### Quality Control:

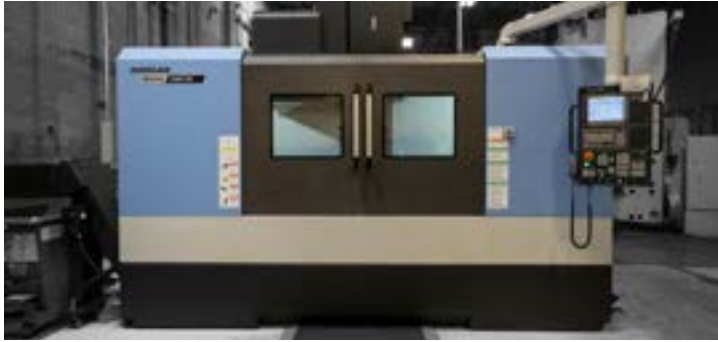
Quality control technicians working with modern technology, including a Romer Arm CMM, that verifies all products meet customer requirements.

### Cost Reduction:

Our machine shop's vast knowledge of tooling and fixturing can help reduce your production cost, especially on your high volume products.



## Machining Services - Machines



**DOOSAN MYNX 7500/50**  
- CNC MILL

63" x 30" work envelope  
**Ideal for:** Larger parts and exotic materials



**DOOSAN DNM 5700**  
- CNC MILL

40" x 20" work envelope  
**Ideal for:** High speed milling of material such as aluminum and plastic



**HYUNDAI WIA LV1100R**  
- VERTICAL CNC LATHE

Maximum turning diameter: 39"  
**Ideal for:** High volume turning of complex parts up to 39" diameters



**DOOSAN DNM 5400/50**  
- CNC MILL

40" x 20" work envelope  
**Ideal for:** Precision drilling & milling



**BULLARD DYNATROL**  
- VERTICAL TURRET LATHE

Maximum turning diameter: 108"  
**Ideal for:** Turning rings and flanges with 42" to 108" outer diameters

## Machining Services - Machines



### MONARCH 96" VMC-RT - CNC DRILLING MACHINE

Drill holes 0.25" - 3" diameter  
Work piece: 20" - 108" diameter  
**Ideal for:** Drilling bolt holes



### QUICKDRILL GANTRY MACHINING CENTER - HORIZONTAL CNC MILL

120" x 120" work envelope  
**Ideal for:** Drilling and milling large  
8" thick flanges up to 18ft in  
diameter



### IKEGAI NB11T - HORIZONTAL CNC MILL

Horizontal milling with 59" x 39"  
work envelope  
**Ideal for:** Multi-axis milling and  
boring



### DOOSAN PUMA 480 - HORIZONTAL CNC LATHE

Maximum turning diameter: 21.5"  
Maximum length of work: 39"  
**Ideal for:** High volume turning of  
complex parts



### SENFENG SF1500HC - FIBER LASER

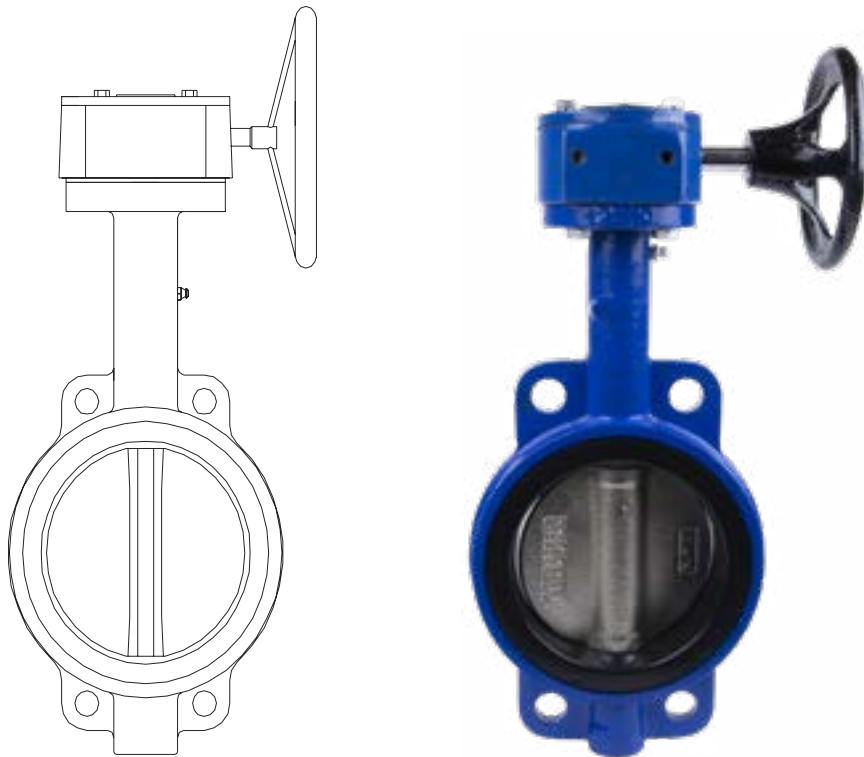
**Ideal for:** Rust removal, paint removal,  
grease removal, weld cleaning



### FRYER VT-80 - VERTICAL TURRET LATHE

Max Cutting Length 32"  
Cutting Diameter Range 4" - 80"  
**Ideal for:** High volume turning of complex  
parts up to 80" diameter

# Butterfly Valves Installation, Operation, & Maintenance Guide



# Installation, Operation, & Maintenance - BV/BV-D Butterfly Valves

## PREFACE

The following information should be followed in addition to the requirements set forth by an on-site, process engineer or professional pipe fitter. API recommends that only experienced, skilled personnel be allowed to install and maintain the API “BV” style butterfly valves and valve extensions.

## GENERAL INFORMATION

API “BV” butterfly valves are designed for installation between ANSI Class 125/150 flat or raised face flanges to regulate flow in a pipeline. Gaskets are not required. Lined pipe, heavy wall pipe, or flanges must have a minimum allowable inside diameter at the center body face to clear the disc sealing edge when opening the valve.

The disc, positioned in the center of the pipe, rotates so that the valve can be opened, closed, or partially opened (with 10 total locking position options).

Prior to selection, double-check the performance limits of the butterfly valves against the anticipated operating conditions including the following:

1. Material compatibility of the seat, disk, and body with the media.
2. Maximum start-up, test, and working pressure.
3. Maximum temperature.
4. Other operating conditions/media - including flow rates, viscosity... etc.
5. Space requirements for correct installation.

Butterfly valves should not be subjected to operating conditions beyond the capacity for the service recommendations of API International.

## UNPACKING & INSPECTION

Upon receipt of API “BV” butterfly valve product, we recommend the following unpacking & inspection procedures:

All valves are packaged and shipped in a manner designed to prevent damage during transportation. If obvious external damage to the shipping container or package is evident upon receipt of the product, please request a representative of the shipping carrier be present prior to unpacking the product.

Remove all packing materials surrounding the valve and carefully lift it from the container. Caution, for large or heavy valves, the appropriate material for handling equipment must be used to prevent injury and/or possible damage to the valve. API recommends keeping the shipping container and all packing material for reuse in storage or reshipment.

Visually inspect valves for any signs of damage including scratches, loose parts, broken parts, or any other physical damage that may have occurred during shipment. If damage is observed, immediately file a claim with the shipping carrier. Butterfly valves that are damaged during transportation are the responsibility of the customer.

# Installation, Operation, & Maintenance - BV/BV-D Butterfly Valves

## UNPACKING & INSPECTION (Continued)

Inspect further to confirm that there are no pieces of packaging left on the valve that could interfere with its operation.

If valves are not going to be installed immediately, they should be stored indoors in a clean, dry, corrosion-free environment without direct exposure to sunlight. The discs should remain in the nearly closed position to protect the sealing edge and to prevent distortion of the resilient seat. No other maintenance during storage or use is required.

## INSTALLATION

### Pre-Installation Information/Checklist:

1. Ensure working conditions (pressure and temperature) are within the specified capacity of the product being installed.
2. Make sure that the construction material of the butterfly valve is chemically compatible with the media flowing in the pipeline.
3. Inspect the valve's flange ends and the pipeline's mating flanges to ensure the surfaces are clean and free of defects. The pipeline should also be checked for proper alignment. API butterfly valves should never be utilized to realign an existing piping system.
4. The distance between pipe flanges should be checked to assure sufficient clearance for valve installation.
5. The appropriate material handling equipment should be available to lift larger valves into position.
6. API butterfly valves are bi-directional and may be installed with flow in either direction, vertically, or horizontally. If a choice of stem position exists, the valve should be installed with the stem in the horizontal position; this will minimize seat wear by distributing the stem and disc weight evenly. Also, if the media is abrasive, the horizontal stem position creates a self-flushing effect that will extend the service life-expectancy of the valve.
7. Check that the existing pipe sizes match the inlet and outlet sizes of the unit being installed and that no interference exists. If pipeline strain is a concern with larger valves (due to weight), additional support may be necessary.
8. Since the rubber seat also functions as the seal between the flanges, additional gaskets are not required.
9. If possible, butterfly valves are recommended to be installed a minimum of six (6) pipe diameters from upstream components, and a minimum of four (4) pipe diameters from downstream components.

### Installation Procedure:

1. Install lever (for manual operated valve) or hand-wheel (for gear operated valve).
2. Using lever or hand-wheel, turn (clockwise) to ensure valve is in full closed position. Disc should be aligned parallel to the ends.
3. If disc is not aligned parallel to the ends, for lever style - slightly loosen top plate (by loosening 2 bolts), turn lever clockwise until disc is centered & parallel to ends, and retighten top plate. For gear operated valve, adjust hex nuts on side of gearbox. Fully open and close disc several times to assure proper operation. If re-alignment is necessary, repeat.
4. Proceed with valve installation into piping system. Note that "wafer" style valves are placed between flanges and installed with fully threaded studs, whereas tapped "lug" style valves are installed between flanges with small cap screws on the inlet and the outlet of the valve.
5. Spread the mating flanges to exceed the valve's face-to-face dimension by  $\frac{3}{16}$ " before placing the valve into position to prevent distortion and/or damage to the sealing face of the seat.

# Installation, Operation, & Maintenance - BV/BV-D Butterfly Valves

## Installation Procedure (continued):

6. Ensure that the pipe flange faces are clean of any foreign material such as scale, metal shavings or welding slag.
7. With disc in the closed position, carefully insert between the flanges, line up, and center. Note that accurate centering between upstream and downstream pipe ends is essential for trouble-free operation of the valves.
8. While gradually removing the flange spreader and verifying that the valve is centered to the flanges, secure by hand-tightening flange bolts.
9. Open the valve slowly to the full open position to assure free unobstructed disc movement and that there is no contact with the piping or mating flanges. Note that disc interference may result when valves are installed in pipelines having smaller than normal inside diameters, such as heavy wall pipe, plastic-lined pipe, as-cast flanges or reducing flanges. Interference can also occur when connecting directly to a swing check or silent check. Suitable corrective measures must be taken to remove these obstructions, such as taper boring the pipe, or installing a spacer or spool piece.
10. After proper operation is verified, flange bolts should then be tightened, using a star or crisscross pattern to evenly load the bolts, to the torque values shown below in table 1.
11. Pressurize piping to valve and inspect for leakage. If leakage is observed, tighten bolts using cross-over pattern, increasing torque until leak stops. Note that recommended torques are made without warranty. Installer must verify proper strength bolts for applications. Bolts should be clean and un-lubricated.

**Table 1 Recommended bolt torque**

| Size      | Ft-Lbs. |
|-----------|---------|
| 2" - 4"   | 36      |
| 5" - 8"   | 65      |
| 10" - 12" | 87      |
| 14" - 16" | 200     |
| 18" - 20" | 270     |

# Installation, Operation, & Maintenance - BV/BV-D Butterfly Valves

## Installation/General Cautions:

1. Class 250 cast iron and Class 300 steel flanges can not be used on these valves.
2. Rubber faced or mechanical flanges are not recommended.
3. BV/BV-D valves are not recommended for steam service.
4. To avoid damage to the seat from heat, valves should not be assembled to flanges when welding flanges into the piping system.
5. Valves should not be installed in areas where inspection is not possible.
6. Lever style valves are available up to 12", but depending on flow velocity and other factors, 8" and larger valves may require gear operator to fully close.
7. Ensure to fully open valves before a loop test of the piping system is carried out with line pressure of tested valves.
8. When valves need to be dismantled from pipes for maintenance or any other cause, ensure to thoroughly relieve the line pressure beforehand. Loosening piping bolts under line pressure is dangerous and can cause damage to the valve. Any residual fluid left inside the pipeline must be completely drained.

## MAINTENANCE

API BV/BV-D butterfly valves require only minimal regular maintenance. The following represents a preventive checklist:

1. Check (and adjust if necessary) that the valve is operating properly in the full closed and full open position.
2. Visually inspect the valve and around the valve for any signs of leakage.
3. Visually inspect bolts, piping, wiring, and any other related equipment for problems that could hinder operation (such as loosening or corrosion).

## OTHER NOTES

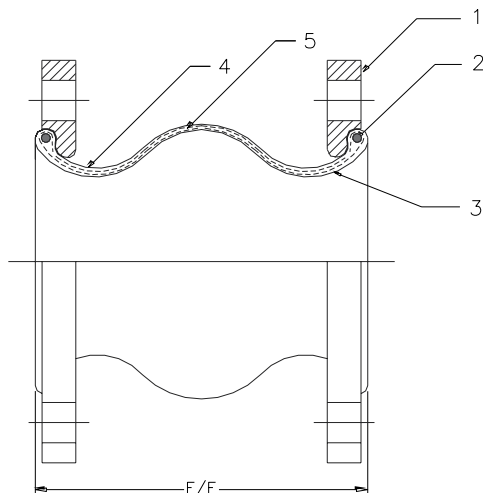
API BV/BV-D valves come equipped with grease/zerk fittings for easy injection of grease. For severe applications (where valve may be completely submerged), to prevent internal rusting, grease should be fully injected as follows:

1. Valve Body - Grease fitting is located on the neck of the valve. As received, the body does not contain grease. For severe applications, slowly apply grease through fitting until excess can be seen between the shaft and Teflon seat. If Teflon bushing begins to "blow" out, relieve excess pressure by removing grease fitting. Once pressure is relieved, push Teflon bushing back into valve, and re-install grease fitting.
2. Gear Operator - Grease/Zerk fitting is located on the side of the gear box. There is sufficient grease in the gear box for standard applications, however for severe applications, fill with lithium based grease either by removing top plate, or using grease fitting.





# Rubber Expansion Joints Installation Guide



# Installation Instructions - Series AMS/AMT Expansion Joints

## PREPARATION

- 1. Check Application Criteria.** Double-check the performance limits of the expansion joint against the anticipated operating conditions. Expansion joints should never be subjected to operating conditions beyond the temperature, pressure, and/or vacuum service recommendations of API International. If the total motions due to initial installation and the movements of pipelines during system operation exceed the published maximum allowable movement, then the pipeline should be altered to reduce the initial installation movements. Also, the line should be anchored to EJMA (Expansion Joint Manufacturers Association) specifications to limit the pipe movements that the expansion joint must absorb. For elevated temperatures (above 110° F), contact API Sales for maximum operating pressures.
- 2. Check Location.** Generally, the proper location of rubber expansion joints is installed close to a main anchor point. Following the joint in the line, a pipe guide, or series of guides, should be installed to keep the pipe aligned and prevent undue displacement (of the pipe). This is the simplest application of a joint, namely, to absorb the expansion and contraction of a pipeline between fixed anchor points.
- 3. Check Expansion Joint.** Check the interior, exterior, and flange faces for damage or cracks prior to placing into service. The cover is designed to keep harmful material from penetrating the carcass of the joint.
- 4. Check Alignment.** Piping should be lined up within a maximum of  $\pm (1/8")$ . If piping offset is greater than  $1/8"$ , and can not be corrected, a special offset joint should be designed and used for the application.
- 5. Check Support.** Piping must be supported by hangers or anchors, so that its weight is not carried by the expansion joint.
- 6. Check Flanges.** Be sure that companion flanges to be mated with the flanges of the expansion joint are clean. Used parts should be carefully examined for reasonable smoothness, and any adhering particles of old gasketing or other foreign material should be scraped off, taking care not to gouge or mutilate the flange surface. When attaching beaded end flange expansion joints to raised face flanges, the use of ring gaskets are required to prevent metal flange faces from cutting the rubber bead during installation.

Note: Never install expansion joints next to wafer type check or butterfly valves. Serious damage to the rubber flange bead can result due to the lack of flange mating surface and/or bolt connection.

*WARNING: Expansion joints may operate in pipelines or equipment carrying fluids and/or gases at elevated temperatures and pressures and may transport hazardous materials. Precaution should be taken to periodically inspect the joints and protect personnel in the event of leakage or splash. Rubber expansion joints should not be installed in areas where inspection is not possible.*

Note: Some of this information has been replicated from the "Fluid Sealing Association Handbook" on Non-Metallic Expansion Joints.

# Installation Instructions - Series AMS/AMT Expansion Joints

## INSTALLATION

1. **Apply Lubricant.** Rubber expansion joints face flanges may be painted with a solution of graphite in water or glycerin to prevent adherence of joint to pipe flanges. Petroleum lubricants should not be used.
2. **Insert Expansion Joints into Position.** Do not use gaskets for AMS/AMT series. Care must be taken when pushing the joint into the breach between the mating flanges so as not to roll the leading edge of the joint out of its flange groove. Do not bolt directly to another component with an elastomeric face or to a specialty flange without inserting a solid full face metallic gasket.
3. **Insert Bolts.** Bolts should be inserted from the arch side (so that bolt heads are adjacent to arch) to ensure that bolts do not interfere with arch during periods of compression.
4. **Tighten Bolts.** Tighten all bolts gradually and equally by alternating around the flange in a diagonal manner to the recommended torque values listed below. If a water tight seal is not achieved after initial tightening, slightly tighten nuts until leak is sealed. Do not over tighten to the point where there is metal to metal contact between the rotating flange and the pipe flange. Check bolt tightness at least one week after system is started up and periodically thereafter. As any rubber-like material takes a “set” after a period of compression, the bolts may loosen and result in a broken seal. In a hot and cold water system, the bolts should be checked before changing from one medium to another.

### RECOMMENDED BOLTING TORQUE (AMS/AMT Series):

Sizes: 1” thru 2” - 45 ft-lb.      2-1/2” thru 8” - 60 ft-lb.      10” thru 20” - 80 ft-lb.

5. **Control Rods.** For piping systems that are not anchored, control rods must be used. Control rods are always recommended as a safety precaution (even when system is properly anchored and guided).
6. **Additional Tips.**
  - Insulation over a non-metallic rubber expansion joint is not recommended; however, if the insulation is required, it should be made removable to permit easy access to the flange area, to check bolting.
  - Do not weld in the vicinity of a non-metallic expansion joint.
  - If the expansion joint is to be installed outdoors, appropriate outer cover material must be used to withstand the ozone, sunlight...etc.

*WARNING: Expansion joints may operate in pipelines or equipment carrying fluids and/or gases at elevated temperatures and pressures and may transport hazardous materials. Precaution should be taken to periodically inspect the joints and protect personnel in the event of leakage or splash. Rubber expansion joints should not be installed in areas where inspection is not possible.*

Note: Some of this information has been replicated from the “Fluid Sealing Association Handbook” on Non-Metallic Expansion Joints.



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