



PIPE CLAMPS & FLANGES

INTRODUCTION

Clamping of pipes in installations is required for purposes of damping vibrations, providing support to the installation and preventing loosening of joints and welds.

The traditional method of clamping pipes was to use 'U' bolts. While providing support, "U" bolts cannot damp vibrations which leads to loosening of joints. This problem became especially acute where the location of the 'U' bolt was at the node of vibration in the system.

TMI Pipe Clamps, with their unique 4-rib construction design, prevent the transmission of vibrations from the pipe to the frame and vice versa. They also provide rigid support to the pipe both in the lateral and longitudinal directions, relieving stresses caused by unequal movements in the pipeline. Clamp material differs to suit relatively cold conditions to high temperatures upto 550° C.

Piping installations can be rigidly and safely mounted without any vibration transmissal with the use of these type of clamps. High-impact forces encountered in rolling mills, gun installations, military equipment, ships and other such applications are damped and not transmitted. The rigidity provided by these clamps and the choice of the clamp material prevents the loosening of joints and consequent leakages in the system.

STANDARD DUTY PIPE CLAMPS



Standard Duty Pipe Clamps are used in installations having average loading with relatively light vibration in the system. These types of pipe clamps are ideal for machine tool applications and in instrumentation piping.

The clamps may be used without the top plate for reasons of economy in equipment with very low or no vibrations. Where relatively light to moderate vibrations are encountered, the clamps may be used with a top plate for additional support.

Standard Duty Pipe Clamps are also available for mounting on channels with 'T'nuts. Channels are available in lengths of 1/2 meter and are useful for multiple clamping on a single base. They also allow flexibility of clamping where the pitch between the pipes is uneven. Channel-mounted Pipe Clamps may be used with or without the top plate, depending upon the application.

Standard Duty Pipe Clamps are only available for pipe sizes up to 2" or 50 mm OD.

HEAVY DUTY PIPE CLAMPS

Heavy Duty Pipe Clamps are used in installations where heavy pipes and high vibrations are encountered. They are invariably used for trench layout of pipes and in open-weather conditions.

Heavy Duty Pipe Clamps are available with weld plate mounting for all sizes and channel mounting with special "T" nuts for pipe sizes up to 1" or 38 mm OD. Channels are available in lengths of 1/2 meter and are economical for multiple mounting on single channel.

Both weld plate and channel mounting designs are available only with top plate in view of the heavy vibration and loading encountered where there are used.

Heavy Duty Clamps with polypropylene bodies are available for pipe size up to 8" or 222 mm OD in the current program.

Heavy Duty Pipe Clamps are also available in vertical mounting arrangement or horizontal multi-clamp arrangement either back to back or run.



Both Standard Duty and Heavy Duty pipe clamps are also available in other mounting forms for compact and efficient piping where the installation has multiple lines stacked vertically or horizontally. They may be used in horizontal back to back mounting where excessive loads and vibration are encountered.

VARIOUS INSTALLATIONS

VERTICAL MOUNTING



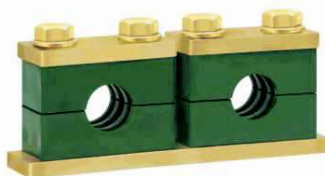
TMI multi-level clamps permit easy mounting of several tubes or pipes of the same group. This is also possible in the event of varying size diameters. The clamps are connected by intermediate bolts and plates. Available in both standard and heavy duty series also in kit form to convert a single clamp using into a dual or multiple one.

HORIZONTAL MULTIPLE MOUNTING

Standard duty



Heavy duty



Various sizes of pipe clamps can be provided on a single weld plate where there is continuous demand. Twin Pipe Clamp Assembly is popular for clamping two pipes on a single weld plate. Such installations provide inter-pipe rigidity.

HORIZONTAL BACK-TO-BACK MOUNTING



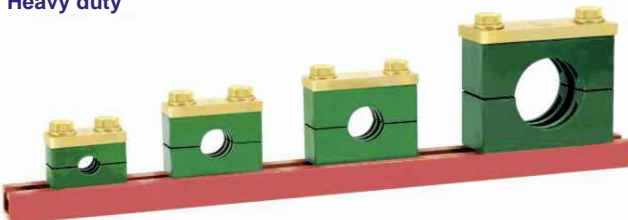
Horizontal Back-to-Back Assembly Permits use of Single Heavy Duty Pipe Clamp Assemblies in locations of extreme vibration and heavy loads where two or more assemblies are mounted on single weld plate.

CHANNEL MOUNTING WITH OR WITHOUT TOP PLATE

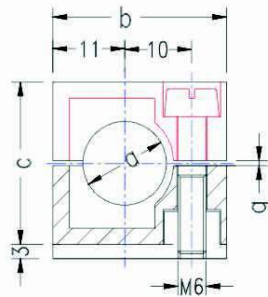
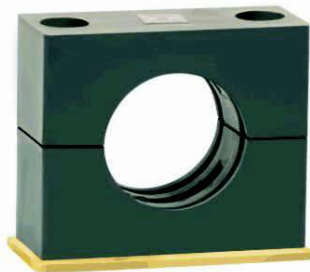
Standard duty



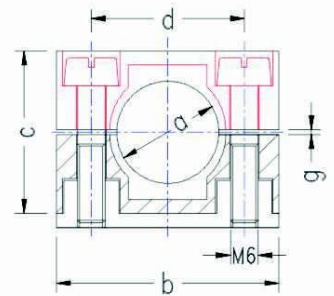
Heavy duty



ASSEMBLY WITH WELD PLATE & SCREWS

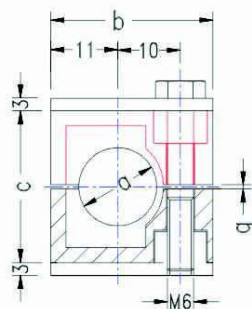


Group 1 only

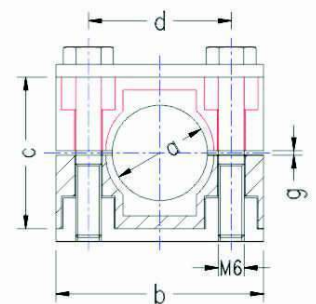


Group 1A to 6

ASSEMBLY WITH WELD PLATE TOP PLATE, & HEX. BOLTS

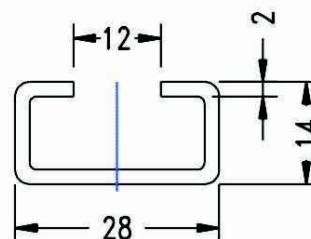


Group 1 only

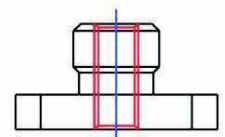


Group 1A to 6

CHANNEL MOUNTING RAIL



'T' Nut



REFERENCE-DIN3015 PART-1

| GROUP | PIPE SIZE (a) | | | b | c | d | g | t | ASSEMBLY WITH SCREWS PART NO. | TOP PLATE AND HEX BOLTS ASSY.PART NO. |
|-------|---------------|---------|---------|-----|-----|-----|-----|---|-------------------------------|---------------------------------------|
| | MM OD | INCH OD | INCH NB | | | | | | | |
| 0S | 6 | 1/4 | | 28 | 26 | - | 1 | 3 | TOS. 06 ... | T1S.1.06 ... |
| | 8 | | | | | | | | TOS. 08 ... | T1S.1.08 ... |
| | 10 | 3/8 | 1/8 | | | | | | TOS. 10 ... | T1S.1.10 ... |
| 1S | 6 | 1/4 | | 34 | 26 | 20 | 1.3 | 3 | TOS. 06 ... | T1S.1.06 ... |
| | 8 | | | | | | | | TOS. 08 ... | T1S.1.08 ... |
| | 10 | 3/8 | 1/8 | | | | | | TOS. 10 ... | T1S.1.10 ... |
| 2S | 12 | 1/2 | | 40 | 33 | 26 | 1 | 3 | TOS. 12 ... | T2S.1.12 ... |
| | 14 | | 1/4 | | | | | | TOS. 14 ... | T2S.1.14 ... |
| | 15 | | | | | | | | TOS. 15 ... | T2S.1.15 ... |
| | 16 | 5/8 | 3/8 | | | | | | TOS. 16 ... | T2S.1.16 ... |
| | 18 | | | | | | | | TOS. 18 ... | T2S.1.18 ... |
| 3S | 19 | 3/4 | | 48 | 35 | 33 | 1 | 3 | TOS. 19 ... | T3S.1.19 ... |
| | 20 | | | | | | | | TOS. 20 ... | T3S.1.20 ... |
| | 22 | 7/8 | 1/2 | | | | | | TOS. 22 ... | T3S.1.22 ... |
| | 25 | 1 | | | | | | | TOS. 25 ... | T3S.1.25 ... |
| 4S | 28 | | 3/4 | 57 | 42 | 40 | 2 | 3 | TOS. 28 ... | T4S.1.28 ... |
| | 30 | | | | | | | | TOS. 30 ... | T4S.1.30 ... |
| 5S | 32 | 1.1/4 | | 70 | 60 | 52 | 2 | 3 | TOS. 32 ... | T5S.1.32 ... |
| | 35 | | 1 | | | | | | TOS. 35 ... | T5S.1.35 ... |
| | 38 | 1.1/2 | | | | | | | TOS. 38 ... | T5S.1.38 ... |
| | 42 | | 1.1/4 | | | | | | TOS. 42 ... | T5S.1.42 ... |
| 6S | 44.5 | 1.3/4 | 1.1/2 | 86 | 69 | 66 | 3 | 3 | TOS. 44.5 ... | T6S.1.44.5 ... |
| | 48 | | | | | | | | TOS. 48 ... | T6S.1.48 ... |
| | 50 | 2 | | | | | | | TOS. 50 ... | T6S.1.50 ... |
| 7S | 57 | 2.1/4 | | 122 | 93 | 94 | 1.8 | 5 | TOS. 57 ... | T7S.1.57 ... |
| | 60 | | 2 | | | | | | TOS. 60 ... | T7S.1.60 ... |
| | 63 | 2.1/2 | | | | | | | TOS. 63 ... | T7S.1.63 ... |
| | 70 | 2.3/4 | | | | | | | TOS. 70 ... | T7S.1.70 ... |
| | 73 | | 2.1/2 | | | | | | TOS. 73 ... | T7S.1.73 ... |
| | 76 | 3 | | | | | | | TOS. 76 ... | T7S.1.76 ... |
| 8S | 90 | 3.1/2 | 3 | 148 | 118 | 120 | 1.8 | 5 | TOS. 90 ... | T8S.1.90 ... |
| | 101 | 4 | 3.1/2 | | | | | | TOS. 101 ... | T8S.1.101 ... |

HOW TO ORDER

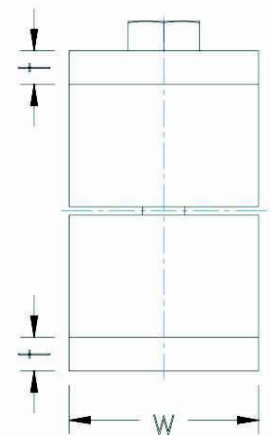
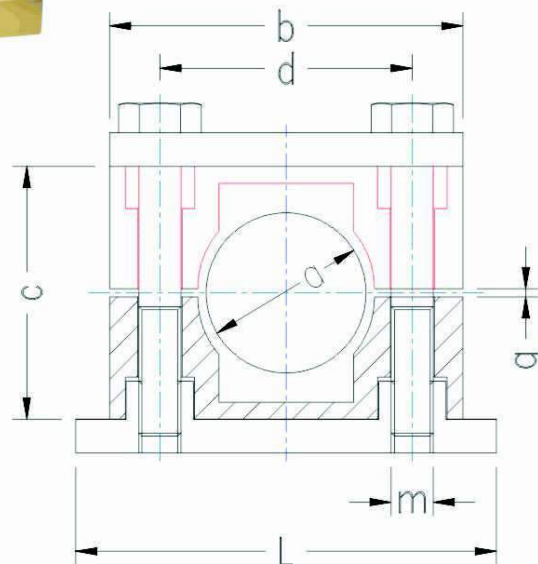
(A) For Single Clamps Assembly and Vertical Mounting Kit

Pipe Clamp Assembly P
 Vertical Mounting Kit MKP
 Group Number 0S,1S,...
 For Assembly with Screws: No Symbol
 For Assembly with Top Plate and Hex Bolts : 1
 Vertical Mounting Kit No Symbol
 OD of Pipe / Tube : in mm
 For weld plate mounting No Symbol
 For Channel mounting with 'T' Nut CH
 Vertical Mounting Kit No Symbol
 Material
 Polypropelene : NO SYMBOL
 Polyamide UL : PA
 Aluminium Al Si I2 : ALU

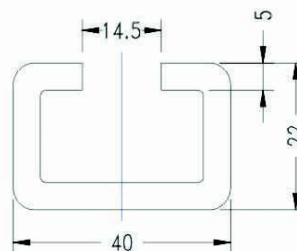
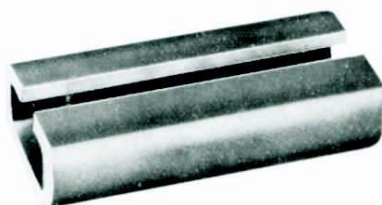
(B) For Multiple Clamps on Single Weld Plate

Number of Clamps :
 Vertical Mounting : V
 Horizontal Back-to-Back : HB
 Horizontal Side-to-Side : HR
 Pipe Clamp Assembly.
 Group Number 0S,1S,...
 Multiple Clamps : Are always ordered with Top Plate and Hex Bolts
 Outside Diameter for Pipe / Tube in their order :
 (a) For Vertical Mounting : Starting from Weld Plate up
 (b) For Horizontal Mounting : Starting from left to right
 Material
 Polypropelene : NO SYMBOL
 Polyamide UL : PA
 Aluminium Al Si I2 : ALU

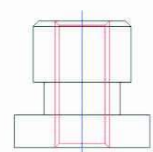
ASSEMBLY WITH WELD PLATE, TOP PLATE, & HEX. BOLTS



CHANNEL MOUNTING RAIL



'T' Nut



REFERENCE-DIN3015 PART-1

| GROUP | PIPE SIZE (a) | | | b | c | w | L | t | d | m | g | TOP PLATE AND HEX BOLTS ASSY.PART NO. | WT./PIECE IN KG. |
|-------|---------------|------------|------------|-----|-----|-----|-----|----|------|-----|---|---|---------------------|
| | MM OD | INCH OD | INCH NB | | | | | | | | | | |
| 1H | 6 | 1/4 | | 55 | 32 | 30 | 73 | 8 | 33 | M10 | 2 | T1H.1.06 ... | 0.35 |
| | 8 | | | | | | | | | | | T1H.1.08 ... | |
| | 10 | 3/8 | 1/8 | | | | | | | | | T1H.1.10 ... | |
| | 12 | 1/2 | | | | | | | | | | T1H.1.12 ... | |
| | 14 | | 1/4 | | | | | | | | | T1H.1.14 ... | |
| | 15 | | | | | | | | | | | T1H.1.15 ... | |
| | 16 | 5/8 | 3/8 | | | | | | | | | T1H.1.16 ... | |
| | 18 | | | | | | | | | | | T1H.1.18 ... | |
| 2H | 19 | 3/4 | | 70 | 48 | 30 | 85 | 8 | 45 | M10 | 2 | T2H.1.19 ... | 0.46 |
| | 20 | | | | | | | | | | | T2H.1.20 ... | |
| | 22 | 7/8 | 1/2 | | | | | | | | | T2H.1.22 ... | |
| | 25 | 1 | | | | | | | | | | T2H.1.25 ... | |
| | 28 | | 3/4 | | | | | | | | | T2H.1.28 ... | |
| 3H | 30 | 1.1/4 | | 84 | 60 | 30 | 100 | 8 | 60 | M10 | 2 | T3H.1.30 ... | 0.53 |
| | 35 | | 1 | | | | | | | | | T3H.1.35 ... | |
| | 38 | 1.1/2 | | | | | | | | | | T3H.1.38 ... | |
| | 42 | | 1.1/4 | | | | | | | | | T3H.1.42 ... | |
| 4H | 50 | 2 | 1.1/2 | 115 | 90 | 45 | 140 | 10 | 90.5 | M12 | 3 | T4H.1.50 ... | 1.80 |
| | 60 | | 2 | | | | | | | | | T4H.1.60 ... | |
| | 63 | 2.1/2 | | | | | | | | | | T4H.1.63 ... | |
| | 65 | | | | | | | | | | | T4H.1.65 ... | |
| 5H | 70 | | | 152 | 120 | 60 | 180 | 10 | 122 | M16 | 3 | T5H.1.70 ... | 3.00 |
| | 73 | | 2.1/2 | | | | | | | | | T5H.1.73 ... | |
| | 76 | 3 | | | | | | | | | | T5H.1.76 ... | |
| | 89 | 3.1/2 | 3 | | | | | | | | | T5H.1.89 ... | |
| | 90 | | | | | | | | | | | T5H.1.90 ... | |
| 6H | 101 | 4 | 3.1/2 | 205 | 170 | 80 | 225 | 15 | 168 | M20 | 4 | T6H.1.101 ... | 8.00 |
| | 114 | 4.1/2 | 4 | | | | | | | | | T6H.1.114 ... | |
| | 127 | 5 | 4.1/2 | | | | | | | | | T6H.1.127 ... | |
| 7H | 141 | 5.1/2 | 5 | 250 | 200 | 90 | 270 | 15 | 205 | M24 | 4 | T7H.1.141 ... | 11.00 |
| | 150 | 6 | | | | | | | | | | T7H.1.150 ... | |
| | 168 | 6.1/2 | 6 | | | | | | | | | T7H.1.168 ... | |
| 8H | 219 | 8.1/2 | 8 | 330 | 270 | 120 | 340 | 25 | 268 | M30 | 4 | T8H.1.219 ... | 24.00 |

HOW TO ORDER

(A) For Single Clamp Assembly and vertical Mounting Kit


Pipe Clamp Assembly P
 Vertical Mounting Kit MKP
 Group Number 1H,2H,...
 Pipe Clamp Assembly,
 With Top Plate & Hex Bolts 1
 Vertical Mounting kit No Symbol
 OD of Pipe / Tube : in mm.
 PIPE CLAMP ASSY.
 With Weld Plate No. Symbol.
 With 'T'-Nuts For Channel Mounting CH
 (For Group 1H To 3H Only.)
 Vertical Mounting Kit No Symbol.
 MATERIAL OF CLAMP BODY
 Polypropylene : NO SYMBOL
 Polyamide UL : PA
 Aluminium Al Si I2 : ALU

(B) For Multiple Clamps on Single Weld Plate

Number of Clamps :
 Vertical Mounting : V
 Horizontal Back-to-Back : HB
 Horizontal Side-to-Side : HR
 Pipe Clamps Assembly
 Group Number 1H, 2H,...
 Heavy Duty Pipe Clamps Always
 Available With Top Plate And Hex Bolts.
 Outside Diameter for Pipe / Tube in their order :
 (a) For Vertical Mounting : Starting from Weld Plate up
 (b) For Horizontal Mounting : Starting from left to right
 Material
 Polypropylene : NO SYMBOL
 Polyamide UL : PA
 Aluminium Al Si I2 : ALU

HOW TO ORDER

WELD PLATE



WP - • - • - •

Designation of Weld Plate

Group 1S To 8S and 1H To 8H

OD of Pipe in MM

Material CS SS 304 No symbol S

TOP PLATE



TP - • - • - •


Designation of Top Plate

Group 1S To 8S and 1H To 8H

OD of Pipe in MM

Material CS SS 304 No symbol S

CLAMP BODY



b - • - • - •


Designation of Clamp Body

Group 1S To 8S and 1H To 8H

OD of Pipe in MM

Material Polypropylene Polyimide Aluminum No symbol PP AI

CHANNEL



CH - • - • - •


Designation of Channel

Group 1S To 8S and 1H To 8H

OD of Pipe in MM

Material CS SS 304 No symbol S

INTERMEDIATE PLATE



IP - • - • - •


Designation of Intermediate Plate

Group 1S To 8S and 1H To 8H

OD of Pipe in MM

Material CS SS 304 No symbol S

INTERMEDIATE BOLT



IB - • - • - •


Designation of Intermediate Bolt

Group 1S To 8S and 1H To 8H

OD of Pipe in MM

Material CS SS 304 No symbol S

'T' NUT



T - • - • - •

Designation of 'T' Nut

Group 1S To 8S and 1H To 8H

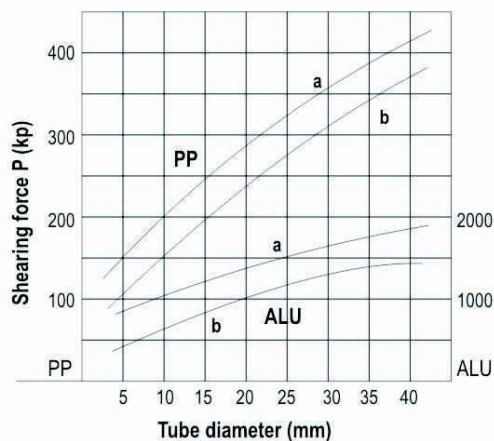
OD of Pipe in MM

Material CS SS 304 No symbol S

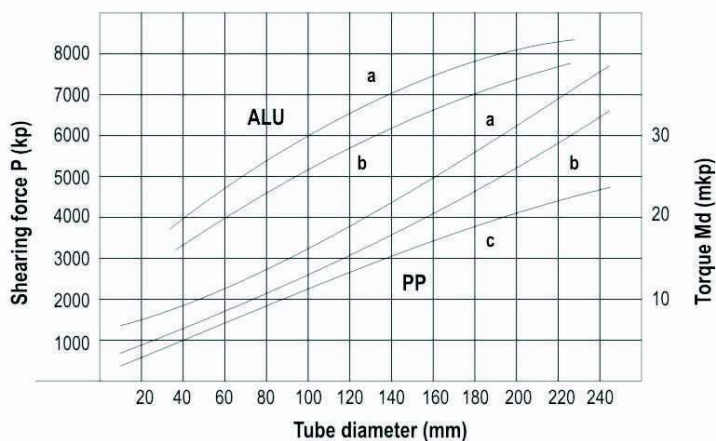
SHEARING FORCES DIAGRAM

The design of Pipe Clamps, and the choice of Standard or Heavy Duty Pipe Clamps body material, vary according to the loading, the shearing forces and the torque so as to provide for rigid installation. Shearing forces diagram for various tube sizes are given below for Standard and Heavy Duty Pipe Clamps for polypropylene, polyamide and aluminum. These graphs may be used for guidance in selection of clamps.

**STANDARD SERIES
WITH TOP PLATE AND HEX. BOLTS**



HEAVY SERIES

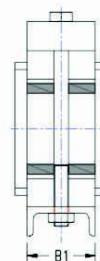
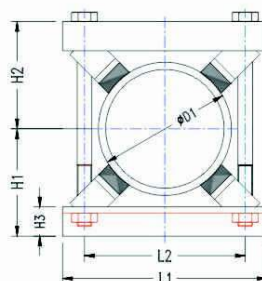


MATERIAL

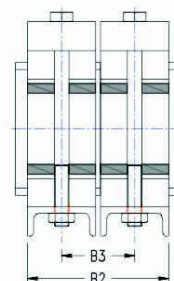
Pipe Clamps in bodies of polypropylene are suitable for temperatures upto 90 degrees C. For higher Temperatures and heavy ratings, Pipe Clamp bodies are made with polyamide. Where temperatures are in excess of 180 degrees C., these bodies are made from aluminium. Properties of the clamp body materials are given in the chart below :

| Clamp Body Material Properties | Polypropylene PP Density : 0.906 gm/cm ³ | Polyamide -Nylone 66 Density : 1.12 - 15g/cm ³ | Aluminium - LM 6 IS : 733-1983 Density : 2.65gm./cm ³ |
|---|--|--|--|
| Mechanical Properties | | | |
| Tensile Yield Stress Flexural Modules | ASTM D 638 ASTM D 790 | 370 Kg/Cm ² 16.000Kg/Cm ² | 750 Kg/Cm ² |
| Izod Impact Strength Hardness | ASTM 0 256 | 7.5 Kg.cm./cm R70 | 4.5 Kg.cm./cm R120 |
| Thermal Properties | | | |
| Melting Point Vicat Softening Point Maxm. Temp. Resistance | 160°C 150°C -30°C to +90°C | 160°C 150°C -30°C to +90°C | 3,300 Kg/Cm ² Yeild 3,100 Kg/Cm ² @ 12% Elongation to 400°C |
| Chemical Properties | | | |
| Weak Acids, Solvents Benzene, mineral oils Alcohol, Other oils, sea water | cond. consistent cond. consistent consistent | cond. consistent cond. consistent consistent | |
| Suggested mfs Spec. | IPCL KOYLENE M3030 | GSFC GUJLCON M28RC | HINDALCO 6443 WP |

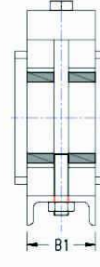
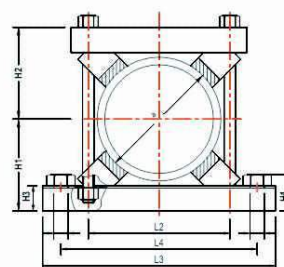
TWO-PART WELD-CONSTRUCTION WITH POLYPROPYLENE OR POLYIMIDE BEARING PADS



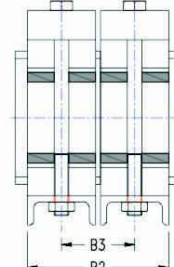
SC



DSC



SCA



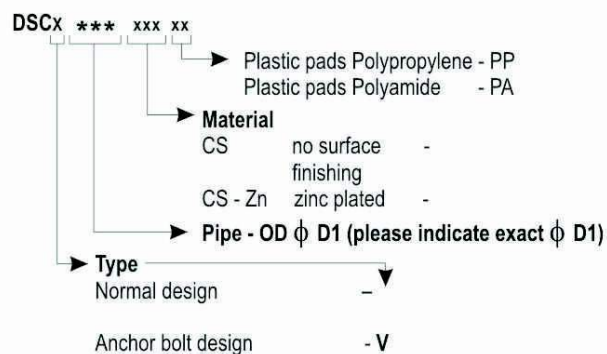
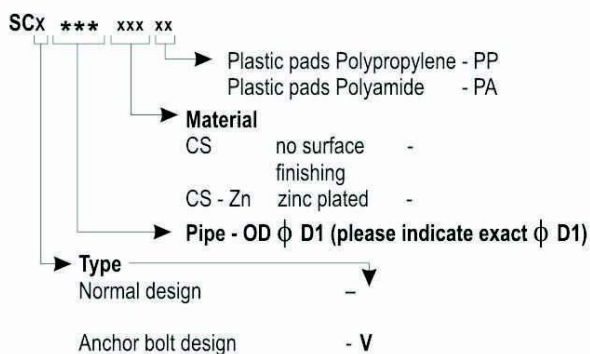
DSCA

(For anchor bolt fastening)

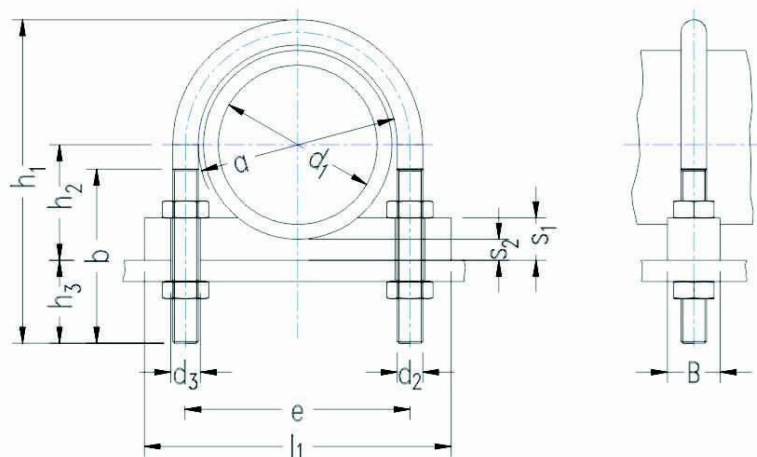
DIMENSIONAL CHART FOR SINGLE / DOUBLE PIPE CLAMP ASSY.

| Pipe - OD D1 | L1 | L2 | L3 | L4 | H1 | H2 | H3 | H4 | B1 | B2 | B3 | D2 | Hexagon Head Bolt | Number of plastic pads |
|-----------------|-----|-----|------|------|-----|-----|----|----|-----|-----|-----|----|----------------------|------------------------------|
| 220 to 275 | 420 | 330 | 580 | 490 | 220 | 220 | 60 | 90 | 140 | 280 | 140 | 35 | M30 x 420 | 4 |
| 276 to 325 | 460 | 370 | 620 | 530 | 240 | 240 | 60 | 90 | 140 | 280 | 140 | 35 | M30 x 460 | 4 |
| 326 to 370 | 510 | 420 | 670 | 580 | 260 | 260 | 60 | 90 | 140 | 280 | 140 | 35 | M30 x 500 | 4 |
| 371 to 425 | 570 | 480 | 750 | 640 | 290 | 290 | 60 | 90 | 140 | 280 | 140 | 35 | M30 x 560 | 4 |
| 426 to 485 | 620 | 530 | 800 | 730 | 305 | 305 | 60 | 90 | 140 | 280 | 140 | 35 | M30 x 590 | 4 |
| 486 to 550 | 680 | 590 | 860 | 790 | 370 | 370 | 60 | 90 | 140 | 280 | 140 | 35 | M30 x 720 | 5 |
| 551 to 630 | 760 | 670 | 940 | 870 | 410 | 410 | 60 | 90 | 140 | 280 | 140 | 35 | M30 x 800 | 5 |
| 631 to 715 | 845 | 755 | 1025 | 955 | 452 | 452 | 60 | 90 | 140 | 280 | 140 | 35 | M30 x 884 | 5 |
| 716 to 800 | 940 | 850 | 1120 | 1050 | 495 | 495 | 60 | 90 | 140 | 280 | 140 | 35 | M30 x 970 | 5 |

HOW TO ORDER



Round Steel "U" Bolt clamps (UB) with Long Pipe Saddle - Type PSL



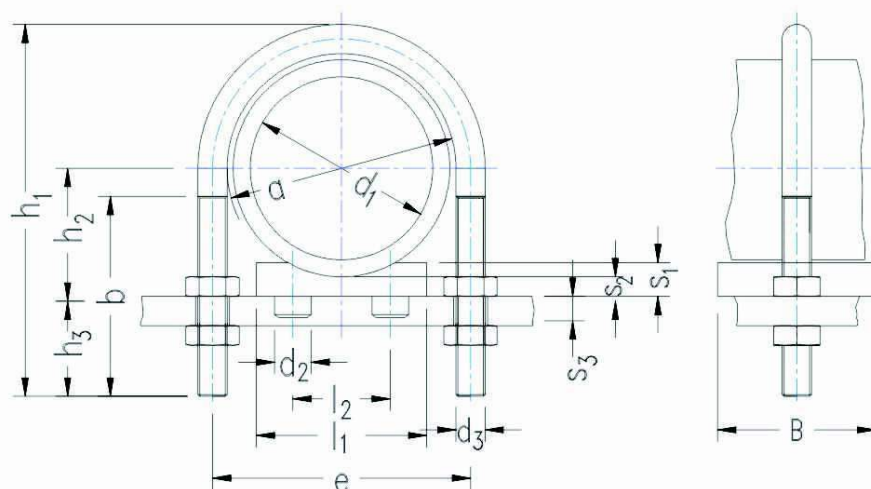
| PIPE | | | Round Steel U-Bolt RB | | | | | | | Pipe saddle, Type PSL | | | | |
|------|---------|-------|-----------------------|-----|-----|-----|-------|-------|----------------|-----------------------|----|----|----|-------|
| DN | d1 | | a | b | d3 | e | h1 | h2 | h ₃ | l1 | B | S1 | S2 | d2 |
| | Inch-NB | MM-OD | | | | | | | | | | | | |
| 20 | | 25 | 30 | 46 | M10 | 40 | 73.5 | 17.5 | 30 | 75 | 30 | 12 | 5 | 11 |
| | 3/4" | 26.9 | | | | | | 18.5 | | | | | | |
| 25 | | 30 | 38 | 50 | | 48 | 81 | 20 | | 80 | | | | |
| | 1" | 33.7 | | | | | | 22 | | | | | | |
| 32 | | 38 | 46 | 55 | | 56 | 89 | 24 | 90 | | | | | |
| | 1.1/4" | 42.4 | | | | | | 26.2 | | | | | | |
| 40 | | 44.5 | 52 | 63 | | 62 | 100 | 27.2 | 35 | 95 | 35 | 15 | 14 | |
| | 1.1/2" | 48.3 | | | | | | 29 | | | | | | |
| 50 | | 57 | 64 | 77 | M12 | 76 | 118 | 33.5 | 39 | 110 | 40 | 20 | 10 | 18 |
| | 2" | 60.3 | | | | | | 35.2 | | | | | | |
| 65 | 2.1/2" | 76.1 | 82 | 82 | | 94 | 135 | 43 | | 135 | | | | |
| 80 | 3" | 88.9 | 94 | 82 | 106 | 152 | 54.5 | 145 | 47 | 190 | 40 | 20 | 10 | 22 |
| 100 | | 108 | 120 | 105 | M16 | 136 | 190 | 64 | | | | | | |
| | 4" | 114.3 | | | | | | 67 | | | | | | |
| 125 | | 133 | 148 | 176 | 164 | 217 | 76.5 | 220 | | | | | | |
| | 5" | 139.7 | | | | | 80 | | | | | | | |
| 150 | | 159 | 202 | 228 | 192 | 247 | 91.5 | 250 | | | | | | |
| | 6" | 168.3 | | | | | 96 | | | | | | | |
| 175 | | 193.7 | 202 | 218 | 273 | 109 | 270 | 55 | 315 | 50 | 25 | 12 | 26 | |
| 200 | | 216 | 228 | 125 | M20 | 248 | 311 | | | | | | | 120 |
| | 8" | 219.1 | | | | | | | | | | | | 121.5 |
| 250 | | 267 | 282 | 332 | 302 | 364 | 145.5 | 370 | | | | | | |
| | 10" | 273 | | | | | 148.5 | | | | | | | |
| 300 | | 318 | 378 | 428 | 352 | 418 | 174 | 420 | | | | | | |
| | 12" | 323.9 | | | | | 177 | | | | | | | |
| 350 | | 355.6 | 378 | 428 | 402 | 475 | 193 | 480 | | | | | | |
| | 14" | 368 | | | | | 199 | | | | | | | |
| 400 | | 406 | 428 | 145 | M24 | 452 | 526 | 218 | 63 | 540 | 60 | 30 | 15 | 26 |
| | | 419 | | | | | | 224.5 | | | | | | |
| 500 | | 508 | 530 | | | 554 | 627 | 269 | | 640 | | | | |
| | | 521 | | | | | | 276 | | | | | | |

HOW TO ORDER

Round steel "U" Bolt Clamp, Type UB with 4 fixing nuts and polyamide plastic saddle PLS / PA, - Diameter d, ~~=**~~ mm

Example : 1 x UB ** / PSL-PA

Round Steel "U" Bolt clamps (UB) with short Pipe Saddle - Type PSS



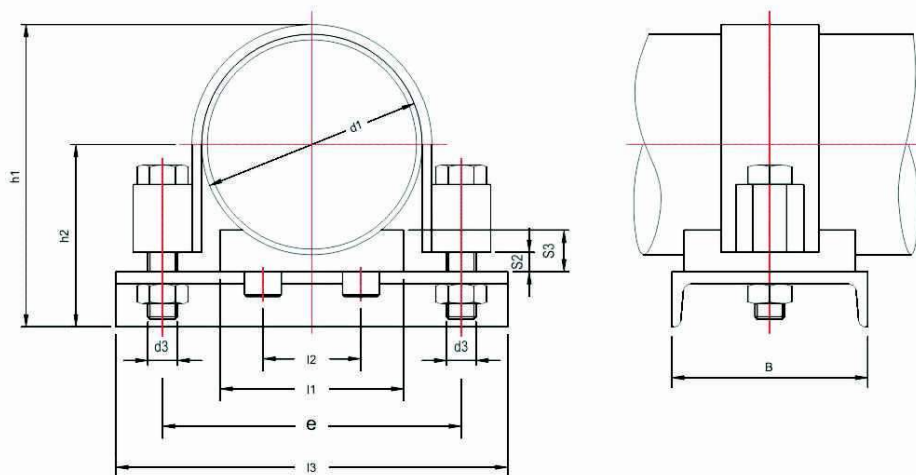
| | Pipe | | Round steel "U"-Bolt | | | | | | Pipe saddle, Type PSS | | | | | | | | | | | | | | | |
|-----|----------------|---------|----------------------|-----|----------------|-----|----------------|----------------|-----------------------|----------------|----------------|----|----------------|----------------|----------------|----------------|------|------|-------|----|----|----|---|----|
| DN | d ₁ | | a | b | d ₃ | e | h ₁ | h ₂ | h ₃ | l ₁ | l ₂ | B | S ₁ | S ₂ | S ₃ | d ₂ | | | | | | | | |
| | Inch - NB | MM - OD | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | 25 | 30 | 46 | M 10 | 40 | 73.5 | 17.5 | 30 | 24 | 25 | 35 | 8 | 5 | 5 | 8 | | | | | | | | |
| | 3/4" | 26.9 | | | | | | 18.5 | | | | | | | | | | | | | | | | |
| 25 | | 30 | 38 | 50 | | 48 | 81 | 20 | | | | | | | | | 22 | | | | | | | |
| | 1" | 33.7 | | | | | | 24 | | | | | | | | | | | | | | | | |
| 32 | | 38 | 46 | 55 | | | 62 | 100 | | | | | | | | | 26.2 | 27.2 | 29 | 38 | 50 | 10 | 6 | 10 |
| | 1.1/4" | 42.4 | | | | | | | | | | | | | | | 35.2 | | | | | | | |
| 40 | | 44.5 | 52 | 63 | M 12 | 76 | 118 | 33.5 | 39 | 75 | 40 | 70 | 14 | 8 | 10 | 25 | | | | | | | | |
| | 1.1/2" | 48.3 | | | | | | 35.2 | | | | | | | | | | | | | | | | |
| 50 | 2" | 60.3 | 64 | 77 | | | 94 | 135 | 43 | 41 | 140 | 90 | 23 | 8 | 10 | 25 | | | | | | | | |
| 65 | 2.1/2" | 76.1 | 82 | 82 | | 106 | 152 | 52.5 | 49 | 140 | | | | | | | 90 | 23 | 8 | 10 | 25 | | | |
| 80 | 3" | 88.9 | 94 | 82 | M 16 | 136 | 190 | 62 | 51 | | 75 | 40 | 70 | 14 | 8 | 10 | | | | | | 25 | | |
| 100 | | 108 | 120 | 105 | | | | 164 | | 217 | | | | | | | 65 | 74.5 | | | | | | |
| | 4" | 114.3 | | | | 78 | | | | | | | | | | | | | | | | | | |
| 125 | | 133 | 148 | 105 | | 192 | 247 | 87.5 | 92 | 59 | 140 | 90 | 75 | 30 | 8 | 10 | 25 | | | | | | | |
| | 5" | 139.7 | | | 105 | | | | | | | | | | | | | | | | | | | |
| 150 | | 159 | 176 | 125 | M 20 | 302 | 364 | 141.5 | 62 | 220 | 150 | 75 | 30 | 8 | 10 | 25 | | | | | | | | |
| 175 | | 168.3 | | | | | | 218 | | | | | | | | | 273 | 105 | 144.5 | | | | | |
| 200 | | 216 | 228 | 125 | M 20 | 352 | 418 | 167 | 70 | 220 | 150 | 75 | 30 | 8 | 10 | 25 | | | | | | | | |
| | | 219.1 | | | | | | 170 | | | | | | | | | | | | | | | | |
| 250 | | 267 | 282 | 145 | M 24 | 402 | 475 | 186 | 70 | 220 | 150 | 75 | 30 | 8 | 10 | 25 | | | | | | | | |
| | | 273 | | | | | | 192 | | | | | | | | | | | | | | | | |
| 300 | | 318 | 332 | 145 | M 24 | 452 | 526 | 211 | 70 | 220 | 150 | 75 | 30 | 8 | 10 | 25 | | | | | | | | |
| | | 323.9 | | | | | | 217.5 | | | | | | | | | | | | | | | | |
| 350 | | 355.6 | 378 | 145 | M 24 | 554 | 627 | 262 | 70 | 220 | 150 | 75 | 30 | 8 | 10 | 25 | | | | | | | | |
| | | 368 | | | | | | 269 | | | | | | | | | | | | | | | | |
| 400 | | 406 | 428 | 145 | M 24 | 554 | 627 | 262 | 70 | 220 | 150 | 75 | 30 | 8 | 10 | 25 | | | | | | | | |
| | | 419 | | | | | | 269 | | | | | | | | | | | | | | | | |
| 500 | | 508 | 530 | 145 | M 24 | 554 | 627 | 262 | 70 | 220 | 150 | 75 | 30 | 8 | 10 | 25 | | | | | | | | |
| | | 521 | | | | | | 269 | | | | | | | | | | | | | | | | |

HOW TO ORDER

Round steel "U" Bolt Clamp, Type UB with 4 fixing nuts and polypropylen plastic saddle PSS / PP - Diameter d₁ = **mm

Example : 1 x UB ** / PSS-PP

Flat steel strip "U" Bolt clamps with Polypropylene saddle - Type UF



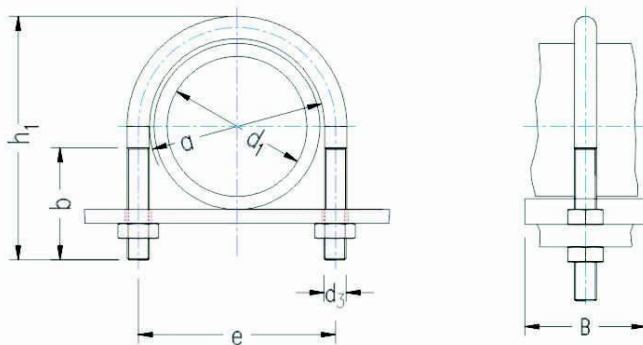
| Pipe | | | Flat steel "U" Bolt clamp, Type UF | | | | | Pipe saddle, Type PSS | | | | | U - Profile | | |
|------|----------------|---------|------------------------------------|----------------|-----|----------------|----------------|-----------------------|----------------|----|----------------|----------------|----------------------------|----------------|-----|
| DN | d ₁ | | Flat-steel | d ₃ | e | h ₁ | h ₂ | l ₁ | l ₂ | B | S ₁ | S ₂ | U-section acc. to DIN 1026 | l ₃ | |
| | Inch - NB | MM - OD | | | | | | | | | | | | | |
| 40 | 1.1/2 | 48.3 | 20 x 3 | M 10 x 40 | 76 | 95 | 67 | 24 | 38 | 25 | 35 | 8 | 5 | 50 x 38 | 100 |
| 50 | 2 | 57 | | | 85 | 103 | 71.5 | 50 | | | 10 | 115 | | | |
| | | 60.3 | | | 88 | 106 | 73.2 | | | | | | | | |
| 65 | 2.1/2 | 76.1 | | | 104 | 122 | 81 | | | | | | | | |
| 80 | 3 | 88.9 | 40 x 4 | M 12 x 55 | 122 | 146 | 97.5 | 75 | 40 | 70 | 14 | 8 | 80 x 45 | 160 | |
| 100 | 4 | 108 | | | 140 | 165 | 107 | | | | | | | 210 | |
| | | 114.3 | | | 147 | 171 | 110 | | | | | | | | |
| 125 | 5 | 133 | | | 165 | 190 | 119.5 | | | | | | | 265 | |
| | | 139.7 | | | 172 | 197 | 123 | | | | | | | | |
| 150 | 6 | 159 | 40 x 6 | M 16 x 75 | 201 | 220 | 132.5 | 140 | 90 | 23 | 8 | 100 x 50 | 275 | | |
| 175 | 8 | 168.3 | | | 211 | 230 | 137 | | | | | | 440 | | |
| | | 193.7 | | | 236 | 255 | 150 | | | | | | | | |
| 200 | 10 | 216 | | | 260 | 277 | 161 | | | | | | 450 | | |
| | | 219.1 | | | 261 | 280 | 162.5 | | | | | | | | |
| 250 | 12 | 267 | 40 x 8 | M 16 x 75 | 325 | 328 | 186.5 | 220 | 150 | 30 | 8 | 100 x 50 | 550 | | |
| 300 | 14 | 273 | | | 330 | 334 | 189.5 | | | | | | 585 | | |
| | | 318 | | | 375 | 384 | 212 | | | | | | | | |
| 350 | 16 | 355.6 | | | 382 | 390 | 215 | | | | | | | | |
| 400 | 18 | 368 | 60 x 8 | M 24 x 100 | 420 | 421 | 236 | 220 | 150 | 75 | 30 | 8 | 100 x 50 | 640 | |
| | | 406.4 | | | 430 | 434 | 242 | | | | | | | 630 | |
| | | 419 | | | 470 | 472 | 261 | | | | | | | | |
| 500 | 20 | 457 | | | 482 | 485 | 267.5 | | | | | | | 640 | |
| | | 508 | | | 520 | 523 | 286.5 | | | | | | | | |
| | | 521 | | | 570 | 574 | 312 | | | | | | | | |

HOW TO ORDER

Round steel "U" Bolt Clamp, Type UF with 4 fixing nuts and polyamid plastic saddle PSS / PA, - Diameter d₁ = ** mm

Example : 1 x UF ** / PSS-PA

Type UBR "U" Bolt clamps to DIN 3570 Section A



| Pipe | | | "U" Bolt clamp, Type UBR | | | | |
|------|----------------|---------|--------------------------|----|----------------|-----|----------------|
| DN | d ₁ | | a | b | d ₃ | e | h ₁ |
| | Inch - NB | MM - OD | | | | | |
| 20 | | 25 | 30 | 40 | M 10 | 40 | 70 |
| | 3/4" | 26.9 | | | | 48 | 76 |
| 25 | | 30 | 38 | | | 56 | 86 |
| | 1" | 33.7 | | | | 62 | 92 |
| 32 | | 38 | 46 | 50 | M 12 | 76 | 109 |
| | 1.1/4" | 42.4 | | | | 94 | 125 |
| 40 | | 44.5 | 52 | | | 106 | 138 |
| | 1.1/2" | 48.3 | | | | 136 | 171 |
| 50 | | 57 | 64 | | M 16 | 164 | 191 |
| | 2" | 60.3 | | | | 192 | 217 |
| 65 | 2.1/2" | 76.1 | 82 | | | 218 | 249 |
| 80 | 3" | 88.9 | 94 | | | 248 | 283 |
| 100 | | 108 | 120 | 60 | M 20 | 302 | 334 |
| | 4" | 114.3 | | | | 352 | 385 |
| 125 | | 133 | 148 | | | 402 | 435 |
| | 5" | 139.7 | | | | 452 | 487 |
| 150 | | 159 | 176 | | M 24 | 554 | 589 |
| | 6" | 168.3 | | | | | |
| 175 | | 191 | 202 | | | | |
| | | 193.7 | | | | | |
| 200 | | 216 | 228 | 70 | | | |
| | | 219.1 | | | | | |
| 250 | | 267 | 282 | | | 302 | 334 |
| | | 273 | | | | 352 | 385 |
| 300 | | 318 | 332 | | 402 | 435 | |
| | | 323.9 | | | 452 | 487 | |
| 350 | | 355.6 | 378 | | | 554 | 589 |
| | | 368 | | | | | |
| 400 | | 406 | 428 | | | | |
| | | 419 | | | | | |
| 500 | | 508 | 530 | | | | |
| | | 521 | | | | | |

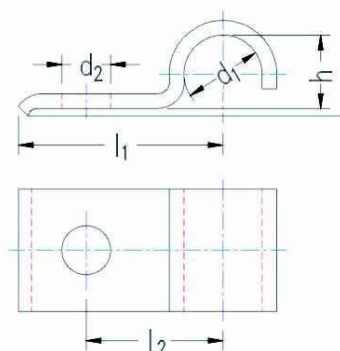
HOW TO ORDER

"U" Bolt Clamp, Type UBR to DIN 3570, Section "A" with 2 fixing nuts. - Diameter d₁ = ** mm

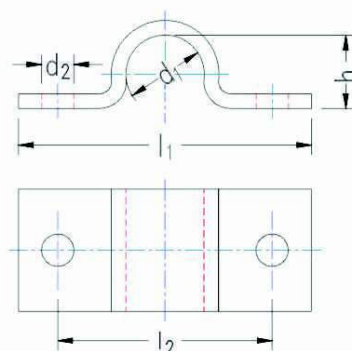
Example : 1 x UBR **

Heavy Series Steel Strip Saddles DIN 1592 & DIN 1593

DIN 1592



DIN 1593



| d_1 | Diameter range d_a | d_2 | h | l_1 | l_2 | Strip mm |
|-------|----------------------|-------|-----|-------|-------|----------|
| 7 | 5,5 - 7 | 6,6 | 5 | 22 | 14 | 16 x 2 |
| 9 | 7-9 | | 6 | 27 | 18 | 20 x 2 |
| 13 | 9,5 - 13 | 11 | 9 | 40 | 25 | 25 x 3 |
| 15,5 | 13 - 15,5 | | 12 | 41 | 26 | |
| 19 | 15,5 - 19 | | 15 | 43 | 28 | |
| 23 | 20 - 23 | 14 | 19 | 51 | 35 | 30 x 5 |
| 26 | 23 - 26 | | 22 | 52 | 36 | |
| 28,5 | 26 - 28,5 | | 24 | 53 | 37 | |
| 31 | 28,5 - 31 | | 27 | 55 | 39 | |
| 36 | 33 - 36 | 18 | 32 | 57 | 41 | 40 x 5 |
| 39 | 36 - 39 | | 34 | 59 | 43 | |
| 43 | 39 - 43 | | 38 | 68 | 48 | 40 x 8 |
| 46 | 43 - 46 | 18 | 41 | 70 | 50 | |
| 49 | 46 - 49 | | 44 | 73 | 53 | |
| 52 | 49 - 52 | | 47 | 76 | 56 | |
| 58 | 53 - 58 | | 52 | 78 | 58 | |
| 61 | 58 - 61 | | 57 | 80 | 60 | |

Material : Steel - Electro zinc plated finish
Stainless Steel - natural finish

HOW TO ORDER

Example : DIN 1592 **

** Diameter d_1

| d_1 | Diameter range d_a | d_2 | h | l_1 | l_2 | Strip mm |
|-------|----------------------|-------|-----|-------|-------|----------|
| 7 | 5,5 - 7 | 6,6 | 5 | 44 | 28 | 16 x 2 |
| 9 | 7 - 9 | | 6 | 48 | 32 | 20 x 2 |
| 13 | 9,5 - 13 | | 9 | 52 | 36 | |
| 15,5 | 13 - 15,5 | | 12 | 56 | 40 | |
| 19 | 15,5 - 19 | | 15 | 60 | 44 | 25 x 3 |
| 23 | 20 - 23 | 11 | 19 | 82 | 56 | |
| 26 | 23 - 26 | | 22 | 84 | 58 | |
| 28,5 | 26 - 28,5 | | 24 | 90 | 64 | |
| 31 | 28,5 - 31 | | 27 | 90 | 64 | |
| 36 | 33 - 36 | 14 | 32 | 106 | 80 | 30 x 5 |
| 39 | 36 - 39 | | 34 | 110 | 84 | |
| 43 | 39 - 43 | | 38 | 120 | 88 | |
| 46 | 43 - 46 | | 41 | 122 | 90 | 40 x 5 |
| 49 | 46 - 49 | | 44 | 122 | 90 | |
| 58 | 53 - 58 | 18 | 52 | 142 | 110 | |
| 61 | 58 - 61 | | 57 | 142 | 110 | |
| 71 | 67 - 71 | | 66 | 152 | 120 | |
| 77 | 73 - 77 | | 72 | 176 | 136 | |
| 81 | 77 - 81 | | 76 | 184 | 144 | 40 x 8 |
| 91 | 86 - 91 | 18 | 85 | 198 | 158 | |
| 103 | 99 - 103 | | 98 | 214 | 174 | |
| 109 | 105 - 109 | | 104 | 220 | 180 | |
| 115 | 110 - 115 | | 109 | 226 | 186 | |

Material : Steel - Electro zinc plated finish
Stainless Steel - natural finish

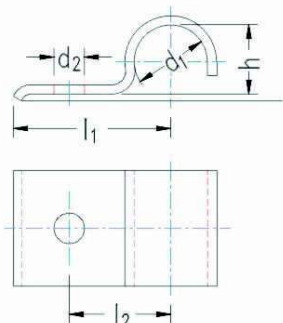
HOW TO ORDER

Example : DIN 1593 **

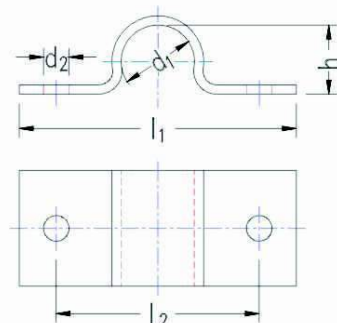
** Diameter d_1

Light Series Steel Strip Saddles DIN 1592 & DIN 1593

DIN 1593



DIN 1593



| d ₁ | Diameter range d _a | d ₂ | h | l ₁ | l ₂ | Strip mm |
|----------------|-------------------------------------|----------------|----|----------------|----------------|-------------|
| 7 | 5,5 - 7 | 6,6 | 5 | 26 | 14 | 16 x 2 |
| 9 | 7-9 | | 6 | 28 | 16 | |
| 13 | 9,5 - 13 | | 9 | 30 | 18 | 20 x 2 |
| 15,5 | 13 - 15,5 | | 12 | 32 | 20 | |
| 19 | 15,5 -19 | | 15 | 34 | 22 | |
| 23 | 20 - 23 | 9 | 19 | 43 | 28 | 25 x 3 |
| 26 | 23 - 26 | | 22 | 44 | 29 | |
| 28,5 | 26 - 28,5 | | 24 | 47 | 32 | |
| 31 | 28,5 - 31 | | 27 | | | |
| 33 | 31 - 33 | | 29 | 56 | 36 | |
| 36 | 33 - 36 | 11 | 32 | 57 | 40 | 30 x 3 |
| 39 | 36 - 39 | | 34 | 59 | 42 | |
| 43 | 39 - 43 | | 38 | 61 | 44 | |
| 46 | 43 - 46 | | 41 | 62 | 45 | |
| 49 | 46 - 49 | 14 | 44 | 67 | 48 | 40 x 4 |
| 52 | 49 - 52 | | 47 | 72 | 53 | |
| 58 | 53 - 58 | | 52 | 74 | 55 | |
| 61 | 58 - 61 | | 56 | 77 | 58 | |

Material : Steel - Electro zinc plated finish
Stainless Steel - natural finish

HOW TO ORDER

Example : DIN 1596 **

** Diameter d_1

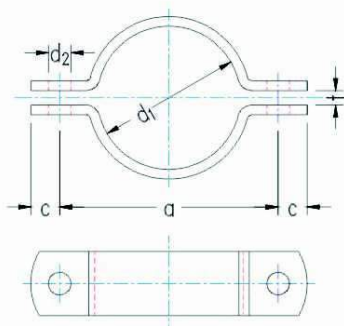
| d ₁ | Diameter range d _a | d ₂ | h | l ₁ | l ₂ | Strip mm |
|----------------|-------------------------------------|----------------|----|----------------|----------------|-------------|
| 7 | 5,5 - 7 | 5,5 | 5 | 44 | 28 | 16 x 1,5 |
| 9 | 7-9 | | 6 | 48 | 32 | |
| 13 | 9,5 - 13 | | 9 | 52 | 36 | |
| 15,5 | 13 - 15,5 | | 12 | 56 | 40 | |
| 19 | 15,5 -19 | | 15 | 60 | 44 | |
| 23 | 20 - 23 | 6,6 | 19 | 76 | 56 | 20 x 2 |
| 26 | 23 - 26 | | 22 | 78 | 58 | |
| 28,5 | 26 - 28,5 | | 24 | 84 | 64 | |
| 31 | 28,5 - 31 | | 27 | | | |
| 33 | 31 - 33 | | 29 | 92 | 72 | |
| 36 | 33 - 36 | 9 | 32 | 104 | 80 | 25 x 3 |
| 39 | 36 - 39 | | 34 | 108 | 84 | |
| 43 | 39 - 43 | | 38 | 112 | 88 | |
| 46 | 43 - 46 | | 41 | 114 | 90 | |
| 49 | 46 - 49 | 11 | 44 | 118 | | 30 x 3 |
| 52 | 49 - 52 | | 47 | 134 | 106 | |
| 58 | 53 - 58 | | 52 | 138 | 110 | |
| 61 | 58 - 61 | | 56 | | | |

Material : Steel - Electro zinc plated finish
Stainless Steel - natural finish

Example : DIN 1597 **

** Diameter d_1

Note: For clamping of multiple number of tubes
add the number of tubes as prefix to the past number.



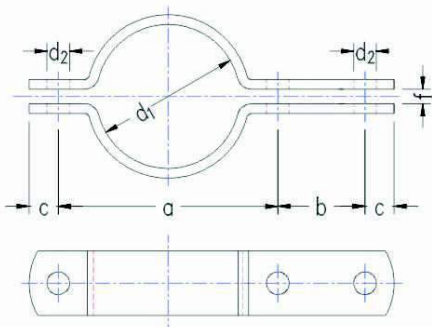
| d ₁ | Bore diameters | | a | c | d ₂ | f | Strip mm | Accessories : Hexagon headed bolts |
|----------------|----------------|-----------|-----|-----|----------------|----|-------------|---------------------------------------|
| | MM - OD | Inch - NB | | | | | | |
| 20 | 15 | | 57 | 15 | 11,5 | 7 | 30 x 5 | M 10 x 30 |
| 22 | | | 59 | | | | | |
| 25 | | | 62 | | | | | |
| 27 | 20 | 3/4 | 66 | | | | | |
| 30 | | | 68 | | | | | |
| 34 | 25 | 1 | 72 | | | | | |
| 38 | | | 76 | | | | | |
| 43 | 32 | 1 ¼ | 82 | | | | | |
| 45 | | | 84 | | | | | |
| 49 | 40 | 1 ½ | 88 | | | | | |
| 57 | | 50 | | 104 | | | | |
| 61 | 2 | | 108 | | | | | |
| 77 | 65 | 2 ½ | 122 | | | | | |
| 89 | 80 | 3 | 136 | | | | | |
| 108 | 100 | | 172 | 24 | 18 | 11 | 50 x 8 | M 16 x 45 |
| 115 | | 4 | 178 | | | | | |
| 133 | 125 | | 196 | | | | | |
| 140 | | | 204 | | | | | |
| 159 | 150 | | 222 | | | | | |
| 169 | | | 232 | | | | | |
| 194 | 175 | | 258 | | | | | |
| 216 | 200 | | 280 | | | | | |
| 220 | | | 284 | | | | | |
| 267 | 250 | | 342 | | | | | |
| 273 | | | 348 | | | | | |
| 318 | 300 | | 392 | | | | | |
| 324 | | | 398 | | | | | |
| 368 | 350 | | 444 | | | | | |
| 407 | 400 | | 498 | | | | | |
| 419 | | | 510 | | | | | |
| 521 | 500 | | 614 | | | | | |

Material : Steel - Electro zinc plated finish
Stainless Steel - natural finish

HOW TO ORDER

Example : DIN 3567 A **

** Diameter d₁



| d ₁ | Bore diameters | | a | b | c | d ₂ | f | Strip mm | Accessories : Hexagon headed bolts | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|----------------|-----------|-----|-----|----|----------------|----|-------------|---------------------------------------|-----|----|----|----|---------|-----------|-----|----|----|----|---------|-----------|-----|----|----|----|---------|-----------|-----|----|----|----|---------|-----------|
| | MM - OD | Inch - NB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 15 | | 57 | 46 | 15 | 11,5 | 7 | 30 x 5 | M 10 x 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | 59 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 20 | | 3/4 | | | | | | | 62 | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | | 66 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | 25 | | 68 | | | | | | | 54 | 18 | 14 | 9 | 40 x 6 | M 12 x 35 | | | | | | | | | | | | | | | | | | |
| 34 | | 1 | 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38 | 32 | | 76 | | | | | | | | | | | | | 70 | 24 | 18 | 11 | 50 x 8 | M 16 x 45 | | | | | | | | | | | | |
| 43 | | 1 ¼ | 82 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | 40 | | 84 | | | | | | | | | | | | | | | | | | | 86 | 30 | 23 | 14 | 60 x 8 | M 20 x 50 | | | | | | |
| 49 | | 1 ½ | 88 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 57 | 50 | | 104 | 104 | 36 | 27 | 18 | 70 x 10 | M 24 x 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 61 | | 2 | 108 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 77 | 65 | 2 ½ | 122 | | | | | | | | | | | | | | | | | | | | | | | | | 104 | 36 | 27 | 18 | 70 x 10 | M 24 x 60 |
| 89 | 80 | 3 | 136 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 108 | 100 | | 172 | | | | | | | 86 | 30 | 23 | 14 | 60 x 8 | M 20 x 50 | | | | | | | | | | | | | | | | | | |
| 115 | | 4 | 178 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 133 | 125 | | 196 | | | | | | | | | | | | | 86 | 30 | 23 | 14 | 60 x 8 | M 20 x 50 | | | | | | | | | | | | |
| 140 | | | 204 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 159 | 150 | | 222 | | | | | | | | | | | | | | | | | | | 104 | 36 | 27 | 18 | 70 x 10 | M 24 x 60 | | | | | | |
| 169 | | | 232 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 194 | 175 | | 258 | 104 | 36 | 27 | 18 | 70 x 10 | M 24 x 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 216 | | | 200 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 220 | 284 | | | | | | | | | | | | | | | | | | | | | | | | | | | 86 | 30 | 23 | 14 | 60 x 8 | M 20 x 50 |
| 267 | 250 | | 342 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 273 | | | 348 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 318 | 300 | | 392 | | | | | | | 104 | 36 | 27 | 18 | 70 x 10 | M 24 x 60 | | | | | | | | | | | | | | | | | | |
| 324 | | | 398 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 368 | 350 | | 444 | | | | | | | | | | | | | 104 | 36 | 27 | 18 | 70 x 10 | M 24 x 60 | | | | | | | | | | | | |
| 407 | 400 | | 498 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 419 | | | 510 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 521 | 500 | | 614 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Material : Steel - Electro zinc plated finish
Stainless Steel - natural finish

HOW TO ORDER
Example : DIN 3567 B **
** Diameter d₁

INTRODUCTION

The use of weld nipple and ferrule type fittings is widespread in Hydraulics, Pneumatics and lubrication System for tube sizes upto 38mm OD and various thickness depending upon the pressure involved. For bigger sizes, ferrule and weld nipple type fitting are impractical because of their heavy hexagonal sections which increase the pitch between pipes spreading the pipe installation over a large area. Also such fittings require very high torques for tightening which lead to loose joints.

In such a cases the use of flanges with Butt Weld or socketed Weld ends has been found to be more practical leading to compact piping installations.

CETOP PR 63H, AFNOR 48-0-54 and ISO 6164 specify flanges with Butt Weld ends and square clamping flanges for 250 bar and 400 bar static working pressure respectively. these correspond to 160 bar and 315 bar dynamic working pressures. the flange system consist of a sleeve to be butt or socket welded to the pipe and clamped together between two square flanges by a set of four hex bolts, nuts and spring washers. One of the sleeves carries an "O" ring groove fitted with an "O" ring for sealing the interface.

The use of these ISO 6164 flanges has one disadvantage. The size of the square flange require a higher pitch between pipes due to the flange sizes. In order to reduce the distance between pipes SAE introduced their own standards which are now incorporated into ISO 6162 for the 3000 psi and 6000 psi static pressure ranges respectively. SAE System depends on the same set of Butt Welding sleeves held together by a set of split flange and solid flange and solid flange secured by hex bolts and nut.

The design for the SAE system calls for forged flanges to ASTM A 105 With sleeves made from weldable material. In order to reduce costs, various manufacturers have introduced a two piece system shown on pages 24 & 26 where the sleeve and the flange were combined into one piece. Such a system is easily adaptable to both Butt Weld and Socket Weld systems. However, in practice the two piece system is used mainly for Socket Weld flanges for cost considerations.

With the introduction of more corrosive fluids in piping systems, the total joint is not required to be of non-corrosive material, eg. SS. Only the sleeves which are wetted by the fluid are required to be of SS. this makes for an economical joint.

Further, the orientation of these flange joints can be so done to minimize the distance between pipes and provide for a compact installation.

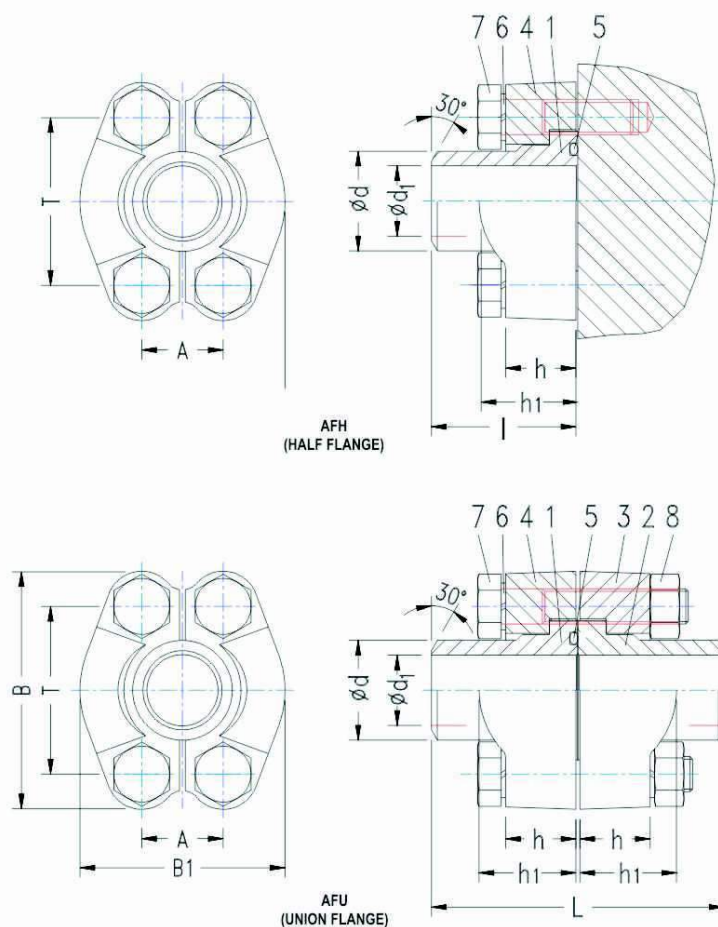
| | | AFU | AFH |
|----------------------------|----------------|-----|-----|
| PART | MATERIAL | QTY | |
| 1) SLEEVE WITH GROOVE | IS. 2062 | 1 | 1 |
| 2) SLEEVE WITHOUT GROOVE | IS. 2062 | 1 | - |
| 3) FLANGE | A 105 | 1 | - |
| 4) SPLIT FLANGE (SET OF 2) | A 105 | 1 | 1 |
| 5) 'O' RING | NITRILE RUBBER | 1 | 1 |
| 6) SPRING WASHER | IS. 3063 | 4 | 4 |
| 7) HEX. BOLT | IS. 1364 1983 | 4 | 4 |
| 8) HEX. NUT | IS. 1364 1983 | 4 | - |

NOTE : Unless otherwise ordered,
standard supply will have metric threads

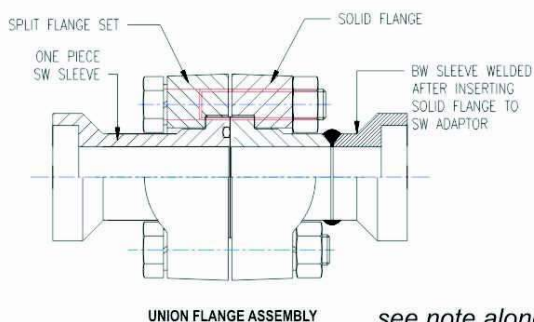
FINISH : Welding Sleeves and fasteners have Phosphatized finish, Flanges are zinc plated.

TEST PRESSURE :
 SERIES 3000 PSI (Code 61) = 210 bar : 3000 PSI
 HYDROSTATIC @ ROOM TEMPERATURE.

SERIES 6000 PSI (Code 62) = 410 bar : 6000 PSI
HYDROSTATIC @ ROOM TEMPERATURE.

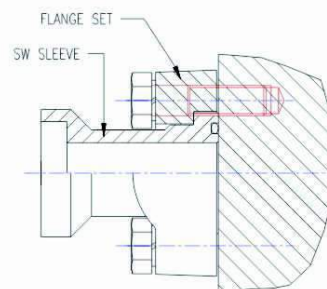


FLANGE ASSEMBLY WITH SOCKET WELD END CONNECTIONS



UNION FLANGE ASSEMBLY

see note along side page no. 21



HALF FLANGE ASSEMBLY

Flange Assembly with Butt Weld End Connections SAE 3000# and 6000# Series

DIMENSIONS : SAE 3000 PSI (Code 61) = 210 bar

| DN | | PIPE SIZE OD x WT | ϕd | $\phi d1$ | $\phi d2$ | I | L | h | h1 | B | B1 | T | A | 'O' RING SIZE | HEX.HD.CAP SCREW SIZE |
|--------|----|----------------------|----------|-----------|-----------|----|-----|----|----|-----|----|------|------|------------------|------------------------------------|
| INCH | MM | | | | | | | | | | | | | | AFH |
| 1/2" | 13 | 20.0 x 3.0 | 20 | 14.0 | 30.2 | 30 | 60 | 13 | 19 | 54 | 46 | 38.1 | 17.5 | 18.64 x 3.53 | M8 x 25/ 5/16" _18UNC x 1 1/4" |
| | | 22.0 x 2.0 | 22 | 18.0 | | | | | | | | | | | M8 x 40/ 5/16" _18UNC x 1 1/2" |
| | | 21.3 x 2.6 | 22 | 16.0 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| 3/4" | 19 | 22 x 2.0 | 22 | 18.0 | 38.1 | 35 | 70 | 14 | 22 | 65 | 52 | 47.6 | 22.3 | 24.99 x 3.53 | M10 x 30/ 3/8" _16UNC x 1 1/4" |
| | | 25.0 x 3.0 | 25 | 19.0 | | | | | | | | | | | M10 x 40/ 3/8" _16UNC x 1 1/2" |
| | | 26.9 x 3.6 | 27 | 19.5 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| 1" | 25 | 30.0 x 4.0 | 30 | 22.0 | 44.45 | 40 | 80 | 16 | 24 | 70 | 59 | 52.4 | 26.2 | 32.92 x 3.53 | M10 x 30/ 3/8" _16UNC x 1 1/4" |
| | | 35.0 x 4.0 | 35 | 27.0 | | | | | | | | | | | M10 x 45/ 3/8" _16UNC x 2" |
| | | 33.7 x 3.2 | 34 | 27.0 | | | | | | | | | | | |
| | | 38.0 x 2.5 | 38 | 33.0 | | | | | | | | | | | |
| | | 38.0 x 4.0 | 38 | 30.0 | | | | | | | | | | | |
| 1 1/4" | 32 | 38.0 x 4.0 | 38 | 30.0 | 50.8 | 45 | 90 | 16 | 22 | 80 | 73 | 58.7 | 30.2 | 37.69 x 3.53 | M10 x 30/ 7/16" _14UNC x 1 1/2" |
| | | 42.0 x 3.0 | 42 | 36.0 | | | | | | | | | | | M10 x 50/ 7/16" _14UNC x 2" |
| | | 42.3 x 3.2 | 43 | 36.0 | | | | | | | | | | | |
| | | 42.4 x 5.6 | 43 | 31.2 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| 1 1/2" | 38 | 38.0 x 4.0 | 38 | 30.0 | 60.3 | 50 | 100 | 16 | 25 | 94 | 83 | 69.9 | 35.7 | 47.22 x 3.53 | M12 x 35/ 1/2" _13UNC x 1 1/2" |
| | | 42.0 x 3.0 | 42 | 36.0 | | | | | | | | | | | M12 x 50/ 1/2" _13UNC x 2" |
| | | 48.3 x 4.5 | 49 | 39.0 | | | | | | | | | | | |
| | | 48.3 x 6.3 | 49 | 35.5 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| 2" | 51 | 42.0 x 3.0 | 42 | 36.0 | 71.4 | 60 | 120 | 16 | 26 | 102 | 97 | 77.8 | 42.9 | 56.74 x 3.53 | M12 x 35/ 1/2" _13UNC x 1 1/2" |
| | | 42.3 x 3.2 | 43 | 36.0 | | | | | | | | | | | M12 x 50/ 1/2" _13UNC x 2" |
| | | 48.3 x 3.2 | 49 | 42.0 | | | | | | | | | | | |
| | | 60.3 x 5.6 | 61 | 49.0 | | | | | | | | | | | |
| | | 60.3 x 8.0 | 61 | 44.0 | | | | | | | | | | | |

NOTE: ISO : 6162 does not have a separate series for flange assembly with socket weld end connections. The entire assembly remains the same as butt weld end connections shown above. However, the sleeves are welded with adaptors to convert the butt weld to socket weld end connections and dimensions can be given on request.

The use of the ISO : 6162 system increases the overall length of the flange assembly which may not be acceptable in the piping design. For socket weld end connections, designers usually prefer the two-piece system based on ISO : 6162 dimensions shown on pages 25-27 of the catalog.

Flange Assembly with Butt Weld End Connections SAE 3000# and 6000# Series

DIMENSIONS : SAE 3000 PSI (Code 61) = 210 bar

| | DN | | PIPE SIZE | ϕd | ϕd1 | ϕd2 | I | L | h | h1 | B | B1 | T | A | 'O' RING SIZE | HEX.HD.CAP SCREW SIZE |
|-------|--------|-----|--------------|-----|-------|-------|-----|-----|----|----|-----|-----|-------|------|---------------|---------------------------------|
| | INCH | MM | OD x WT | | | | | | | | | | | | | AFH |
| | | | | | | | | | | | | | | | | AFU |
| ★ | 2 1/2" | 65 | 76.1 x 7.1 | 77 | 62.0 | 84.1 | 70 | 140 | 19 | 38 | 115 | 109 | 88.9 | 50.8 | 69.44 x 3.53 | M12 x 40/ ½" _13UNC x 1 ¾" |
| | | | 76.1 x 3.6 | 77 | 69.0 | | | | | | | | | | | |
| | | | 82.5 x 7.1 | 86 | 68.0 | | | | | | | | | | | |
| | | | 80.0 x 2.0 | 80 | 76.0 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| ★★ | 3" | 76 | 60.3 x 3.6 | 61 | 53.0 | 101.6 | 80 | 160 | 22 | 41 | 136 | 131 | 106.4 | 61.9 | 85.32 x 3.53 | M16 x 50/ 5/8" _11UNC x 1 ¾" |
| | | | 76.1 x 3.6 | 77 | 69.0 | | | | | | | | | | | |
| | | | 76.1 x 7.1 | 77 | 62.0 | | | | | | | | | | | |
| | | | 88.9 x 3.6 | 90 | 81.5 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| ★★★ | 31/2" | 89 | 76.1 x 3.6 | 77 | 69.0 | 114.3 | 95 | 190 | 22 | 28 | 153 | 140 | 120.7 | 69.9 | 98.02 x 3.53 | M16 x 50/ 5/8" _11UNC x 2" |
| | | | 88.9 x 3.6 | 90 | 81.5 | | | | | | | | | | | |
| | | | 114.3 x .3.6 | 115 | 107.0 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| ★★★★ | 4" | 102 | 76.1 x 3.6 | 77 | 69.0 | 127.0 | 110 | 220 | 25 | 35 | 163 | 152 | 130.2 | 77.8 | 110.72 x 3.53 | M16 x 50/ 5/8" _11UNC x 2" |
| | | | 88.9 x 3.6 | 90 | 81.5 | | | | | | | | | | | |
| | | | 114.3 x 3.6 | 115 | 107.0 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| ★★★★★ | 5" | 127 | 139.7 x 4.0 | 140 | 131.5 | 152.4 | 120 | 220 | 28 | 41 | 183 | 181 | 152.4 | 92.1 | 136.12 x 3.53 | M16 x 55/ 5/8" _11UNC x 2 ¼" |
| | | | 127.0 x 4.0 | 127 | 119.0 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

NOTES : * PN 170 bar
 ** PN 140 bar
 *** PN 35 bar

Flange Assembly with Butt Weld End Connections SAE 3000# and 6000# Series

DIMENSIONS : SAE 6000 PSI (Code 61) = 410 bar

| DN | | PIPE SIZE | | ϕd | ϕd1 | ϕd2 | I | L | h | h1 | B | B1 | T | A | 'O' RING SIZE | HEX.HD.CAP SCREW SIZE |
|--------|----|-------------|--|----|------|-------|----|-----|----|----|-----|-----|-------|------|---------------|------------------------------------|
| INCH | MM | OD x WT | | | | | | | | | | | | | | AFH |
| | | | | | | | | | | | | | | | | AFU |
| 1/2" | 13 | 16.0 x 2.5 | | 16 | 11.0 | 31.8 | 40 | 80 | 16 | 22 | 56 | 48 | 40.5 | 18.2 | 18.64 x 3.53 | M8 x 30/ 5/16" _18UNC x 1 1/4" |
| | | 20.0 x 3.0 | | 20 | 14.0 | | | | | | | | | | | M8 x 45/ 5/16" _18UNC x 1 3/4" |
| | | 21.3 x 4.5 | | 21 | 12.0 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 3/4" | 19 | 20.0 x 3.0 | | 20 | 14.0 | 41.3 | 45 | 90 | 19 | 28 | 71 | 60 | 50.8 | 23.8 | 24.99 x 3.53 | M10 x 35/ 3/8" _16UNC x 1 1/2" |
| | | 25.0 x 4.0 | | 25 | 17.0 | | | | | | | | | | | M10 x 50/ 3/8" _16UNC x 2" |
| | | 26.9 x 5.6 | | 27 | 15.5 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 1" | 25 | 25.0 x 4.0 | | 25 | 17.0 | 47.6 | 50 | 100 | 24 | 33 | 81 | 70 | 57.2 | 27.8 | 32.92 x 3.53 | M12 x 45/ 7/16" _14UNC x 1 3/4" |
| | | 30.0 x 4.0 | | 30 | 22.0 | | | | | | | | | | | M12 x 65/ 7/16" _14UNC x 2 1/2" |
| | | 33.7 x 7.1 | | 34 | 19.5 | | | | | | | | | | | |
| | | 38.0 x 4.0 | | 38 | 30.0 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 1 1/4" | 32 | 30.0 x 4.0 | | 30 | 22.0 | 54.0 | 55 | 110 | 27 | 38 | 95 | 78 | 66.6 | 31.8 | 37.69 x 3.53 | M12 x 45/ 1/2" _13UNC x 1 3/4" |
| | | 38.0 x 5.0 | | 38 | 28.0 | | | | | | | | | | | M12 x 70/ 1/2" _13UNC x 2 3/4" |
| | | 42.4 x 8.8 | | 43 | 24.5 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 1 1/2" | 38 | 38.0 x 5.0 | | 38 | 28.0 | 63.5 | 60 | 120 | 30 | 43 | 113 | 95 | 79.3 | 36.5 | 47.22 x 3.53 | M16 x 55/ 5/8" _11UNC x 2 1/4" |
| | | 48.3 x 6.3 | | 49 | 35.5 | | | | | | | | | | | M16 x 80/ 5/8" _11UNC x 3 1/4" |
| | | 48.3 x 8.0 | | 49 | 32.0 | | | | | | | | | | | |
| | | 48.3 x 8.8 | | 49 | 30.5 | | | | | | | | | | | |
| | | | | 61 | 40.0 | | | | | | | | | | | |
| 2" | 51 | 60.3 x 10.0 | | 61 | 40.0 | 79.4 | 70 | 140 | 37 | 52 | 133 | 114 | 96.8 | 44.5 | 56.74 x 3.53 | M20 x 70/ 3/4" _10UNC x 2 3/4" |
| | | 60.3 x 12.5 | | 61 | 35.0 | | | | | | | | | | | M20 x 100/ 3/4" _10UNC x 4" |
| | | 76.1 x 12.5 | | 77 | 51.0 | | | | | | | | | | | |
| | | 60.3 x 8.0 | | 61 | 44.0 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 2 1/2" | 64 | 76.1 x 7.1 | | 77 | 62.0 | 105.0 | 75 | 150 | 39 | 56 | 175 | 149 | 123.8 | 58.7 | 69.44 x 3.53 | M24 x 3 1/4" |
| | | 76.1 x 10.0 | | 77 | 56.0 | | | | | | | | | | | M24 x 5" |
| | | 76.1 x 12.0 | | 77 | 52.0 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 3" | 76 | 88.9 x 7.6 | | 90 | 73.5 | 130.0 | 80 | 160 | 42 | 61 | 217 | 178 | 152.4 | 71.4 | 85.32 x 3.53 | M30 x 4" |
| | | 88.9 x 11.0 | | 90 | 67.0 | | | | | | | | | | | M30 x 5 1/2" |
| | | 88.9 x 14.2 | | 90 | 60.5 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

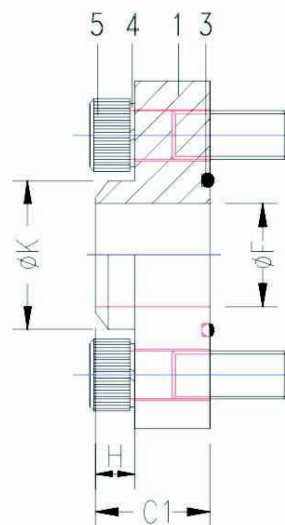
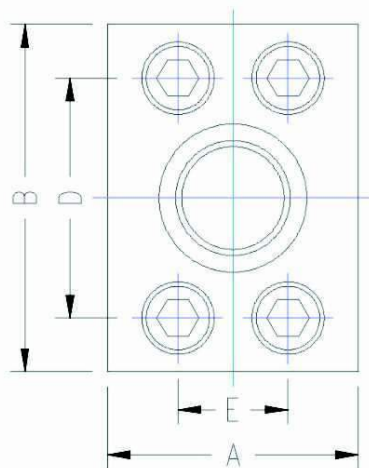
* PN315 bar

Flange Assembly with Butt Weld End Connections SAE 3000# and 6000# Series (Two Piece System)

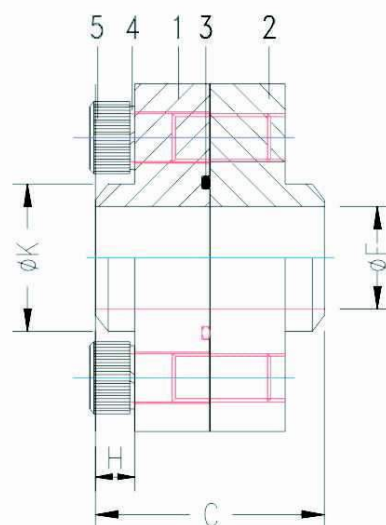
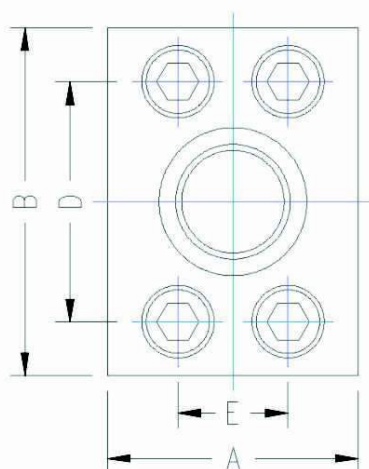
| PART | MATERIAL | ABU | ABH |
|--------------------------|-----------------------|-----|-----|
| | | QTY | |
| 1) FLANGE WITH GROOVE | IS. 2062 | 1 | 1 |
| 2) FLANGE WITHOUT GROOVE | IS. 2062 | 1 | - |
| 3) "O" RING | NITRILE RUBBER | 1 | 1 |
| 4) SPRING WASHER | IS. 3063 | 4 | 4 |
| 5) SOC. HD. CAP SCREW | IS. 1367 - CLASS 12-9 | 4 | 4 |

FINISH : ALL CS PARTS ARE PHOSPHATIZED

TEST PRESSURE : SERIES 3000 PSI = 210 bar : 3000 PSI HYDROSTATIC @ ROOM TEMPERATURE.
SERIES 3000 PSI = 410 bar : 6000 PSI HYDROSTATIC @ ROOM TEMPERATURE.



ABH
HALF FLANGE ASSEMBLY



ABU
UNION FLANGE ASSEMBLY

Flange Assembly with Butt Weld End Connections SAE 3000# and 6000# Series (Two Piece System)

DIMENSIONS : SAE 3000 # SERIES

| PIPE SIZE INCHES | SCHEDULE | A | B | C | C1 | D | E | φ F | H | φ K | 'O' RING SIZE | SOC . HD. CAP SCREW SIZE |
|------------------|----------|-----|-----|-----|----|-------|------|-------|----|-------|---------------|--------------------------|
| 1/2 | 80 | 38 | 54 | 64 | 32 | 38.1 | 17.5 | 13.5 | 10 | 22.4 | 18.64 x 3.53 | 4 / M 8 x 40 |
| | 160 | | | | | | | 12.0 | | | | |
| 3/4 | 80 | 45 | 67 | 64 | 32 | 47.6 | 22.2 | 19.0 | 10 | 28.5 | 24.99 x 3.53 | 4 / M 10 x 40 |
| | 160 | | | | | | | 15.5 | | | | |
| 1 | 80 | 51 | 72 | 64 | 32 | 52.4 | 26.2 | 23.9 | 10 | 35.0 | 32.92 x 3.53 | 4 / M 10 x 40 |
| | 160 | | | | | | | 20.5 | | | | |
| 1 ¼ | 80 | 64 | 81 | 64 | 32 | 58.7 | 30.2 | 31.8 | 10 | 44.5 | 37.69 x 3.53 | 4 / M 10 x 40 |
| | 160 | | | | | | | 29.5 | | | | |
| 1 ½ | 80 | 70 | 95 | 76 | 38 | 69.8 | 35.7 | 38.0 | 13 | 50.8 | 47.22 x 3.53 | 4 / M 12x 45 |
| | 160 | | | | | | | 34.0 | | | | |
| 2 | 80 | 83 | 102 | 76 | 38 | 77.8 | 42.9 | 49.3 | 13 | 63.5 | 56.74 x 3.53 | 4 / M 12 x 45 |
| | 160 | | | | | | | 43.0 | | | | |
| * 2 ½ | 80 | 102 | 114 | 90 | 45 | 88.9 | 50.8 | 59.0 | 13 | 76.2 | 69.44 x 3.53 | 4 / M 12 x 50 |
| | 160 | | | | | | | 53.9 | | | | |
| ** 3 | 80 | 114 | 135 | 102 | 51 | 106.4 | 61.9 | 73.7 | 13 | 88.9 | 85.32 x 3.53 | 4 / M 16 x 60 |
| | 160 | | | | | | | 66.5 | | | | |
| *** 3 ½ | 80 | 127 | 152 | 76 | 38 | 120.6 | 69.9 | 85.4 | 13 | 101.6 | 98.02 x 3.53 | 4 / M 16 x 50 |
| | 160 | | | | | | | 76.0 | | | | |
| *** 4 | 80 | 140 | 162 | 76 | 38 | 130.2 | 77.8 | 97.3 | 13 | 114.3 | 110.72 x 3.53 | 4 / M 16 x 50 |
| | 160 | | | | | | | 87.4 | | | | |
| *** 5 | 80 | 178 | 184 | 102 | 51 | 152.4 | 92.1 | 122.2 | 13 | 142.8 | 136.12 x 3.53 | 4 / M 16 x 60 |
| | 160 | | | | | | | 109.5 | | | | |

NOTES : * PN 170 bar
 ** PN 140 bar
 *** PN 35 bar

DIMENSIONS : SAE 6000 # SERIES

| | | | | | | | | | | | | |
|-------|-----|-----|-----|-----|------|-------|------|------|----|------|--------------|----------------|
| 1/2 | 80 | 45 | 56 | 64 | 32 | 40.5 | 18.2 | 13.5 | 10 | 22.4 | 18.64 x 3.53 | 4 / M 8 x 40 |
| | 160 | | | | | | | 12.0 | | | | |
| 3/4 | 80 | 51 | 71 | 64 | 32 | 50.8 | 23.8 | 19.0 | 10 | 28.5 | 24.99 x 3.53 | 4 / M 10 x 40 |
| | 160 | | | | | | | 15.5 | | | | |
| 1 | 80 | 57 | 81 | 64 | 32 | 57.2 | 27.8 | 23.9 | 10 | 35.0 | 32.92 x 3.53 | 4 / M 12 x 45 |
| | 160 | | | | | | | 20.5 | | | | |
| 1 ¼ | 80 | 70 | 95 | 64 | 32 | 66.7 | 31.8 | 31.8 | 10 | 44.5 | 37.69 x 3.53 | 4 / M 12 x 50 |
| | 160 | | | | | | | 29.5 | | | | |
| 1 ½ | 80 | 83 | 114 | 76 | 38 | 79.4 | 36.5 | 38.0 | 13 | 50.8 | 47.22 x 3.53 | 4 / M 16 x 50 |
| | 160 | | | | | | | 34.0 | | | | |
| 2 | 80 | 102 | 134 | 90 | 45 | 96.8 | 44.5 | 49.3 | 13 | 63.5 | 56.74 x 3.53 | 4 / M 20 x 60 |
| | 160 | | | | | | | 43.0 | | | | |
| * 2 ½ | 80 | 127 | 175 | 102 | 51 | 123.8 | 58.7 | 59.0 | 13 | 76.2 | 69.44 x 3.53 | 4 / M 22 x 70 |
| | 160 | | | | | | | 53.8 | | | | |
| * 3 | 80 | 152 | 216 | 127 | 63.5 | 152.4 | 71.4 | 73.7 | 13 | 88.9 | 85.32 x 3.53 | 4 / M 27 x 100 |
| | 160 | | | | | | | 66.5 | | | | |

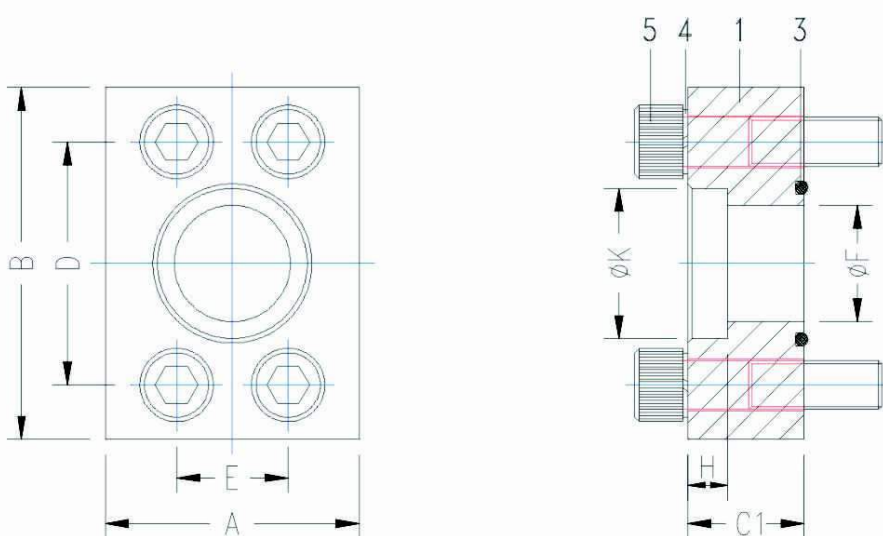
NOTES : * PN 315 BAR

Flange Assembly with Butt Weld End Connections SAE 3000# and 6000# Series (Two Piece System)

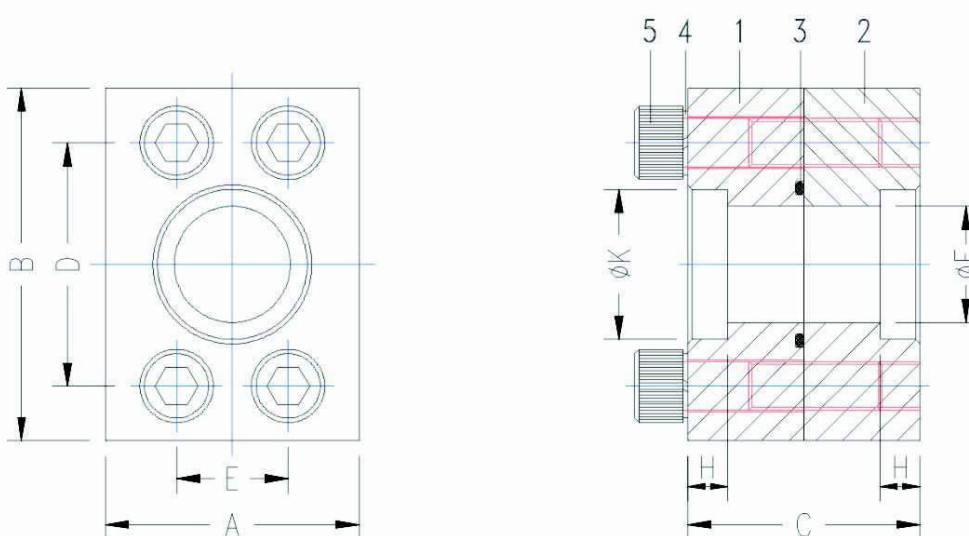
| PART | MATERIAL | ASU | ASH |
|--------------------------|-----------------------|-----|-----|
| | | QTY | |
| 1) FLANGE WITH GROOVE | IS. 2062 | 1 | 1 |
| 2) FLANGE WITHOUT GROOVE | IS. 2062 | 1 | - |
| 3) "O" RING | NITRILE RUBBER | 1 | 1 |
| 4) SPRING WASHER | IS. 3063 | 4 | 4 |
| 5) SOC. HD. CAP SCREW | IS. 1367 - CLASS 12-9 | 4 | 4 |

FINISH : ALL CS PARTS ARE PHOSPHATIZED

TEST PRESSURE : SERIES 3000 PSI = 210 bar : 3000 PSI HYDROSTATIC @ ROOM TEMPERATURE.
SERIES 3000 PSI = 410 bar : 6000 PSI HYDROSTATIC @ ROOM TEMPERATURE.



ASH
HALF FLANGE ASSEMBLY



ASU
UNION FLANGE ASSEMBLY

Flange Assembly with Butt Weld End Connections SAE 3000# and 6000# Series (Two Piece System)

DIMENSIONS : SAE 3000 # SERIES

| PIPE SIZE INCHES | A | B | C | C1 | D | E | φ F | H | φ K | 'O' RING SIZE | SOC . HD. CAP SCREW SIZE |
|---------------------|-----|-----|-----|------|-------|------|-----|----|-----|------------------|-----------------------------|
| 1/2 | 38 | 54 | 38 | 19 | 38.1 | 17.5 | 13 | 10 | 22 | 18.64 x 3.53 | 4 / M 8 x 35 |
| 3/4 | 45 | 67 | 51 | 25.5 | 47.6 | 22.2 | 19 | 13 | 27 | 24.99 x 3.53 | 4 / M 10 x 45 |
| 1 | 51 | 72 | 51 | 25.5 | 52.4 | 26.2 | 25 | 13 | 35 | 32.92 x 3.53 | 4 / M 10 x 40 |
| 1¼ | 64 | 81 | 51 | 25.5 | 58.7 | 30.2 | 32 | 13 | 43 | 37.69 x 3.53 | 4 / M 12 x 45 |
| 1½ | 70 | 95 | 76 | 32 | 69.8 | 35.7 | 38 | 13 | 49 | 47.22 x 3.53 | 4 / M 12 x 50 |
| 2 | 83 | 102 | 76 | 38 | 77.8 | 42.9 | 49 | 16 | 61 | 56.74 x 3.53 | 4 / M 12 x 60 |
| * 2½ | 102 | 114 | 90 | 45 | 88.9 | 50.8 | 61 | 19 | 74 | 69.44 x 3.53 | 4 / M 12 x 65 |
| ** 3 | 114 | 135 | 102 | 51 | 106.4 | 61.9 | 75 | 19 | 90 | 85.32 x 3.53 | 4 / M 16 x 75 |
| *** 3½ | 127 | 152 | 76 | 38 | 120.6 | 69.9 | 86 | 19 | 102 | 98.02 x 3.53 | 4 / M 16 x 65 |
| *** 4 | 140 | 162 | 76 | 38 | 130.2 | 77.8 | 98 | 19 | 115 | 110.72 x 3.53 | 4 / M 16 x 65 |
| *** 5 | 178 | 184 | 102 | 51 | 152.4 | 92.1 | 122 | 19 | 142 | 136.12 x 3.53 | 4 / M 16 x 75 |

NOTES : * PN 170 bar
 ** PN 140 bar
 *** PN 35 bar

DIMENSIONS : SAE 6000 # SERIES

| | | | | | | | | | | | |
|------|-----|-----|-----|------|-------|------|----|----|----|--------------|----------------|
| 1/2 | 45 | 56 | 51 | 25.5 | 40.5 | 18.2 | 13 | 13 | 22 | 18.64 x 3.53 | 4 / M 8 x 40 |
| 3/4 | 51 | 71 | 51 | 25.5 | 50.8 | 23.8 | 19 | 13 | 27 | 24.99 x 3.53 | 4 / M 10 x 45 |
| 1 | 57 | 81 | 51 | 25.5 | 57.2 | 27.8 | 25 | 13 | 34 | 32.92 x 3.53 | 4 / M 12 x 45 |
| 1¼ | 70 | 95 | 64 | 32 | 66.7 | 31.8 | 32 | 13 | 43 | 37.69 x 3.53 | 4 / M 14 x 55 |
| 1½ | 83 | 114 | 76 | 38 | 79.4 | 36.7 | 38 | 13 | 49 | 47.22 x 3.53 | 4 / M 16 x 65 |
| 2 | 102 | 134 | 90 | 45 | 96.8 | 44.5 | 49 | 16 | 61 | 56.74 x 3.53 | 4 / M 20 x 75 |
| * 2½ | 127 | 175 | 102 | 51 | 123.8 | 58.7 | 61 | 16 | 74 | 69.44 x 3.53 | 4 / M 24 x 90 |
| * 3 | 152 | 216 | 127 | 63.5 | 152.4 | 71.4 | 75 | 16 | 90 | 85.32 x 3.53 | 4 / M 30 x 110 |

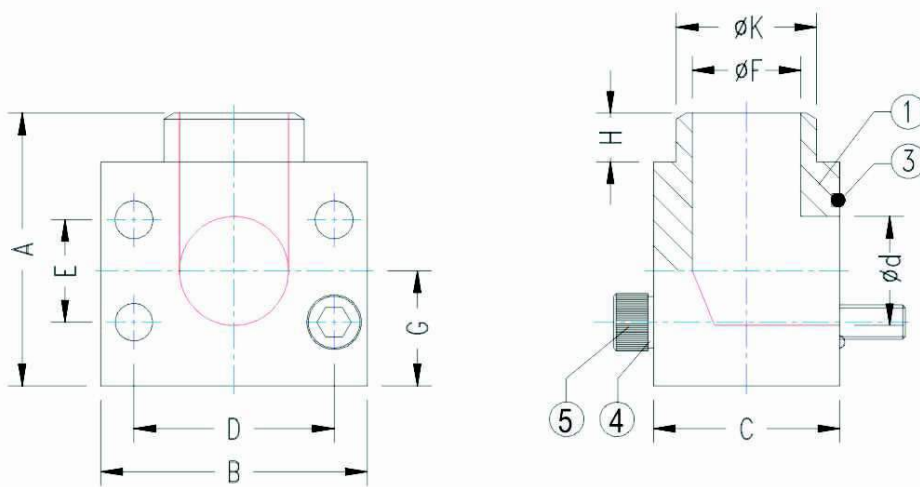
NOTES : * PN 315 bar

Butt Weld End Elbow Flange Connections SAE 3000# and 6000# Series

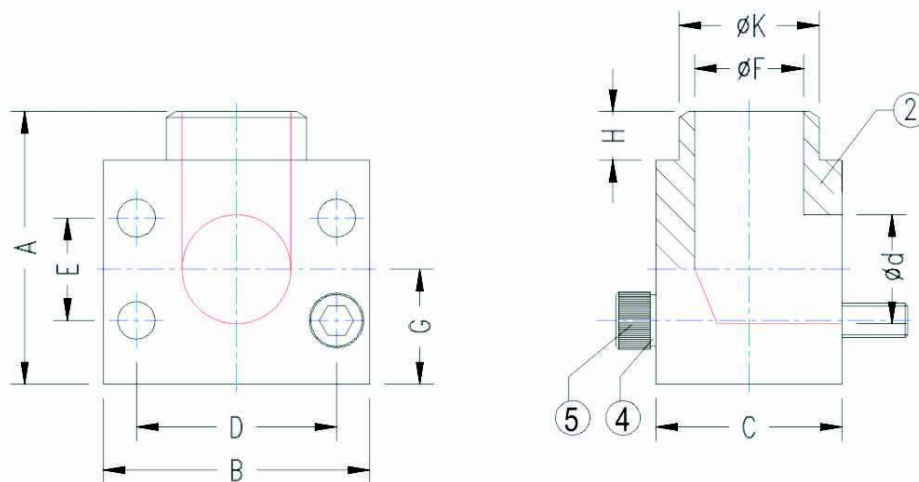
| PART | MATERIAL | AEBO | AEB |
|----------------------------------|-----------------------|------|-----|
| | | QTY | |
| 1) ELBOW FLANGE WITH "O" RING | IS. 2062 | 1 | - |
| 2) ELBOW FLANGE WITHOUT "O" RING | IS. 2062 | - | 1 |
| 3) "O" RING | NITRILE RUBBER | 1 | 1 |
| 4) SPRING WASHER | IS. 3063 | 4 | 4 |
| 5) SOC. HD. CAP SCREW | IS. 1367 - CLASS 12-9 | 4 | 4 |

FINISH : ALL CS PARTS ARE PHOSPHATIZED

TEST PRESSURE : SERIES 3000 PSI = 210 bar : 3000 PSI HYDROSTATIC @ ROOM TEMPERATURE.
SERIES 3000 PSI = 410 bar : 6000 PSI HYDROSTATIC @ ROOM TEMPERATURE.



AEBO
ELBOW FLANGE WITH "O" RING



AEB
ELBOW FLANGE WITHOUT "O" RING

DIMENSIONS : SAE 3000 # SERIES

| PIPE SIZE INCHES | SCHEDULE | A | B | C | D | E | φ F | G | H | φ K | 'O' RING SIZE | SOC. HD. CAP SCREW SIZE | T |
|------------------|----------|-----|-----|-----|-------|------|------|----|----|-------|---------------|-------------------------|-----|
| 1/2 | 80 | 51 | 54 | 38 | 38.1 | 17.5 | 13.5 | 19 | 10 | 22.4 | 18.64 x 3.53 | 4 / M 8 x 50 | M8 |
| | 160 | | | | | | 11.7 | | | | | | |
| 3/4 | 80 | 57 | 67 | 45 | 47.6 | 22.2 | 19.0 | 22 | 10 | 28.5 | 24.99 x 3.53 | 4 / M 10 x 65 | M10 |
| | 160 | | | | | | 15.5 | | | | | | |
| 1 | 80 | 64 | 72 | 51 | 52.4 | 26.2 | 24.3 | 25 | 10 | 35.0 | 32.92 x 3.53 | 4 / M 10 x 70 | M10 |
| | 160 | | | | | | 20.5 | | | | | | |
| 1 1/4 | 80 | 76 | 81 | 57 | 58.7 | 30.2 | 32.5 | 32 | 10 | 44.5 | 37.69 x 3.53 | 4 / M 12 x 75 | M12 |
| | 160 | | | | | | 29.5 | | | | | | |
| 1 1/2 | 80 | 83 | 95 | 76 | 69.8 | 35.7 | 38.0 | 35 | 13 | 50.8 | 47.22 x 3.53 | 4 / M 14 x 100 | M14 |
| | 160 | | | | | | 34.0 | | | | | | |
| 2 | 80 | 95 | 102 | 89 | 77.8 | 42.9 | 49.3 | 41 | 13 | 63.5 | 56.74 x 3.53 | 4 / M 14 x 115 | M14 |
| | 160 | | | | | | 43.0 | | | | | | |
| * 2 1/2 | 80 | 114 | 114 | 102 | 88.9 | 50.8 | 59.0 | 51 | 13 | 76.2 | 69.44 x 3.53 | 4 / M 14 x 125 | M14 |
| | 160 | | | | | | 53.9 | | | | | | |
| ** 3 | 80 | 127 | 135 | 127 | 106.4 | 61.9 | 73.7 | 57 | 13 | 88.9 | 85.32 x 3.53 | 4 / M 16 x 150 | M16 |
| | 160 | | | | | | 66.5 | | | | | | |
| *** 3 1/2 | 80 | 140 | 152 | 140 | 120.6 | 69.9 | 85.4 | 63 | 13 | 101.6 | 98.02 x 3.53 | 4 / M 16 x 165 | M16 |
| | 160 | | | | | | 76.0 | | | | | | |
| *** 4 | 80 | 152 | 162 | 152 | 130.2 | 77.8 | 97.3 | 70 | 13 | 114.3 | 110.72 x 3.53 | 4 / M 16 x 180 | M16 |
| | 160 | | | | | | 87.4 | | | | | | |

NOTES : * PN 170 bar

** PN 140 bar

*** PN 35 bar

DIMENSIONS : SAE 6000 # SERIES

| | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-------|------|------|----|----|------|--------------|----------------|-----|
| 1/2 | 80 | 57 | 56 | 38 | 40.5 | 18.2 | 13.5 | 22 | 10 | 22.4 | 18.64 x 3.53 | 4 / M 8 x 50 | M8 |
| | 160 | | | | | | 11.7 | | | | | | |
| 3/4 | 80 | 64 | 72 | 45 | 50.8 | 23.8 | 19.0 | 25 | 10 | 28.5 | 24.99 x 3.53 | 4 / M 10 x 65 | M10 |
| | 160 | | | | | | 15.5 | | | | | | |
| 1 | 80 | 70 | 81 | 51 | 57.2 | 27.8 | 24.3 | 28 | 10 | 35.0 | 32.92 x 3.53 | 4 / M 12 x 70 | M12 |
| | 160 | | | | | | 20.5 | | | | | | |
| 1 1/4 | 80 | 83 | 95 | 57 | 66.7 | 31.8 | 32.5 | 35 | 10 | 44.5 | 37.69 x 3.53 | 4 / M 14 x 80 | M14 |
| | 160 | | | | | | 29.5 | | | | | | |
| 1 1/2 | 80 | 95 | 114 | 76 | 79.4 | 36.5 | 38.0 | 41 | 13 | 50.8 | 47.22 x 3.53 | 4 / M 16 x 100 | M16 |
| | 160 | | | | | | 34.0 | | | | | | |
| 2 | 80 | 115 | 133 | 89 | 96.8 | 44.5 | 49.3 | 51 | 13 | 63.5 | 56.74 x 3.53 | 4 / M 20 x 115 | M20 |
| | 160 | | | | | | 43.0 | | | | | | |
| * 2 1/2 | 80 | 140 | 174 | 102 | 123.8 | 58.7 | 59.0 | 64 | 13 | 76.2 | 69.44 x 3.53 | 4 / M 24 x 140 | M24 |
| | 160 | | | | | | 53.9 | | | | | | |
| * 3 | 80 | 127 | 216 | 127 | 152.4 | 71.4 | 73.7 | 76 | 13 | 88.9 | 85.32 x 3.53 | 4 / M 30 x 175 | M30 |
| | 160 | | | | | | 66.5 | | | | | | |

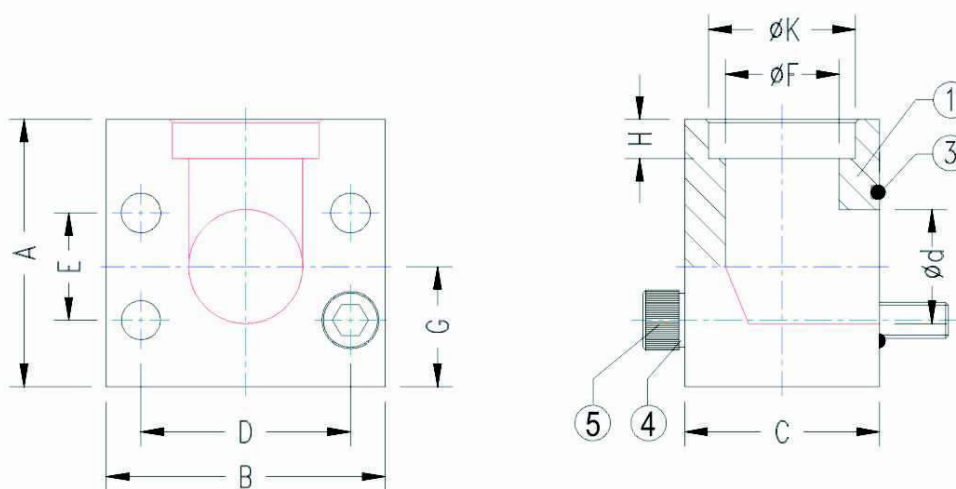
NOTES : * PN 315 bar

Socket Weld End Elbow Flange Connections SAE 3000# and 6000# Series

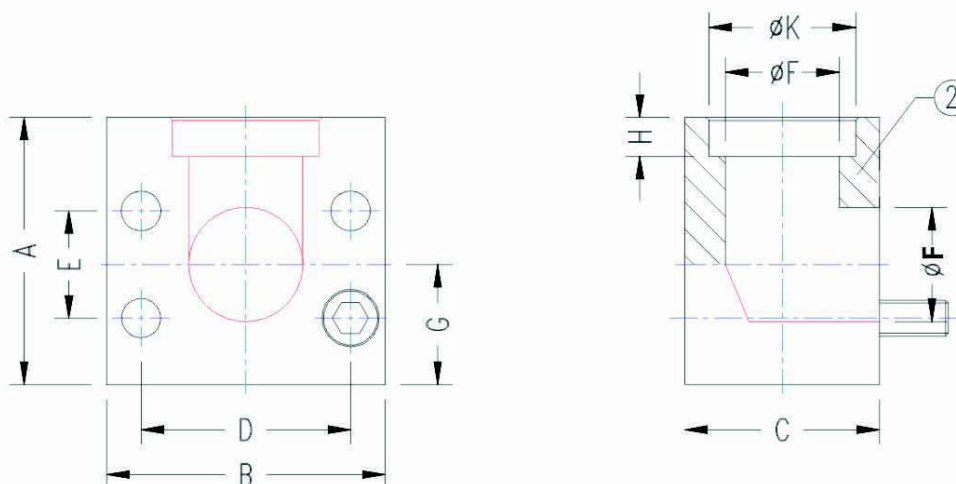
| PART | MATERIAL | AESO | AES |
|----------------------------------|-----------------------|------|-----|
| | | QTY | |
| 1) ELBOW FLANGE WITH "O" RING | IS. 2062 | 1 | - |
| 2) ELBOW FLANGE WITHOUT "O" RING | IS. 2062 | - | 1 |
| 3) "O" RING | NITRILE RUBBER | 1 | 1 |
| 4) SPRING WASHER | IS. 3063 | 4 | 4 |
| 5) SOC. HD. CAP SCREW | IS. 1367 - CLASS 12-9 | 4 | 4 |

FINISH : ALL CS PARTS ARE PHOSPHATIZED

TEST PRESSURE : SERIES 3000 PSI = 210 bar : 3000 PSI HYDROSTATIC @ ROOM TEMPERATURE.
 SERIES 3000 PSI = 410 bar : 6000 PSI HYDROSTATIC @ ROOM TEMPERATURE.



**AESO
ELBOW FLANGE WITH "O" RING**



**AES
ELBOW FLANGE WITHOUT "O" RING**

DIMENSIONS : SAE 3000 # SERIES

| PIPE SIZE INCHES | A | B | C | D | E | φ F | G | H | φ K | 'O' RING SIZE | SOC. HD. CAP SCREW SIZE | T |
|---------------------|-----|-----|-----|-------|------|-----|----|----|-----|------------------|----------------------------|-----|
| 1/2 | 45 | 54 | 38 | 38.1 | 17.5 | 13 | 19 | 10 | 22 | 18.64 x 3.53 | 4 / M 8 x 50 | M8 |
| 3/4 | 51 | 67 | 45 | 47.6 | 22.2 | 19 | 23 | 13 | 27 | 24.99 x 3.53 | 4 / M 10 x 65 | M10 |
| 1 | 57 | 72 | 51 | 52.4 | 26.2 | 25 | 25 | 13 | 34 | 32.92 x 3.53 | 4 / M 10 x 70 | M10 |
| 1¼ | 70 | 81 | 57 | 58.7 | 30.2 | 32 | 32 | 13 | 43 | 37.69 x 3.53 | 4 / M 12 x 75 | M12 |
| 1½ | 76 | 95 | 76 | 69.8 | 35.7 | 38 | 35 | 13 | 49 | 47.22 x 3.53 | 4 / M 14 x 100 | M14 |
| 2 | 89 | 102 | 89 | 77.8 | 42.9 | 49 | 41 | 16 | 61 | 56.74 x 3.53 | 4 / M 14 x 115 | M14 |
| * 2½ | 102 | 114 | 102 | 88.9 | 50.8 | 61 | 51 | 19 | 74 | 69.44 x 3.53 | 4 / M 14 x 125 | M14 |
| ** 3 | 127 | 135 | 127 | 106.4 | 61.9 | 75 | 57 | 19 | 90 | 85.32 x 3.53 | 4 / M 16 x 150 | M16 |
| *** 3½ | 140 | 152 | 140 | 120.6 | 69.9 | 86 | 64 | 19 | 103 | 98.02 x 3.53 | 4 / M 16 x 165 | M16 |
| *** 4 | 152 | 162 | 152 | 130.2 | 77.8 | 98 | 70 | 19 | 115 | 110.72 x 3.53 | 4 / M 16 x 180 | M16 |

NOTES : * PN 170 bar
 ** PN 140 bar
 *** PN 35 bar

DIMENSIONS : SAE 6000 # SERIES

| | | | | | | | | | | | | T |
|------|-----|-----|-----|-------|------|----|----|----|----|--------------|----------------|-----|
| 1/2 | 51 | 56 | 38 | 40.5 | 18.2 | 13 | 23 | 13 | 22 | 18.64 x 3.53 | 4 / M 8 x 50 | M8 |
| 3/4 | 57 | 71 | 45 | 50.8 | 23.8 | 19 | 25 | 13 | 27 | 24.99 x 3.53 | 4 / M 10 x 65 | M10 |
| 1 | 64 | 81 | 51 | 57.2 | 27.8 | 25 | 28 | 13 | 34 | 32.92 x 3.53 | 4 / M 12 x 70 | M12 |
| 1¼ | 76 | 95 | 57 | 66.7 | 31.7 | 32 | 35 | 13 | 43 | 37.69 x 3.53 | 4 / M 14 x 80 | M14 |
| 1½ | 89 | 115 | 76 | 79.4 | 36.5 | 38 | 41 | 13 | 49 | 47.22 x 3.53 | 4 / M 16 x 100 | M16 |
| 2 | 102 | 133 | 89 | 96.8 | 44.5 | 49 | 51 | 16 | 61 | 56.74 x 3.53 | 4 / M 20 x 115 | M20 |
| * 2½ | 140 | 175 | 102 | 123.8 | 58.7 | 61 | 64 | 16 | 74 | 69.44 x 3.53 | 4 / M 24 x 140 | M24 |
| * 3 | 152 | 216 | 127 | 152.4 | 71.4 | 75 | 76 | 16 | 90 | 85.32 x 3.53 | 4 / M 30 x 175 | M30 |

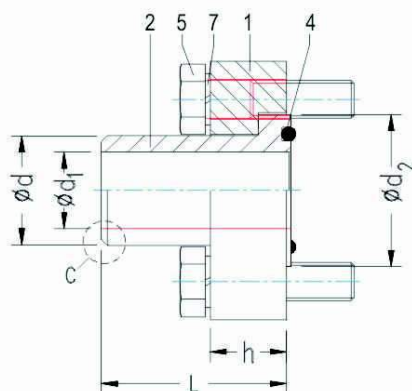
*PN 315 bar

Flange Assembly with Butt Weld End Connections PN 160, PN 250 & PN 315

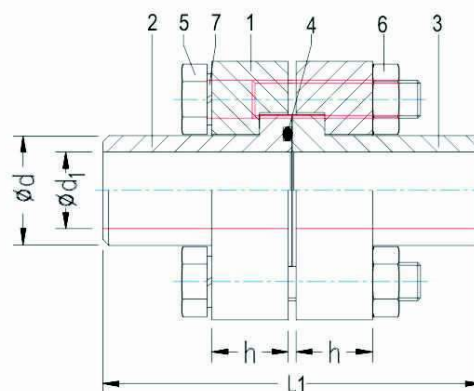
| PART | MATERIAL | FH | FU |
|--------------------------|----------------|--------|--------|
| 1) FLANGE | C. S. IS. 2062 | 1 | 2 |
| 2) SLEEVE WITH GROOVE | C. S. IS. 2062 | 1 | 1 |
| 3) SLEEVE WITHOUT GROOVE | C. S. IS. 2062 | - | 1 |
| 4) 'O'RING | NITRILE | 1 | 1 |
| 5) HEX BOLT | IS. 1363 | 4 or 8 | 4 or 8 |
| 6) HEX NUT | IS. 1363 | - | 4 or 8 |
| 7) SPRING WASHER | IS. 3063 | 4 or 8 | 4 or 8 |

FINISH : ALL CS PARTS ARE PHOSPHATIZED.

TEST PRESSURE : FH SERIES & FU SERIES : PN 160 bar : 2400 PSI HYDROSTATIC @ ROOM TEMPERATURE
PN 250 bar : 3750 PSI HYDROSTATIC @ ROOM TEMPERATURE
PN 315 bar : 4500 PSI HYDROSTATIC @ ROOM TEMPERATURE

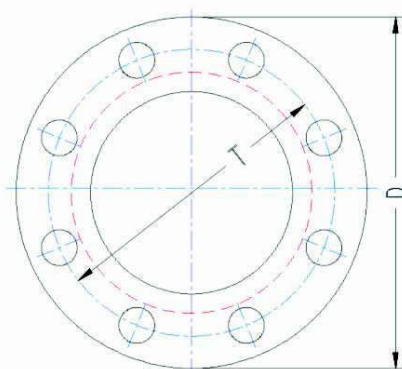
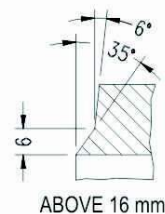
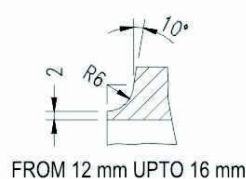


FH
HALF FLANGE ASSEMBLY

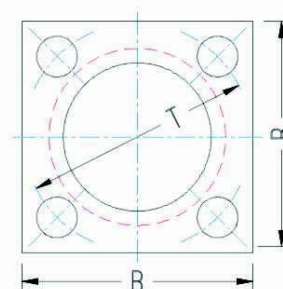


FU
UNION FLANGE ASSEMBLY

VERSION OF THE FORM OF WELDING SEAM
ACCORDING TO DIN 2559 (DETAILS 'C')



ROUND FLANGE FOR SIZES ABOVE DN 150



SQUARE FLANGE FOR SIZES UPTO DN 150

DIMENSIONS : FH SERIES & FU SERIES - PN 160

| DN | | PIPE SIZE | φ d | φ d 1 | φ d 2 | L | L 1 | B/D | h | T | 'O' RING SIZE | HEX. BOLT |
|------|-----|----------------------------|-----|-------|-------|-----|-----|-----|----|-----|---------------|--------------|
| INCH | MM | OD x WT | | | | | | | | | | FH SERIES |
| | | | | | | | | | | | | FU SERIES |
| 1/2 | 15 | 16 x 12 | 16 | 12 | 28 | 43 | 80 | 50 | 19 | 44 | 17.12 x 2.62 | 4/ M10 x 35 |
| | | 17.1 x 3.2 (3/8 "SCH 80) | 17 | 10.5 | | | | | | | | 4/ M10 x 55 |
| | | | | | | | | | | | | |
| 3/4 | 20 | 20 x 2.5 | 20 | 15 | 38 | 50 | 94 | 60 | 19 | 54 | 25.07 x 2.62 | 4/ M10 x 35 |
| | | 21.3 x 3.73 (1/2"SCH 80) | 22 | 13.5 | | | | | | | | 4/ M10 x 55 |
| | | 25 x 3 | 25 | 19 | | | | | | | | |
| | | 26.9 x 3.91 (3/4 SCH 80) | 27 | 19 | | | | | | | | |
| 1 | 25 | 30 x 4 | 30 | 22 | 46 | 56 | 106 | 70 | 19 | 64 | 29.82 x 2.62 | 4/ M12 x 35 |
| | | 33.4 x 4.55 (1"SCH 80) | 35 | 24 | | | | | | | | 4/ M12 x 60 |
| | | | | | | | | | | | | |
| 1¼ | 32 | 48.3 x 5.0 (1 1/2" SCH 80) | 49 | 38.5 | 55 | 64 | 122 | 80 | 24 | 72 | 34.59 x 2.62 | 4/ M12 x 40 |
| | | | | | | | | | | | | 4/ M12 x 70 |
| | | | | | | | | | | | | |
| 1½ | 40 | 48.3 x 5.08 (1 1/2"SCH 80) | 49 | 38.5 | 60 | 68 | 130 | 90 | 29 | 80 | 47.22 x 3.53 | 4/ M16 x 50 |
| | | 38x5 | 38 | 28 | | | | | | | | 4/ M16 x 80 |
| | | 42.2 x 4.85 | 43 | 32.5 | | | | | | | | |
| 2 | 50 | 60.3 x 5.54 (2"SCH 80) | 62 | 49 | 76 | 80 | 153 | 100 | 38 | 98 | 53.57 x 5.33 | 4/ M16 x 60 |
| | | 60.3 x 6.3 | 62 | 47.5 | | | | | | | | 4/ M16 x 100 |
| | | | | | | | | | | | | |
| 2½ | 65 | 73.0 x 7.01 (2 1/2"SCH 80) | 73 | 59 | 92 | 98 | 190 | 120 | 47 | 118 | 69.44 x 5.33 | 4/ M20 x 70 |
| | | 76.1 x 7.1 | 76 | 62 | | | | | | | | 4/ M20 x 120 |
| | | | | | | | | | | | | |
| 3 | 80 | 88.9 x 7.62 (3" SCH 80) | 90 | 73.5 | 135 | 135 | 262 | 180 | 59 | 175 | 100.3 x 5.33 | 4/ M30 x 90 |
| | | | | | | | | | | | | 4/ M30 x 150 |
| | | 101.6 x 10 | 102 | 81.5 | | | | | | | | |
| 4 | 100 | 114.3 x 11.13 (4"SCH 120) | 115 | 92 | 135 | 135 | 262 | 180 | 59 | 175 | 107.54 x 5.33 | 4/ M30 x 90 |
| | | | | | | | | | | | | 4/ M30 x 150 |
| | | | | | | | | | | | | |
| 5 | 125 | 141.3 x 12.7 (5"SCH 120) | 142 | 116 | 168 | 150 | 292 | 245 | 69 | 200 | 132.71 x 6.99 | 8/M24 x 100 |
| | | | | | | | | | | | | 8/M24 x 170 |
| | | 152.4 x 16 | 153 | 120.5 | | | | | | | | |
| 6 | 150 | 168.3 x 14.27 (6"SCH 120) | 169 | 139.5 | 205 | 150 | 372 | 300 | 79 | 245 | 158.11 x 6.99 | 8xM30 x 110 |
| | | | | | | | | | | | | 8xM30 x 200 |
| | | 177.8 x 17.5 | 179 | 143 | | | | | | | | |

DIMENSIONS : FH SERIES & FU SERIES - PN 250

| DN | | PIPE SIZE | ϕd | $\phi d 1$ | $\phi d 2$ | L | L 1 | B/D | h | T | 'O' RING SIZE | HEX. BOLT |
|-------|-----|------------------------------|----------|------------|------------|-----|-----|-----|----|-----|---------------|--------------|
| INCH | MM | OD x WT | | | | | | | | | | FH SERIES |
| | | | | | | | | | | | | FU SERIES |
| 3/8 | 10 | 16 x 2.6 | 16 | 12 | 28 | 43 | 80 | 50 | 19 | 44 | 17.12 x 2.62 | 4/ M10 x 35 |
| | | 17.1 x 3.2 (3/8" SCH 80) | 17 | 10.5 | | | | | | | | 4/ M10 x 55 |
| | | | | | | | | | | | | |
| 1/2 | 15 | 20 x 2.9 | 20 | 14 | 38 | 50 | 94 | 60 | 19 | 54 | 25.07 x 2.62 | 4/ M10 x 35 |
| | | 21.3 x 2.6 | 22 | 16 | | | | | | | | 4/ M10 x 55 |
| | | 21.3 x 3.73 (1/2" SCH 80) | 22 | 13.5 | | | | | | | | |
| 3/4 | 20 | 26.9 x 3.6 | 27 | 19.5 | 46 | 56 | 106 | 70 | 19 | 64 | 29.82 x 2.62 | 4/ M12 x 35 |
| | | 26.9 x 3.91 (3/4 SCH 80) | 27 | 19 | | | | | | | | 4/ M12 x 60 |
| | | | | | | | | | | | | |
| 1 | 25 | 33.4 x 4.5 (1" SCH 80) | 34 | 25 | 55 | 64 | 122 | 80 | 24 | 72 | 34.59 x 2.62 | 4/ M12 x 40 |
| | | | | | | | | | | | | 4/ M12 x 70 |
| | | | | | | | | | | | | |
| 1 1/4 | 32 | 42.2 x 5.6 | 43 | 31 | 60 | 68 | 130 | 90 | 29 | 80 | 44.04 x 3.53 | 4/ M16 x 50 |
| | | 42.2 x 6.35 (1 1/4" SCH 160) | 43 | 29.5 | | | | | | | | 4/ M16 x 80 |
| | | | | | | | | | | | | |
| 1 1/2 | 40 | 48.3 x 7.14 (1 1/2" SCH 160) | 49 | 34 | 76 | 80 | 153 | 100 | 38 | 98 | 53.34 x 5.33 | 4/ M16 x 60 |
| | | 60.3 x 8.74 (2" SCH 160) | 61 | 42.5 | | | | | | | | 4/ M16 x 100 |
| | | | | | | | | | | | | |
| 2 | 50 | 73.0 x 9.53 (2 1/2" SCH 160) | 73 | 54 | 92 | 98 | 190 | 120 | 47 | 118 | 59.69 x 5.33 | 4/ M20 x 70 |
| | | 76.1 x 10 | 76 | 56 | | | | | | | | 4/ M20 x 120 |
| | | | | | | | | | | | | |
| 2 1/2 | 65 | 88.9 x 11.13 (3" SCH 160) | 90 | 67 | 110 | 109 | 210 | 150 | 48 | 145 | 75.56 x 5.33 | 4/ M24 x 75 |
| | | | | | | | | | | | | 4/ M24 x 130 |
| | | | | | | | | | | | | |
| 3 | 80 | 101.6 x 14.1 | 102 | 73 | 135 | 135 | 262 | 180 | 59 | 175 | 88.26 x 5.33 | 4/ M30 x 90 |
| | | 114.3 x 13.49 (4" SCH 160) | 115 | 87.5 | | | | | | | | 4/ M30 x 150 |
| | | | | | | | | | | | | |
| 4 | 100 | 141.3 x 15.88 (5" SCH 120) | 142 | 109.5 | 168 | 150 | 292 | 245 | 69 | 200 | 113.66 X 5.33 | 8/ M24 x 100 |
| | | 139.7 x 20 | 140 | 99.5 | | | | | | | | 8/ M24 x 170 |
| | | | | | | | | | | | | |
| 5 | 125 | 168.3 x 21.95 (6" SCH XXS) | 169 | 124 | 205 | 190 | 372 | 300 | 79 | 245 | 148.59 X 6.99 | 8/ M30 x 110 |
| | | | | | | | | | | | | 8/ M30 x 200 |
| | | | | | | | | | | | | |
| 6 | 150 | | | | 245 | 200 | 391 | 355 | 89 | 290 | 183.51 X 6.99 | 8/ M36 x 130 |
| | | 193.7 x 25 | 193 | 143.5 | | | | | | | | 8/ M36 x 220 |
| | | | | | | | | | | | | |

DIMENSIONS : FH SERIES & FU SERIES - PN 315

| DN | | PIPE SIZE | ϕd | $\phi d 1$ | $\phi d 2$ | L | L 1 | B/D | h | T | 'O' RING SIZE | HEX. BOLT |
|-------|-----|------------------------------|----------|------------|------------|-----|-----|-----|----|-----|---------------|--------------|
| INCH | MM | OD x WT | | | | | | | | | | FH SERIES |
| | | | | | | | | | | | | FU SERIES |
| 3/8 | 10 | 16 x 2.6 | 16 | 11 | 28 | 43 | 80 | 50 | 19 | 44 | 17.12 x 2.62 | 4/ M10 x 35 |
| | | 17.1 x 3.2 (3/8" SCH 80) | 17 | 10.5 | | | | | | | | 4/ M10 x 55 |
| | | | | | | | | | | | | |
| 1/2 | 15 | 20 x 2.9 | 20 | 14 | 38 | 50 | 94 | 60 | 19 | 54 | 25.07 x 2.62 | 4/ M10 x 35 |
| | | 21.3 x 2.6 | 22 | 16 | | | | | | | | 4/ M10 x 55 |
| | | 21.3 x 3.73 (1/2" SCH 80) | 22 | 13.5 | | | | | | | | |
| 3/4 | 20 | 26.9 x 3.6 | 27 | 19.5 | 46 | 56 | 106 | 70 | 19 | 64 | 29.82 x 2.62 | 4/ M12 x 35 |
| | | 26.9 x 3.91 (3/4" SCH 80) | 27 | 19 | | | | | | | | 4/ M12 x 60 |
| | | | | | | | | | | | | |
| 1 | 25 | 33.4 x 4.5 (1" SCH 80) | 34 | 25 | 55 | 64 | 122 | 80 | 24 | 72 | 34.59 x 2.62 | 4/ M12 x 40 |
| | | | | | | | | | | | | 4/ M12 x 70 |
| | | | | | | | | | | | | |
| 1 1/4 | 32 | 42.2 x 5.6 | 43 | 31 | 60 | 68 | 130 | 90 | 29 | 80 | 44.04 x 3.53 | 4/ M16 x 50 |
| | | 42.2 x 6.35 (1 1/4" SCH 160) | 43 | 29.5 | | | | | | | | 4/ M16 x 80 |
| | | | | | | | | | | | | |
| 1 1/2 | 40 | 48.3 x 7.14 (1 1/2" SCH 160) | 49 | 34 | 76 | 80 | 153 | 100 | 38 | 98 | 53.34 x 5.33 | 4/ M16 x 60 |
| | | 60.3 x 8.74 (2" SCH 160) | 61 | 42.5 | | | | | | | | 4/ M16 x 100 |
| | | | | | | | | | | | | |
| 2 | 50 | 73.0 x 9.53 (2 1/2" SCH 160) | 73 | 54 | 92 | 98 | 190 | 120 | 47 | 118 | 59.69 x 5.33 | 4/ M20 x 70 |
| | | 76.1 x 10 | 76 | 56 | | | | | | | | 4/ M20 x 120 |
| | | | | | | | | | | | | |
| 2 1/2 | 65 | 88.9 x 11.13 (3" SCH 160) | 90 | 67 | 110 | 109 | 210 | 150 | 48 | 145 | 75.56 x 5.33 | 4/ M24 x 75 |
| | | | | | | | | | | | | 4/ M24 x 130 |
| | | | | | | | | | | | | |
| 3 | 80 | 101.6 x 14.1 | 102 | 73 | 135 | 135 | 262 | 180 | 59 | 175 | 88.26 x 5.33 | 4/ M30 x 90 |
| | | 114.3 x 13.49 (4" SCH 160) | 115 | 87.5 | | | | | | | | 4/ M30 x 150 |
| | | | | | | | | | | | | |
| 4 | 100 | 141.3 x 15.88 (5" SCH 120) | 142 | 109.5 | 168 | 150 | 292 | 245 | 69 | 200 | 113.66 x 5.33 | 8/ M24 x 100 |
| | | 139.7 x 20 | 140 | 99.5 | | | | | | | | 8/ M24 x 170 |
| | | | | | | | | | | | | |
| 5 | 125 | 168.3 x 21.95 (6" SCH XXS) | 169 | 124 | 205 | 190 | 372 | 300 | 79 | 245 | 148.59 x 6.99 | 8/ M30 x 110 |
| | | | | | | | | | | | | 8/ M30 x 200 |
| | | | | | | | | | | | | |
| 6 | 150 | | | | 245 | 200 | 391 | 355 | 89 | 290 | 183.51 x 6.99 | 8/ M36 x 130 |
| | | 193.7 x 25 | 194 | 143.5 | | | | | | | | 8/ M36 x 200 |
| | | | | | | | | | | | | |

Flange Assembly with Butt Weld End Connections

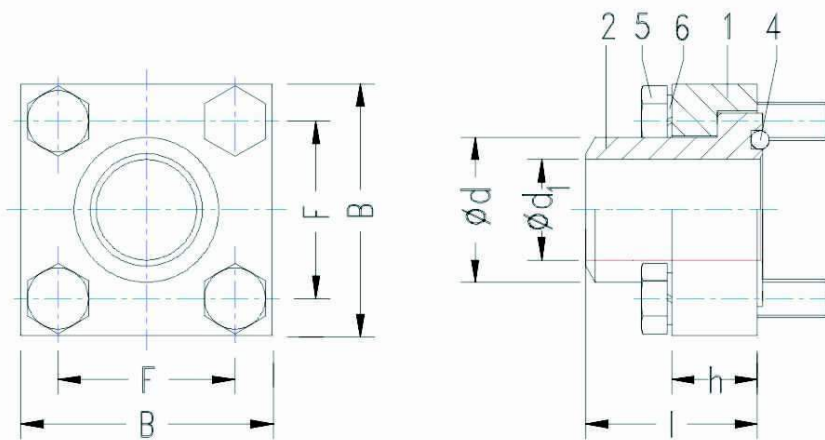
FLANGES : PN - 250 STATIC & PN - 160 DYNAMIC

PN - 400 STATIC & PN - 315 DYNAMIC

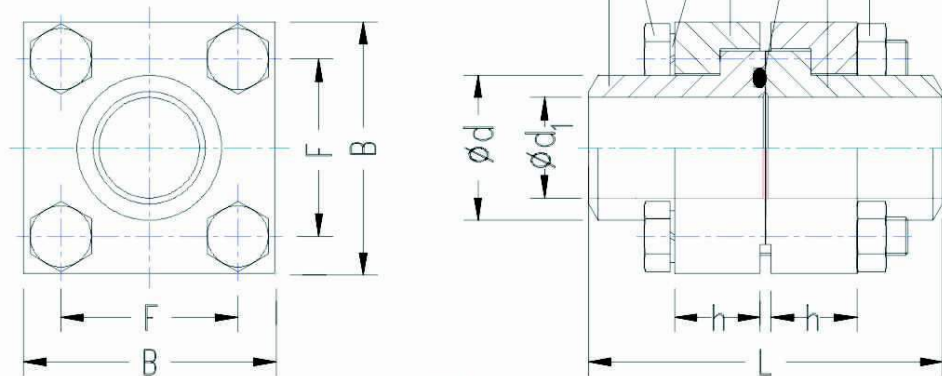
| PART | MATERIAL | CBH | QTY | CBU |
|--------------------------|----------------|-----|-----|-----|
| 1) FLANGE | IS. 2062 | 1 | | 1 |
| 2) SLEEVE WITH GROOVE | IS. 2062 | 1 | | -1 |
| 3) SLEEVE WITHOUT GROOVE | IS. 2062 | - | | 1 |
| 4) "O" RING | NITRILE RUBBER | 1 | | 1 |
| 5) HEX. HD. CAP SCREW | IS. 1363 | 4 | | 4 |
| 6) SPRING WASHER | IS. 3063 | 4 | | 4 |
| 7) HEX NUT | IS. 1363 | - | | 4 |

FINISH : ALL CS PARTS ARE PHOSPHATIZED

TEST PRESSURE : PN 250 STATIC & PN 160 DYNAMIC = 3750 PSI HYDROSTATIC @ ROOM TEMPERATURE.
PN 400 STATIC & PN 315 DYNAMIC = 6000 PSI HYDROSTATIC @ ROOM TEMPERATURE.



CBH
HALF FLANGE ASSEMBLY



CBU
UNION FLANGE ASSEMBLY

Flange Assembly with Butt Weld End Connections

FLANGES : PN - 250 STATIC & PN - 160 DYNAMIC

PN - 400 STATIC & PN - 315 DYNAMIC

DIMENSIONS : PN 250 STATIC & PN-160 DYNAMIC

| PIPE SIZE | | PIPE OD | $\phi D1$ | ϕD | B | h | F | I | L | 'O' RING SIZE | BOLT SIZE | |
|-----------|----|---------|-----------|----------|-----|----|-------|----|-----|---------------|-------------|--------------|
| INCH | MM | | | | | | | | | | HALF FLANGE | UNION FLANGE |
| 3/8 | 10 | 17.1 | 12.5 | 18 | 40 | 18 | 24.7 | 30 | 60 | 17.12 x 2.62 | 4/M6 X 30 | 4/M6x45 |
| 1/2 | 15 | 21.3 | 15 | 24 | 45 | 20 | 29.7 | 30 | 60 | 18.64 x 3.53 | 4/M8 X 35 | 4/M8 x 50 |
| 3/4 | 20 | 26.7 | 20 | 32 | 50 | 22 | 35.4 | 35 | 70 | 24.99 x 3.53 | 4/M8 X 35 | 4/M8 x 55 |
| 1 | 25 | 33.4 | 25 | 38 | 65 | 25 | 43.8 | 40 | 80 | 32.92 x 3.53 | 4/M10 X 40 | 4/M10 x 65 |
| 1.1/4 | 32 | 42.3 | 32 | 43 | 75 | 30 | 51.6 | 45 | 90 | 37.69 x 3.53 | 4/M12 x 50 | 4/M12 x 75 |
| 1.1/2 | 40 | 48.3 | 38 | 50 | 90 | 36 | 60.1 | 50 | 100 | 47.22 x 3.53 | 4/M16 x 60 | 4/M16 x 90 |
| 2 | 50 | 60.3 | 47 | 62 | 100 | 40 | 69.3 | 60 | 120 | 56.74 x 3.53 | 4/M16 x 65 | 4/M16 x100 |
| 2.1/2 | 65 | 73.0 | 58 | 76 | 120 | 45 | 83.4 | 70 | 140 | 69.44 x 3.53 | 4/M20 x 80 | 4/M20 x 110 |
| 3 | 80 | 88.9 | 70 | 90 | 140 | 52 | 102.5 | 80 | 160 | 85.32 x 3.53 | 4/M20 x 90 | 4/M20 x 120 |

DIMENSIONS : PN_400 STATIC & PN-315 DYNAMIC

| PIPE SIZE | | PIPE OD | $\phi D1$ | ϕD | B | h | F | I | L | 'O' RING SIZE | BOLT SIZE | |
|-----------|-----|---------|-----------|----------|-----|----|-------|-----|-----|---------------|-------------|--------------|
| INCH | MM | | | | | | | | | | HALF FLANGE | UNION FLANGE |
| 3/8" | 10 | 17.1 | 11 | 18 | 40 | 18 | 24.7 | 35 | 70 | 17.12 x 2.62 | 4/M6 x 30 | 4/M6 x 45 |
| 1/2" | 15 | 21.3 | 14 | 24 | 45 | 20 | 29.7 | 40 | 80 | 18.64 x 3.53 | 4/M8 x 35 | 4/M8 x 50 |
| 3/4" | 20 | 26.7 | 18 | 32 | 50 | 22 | 35.4 | 45 | 90 | 24.99 x 3.53 | 4/M8 x 35 | 4/M8 x 55 |
| 1" | 25 | 33.4 | 22 | 38 | 65 | 25 | 43.8 | 50 | 100 | 32.92 x 3.53 | 4/M10 x 40 | 4/M10 x65 |
| 1.1/4" | 32 | 42.3 | 29 | 44 | 75 | 30 | 51.6 | 55 | 110 | 37.69 x 3.53 | 4/M12 x 50 | 4/M12 x 75 |
| 1.1/2" | 40 | 48.3 | 35 | 51 | 90 | 36 | 60.1 | 60 | 120 | 47.22 x 3.53 | 4/M16x60 | 4/M16x90 |
| 2" | 50 | 60.3 | 43 | 67 | 100 | 40 | 69.3 | 70 | 140 | 56.74 x 3.53 | 4/M16 x 65 | 4/M16x100 |
| 2.1/2" | 65 | 73.0 | 53 | 80 | 120 | 50 | 83.4 | 80 | 160 | 69.44 x 3.53 | 4/M20 x 80 | 4/M20 x 130 |
| 3" | 80 | 88.9 | 58 | 90 | 150 | 52 | 102.5 | 90 | 180 | 85.32 x 3.53 | 4/M24 x 90 | 4/M24 x 130 |
| 3.1/2" | 89 | 101.6 | 63 | 102 | 160 | 60 | 113.1 | 90 | 180 | 98.02 x 3.53 | 4/M24 x 100 | 4/M24 x 150 |
| 4" | 100 | 114.3 | 74 | 114 | 180 | 70 | 123.7 | 105 | 210 | 110.72 x 3.53 | 4/M30 x 120 | 4/M30 x 170 |

Flange Assembly with Socket Weld End Connections

FLANGES : PN - 250 STATIC & PN - 160 DYNAMIC

PN - 400 STATIC & PN - 315 SYNAMIC

| PART | MATERIAL | CSH | CSU |
|--------------------------|----------------|-----|-----|
| 1) FLANGE | IS. 2062 | 1 | 1 |
| 2) SLEEVE WITH GROOVE | IS. 2062 | 1 | 1 |
| 3) SLEEVE WITHOUT GROOVE | IS. 2062 | - | 1 |
| 4) "O" RING | NITRILE RUBBER | 1 | 1 |
| 5) HEX. HD. CAP SCREW | IS. 1363 | 4 | 4 |
| 6) SPRING WASHER | IS. 3063 | 4 | 4 |
| 7) HEX NUT | IS. 1363 | - | 4 |

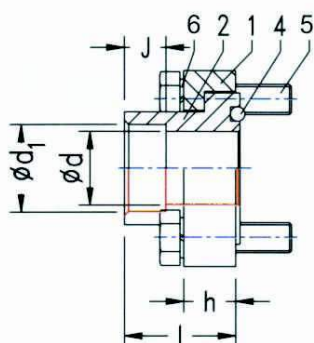
FINISH : ALL CS PARTS ARE PHOSPHATIZED

TEST PRESSURE : PN 250 STATIC & PN 160 DYNAMIC = 3750 PSI HYDROSTATIC @ ROOM TEMPERATURE.
PN 400 STATIC & PN 315 DYNAMIC = 6000 PSI HYDROSTATIC @ ROOM TEMPERATURE.

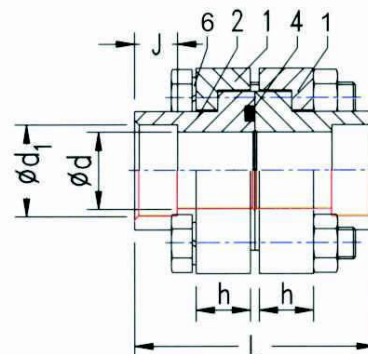
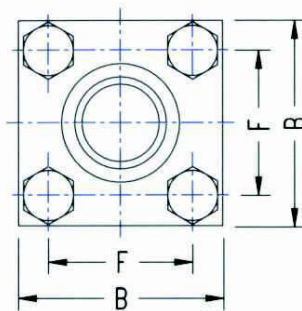
DIMENSIONS : PN 400 STATIC & PN 350 DYNAMIC

| DN | | PIPE SIZE | φd | φd 1 | I | L | J | B | h | F | 'O' RING SIZE | HEX, BOLT SIZE |
|-------|----|--------------|------|------|-----|-----|----|-----|----|-------|---------------|----------------|
| INCH | MM | OD- WT | | | | | | | | | | HALF |
| | | | | | | | | | | | | UNION |
| 3/8 | 10 | 16 x 2.0 | 11 | 16.5 | 30 | 60 | 12 | 45 | 13 | 29.7 | 18.64 x 3.53 | M 8 x 30 |
| | | 17.1 x 3.2 | 11 | 17.6 | | | | | | | | M 8 x 40 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 1/2 | 13 | 20 x 3.0 | 14 | 20.5 | 35 | 70 | 13 | 50 | 15 | 35.3 | 24.99 x 3.53 | M 8 x 30 |
| | | 21.3 x 4.75 | 12 | 21.7 | | | | | | | | M 8 x 45 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 3/4 | 19 | 25 x 4.0 | 17 | 25.5 | 40 | 80 | 14 | 65 | 17 | 43.8 | 32.92 x 3.53 | M 10 x 35 |
| | | 26.7 x 5.56 | 16 | 27.3 | | | | | | | | M 10 x 50 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 1 | 25 | 30 x 4.5 | 21 | 30.5 | 45 | 90 | 16 | 75 | 18 | 51.6 | 37.69 x 3.53 | M 12 x 40 |
| | | 32 x 5.0 | 22 | 32.5 | | | | | | | | M 12 x 60 |
| | | 33.4 x 6.35 | 21 | 34.0 | | | | | | | | |
| | | | | | | | | | | | | |
| 1 1/4 | 32 | 38 x 6 | 26 | 38.5 | 50 | 100 | 18 | 85 | 22 | 60.0 | 47.22 x 3.53 | M 14 x 45 |
| | | 40 x 6 | 28 | 40.7 | | | | | | | | M 14 x 70 |
| | | 42.2 x 6.35 | 30 | 43.0 | | | | | | | | |
| | | | | | | | | | | | | |
| 1 1/2 | 38 | 48.3 x 7.14 | 35 | 49.0 | 60 | 120 | 20 | 100 | 27 | 69.4 | 56.74 x 3.53 | M 16 x 55 |
| | | 50 x 7.3 | 35 | 50.7 | | | | | | | | M 16 x 80 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 2 | 51 | 60.3 x 11.07 | 38.5 | 61.0 | 70 | 140 | 22 | 120 | 33 | 83.4 | 69.44 x 3.53 | M 20 x 65 |
| | | 63 x 10 | 43 | 64.0 | | | | | | | | M 20 x 100 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 2 1/2 | 65 | 73 x 14.02 | 45 | 74.0 | 80 | 160 | 24 | 150 | 37 | 102.5 | 85.32 x 3.53 | M 24 x 75 |
| | | 76.1 x 12 | 53 | 77.0 | | | | | | | | M 24 x 110 |
| | | | | | | | | | | | | M 24 x 90 |
| | | | | | | | | | | | | M 24 x 120 |
| 3 | 80 | 88.9 x 15.24 | 58 | 90.0 | 100 | 200 | 28 | 160 | 50 | 113.2 | 110.72 x 3.53 | M 24 x 100 |
| | | 90 x 15 | 60 | 91.0 | | | | | | | | M 24 x 140 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |





CSH
HALF FLANGE ASSEMBLY



CSU
UNION FLANGE ASSEMBLY

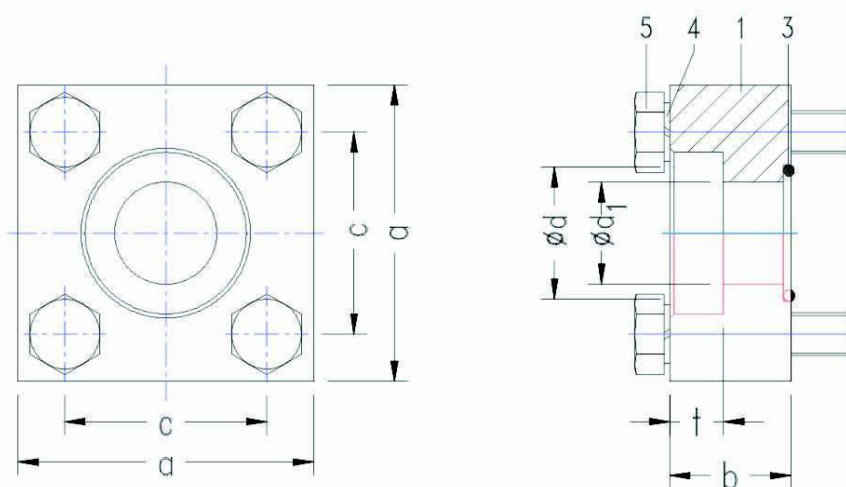
DIMENSIONS : PN_250 STATIC & PN-160 DYNAMIC

| DN | | PIPE SIZE | ϕd | ϕd 1 | I | L | J | B | h | F | 'O' RING SIZE | HEX, BOLT SIZE |
|------|----|--------------|-------|------|-----|-----|----|-----|----|-------|---------------|--------------------------|
| INCH | MM | OD | | | | | | | | | | HALF |
| | | | UNION | | | | | | | | | |
| 3/8 | 10 | 16 x 2 | 12.5 | 16.5 | 30 | 60 | 12 | 45 | 13 | 29.7 | 18.64 x 3.53 | M 8 x 30 |
| | | 17.1 x 3.20 | 10.7 | 17.6 | | | | | | | | M 8 x 40 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 1/2 | 13 | 20 | 15 | 20.5 | 35 | 70 | 13 | 50 | 15 | 35.3 | 24.99 x 3.53 | M 8 x 30 |
| | | 21.3 x 3.73 | 14 | 21.7 | | | | | | | | M 8 x 45 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 3/4 | 19 | 25 x 2.5 | 20 | 25.5 | 40 | 80 | 14 | 65 | 17 | 43.8 | 32.92 x 3.53 | M 10 x 35 |
| | | 26.7 x 3.91 | 19 | 27.3 | | | | | | | | M 10 x 50 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 1 | 25 | 30 x 2.5 | 25 | 30.5 | 45 | 90 | 16 | 75 | 18 | 51.6 | 37.69 x 3.53 | M 12 x 40 |
| | | 32 x 3.5 | 25 | 32.5 | | | | | | | | M 12 x 60 |
| | | 33.4 x 4.55 | 25 | 34.0 | | | | | | | | |
| | | 35 x 5 | 25 | 35.5 | | | | | | | | |
| 1¼ | 32 | 38 x 3 | 32 | 38.5 | 50 | 100 | 18 | 85 | 22 | 60.0 | 47.22 x 3.53 | M 14 x 45 |
| | | 40 x 4 | 32 | 40.7 | | | | | | | | M 14 x 70 |
| | | 42.2 x 4.85 | 32 | 43.0 | | | | | | | | |
| | | | | | | | | | | | | |
| 1½ | 38 | 48.3 x 5.08 | 38 | 49.0 | 60 | 120 | 20 | 100 | 27 | 69.4 | 56.74 x 3.53 | M 16 x 55 |
| | | 50 x 6.0 | 38 | 50.7 | | | | | | | | M 16 x 80 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 2 | 51 | 60.3 x 8.75 | 46 | 61.0 | 70 | 140 | 22 | 120 | 33 | 83.4 | 69.44 x 3.53 | M 20 x 65 |
| | | 63.5 x 8.0 | 47 | 64.0 | | | | | | | | M 20 x 100 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 2½ | 65 | 73 x 9.53 | 54 | 74.0 | 80 | 160 | 24 | 150 | 37 | 102.5 | 85.32 x 3.53 | M 24 x 75 M 24 x 110 |
| | | 76.1 x 9.00 | 58 | 77.0 | | | | | | | | M 24 x 90 M 24 x 120 |
| | | | | | 100 | 200 | 24 | 150 | 45 | 102.5 | 98.05 x 3.53 | |
| | | | | | | | | | | | | |
| 3 | 80 | 88.9 x 11.13 | 70 | 90.0 | 100 | 200 | 28 | 160 | 50 | 113.2 | 110.72 x 3.53 | M 24 x 100 M 24 x 140 |
| | | 90 x 10 | 70 | 91.0 | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

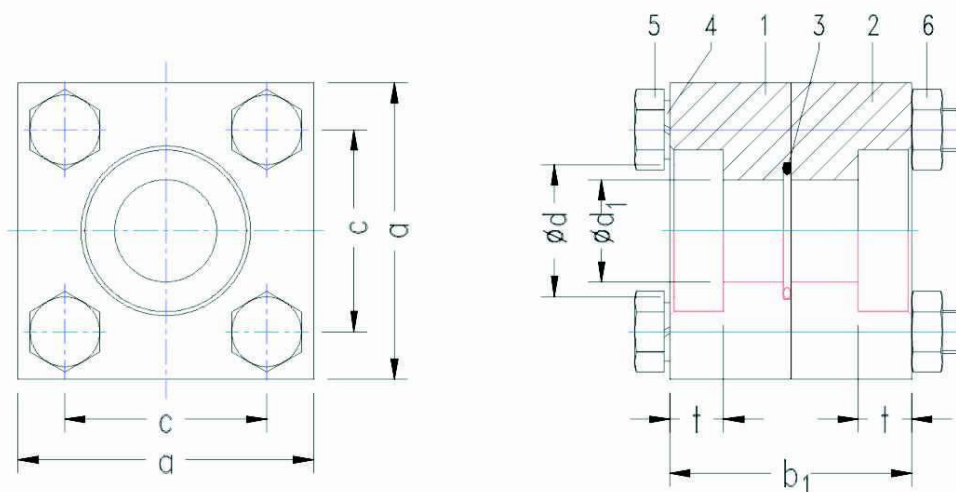
| PART | MATERIAL | NSF | QTY | NSU |
|--------------------------|----------------|-----|-----|-----|
| 1) FLANGE WITH GROOVE | IS. 2062 | 1 | | 1 |
| 2) FLANGE WITHOUT GROOVE | IS. 2062 | - | | 1 |
| 3) "O" RING | NITRILE RUBBER | 1 | | 1 |
| 4) SPRING WASHER | IS. 3063 | 4 | | 4 |
| 5) HEX. HD. CAP SCREW | IS. 1363 | 4 | | 4 |
| 6) HEX NUT | IS 1363 | - | | 4 |

FINISH : ALL CS PARTS ARE PHOSPHATIZED.

TEST PRESSURE : PN 100 bar : 1400 PSI HYDROSTATIC @ ROOM TEMPERATURE
 PN 160 bar : 2400 PSI HYDROSTATIC @ ROOM TEMPERATURE
 PN 250 bar : 3750 PSI HYDROSTATIC @ ROOM TEMPERATURE



HALF FLANGE ASSY



UNION FLANGE ASSY

DIMENSIONS : PN 100

| DN | | PIPE SIZE | PART NO. SN 712 | ϕd | $\phi d 1$ | t | b | a | c | BOLT SIZE | 'O' RING SIZE |
|------|----|-----------|--------------------|----------|------------|----|-----|-----|-----|--------------|------------------|
| INCH | MM | OD | | | | | | | | | |
| 1/2 | 15 | 21.3 | A 15/22-100 | 22 | 15 | 13 | 39 | 50 | 35 | 4/M8 x 50 | 18.6 x 3.53 |
| 3/4 | 20 | 26.7 | A 20/27-100 | 27 | 20 | 13 | 39 | 50 | 35 | 4/M8 x 50 | 25.0 x 3.53 |
| 1 | 25 | 33.4 | A25/34-100 | 34 | 25 | 16 | 52 | 75 | 52 | 4/M10 x 70 | 32.9 x 3.53 |
| 1¼ | 32 | 42.2 | A32/43-100 | 43 | 32 | 16 | 52 | 75 | 52 | 4/M12 x 70 | 37.7 x 3.53 |
| 1½ | 40 | 48.3 | A40/49-100 | 49 | 40 | 20 | 80 | 100 | 70 | 4/M12 x 100 | 44.0 x 3.53 |
| 2 | 50 | 60.3 | A50/61-100 | 61 | 50 | 20 | 90 | 110 | 75 | 4/M16 x 110 | 57.0 x 4.0 |
| 2½ | 65 | 73.0 | A65/74-100 | 73.5 | 65 | 25 | 110 | 140 | 100 | 4/M16 x 130 | 70.0 x 4.0 |
| 3 | 80 | 88.9 | A80/90-100 | 90 | 80 | 25 | 140 | 160 | 120 | 4/M20 x 160 | 90.0 x 5.0 |

DIMENSIONS : PN 160

| DN | | PIPE SIZE | PART NO. SN 712 | ϕd | $\phi d 1$ | t | b | a | c | BOLT SIZE | 'O' RING SIZE |
|------|----|-----------|--------------------|----------|------------|----|-----|-----|------|--------------|------------------|
| INCH | MM | OD | | | | | | | | | |
| 1/2 | 15 | 21.3 | A 15/22-160 | 22 | 14 | 12 | 38 | 45 | 29.5 | 4/M8 x 50 | 18.6 x 3.53 |
| 3/4 | 20 | 26.7 | A 20/27-160 | 27 | 19 | 13 | 40 | 50 | 35.5 | 4/M8 x 65 | 25.0 x 3.53 |
| 1 | 25 | 33.4 | A25/34-160 | 34 | 24 | 14 | 44 | 65 | 44 | 4/M10 x 60 | 32.9 x 3.53 |
| 1¼ | 32 | 42.2 | A32/43-160 | 43 | 32 | 16 | 52 | 75 | 51 | 4/M12 x 70 | 37.7 x 3.53 |
| 1½ | 40 | 48.3 | A40/49-160 | 49 | 40 | 20 | 80 | 100 | 70 | 4/M12 x 100 | 44.0 x 3.53 |
| 2 | 50 | 60.3 | A50/61-160 | 61 | 50 | 20 | 90 | 110 | 75 | 4/M16 x 110 | 57.0 x 4.0 |
| 2½ | 65 | 73.0 | A65/74-160 | 74 | 60 | 25 | 110 | 140 | 100 | 4/M16 x 130 | 70.0 x 4.0 |
| 3 | 80 | 88.9 | A80/90-160 | 90 | 73 | 25 | 140 | 160 | 120 | 4/M20 x 160 | 90.0 x 5.0 |

DIMENSIONS : PN 250

| DN | | PIPE SIZE | PART NO. SN 712 | ϕd | $\phi d 1$ | t | b | a | c | BOLT SIZE | 'O' RING SIZE |
|------|----|-----------|--------------------|----------|------------|----|-----|-----|------|--------------|------------------|
| INCH | MM | OD | | | | | | | | | |
| 1/2 | 15 | 21.3 | A 15/22-250 | 22 | 12 | 13 | 50 | 60 | 36.5 | 4/M10 x 65 | 18.6 x 3.53 |
| 3/4 | 20 | 26.7 | A 20/27-250 | 27 | 15 | 13 | 50 | 65 | 44.5 | 4/M10 x 65 | 25.0 x 3.53 |
| 1 | 25 | 33.4 | A25/34-250 | 34 | 21 | 13 | 50 | 75 | 51 | 4/M12 x 70 | 32.9 x 3.53 |
| 1¼ | 32 | 42.2 | A32/43-250 | 43 | 29 | 16 | 64 | 100 | 70 | 4/M16 x 80 | 37.7 x 3.53 |
| 1½ | 40 | 48.3 | A40/49-250 | 49 | 34 | 20 | 90 | 100 | 70 | 4/M16 x 110 | 44.0 x 3.53 |
| 2 | 50 | 60.3 | A50/61-250 | 61 | 40 | 20 | 90 | 110 | 75 | 4/M16 x 110 | 44.0 x 3.53 |
| 2½ | 65 | 73.0 | A65/74-250 | 74 | 50 | 20 | 110 | 140 | 100 | 4/M16 x 130 | 57.0 x 4.0 |
| 3 | 80 | 88.9 | A80/90-250 | 90 | 65 | 25 | 140 | 160 | 120 | 4/M20 x 160 | 70.0 x 5.0 |

Note :

Note :



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