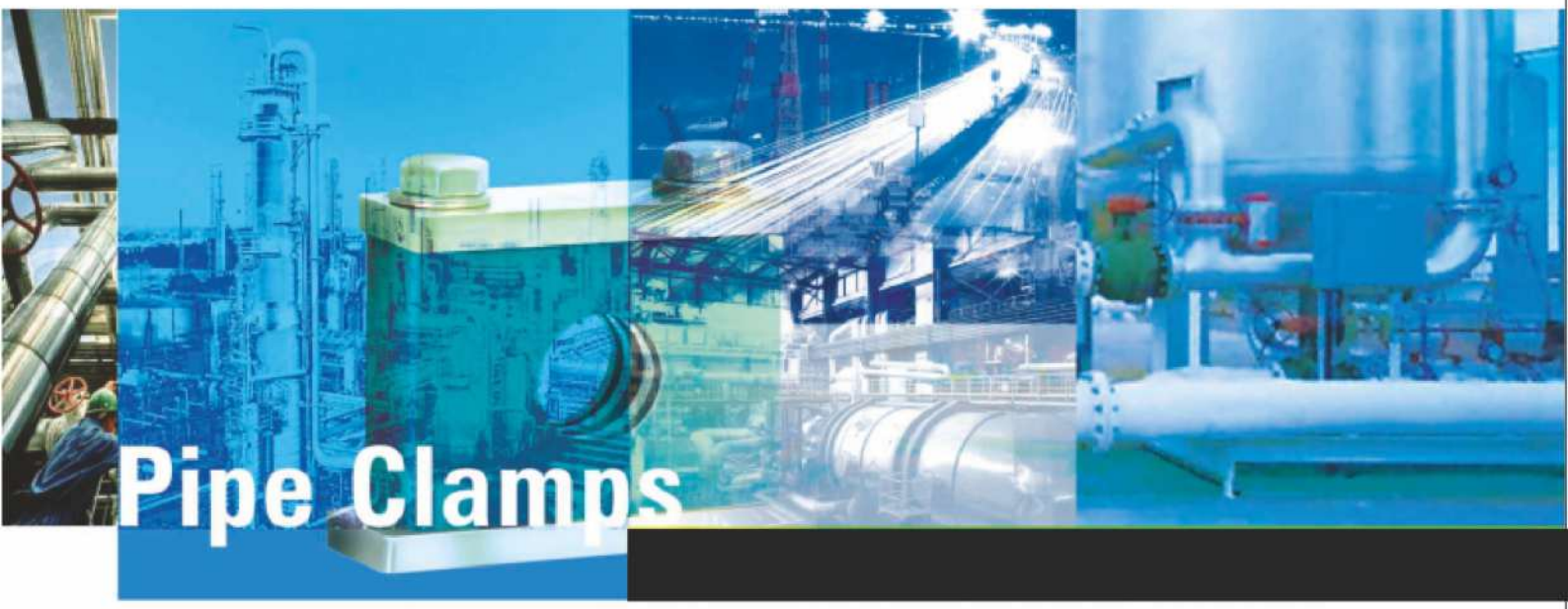
FLUID CONTROLS®

HYD-AIR®

DIN CLAMPS & FLANGES





Pipe Clamps

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.

Hyd-Air® 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^{0} 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 flexibity 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 upto 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 upto 1" or 38 mm OD. Channels are available in lengths of ½ 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 upto 8" or 222 mm OD in the current program.

Heavy Duty Pipe Clamps are also available in vertical mounting arrangement and horizontal multi-clamp arrangement either back to back or run as shown on page 3.



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



HYD-AIR 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



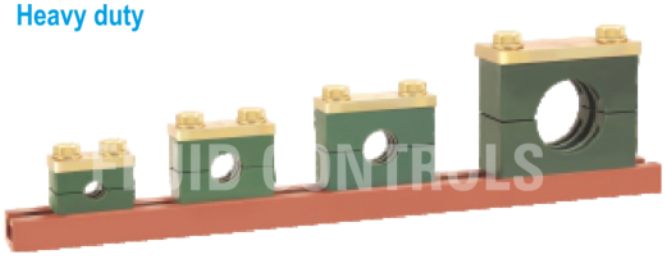
Horizontal Back-to-Back Assembly Permits use of Single Heavy Duty Pipe Clamp Assemblies in locations of extreme vibration and heavy loads where two or more assemblies are mounted on single weld plate.

CHANNEL MOUNTING WITH OR WITHOUT TOP PLATE

Standard duty

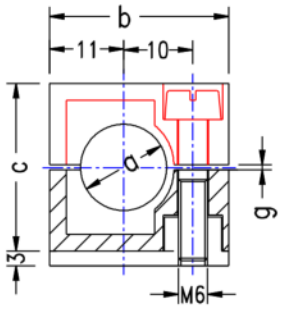


Heavy duty

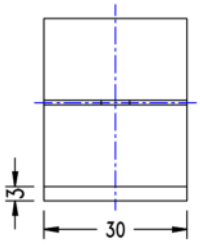


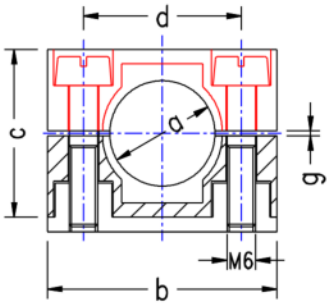
ASSEMBLY WITH WELD PLATE & SCREWS





Group 1 only

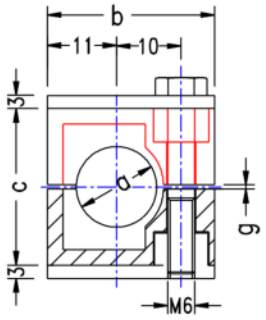




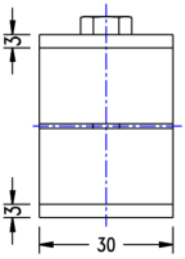
Group 1A to 6

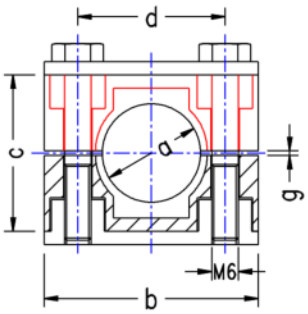
ASSEMBLY WITH WELD PLATE, TOP PLATE, & HEX. BOLTS





Group 1 only

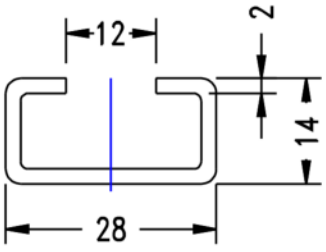




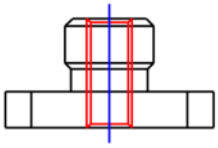
Group 1A to 6

CHANNEL MOUNTING RAIL





'T' Nut



Pipe Clamp Assembly - Standard Duty Series

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 0D	INCH 0D	INCH NB							
0S	6	1/4		28	26	-	1	3	P0S.06 ...	P1S.1.06 ...
	8								P0S.08 ...	P1S.1.08 ...
	10	3/8	1/8						P0S.10 ...	P1S.1.10 ...
1S	6	1/4		34	26	20	1.3	3	P1S.06 ...	P1S.1.06 ...
	8								P1S.08 ...	P1S.1.08 ...
	10	3/8	1/8						P1S.10 ...	P1S.1.10 ...
2S	12	1/2		40	33	26	1	3	P2S.12 ...	P2S.1.12 ...
	14		1/4						P2S.14 ...	P2S.1.14 ...
	15								P2S.15 ...	P2S.1.15 ...
	16	5/8	3/8						P2S.16 ...	P2S.1.16 ...
	18								P2S.18 ...	P2S.1.18 ...
3S	19	3/4		48	35	33	1	3	P3S.19 ...	P3S.1.19 ...
	20								P3S.20 ...	P3S.1.20 ...
	22	7/8	1/2						P3S.22 ...	P3S.1.22 ...
	25	1							P3S.25 ...	P3S.1.25 ...
4S	28		3/4	57	42	40	2	3	P4S.28 ...	P4S.1.28 ...
	30								P4S.30 ...	P4S.1.30 ...
5S	32	1.1/4		70	60	52	2	3	P5S.32 ...	P5S.1.32 ...
	35		1						P5S.35 ...	P5S.1.35 ...
	38	1.1/2							P5S.38 ...	P5S.1.38 ...
	42		1.1/4						P5S.42 ...	P5S.1.42 ...
6S	44.5	1.3/4	1.1/2	86	69	66	3	3	P6S.44.5 ...	P6S.1.44.5 ...
	48								P6S.48 ...	P6S.1.48 ...
	50	2							P6S.50 ...	P6S.1.50 ...
7S	57	2.1/4		122	93	94	1.8	5	P7S.57 ...	P7S.1.57 ...
	60		2						P7S.60 ...	P7S.1.60 ...
	63	2.1/2							P7S.63 ...	P7S.1.63 ...
	70	2.3/4							P7S.70 ...	P7S.1.70 ...
	73		2.1/2						P7S.73 ...	P7S.1.73 ...
	76	3							P7S.76 ...	P7S.1.76 ...
8S	90	3.1/2	3	148	118	120	1.8	5	P8S.90 ...	P8S.1.90 ...
	101	4	3.1/2						P8S.101 ...	P8S.1.101 ...

HOW TO ORDER

(A) For Single Clamps Assembly and Vertical Mounting Kit

P ● ● ● ● ● ●

- 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

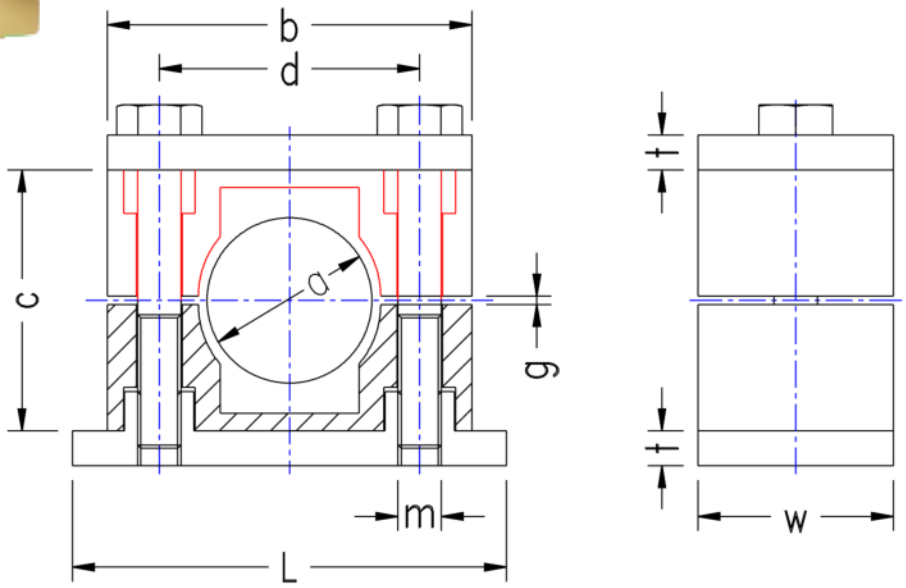
(B) For Multiple Clamps on Single Weld Plate

● ● P ● 1 ● ●

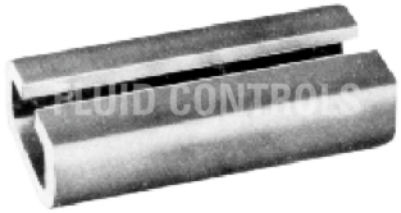
- Number of Clamps :
  Vertical Mounting : V
  Horizontal Back-to-Back : HB
  Horizontal Side-to-Side : HR
- Pipe Clamp Assembly.
- Group Number 0S,1S,..
- Multiple Clamps : Are always ordered with
  Top Plate and Hex Bolts
- Outside Diameter for Pipe / Tube in their order :
  (a) For Vertical Mounting : 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

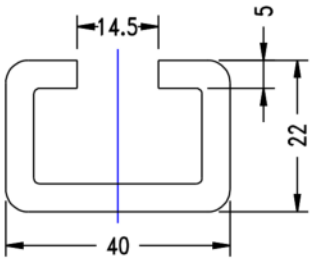
ASSEMBLY WITH WELD PLATE, TOP PLATE, & HEX. BOLTS



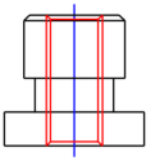


CHANNEL MOUNTING RAIL





'T' Nut



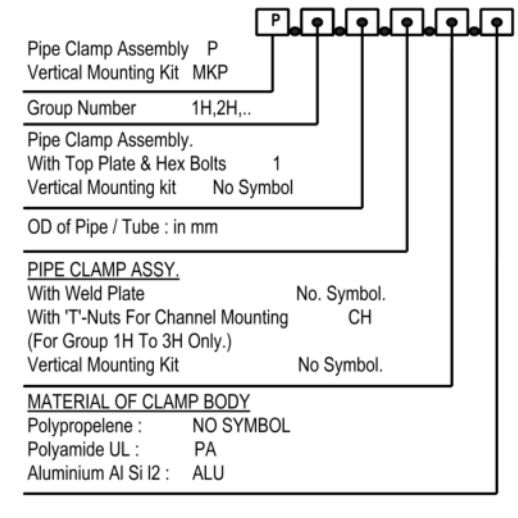
Pipe Clamp Assembly - Heavy Duty Series

REFERENCE-DIN3015 PART-2

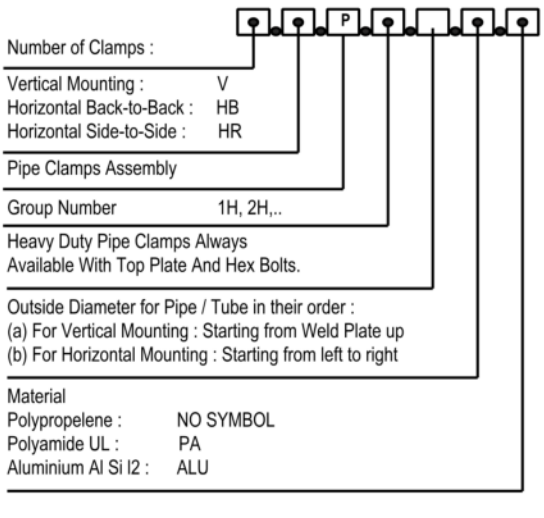
GROUP	PIPE SIZE (a)			b	c	w	L	t	d	m	g	TOP PLATE AND HEX BOLTS ASSY.PART NO.	WT./PIECE IN KG.
	MM 0D	INCH 0D	INCH NB										
1H	6	1/4		55	32	30	73	8	33	M10	2	P1H.1.06 ...	0.35
	8											P1H.1.08 ...	
	10	3/8	1/8									P1H.1.10 ...	
	12	1/2										P1H.1.12 ...	
	14		1/4									P1H.1.14 ...	
	15											P1H.1.15 ...	
	16	5/8	3/8									P1H.1.16 ...	
	18											P1H.1.18 ...	
2H	19	3/4		70	48	30	85	8	45	M10	2	P2H.1.19 ...	0.46
	20											P2H.1.20 ...	
	22	7/8	1/2									P2H.1.22 ...	
	25	1										P2H.1.25 ...	
	28		3/4									P2H.1.28 ...	
3H	30	1.1/4		84	60	30	100	8	60	M10	2	P3H.1.30 ...	0.53
	35		1									P3H.1.35 ...	
	38	1.1/2										P3H.1.38 ...	
	42		1.1/4									P3H.1.42 ...	
4H	50	2	1.1/2	115	90	45	140	10	90.5	M12	3	P4H.1.50 ...	1.80
	60		2									P4H.1.60 ...	
	63	2.1/2										P4H.1.63 ...	
	65											P4H.1.65 ...	
5H	70			152	120	60	180	10	122	M16	3	P5H.1.70 ...	3.00
	73		2.1/2									P5H.1.73 ...	
	76	3										P5H.1.76 ...	
	89	3.1/2	3									P5H.1.89 ...	
	90											P5H.1.90 ...	
6H	101	4	3.1/2	205	170	80	225	15	168	M20	4	P6H.1.101 ...	8.00
	114	4.1/2	4									P6H.1.114 ...	
	127	5	4.1/2									P6H.1.127 ...	
7H	141	5.1/2	5	250	200	90	270	15	205	M24	4	P7H.1.141 ...	11.00
	150	6										P7H.1.150 ...	
	168	6.1/2	6									P7H.1.168 ...	
8H	219	8.1/2	8	330	270	120	340	25	268	M30	4	P8H.1.219 ...	24.00

HOW TO ORDER

(A) For Single Clamp Assembly and vertical Mounting Kit

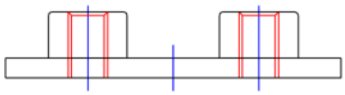


(B) For Multiple Clamps on Single Weld Plate



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

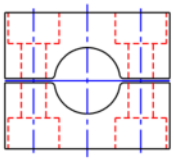
TOP PLATE



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

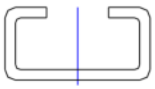
CLAMP BODY



b - • - • - •

Designation of Clamp Body
Group 1S To 8S and 1H To 8H
OD of Pipe in MM
Material — Polypropylene / Polymide / Aluminum — No symbol / PP / Al

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

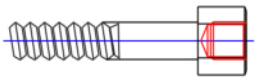
INTERMEDIATE PLATE



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

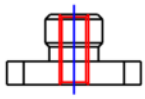
INTERMEDIATE BOLT



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



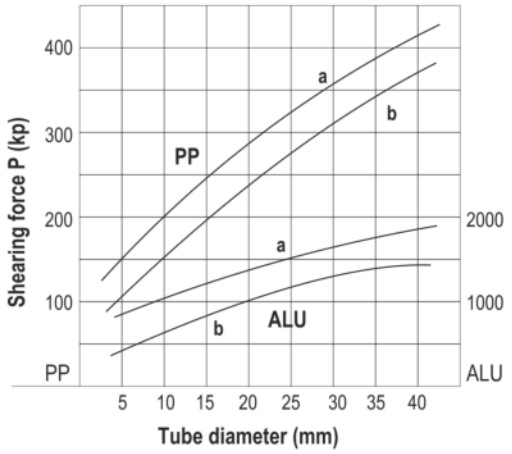
T - • - • - •

Designation of 'T' Nut
Group 1S To 8S and 1H To 8H
OD of Pipe in MM
Material — CS / SS 304 — No symbol / S

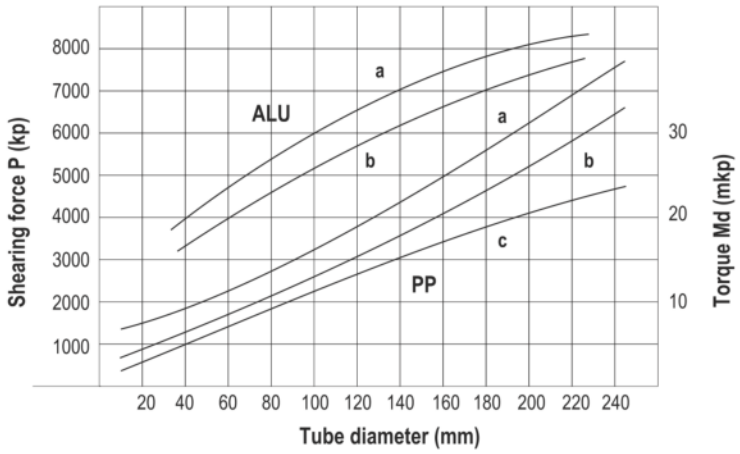
SHEARING FORCES DIAGRAM

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



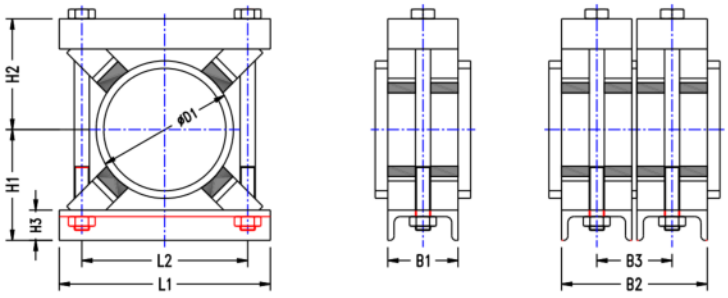
MATERIAL

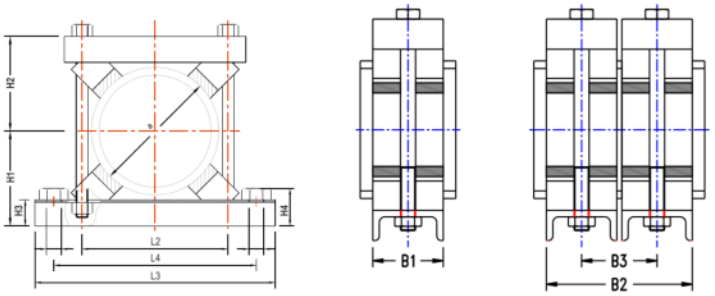
Pipe Clamps in bodies of polypropylene are suitable for temperatures upto 90 degrees C. For higher Temperatures and heavy ratings, Pipe Clamp bodies are made with polyamide. Where temperatures are in excess of 180 degrees C., these bodies are made from aluminium. Properties of the clamp body materials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

Clamp Body Material Properties	Polypropylene PP Density : 0.906 gm/cm^3	Polyamide - Nylon 66 Density : 1.12 - 15g/cm^3	Aluminum - LM 6 IS : 733-1983 Density : 2.65gm./cm^3
Mechanical Properties			
Tensile Yield Stress ASTM D 638	370 Kg/Cm^2	750 Kg/Cm^2	3,300 Kg/Cm^2
Flexural Modules ASTM D 790	16,000 Kg/Cm^2		Yield 3,100 Kg/Cm^2 @ 12% Elongation
Izod Impact Strength ASTM 0 256	7.5 Kg.cm./cm.	4.5 Kg. cm./cm.	
Hardness	R70	R120	
Thermal Properties			
Melting Point	160^{0}C	20^{0}C	
Vicat Softening Point	150^{0}C	210^{0}C	
Maxm. Temp. Resistance	-30^{0}C to + 90^{0}C	-40^{0}C to + 180^{0}C	to 400^{0}C
Chemical Properties			
Weak Acids, Solvents	cond. consistent	cond. consistent	
Benzene, mineral oils	cond. consistent	cond. consistent	
Alchohol, other oils, sea water	consistent	consistent	
Suggested mfs Spec.	IPCL KOYLENE M3030	GSFC GUJLCON M28RC	HINDALCO 6443 WP.

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







(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

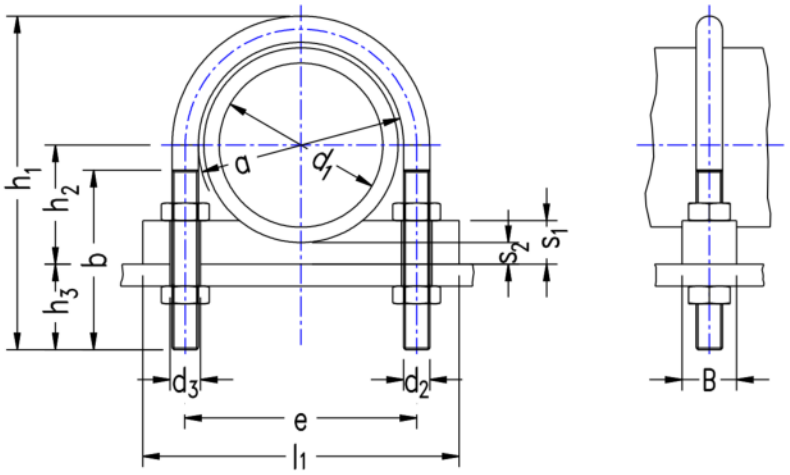
SCx * xxx xx**

- xx → Plastic pads Polypropylene - PP; Plastic pads Polyamide - PA
- xxx → **Material**: CS no surface finishing -; CS - Zn zinc plated -
- *** → **Pipe - OD ϕ D1 (please indicate exact ϕ D1)**
- x → **Type**: Normal design –; Anchor bolt design - **V**

DSCx * xxx xx**

- xx → Plastic pads Polypropylene - PP; Plastic pads Polyamide - PA
- xxx → **Material**: CS no surface finishing -; CS - Zn zinc plated -
- *** → **Pipe - OD ϕ D1 (please indicate exact ϕ D1)**
- x → **Type**: Normal design –; Anchor bolt design - **V**

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



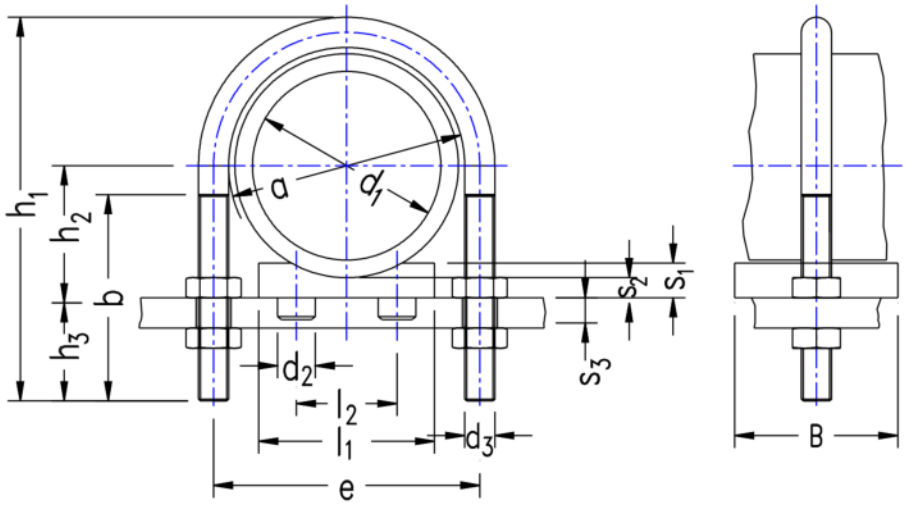
PIPE			Round Steel U-Bolt RB							Pipe saddle, Type PSL				
DN	d1													
	Inch-NB	MM-OD	a	b	d3	e	h1	h2	h_3	l1	B	S1	S2	d2
20		25	30	46	M10	40	73.5	17.5	30	75	30	12	5	11
	3/4"	26.9						18.5						
25		30	38	50		48	81	20		80				
	1"	33.7						22						
32		38	46			56	89	24		90				
	1.1/4"	42.4						26.2						
40		44.5	52	55		62	100	27.2	35	95	35	15		
	1.1/2"	48.3						29						
50		57	64	63	M12	76	118	33.5	39	110				14
	2"	60.3						35.2						
65	2.1/2"	76.1	82	77		94	135	43		135				
80	3"	88.9	94	82		106	152	54.5		145	40	20	10	
100		108	120	105	M16	136	190	64	47	190				18
	4"	114.3						67						
125		133	148			164	217	76.5		220				
	5"	139.7						80						
150		159	176			192	247	91.5		250	50	25	12	
	6"	168.3						96						
175		193.7	202			218	273	109		270				
200		216	228	125	M20	248	311	120	55	315				22
	8"	219.1						121.5						
250		267	282			302	364	145.5		370				
	10"	273						148.5						
300		318	332			352	418	174		420	60	30	15	
	12"	323.9						177						
350	14"	355.6	378	145	M24	402	475	193	63	480				26
		368						199						
400	16"	406	428			452	526	218		540				
		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_1** ** mm

Example : 1 x UB ** / PSL-PA

Round Steel "U" Bolt clamps (UB) with short pipe saddle - Type PSS



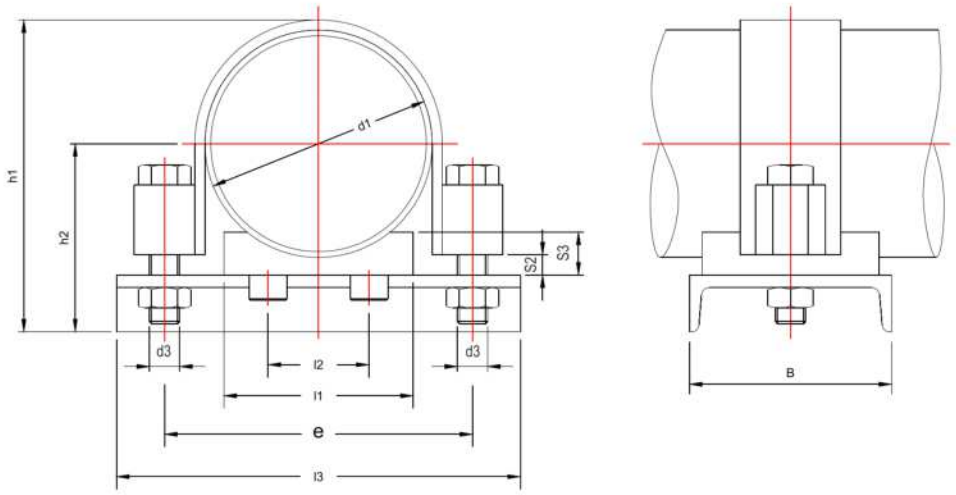
DN	Pipe d_1 Inch - NB	Pipe d_1 MM - OD	a	b	d_3	e	h_1	h_2	h_3	l_1	l_2	B	S_1	S_2	S_3	d_2
20		25	30	46	M 10	40	73.5	17.5	30	24	25	35	8	5	5	8
	3/4"	26.9						18.5								
25		30	38	50		48	81	20								
	1"	33.7						22								
32		38	46			56	89	24								
	1.1/4"	42.4						26.2								
40		44.5	52	55		62	100	27.2	35							
	1.1/2"	48.3						29								
50		57	64	63	M 12	76	118	33.5	39	38		50	10		6	10
	2"	60.3						35.2								
65	2.1/2"	76.1	82	77		94	135	43								
80	3"	88.9	94	82		106	152	52.5	41							
100		108	120	105	M 16	136	190	62	49	75	40	70	14	8	10	15
	4"	114.3						65								
125		133	148			164	217	74.5								
	5"	139.7						78								
150		159	176			192	247	87.5	51	140	90	75	23			25
	6"	168.3						92								
175		193.7	202			218	273	105								
200		216	228	125	M 20	248	311	116	59							
		219.1						117.5								
250		267	282			302	364	141.5								
		273						144.5								
300		318	332			352	418	167	62	220	150		30			30
		323.9						170								
350		355.6	378	145	M 24	402	475	186	70							
		368						192								
400		406	428			452	526	211								
		419						217.5								
500		508	530			554	627	262								
		521						269								

HOW TO ORDER

Round steel "U" Bolt Clamp, Type UB with 4 fixing nuts and polypropylen plastic saddle PSS / PP - **Diameter d_1 =** ** mm

Example : 1 x UB ** / PSS-PP

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

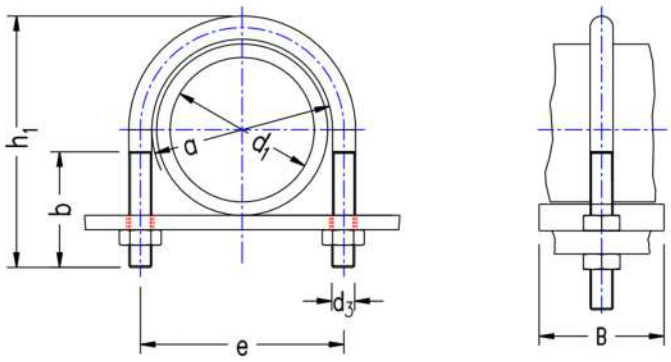


Pipe			Flat steel "U" Bolt clamp, Type UF					Pipe saddle, Type PSS					U - Profile	
DN	d_1		Flat-steel	d_3	e	h_1	h_2	l_1	l_2	B	S_1	S_2	U-section acc. to DIN 1026	l_3
	Inch - NB	MM - OD												
40	1.1/2	48.3	20 x 3	M 10 x 40	76	95	67	38	25	50	10	5	50 x 38	100
50		57			85	103	71.5							115
	2	60.3			88	106	73.2							
65	2.1/2	76.1			104	122	81							132
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		108			140	165	107							170
	4	114.3			147	171	110							180
125		133			165	190	119.5							210
	5	139.7			172	197	123							
150		159	40 x 6	M 16 x 75	201	220	132.5	140	90	75	23			265
	6	168.3			211	230	137							275
175		193.7			236	255	150							305
200		216			260	277	161							320
	8	219.1			261	280	162.5							
250		267	40 x 8	M 16 x 75	325	328	186.5							380
	10	273			330	334	189.5							385
300		318			375	384	212	220	150		30			440
	12	323.9			382	390	215							450
350	14	355.6	60 x 8	M 24 x 100	420	421	236						100 x 50	480
		368			430	434	242							490
400	16	406.4			470	472	261							550
		419			482	485	267.5							
	18	457			520	523	286.5							585
500	20	508			570	574	312							630
		521			585	587	319							640

HOW TO ORDER

Round steel "U" Bolt Clamp, Type UF with 4 fixing nuts and polyamid plastic saddle PSS / PA, - **Diameter d_1** = ** 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				
	1"	33.7				56	86
32		38	46	50			
	1.1/4"	42.4				62	92
40		44.5	52		M 12	76	109
	1.1/2"	48.3					
50		57	64				
	2"	60.3				94	125
65	2.1/2"	76.1	82			106	138
80	3"	88.9	94				
100		108	120	60	M 16	136	171
	4"	114.3					
125		133	148			164	191
	5"	139.7					
150		159	176			192	217
	6"	168.3					
175		191	202			218	249
		193.7					
200		216	228	70	M 20	248	283
		219.1					
250		267	282			302	334
		273					
300		318	332			352	385
		323.9					
350		355.6	378		M 24	402	435
		368					
400		406	428			452	487
		419					
500		508	530			554	589
		521					

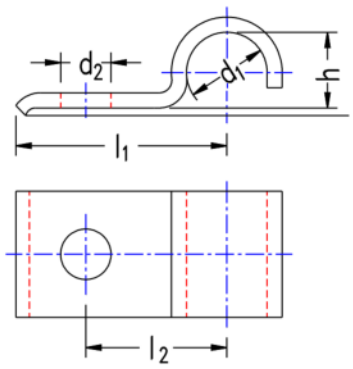
HOW TO ORDER

"U" Bolt Clamp, Type UBR to DIN 3570, Section "A" with 2 fixing nuts. - **Diameter d_1** = ** mm

Example : 1 x UBR **

Heavy Series Steel Strip Saddles
DIN 1592 & DIN 1593

DIN 1592



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		32	57	41	40 x 5
39	36 - 39		34	59	43	
43	39 - 43	18	38	68	48	
46	43 - 46		41	70	50	
49	46 - 49		44	73	53	40 x 8
52	49 - 52		47	76	56	
58	53 - 58		52	78	58	
61	58 - 61		57	80	60	

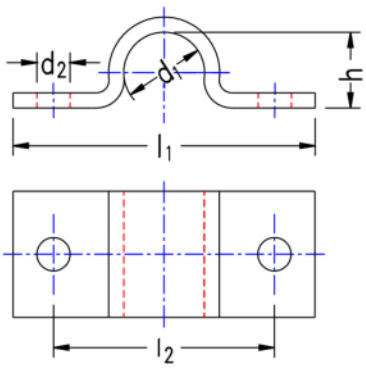
Material : Steel - Electro zinc plated finish
Stainless Steel - natural finish

HOW TO ORDER

Example : DIN 1592 **

** Diameter d_1

DIN 1593



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	
23	20 - 23	11	19	82	56	25 x 3
26	23 - 26		22	84	58	
28,5	26 - 28,5		24	90	64	
31	28,5 - 31		27			
36	33 - 36		32	106	80	30 x 5
39	36 - 39		34	110	84	
43	39 - 43	14	38	120	88	
46	43 - 46		41	122	90	
49	46 - 49		44			
58	53 - 58		52	142	110	40 x 5
61	58 - 61		57			
71	67 - 71		66	152	120	
77	73 -77	18	72	176	136	
81	77 - 81		76	184	144	
91	86 -91		85	198	158	40 x 8
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

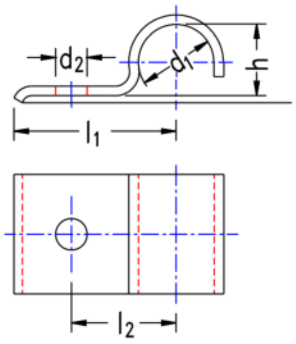
HOW TO ORDER

Example : DIN 1593 **

** Diameter d_1

Light Series Steel Strip Saddles
DIN 1596 & DIN 1597

DIN 1596



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	

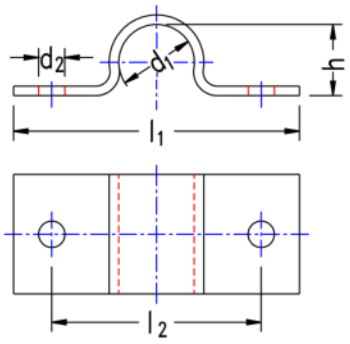
Material : Steel - Electro zinc plated finish
Stainless Steel - natural finish

HOW TO ORDER

Example : DIN 1596 **

** Diameter d_1

DIN 1597



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

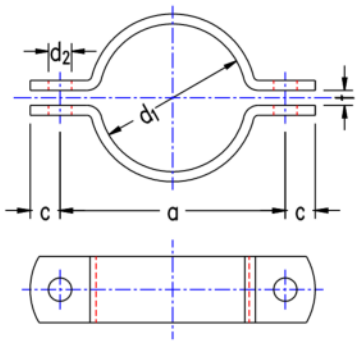
HOW TO ORDER

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.

Pressed Metal Clamps to DIN standard 3567 - Type A

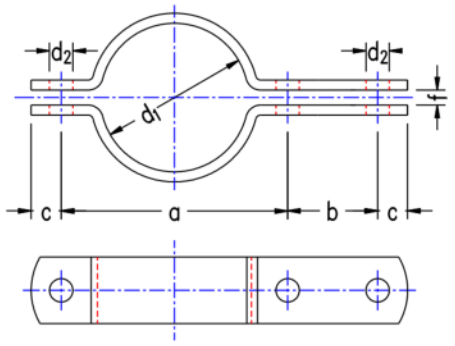


d 1	Bore diameters		a	c	d 2	f	Strip mm	Accessories : Hexagon headed bolts
	MM - OD	Inch - NB						
20	15		57	15	11,5	7	30 x 5	M 10 x 30
22			59					
25	20		62					
27		3/4	66					
30	25		68					
34		1	72					
38	32		76					
43		1 ¼	82					
45	40		84					
49		1 ½	88					
57	50		104	18	14	9	40 x 6	M 12 x 35
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	30	23	14	60 x 8	M 20 x 50
273			348					
318	300		392					
324			398					
368	350		444					
407	400		498	36	27	18	70 x 10	M 24 x 60
419			510					
521	500		614					

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

HOW TO ORDER
Example : DIN 3567 A **
** Diameter d 1

Pressed Metal Clamps to DIN standard 3567 - Type B



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		62						
27		3/4	66						
30	25		68						
34		1	72						
38	32		76						
43		1 ¼	82						
45	40		84						
49		1 ½	88						
57	50		104	54	18	14	9	40 x 6	M 12 x 35
61		2	108						
77	65	2 ½	122						
89	80	3	136						
108	100		172	70	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	86	30	23	14	60 x 8	M 20 x 50
273			348						
318	300		392						
324			398						
368	350		444						
407	400		498	104	36	27	18	70 x 10	M 24 x 60
419			510						
521	500		614						

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

HOW TO ORDER
Example : DIN 3567 B **
** Diameter d 1



Flanges

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 fittings are impracticable 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 Socket 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 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.

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

ISO 6162-1 & 2-2002

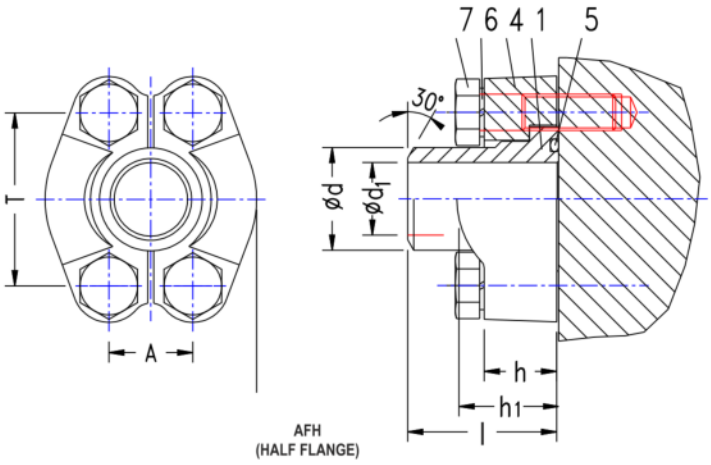
PART	MATERIAL	AFU QTY	AFH QTY
1) SLEEVE WITH GROOVE	IS. 2062	1	1
2) SLEEVE WITHOUT GROOVE	IS. 2062	1	-
3) FLANGE	A 105	1	-
4) SPLIT FLANGE (SET OF 2)	A 105	1	1
5) 'O' RING	NITRILE RUBBER	1	1
6) SPRING WASHER	IS. 3063	4	4
7) HEX. BOLT	IS. 1364 1983	4	4
8) HEX. NUT	IS. 1364 1983	4	-

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

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

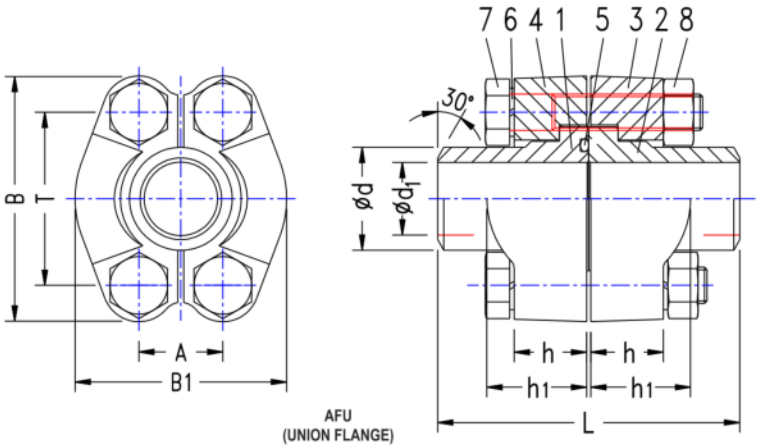
TEST PRESSURE :
SERIES 3000 PSI (Code 61) = 210 bar : 3000 PSI HYDROSTATIC @ ROOM TEMPERATURE.

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



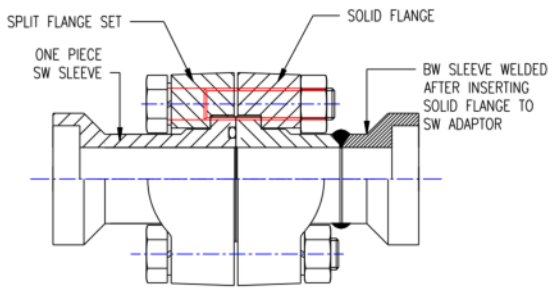
AFH
(HALF FLANGE)





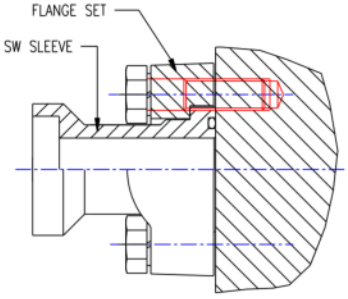
AFU
(UNION FLANGE)

FLANGE ASSEMBLY WITH SOCKET WELD END CONNECTIONS



UNION FLANGE ASSEMBLY

see note along side page no. 21



HALF FLANGE ASSEMBLY

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

DN		PIPE SIZE	ϕd	ϕd1	ϕd2	l	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	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 1¼"
		22.0 x 2.0	22	18.0											M8 x 40/ 5/16"_18UNC x 1½"
		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 1¼"
		25.0 x 3.0	25	19.0											M10 x 40/ 3/8"_16UNC x 1½"
		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 1¼"
		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 ¼"	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 1½"
		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 ½"	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 1½"
		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 1½"
		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.

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

	DN		PIPE SIZE	ϕd	ϕd1	ϕd2	l	L	h	h1	B	B1	T	A	'O' RING SIZE	HEX.HD.CAP SCREW SIZE AFH / AFU
	INCH	MM	OD x WT													
*	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 1¾"
			76.1 x 3.6	77	69.0											
			82.5 x 7.1	86	68.0											
			80.0 x 2.0	80	76.0											M12 x 60 ½"_13UNC x 2⅜"
**	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 1¾"
			76.1 x 3.6	77	69.0											
			76.1 x 7.1	77	62.0											
			88.9 x 3.6	90	81.5											M16 x 70/ 5/8"_11UNC x 2¾"
***	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											M16 x 70/ 5/8"_11UNC x 2¾"
***	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											M16 x 80/ 5/8"_11UNC x 3¼"
***	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 2¼"
			127.0 x 4.0	127	119.0											
																M16 x 80/ 5/8"_11UNC x 3¼"

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

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

DN		PIPE SIZE	ϕd	ϕd1	ϕd2	l	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											
		60.3 x 10.0	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

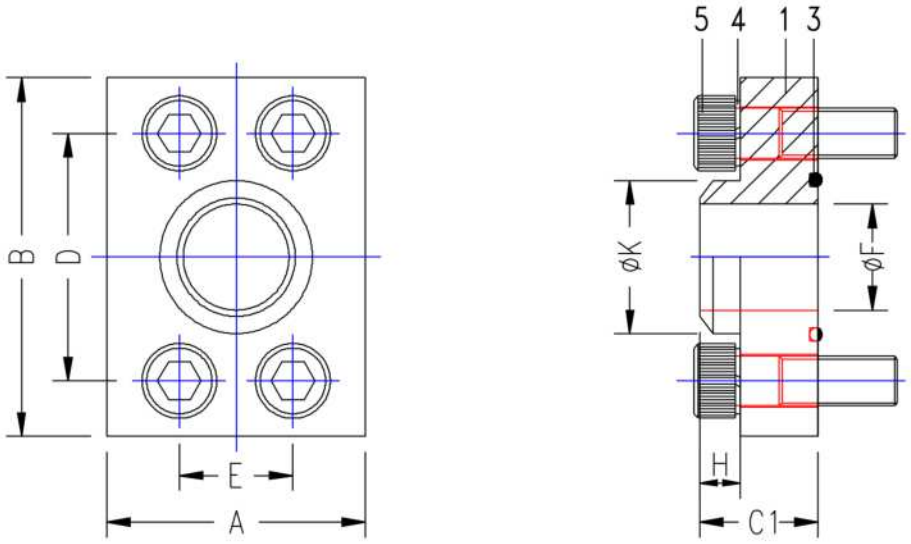
Flange Assembly with Butt Weld End Connections
SAE 3000# and 6000# Series
(Two Piece System)

LEADING DIMENSIONS AS PER ISO 6162 1 & 2 : 2002

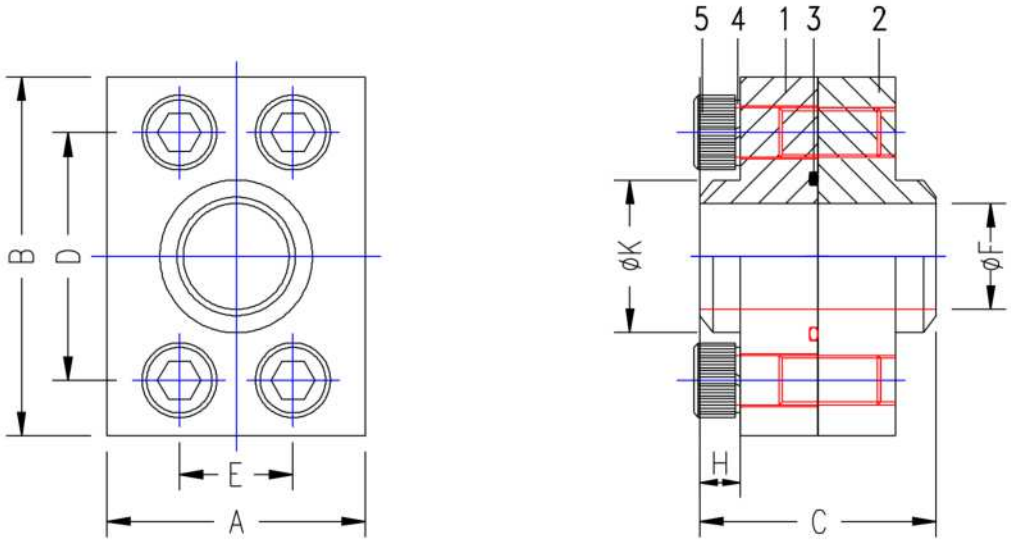
PART	MATERIAL	ABU QTY	ABH QTY
1) FLANGE WITH GROOVE	IS. 2062	1	1
2) FLANGE WITHOUT GROOVE	IS. 2062	1	-
3) "O" RING	NITRILE RUBBER	1	1
4) SPRING WASHER	IS. 3063	4	4
5) SOC. HD. CAP SCREW	IS. 1367 - CLASS 12-9	4	4

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)

LEADING DIMENSIONS AS PER ISO 6162 1 & 2 : 2002

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 x100
		160							66.5				

NOTES : * PN 315 BAR

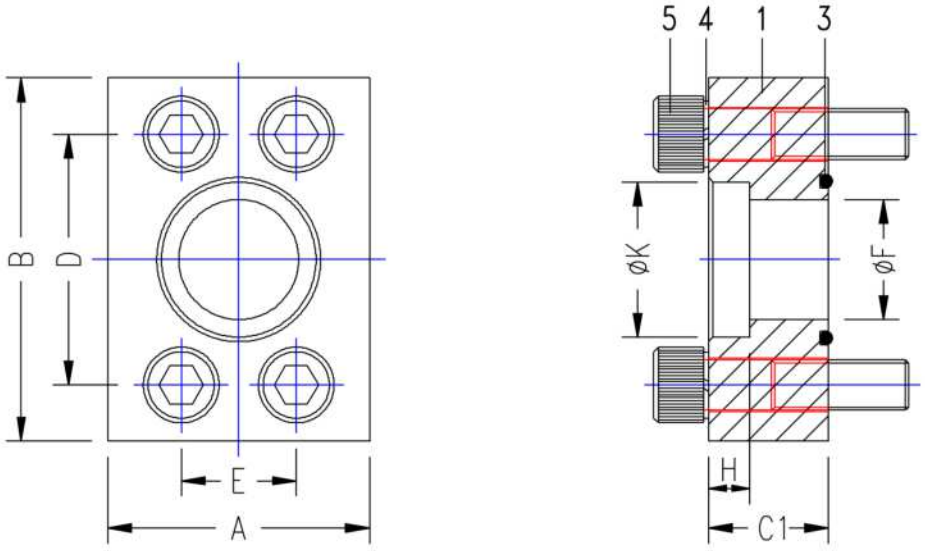
Flange Assembly with Socket Weld End Connections
SAE 3000# and 6000# Series
(Two Piece System)

LEADING DIMENSIONS AS PER ISO 6162-1 & 2 : 2002

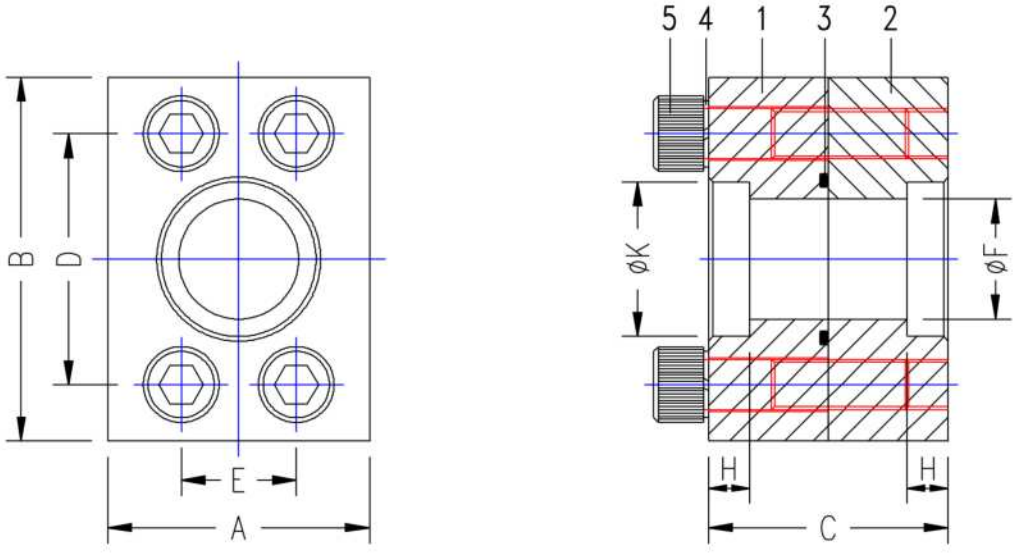
PART	MATERIAL	ASU QTY	ASH QTY
1) FLANGE WITH GROOVE	IS. 2062	1	1
2) FLANGE WITHOUT GROOVE	IS. 2062	1	-
3) "O" RING	NITRILE RUBBER	1	1
4) SPRING WASHER	IS. 3063	4	4
5) SOC. HD. CAP SCREW	IS. 1367 - CLASS 12-9	4	4

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

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

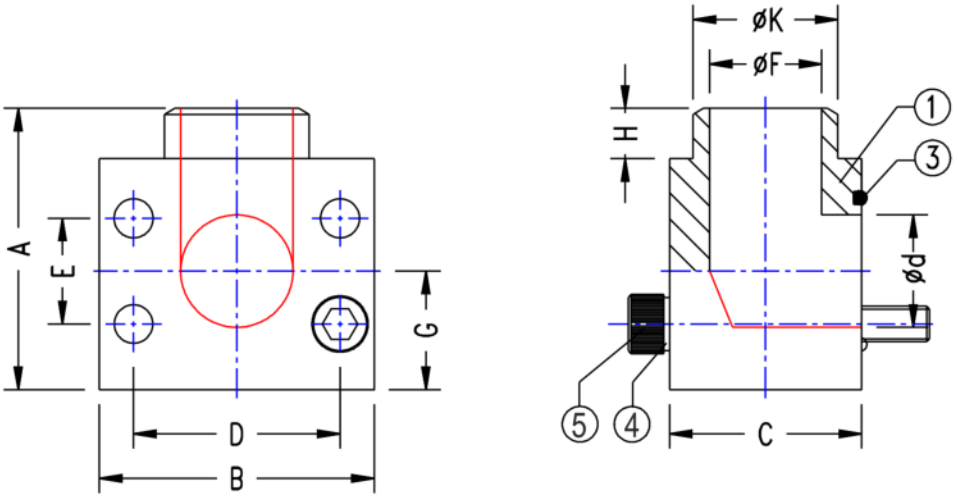
	1/2	45	56	51	25.5	40.5	18.2	13	13	22	18.64 x 3.53	4 / M 8 x 40
	3/4	51	71	51	25.5	50.8	23.8	19	13	27	24.99 x 3.53	4 / M 10 x 45
	1	57	81	51	25.5	57.2	27.8	25	13	34	32.92 x 3.53	4 / M 12 x 45
	1¼	70	95	64	32	66.7	31.8	32	13	43	37.69 x 3.53	4 / M 14 x 55
	1½	83	114	76	38	79.4	36.7	38	13	49	47.22 x 3.53	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

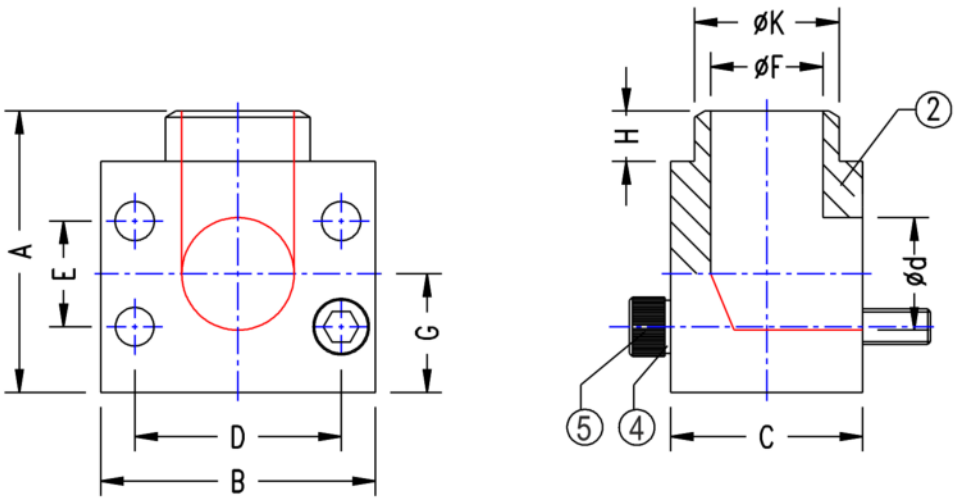
PART	MATERIAL	AEBO QTY	AEB QTY
1) ELBOW FLANGE WITH "O" RING	IS. 2062	1	-
2) ELBOW FLANGE WITHOUT "O" RING	IS. 2062	-	1
3) "O" RING	NITRILE RUBBER	1	1
4) SPRING WASHER	IS. 3063	4	4
5) SOC. HD. CAP SCREW	IS. 1367 - CLASS 12-9	4	4

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	ϕF	G	H	ϕK	'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						
	1¼	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						
	1½	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						
*	2½	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						
***	3½	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						
	1¼	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						
	1½	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						
*	2½	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

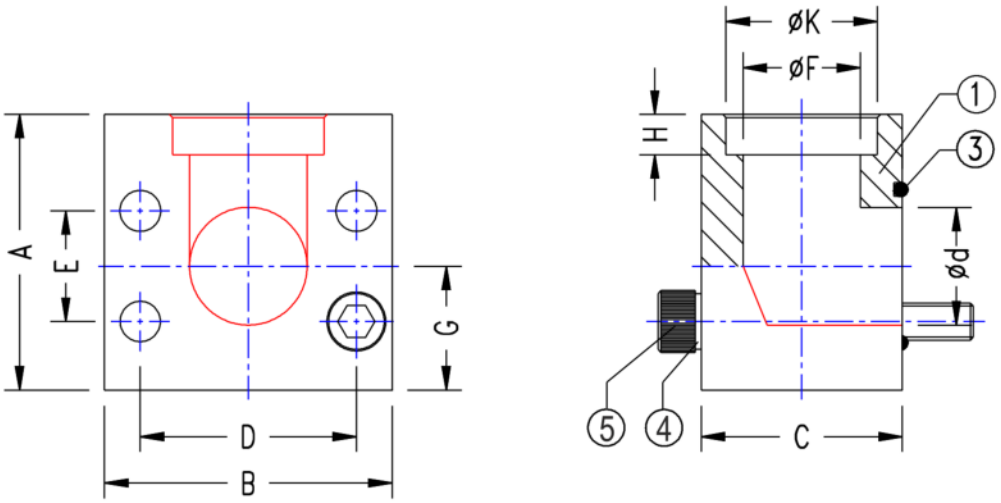
Socket Weld End Elbow Flange Connections
SAE 3000# and 6000# Series

LEADING DIMENSIONS PER ISO:6162-1 & 2 : 2002

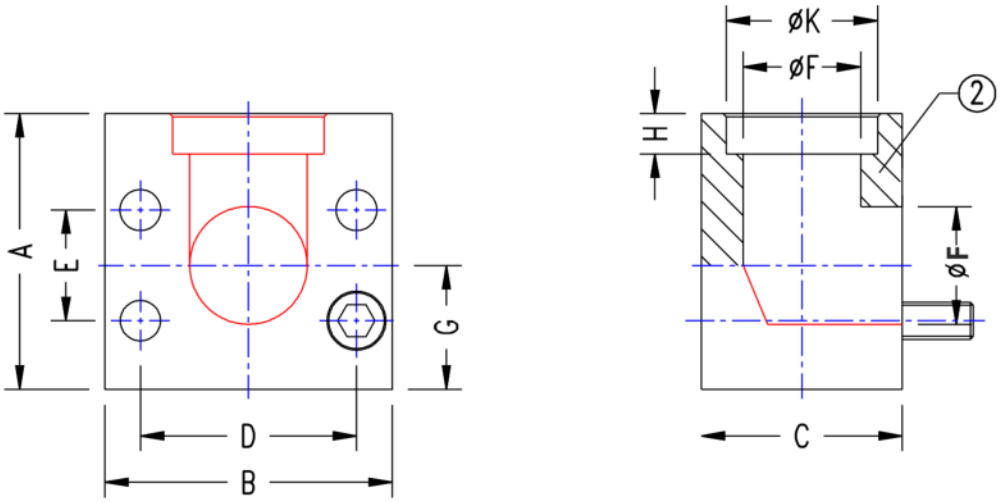
PART	MATERIAL	AESO QTY	AES QTY
1) ELBOW FLANGE WITH "O" RING	IS. 2062	1	-
2) ELBOW FLANGE WITHOUT "O" RING	IS. 2062	-	1
3) "O" RING	NITRILE RUBBER	1	1
4) SPRING WASHER	IS. 3063	4	4
5) SOC. HD. CAP SCREW	IS. 1367 - CLASS 12-9	4	4

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	ϕF	G	H	ϕK	'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

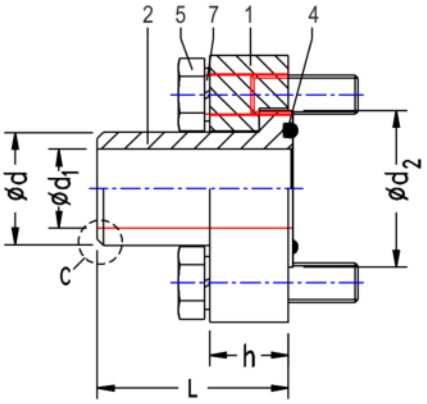
													T
	1/2	51	56	38	40.5	18.2	13	23	13	22	18.64 x 3.53	4 / M 8 x 50	M8
	3/4	57	71	45	50.8	23.8	19	25	13	27	24.99 x 3.53	4 / M 10 x 65	M10
	1	64	81	51	57.2	27.8	25	28	13	34	32.92 x 3.53	4 / M 12 x 70	M12
	1¼	76	95	57	66.7	31.7	32	35	13	43	37.69 x 3.53	4 / M 14 x 80	M14
	1½	89	115	76	79.4	36.5	38	41	13	49	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

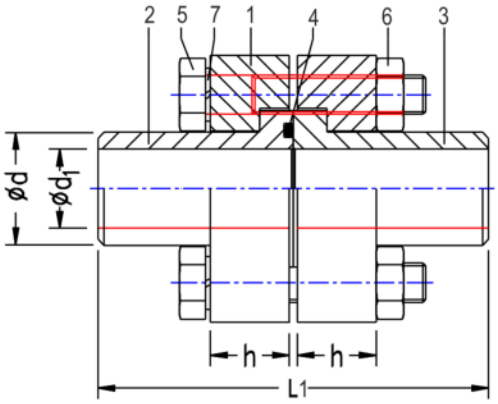
PART	MATERIAL	FH QTY	FU QTY
1) FLANGE	C. S. IS. 2062	1	2
2) SLEEVE WITH GROOVE	C. S. IS. 2062	1	1
3) SLEEVE WITHOUT GROOVE	C. S. IS. 2062	-	1
4) 'O'RING	NITRILE	1	1
5) HEX BOLT	IS. 1363	4 or 8	4 or 8
6) HEX NUT	IS. 1363	-	4 or 8
7) SPRING WASHER	IS. 3063	4 or 8	4 or 8

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

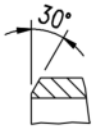


FH
HALF FLANGE ASSEMBLY

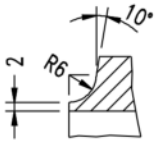


FU
UNION FLANGE ASSEMBLY

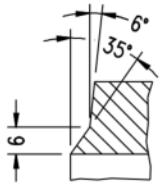
VERSION OF THE FORM OF WELDING SEAM
ACCORDING TO DIN 2559 (DETAILS 'C')



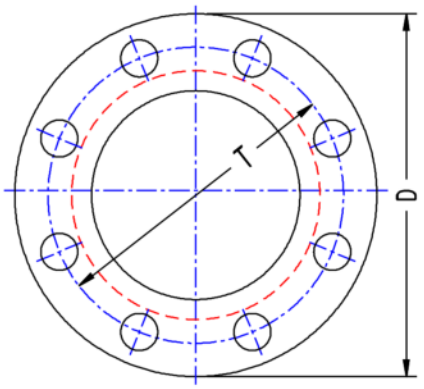
WALL THICKENSS UPTO 12 mm



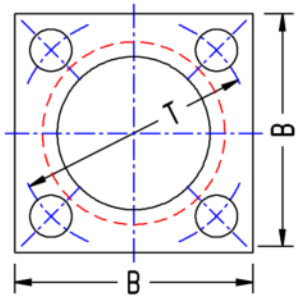
FROM 12 mm UPTO 16 mm



ABOVE 16 mm



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
												FH SERIES
INCH	MM	OD x WT										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 (21/2"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
		101.6 x 10	102	81.5								4/ M30 x 150
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
		152.4 x 16	153	120.5								8/M24 x 170
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
		177.8 x 17.5	179	143								8xM30 x 200

DIMENSIONS : FH SERIES & FU SERIES - PN 250

DN		PIPE SIZE	ϕ d	ϕ d 1	ϕ d 2	L	L 1	B/D	h	T	'O' RING SIZE	HEX. BOLT
												FH SERIES
INCH	MM	OD x WT										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
1¼	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 (11/4" SCH 160)	43	29.5								4/ M16 x 80
1½	40	48.3 x 7.14 (11/2" 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 (21/2"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
2½	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	113.66X5.33	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	ϕ d	ϕ d 1	ϕ d 2	L	L 1	B/D	h	T	'O' RING SIZE	HEX. BOLT
												FH SERIES
INCH	MM	OD x WT										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
1¼	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 (11/4" SCH 160)	43	29.5								4/ M16 x 80
1½	40	48.3 x 7.14 (11/2" 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 (21/2"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
2½	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	113.66X5.33	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

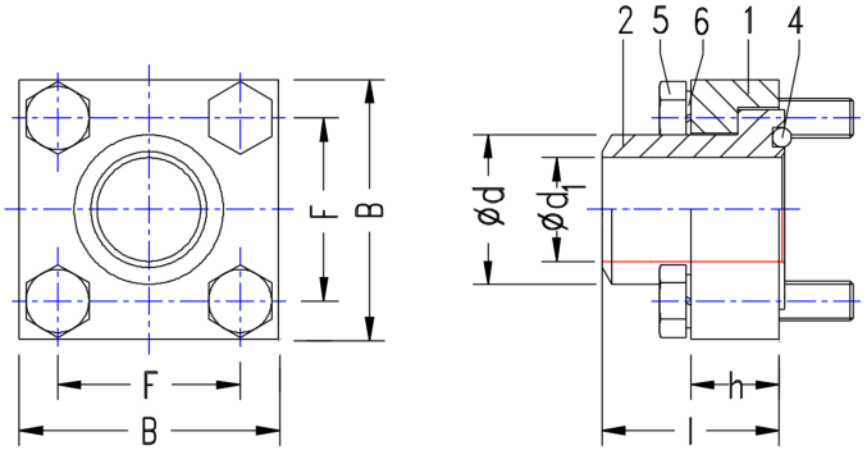
FLANGES : PN - 250 STATIC & PN - 160 DYNAMIC
PN - 400 STATIC & PN - 315 DYNAMIC

ISO 6164-1994

		CBH	CBU
PART	**MATERIAL**	**QTY**	
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

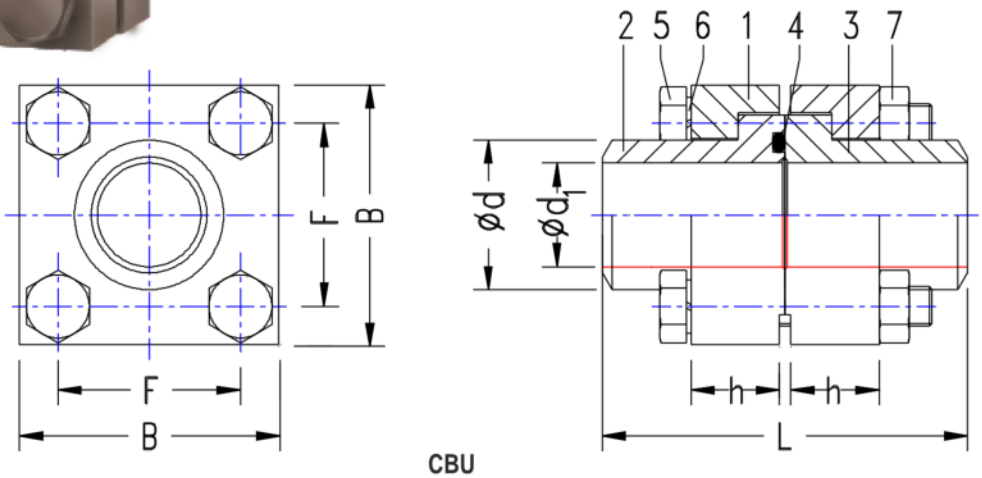
FINISH : ALL CS PARTS ARE PHOSPHATIZED

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

DIMENSIONS : PN_250 STATIC & PN-160 DYNAMIC

PIPE SIZE		PIPE OD	ϕD1	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	ϕD1	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 DYNAMIC

ISO 6164-1994

PART	MATERIAL	CSH QTY	CSU QTY
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.

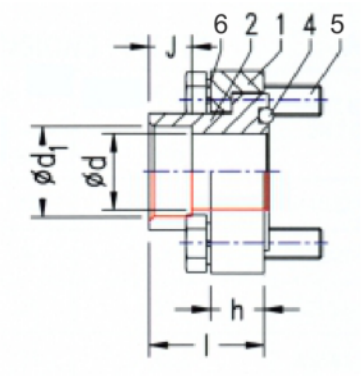
DIMENSIONS : PN 400 STATIC & PN 350 DYNAMIC

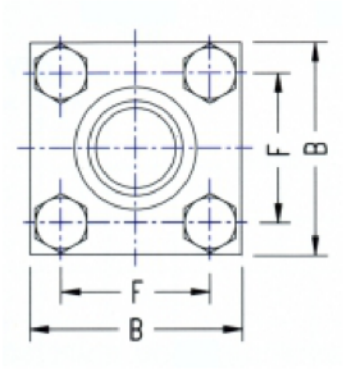
DN		PIPE SIZE	ϕd	ϕd 1	l	L	J	B	h	F	'O' RING SIZE	HEX, BOLT SIZE
												HALF
INCH	MM	OD- WT										UNION
3/8	10	16 x 2.0	11	16.5	30	60	12	45	13	29.7	18.64 x 3.53	M 8 x 30
		17.1 x 3.2	11	17.6								M 8 x 40
1/2	13	20 x 3.0	14	20.5	35	70	13	50	15	35.3	24.99 x 3.53	M 8 x 30
		21.3 x 4.75	12	21.7								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								
1¼	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								
1½	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
2½	65	73 x 14.02	45	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 12	53	77.0	100	200	24	150	45	102.5	98.05 x 3.53	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

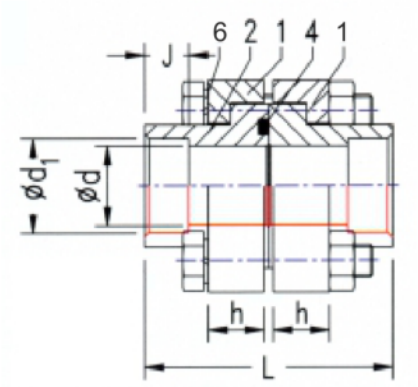
CETOP PR 63 H. AFNOR 48-0 54. ISO 6164 Socket Weld End Flanges

Flanges : PN - 250 STATIC & PN - 160 DYNAMIC
PN - 400 STATIC & PN - 315 DYNAMIC

ISO 6164-1994







CSH
HALF FLANGE ASSEMBLY

CSU
UNION FLANGE ASSEMBLY

DIMENSIONS : PN_250 STATIC & PN-160 DYNAMIC

DN		PIPE SIZE	ϕd	ϕd 1	l	L	J	B	h	F	'O' RING SIZE	HEX, BOLT SIZE
												HALF
INCH	MM	OD										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	100	200	24	150	45	102.5	98.05 x 3.53	M 24 x 90
												M 24 x 120
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
		90 x 10	70	91.0								M 24 x 140

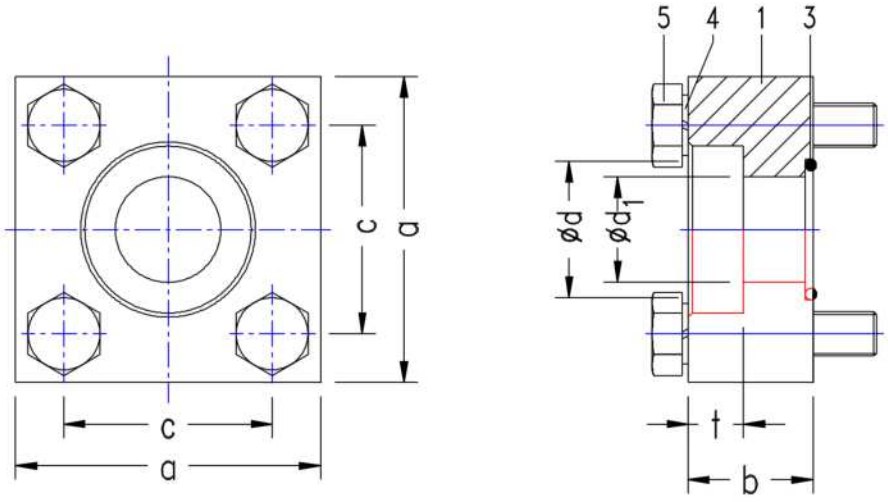
Square Flange Assembly with Socket Weld End Connections
PN 100, PN 160 & PN 250

REF : SMS SPECIFICATION SN 712

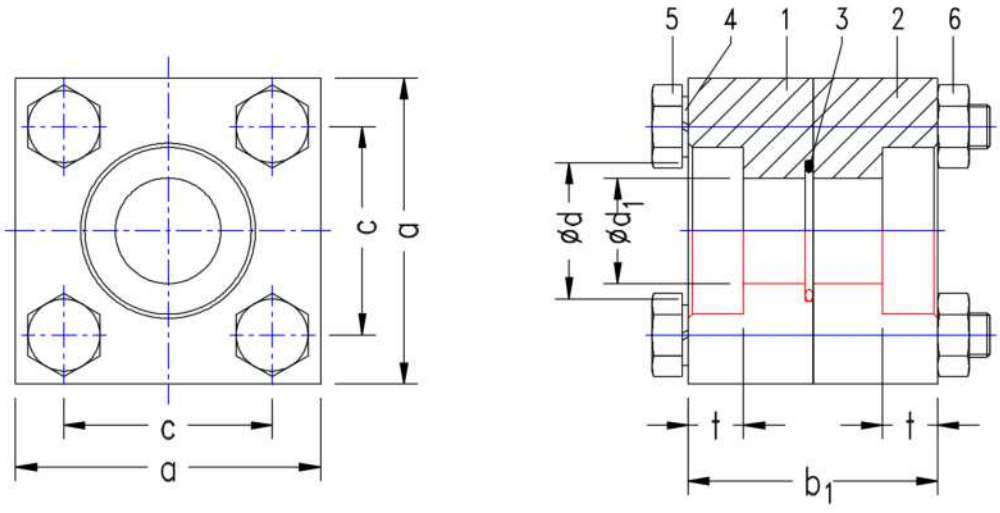
PART	MATERIAL	NSF QTY	NSU
1) FLANGE WITH GROOVE	IS. 2062	1	1
2) FLANGE WITHOUT GROOVE	IS. 2062	-	1
3) "O" RING	NITRILE RUBBER	1	1
4) SPRING WASHER	IS. 3063	4	4
5) HEX. HD. CAP SCREW	IS. 1363	4	4
6) HEX NUT	IS 1363	-	4

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	ϕd 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	ϕd 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	ϕd 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

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