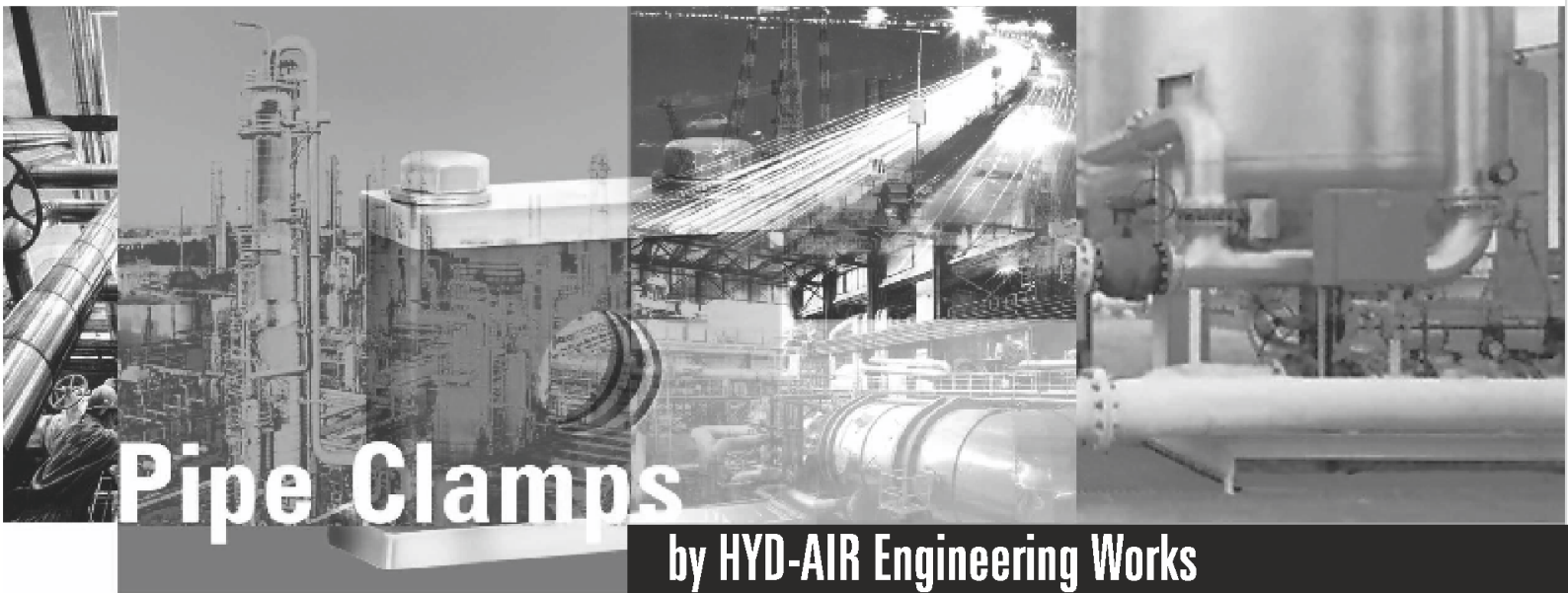




DIN CLAMPS & FLANGES





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.

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° 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 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 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 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

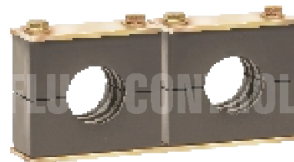
VERTICAL MOUNTING



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 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.

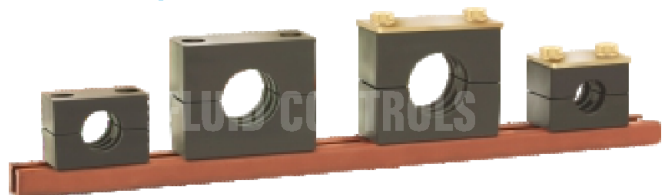
HORIZONTAL BACK-TO-BACK MOUNTING



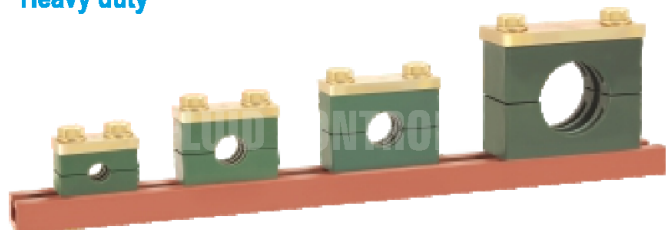
Horizontal Back-to-Back Assembly Permits use of Single Heavy Duty Pipe Clamp Assemblies in locations of extreme vibration and heavy loads where two or more assemblies are mounted on single weld plate.

CHANNEL MOUNTING WITH OR WITHOUT TOP PLATE

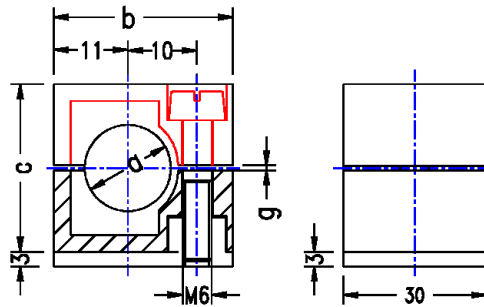
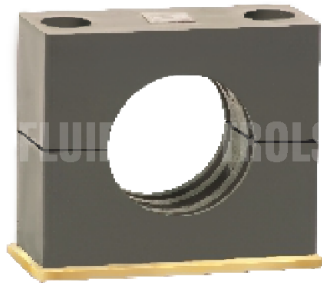
Standard duty



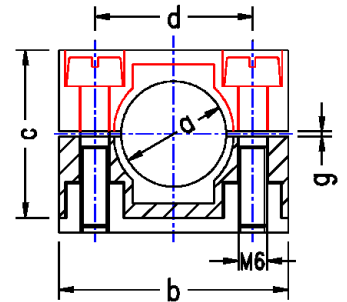
Heavy duty



ASSEMBLY WITH WELD PLATE & SCREWS

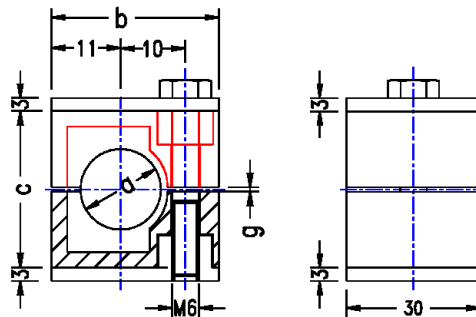


Group 1 only

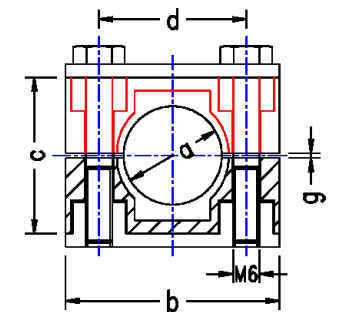


Group 1A to 6

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

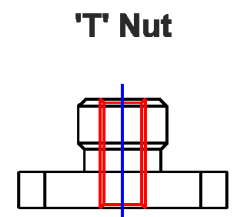
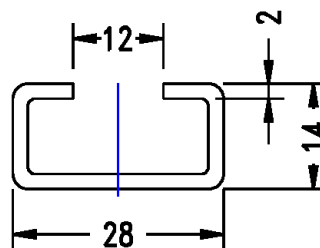


Group 1 only



Group 1A to 6

CHANNEL MOUNTING RAIL





HYD-AIR®

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 OD	INCH OD	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

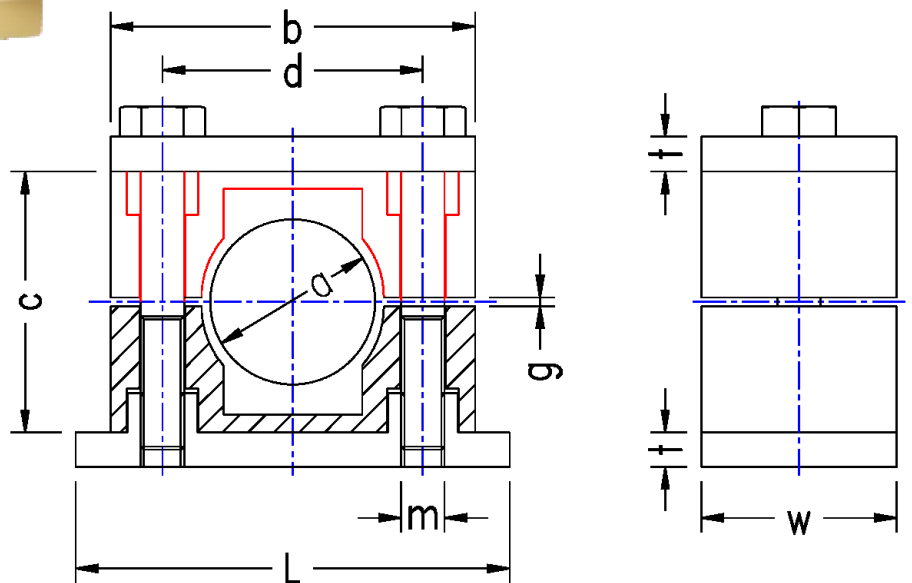
(A) For Single Clamps Assembly and Vertical Mounting Kit

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

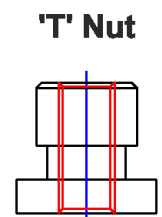
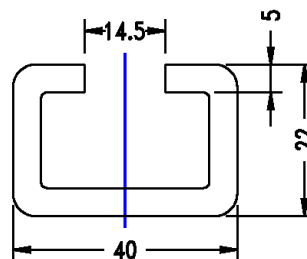
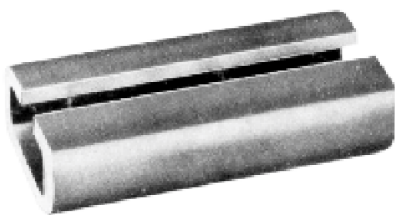
(B) For Multiple Clamps on Single Weld Plate

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





HYD-AIR®

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 OD	INCH OD	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

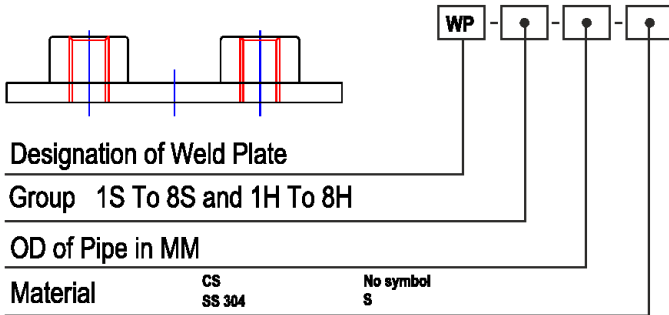
Pipe Clamp Assembly P
 Vertical Mounting Kit MKP
 Group Number 1H,2H,...
 Pipe Clamp Assembly.
 With Top Plate & Hex Bolts 1
 Vertical Mounting kit No Symbol
 OD of Pipe / Tube : in mm
 PIPE CLAMP ASSY.
 With Weld Plate No. Symbol.
 With 'T'-Nuts For Channel Mounting CH
 (For Group 1H To 3H Only.)
 Vertical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

(B) For Multiple Clamps on Single Weld Plate

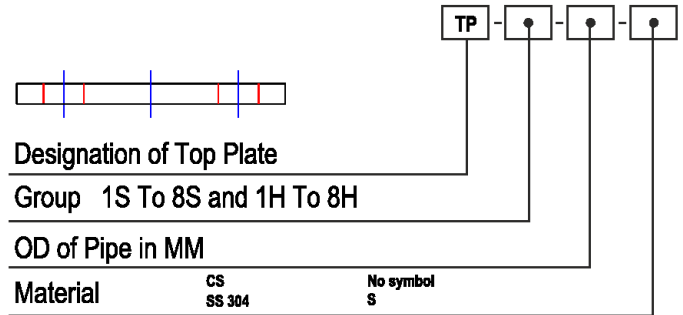
Number of Clamps :
 Vertical Mounting : V
 Horizontal Back-to-Back : HB
 Horizontal Side-to-Side : HR
 Pipe Clamps Assembly
 Group Number 1H, 2H,...
 Heavy Duty Pipe Clamps Always
 Available With Top Plate And Hex Bolts.
 Outside Diameter for Pipe / Tube in their order :
 (a) For Vertical Mounting :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

HOW TO ORDER

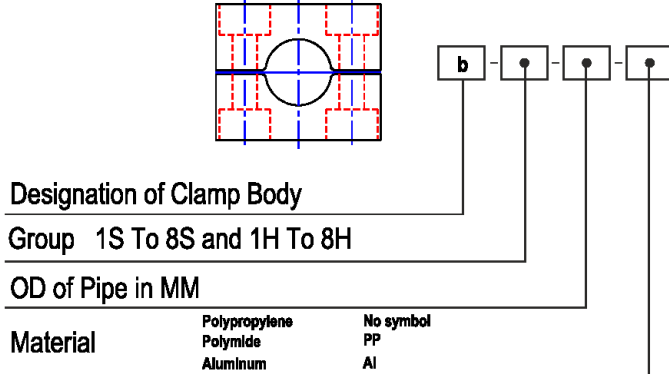
WELD PLATE



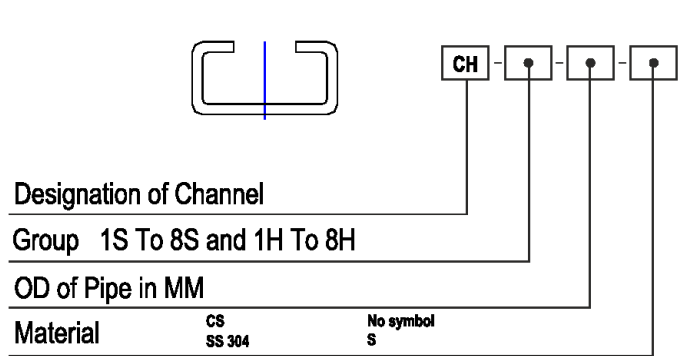
TOP PLATE



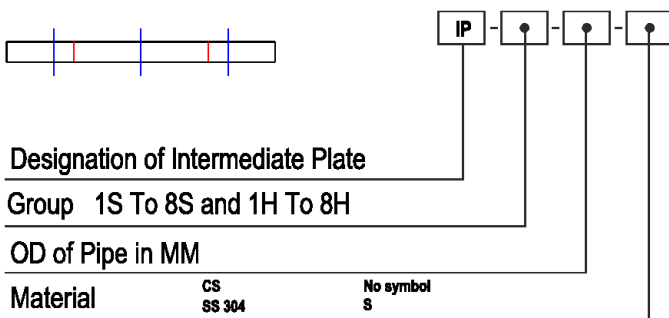
CLAMP BODY



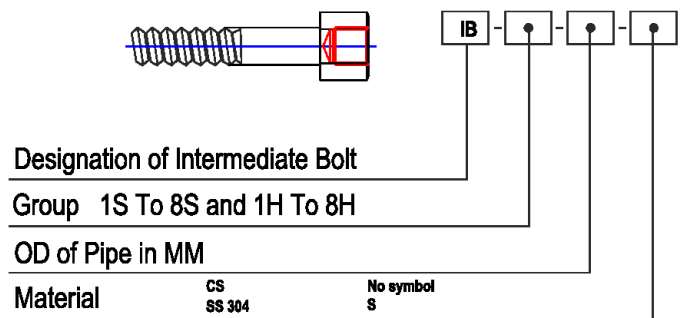
CHANNEL



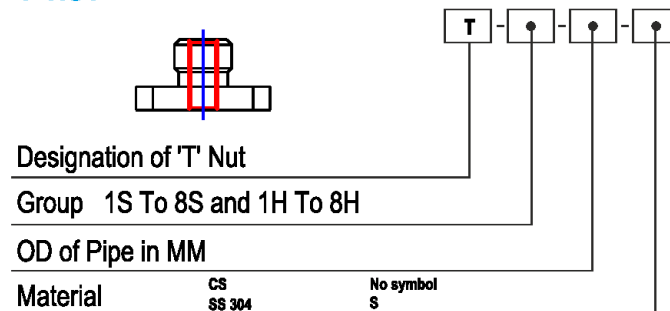
INTERMEDIATE PLATE



INTERMEDIATE BOLT



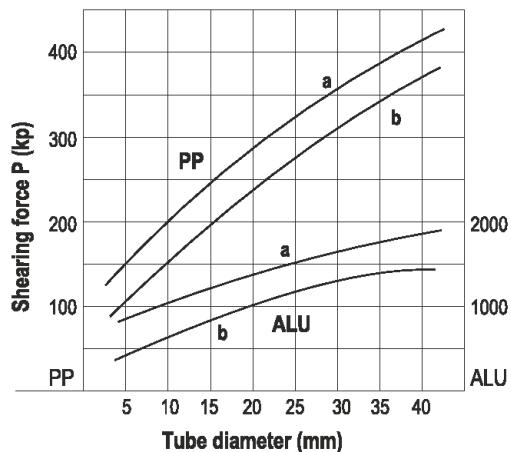
'T' NUT



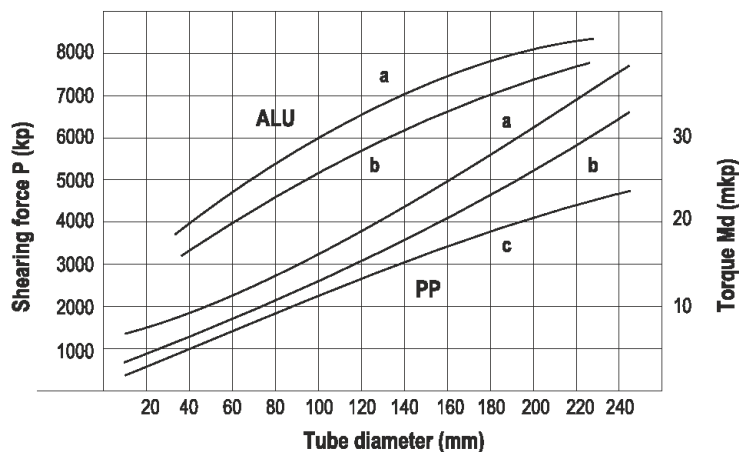
SHEARING FORCES DIAGRAM

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

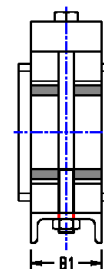
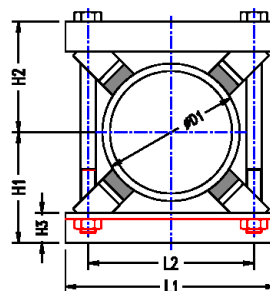


MATERIAL

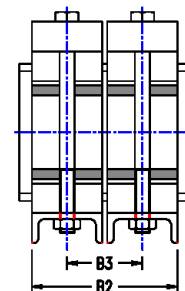
Pipe Clamps in bodies of polypropylene are suitable for temperatures upto 90 degrees C. For higher Temperatures and heavy ratings, Pipe Clamp bodies are made with polyamide. Where temperatures are in excess of 180 degrees C., these bodies are made from aluminium. Properties of the clamp body materials 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°C	20°C	
Vicat Softening Point	150°C	210°C	
Maxm. Temp. Resistance	-30°C to + 90°C	-40°C to + 180°C	to 400°C
Chemical Properties			
Weak Acids, Solvents	cond. consistent	cond. consistent	
Benzene, mineral oils	cond. consistent	cond. consistent	
Alcohol, other oils, sea water	consistent	consistent	
Suggested mfs Spec.	IPCL KOYLENE M3030	GSFC GUJLCON M28RC	HINDALCO 6443 WP.

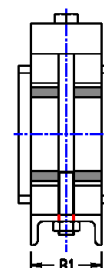
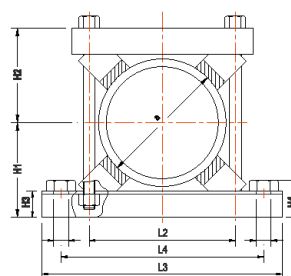
TWO- PART WELD-CONSTRUCTION WITH POLYPROPYLENE OR POLYAMIDE BEARING PADS



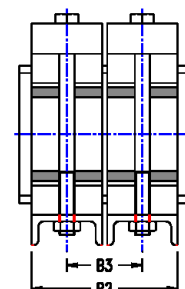
SC



DSC



SCA



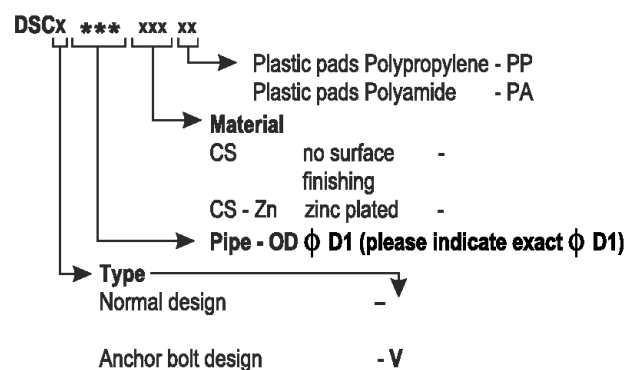
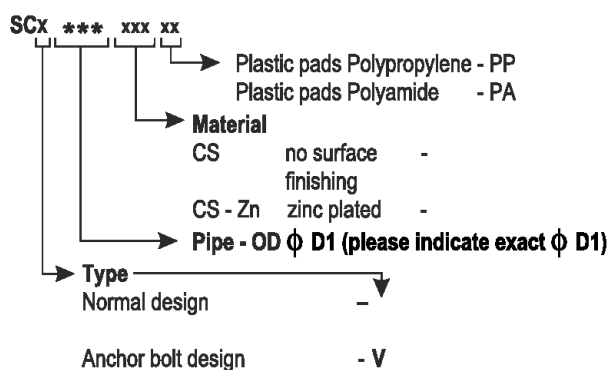
DSCA

(For anchor bolt fastening)

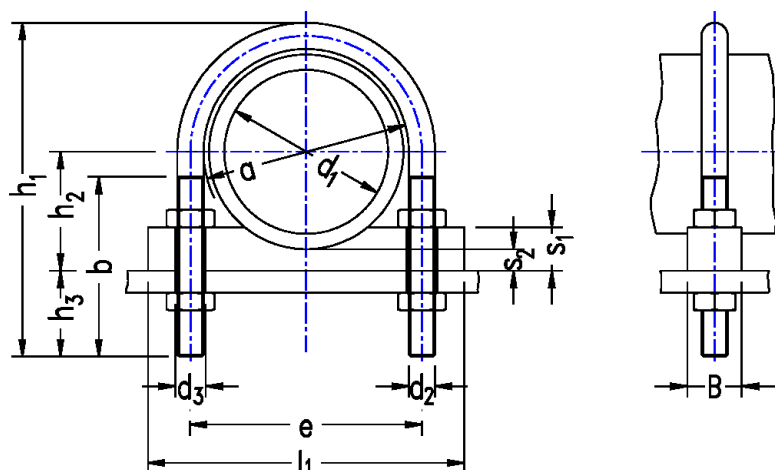
DIMENSIONAL CHART FOR SINGLE / DOUBLE PIPE CLAMP ASSY.

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



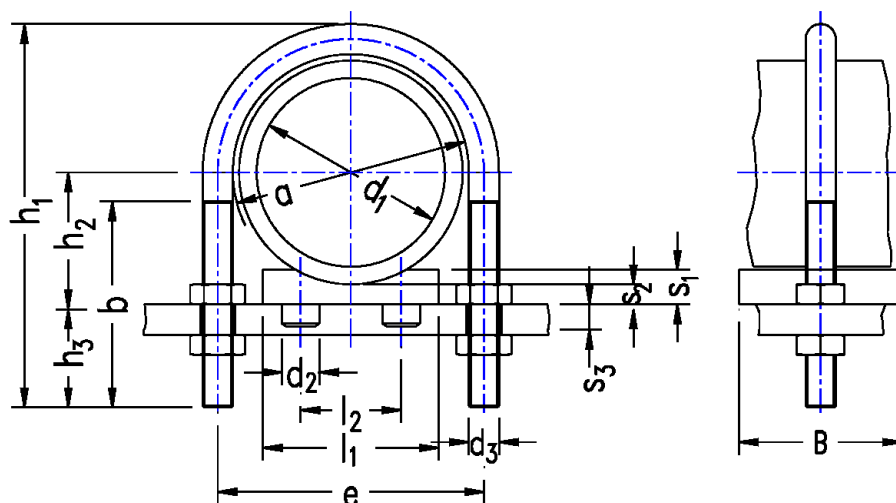
PIPE			Round Steel U-Bolt RB							Pipe saddle, Type PSL								
DN	d1		a	b	d3	e	h1	h2	h ₃	l1	B	S1	S2	d2				
	Inch-NB	MM-OD																
20		25	30	46	M10	40	73.5	17.5	30	75	30	12	5	11				
	3/4"	26.9						18.5										
25		30	38	50		48	81	20		80								
	1"	33.7						22										
32		38	46	55		56	89	24	90									
	1.1/4"	42.4						26.2										
40		44.5	52	63		62	100	27.2	95	35	95	35	15					
	1.1/2"	48.3						29										
50		57	64	77	M12	76	118	33.5	39	110	40					20	10	14
	2"	60.3						35.2										
65		76.1	82	82		94	135	43		135								
	2.1/2"	76.1						43										
80		88.9	94	82	106	152	54.5	145	145	145	40	20	10	18				
	3"	88.9					54.5											
100		108	120	148	M16	136	190	64	47	190					50	25	12	22
	4"	114.3						67										
125		133	148	176		164	217	76.5		220								
	5"	139.7						80										
150		159	176	202		192	247	91.5	250									
	6"	168.3						96										
175		193.7	202	228		218	273	109	270									
		193.7						109										
200		216	228	282	M20	248	311	120	55	315	60	30	15	26				
	8"	219.1						121.5										
250		267	282	302		364	145.5	370										
	10"	273					148.5											
300		318	332	352		418	174	420										
	12"	323.9					177											
350		355.6	378	428	M24	402	475	193	63	480	60	30	15	26				
	14"	368						199										
400		406	428	530		452	526	218		540								
	16"	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



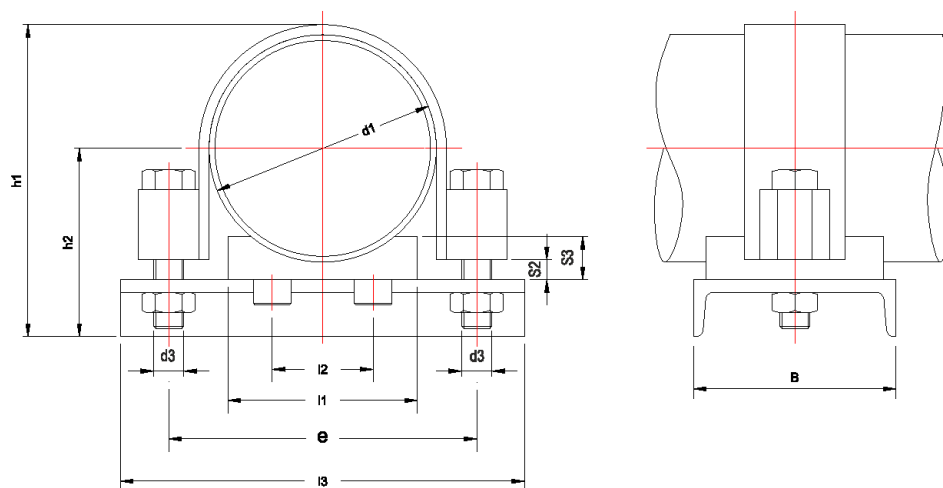
	Pipe		Round steel "U"-Bolt						Pipe saddle, Type PSS											
DN	d ₁		a	b	d ₃	e	h ₁	h ₂	h ₃	l ₁	l ₂	B	S ₁	S ₂	S ₃	d ₂				
	Inch - NB	MM - OD																		
20		25	30	46	M 10	40	73.5	17.5	30	24	25	35	8	5	5	8				
	3/4"	26.9					18.5													
25		30	38	50		48	81	20									35			
	1"	33.7					22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

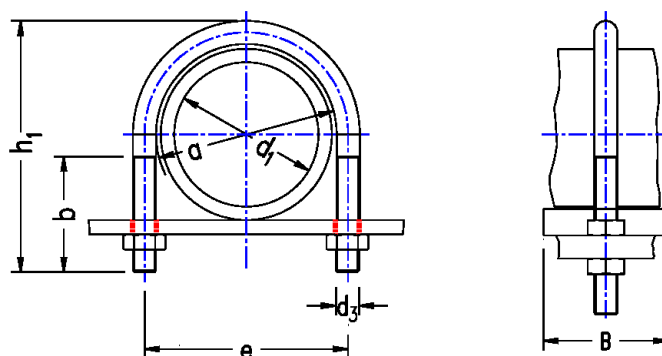


Pipe			Flat steel "U" Bolt clamp, Type UF					Pipe saddle, Type PSS					U - Profile		
DN	d ₁		Flat-steel	d ₃	e	h ₁	h ₂	l ₁	l ₂	B	S ₁	S ₂	U-section acc. to DIN 1026	l ₃	
	Inch - NB	MM - OD													
40	1.1/2	48.3	20 x 3	M 10 x 40	76	95	67	24	38	25	35	8	5	50 x 38	100
50		57			85	103	71.5	10			5	115			
	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							265	
150		159	40 x 6	M 16 x 75	201	220	132.5	140	90	23	8	100 x 50	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						380		
250		267	40 x 8	M 16 x 75	325	328	186.5	140	90	75	30	380			
	10	273			330	334	189.5					385			
300		318			375	384	212					440			
	12	323.9			382	390	215					450			
350	14	355.6			60 x 8	M 24 x 100	420					421	236	220	150
		368	430	434			242	490							
400	16	406.4	470	472			261	550							
		419	482	485			267.5	585							
500	18	457	520	523			286.5	630							
	20	508	570	574			312	640							
		521	585	587			319								

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



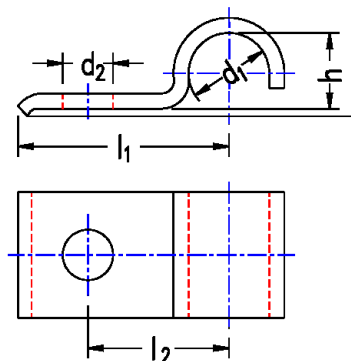
Pipe			"U" Bolt clamp, Type UBR					
DN	d ₁		a	b	d ₃	e	h ₁	
	Inch - NB	MM - OD						
20		25	30	40	M 10	40	70	
	3/4"	26.9				48	76	
25		30	38			56	86	
	1"	33.7				62	92	
32		38	46	50	M 12	76	109	
	1.1/4"	42.4				94	125	
40		44.5	52			106	138	
	1.1/2"	48.3				136	171	
50		57	64	60	M 16	164	191	
	2"	60.3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

HOW TO ORDER

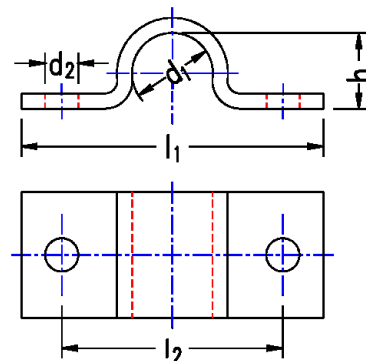
"U" Bolt Clamp, Type UBR to DIN 3570, Section "A" with 2 fixing nuts. - Diameter d₁ = ** mm

Example : 1 x UBR **

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	
49	46 - 49		44	122	90	
58	53 - 58	18	52	142	110	40 x 5
61	58 - 61		57	142	110	
71	67 - 71		66	152	120	
77	73 - 77		72	176	136	
81	77 - 81		76	184	144	
91	86 - 91	18	85	198	158	40 x 8
103	99 - 103		98	214	174	
109	105 - 109		104	220	180	
115	110 - 115		109	226	186	

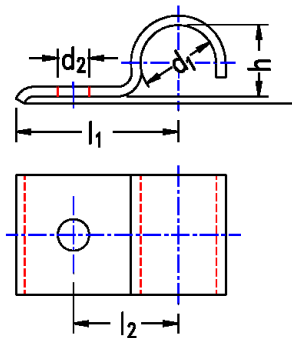
Material : Steel - Electro zinc plated finish
Stainless Steel - natural finish

HOW TO ORDER

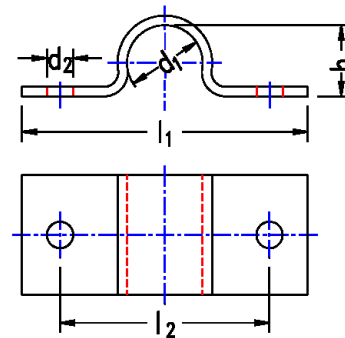
Example : DIN 1593 **

** Diameter d_1

DIN 1596



DIN 1597



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			

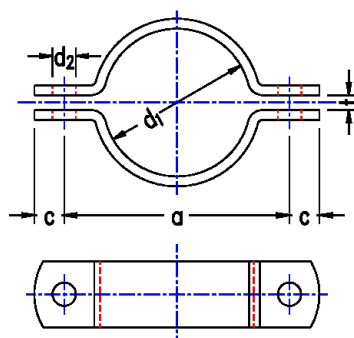
Material : Steel - Electro zinc plated finish
Stainless Steel - natural finish

HOW TO ORDER

Example : DIN 1597 **

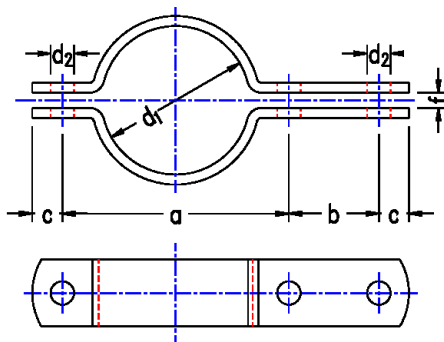
** Diameter d_1

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



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	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



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																														
89	80	3	136																														
108	100		172																														
115		4	178																														
133	125		196																														
140			204																														
159	150		222																			86	30	23	14	60 x 8	M 20 x 50						
169			232																														
194	175		258	104	36	27	18	70 x 10	M 24 x 60																								
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



Flanges

by HYD-AIR Engineering Works

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 case 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.

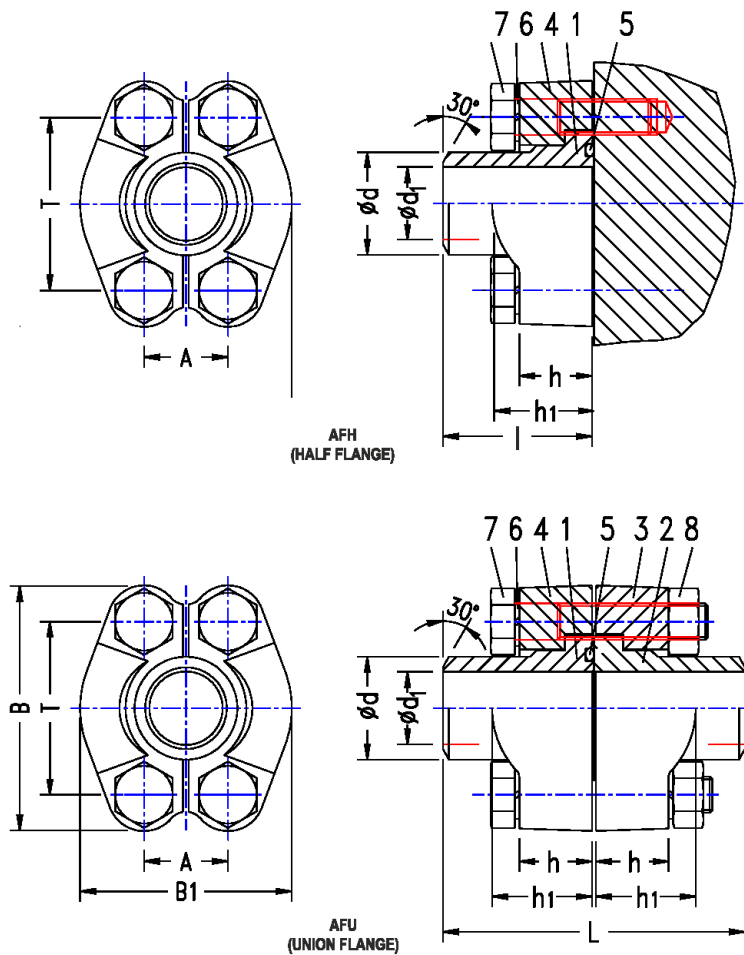
PART	MATERIAL	AFU	AFH
1) SLEEVE WITH GROOVE	IS. 2062	1	1
2) SLEEVE WITHOUT GROOVE	IS. 2062	1	-
3) FLANGE	A 105	1	-
4) SPLIT FLANGE (SET OF 2)	A 105	1	1
5) 'O' RING	NITRILE RUBBER	1	1
6) SPRING WASHER	IS. 3063	4	4
7) HEX. BOLT	IS. 1364 1983	4	4
8) HEX. NUT	IS. 1364 1983	4	-

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

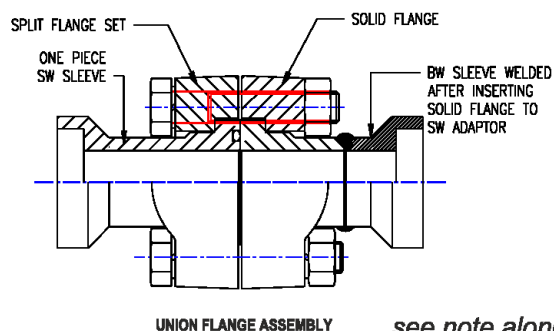
FINISH : Welding Sleeves and fasteners have
Phosphatized finish, Flanges are zinc plated.

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.

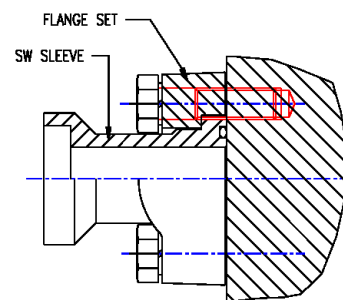


FLANGE ASSEMBLY WITH SOCKET WELD END CONNECTIONS



UNION FLANGE ASSEMBLY

see note along side page no. 21



HALF FLANGE ASSEMBLY

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

DN		PIPE SIZE	ød	ød1	ød2	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	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	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 1¾"
		76.1 x 3.6	77	69.0											M12 x 60 ½" _13UNC x 2¾"
		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 1¾"
		76.1 x 3.6	77	69.0											M16 x 70/ 5/8" _11UNC x 2¾"
		76.1 x 7.1	77	62.0											
		88.9 x 3.6	90	81.5											
3 1/2"	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											M16 x 70/ 5/8" _11UNC x 2¾"
		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											M16 x 80/ 5/8" _11UNC x 3 ¼"
		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											M16 x 80/ 5/8" _11UNC x 3 ¼"

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

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

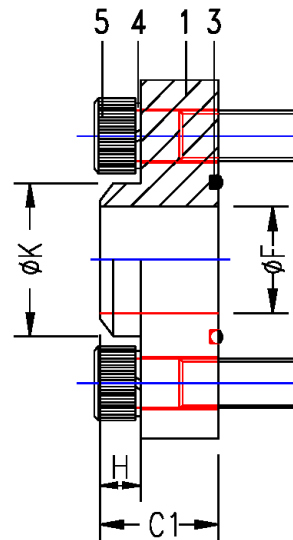
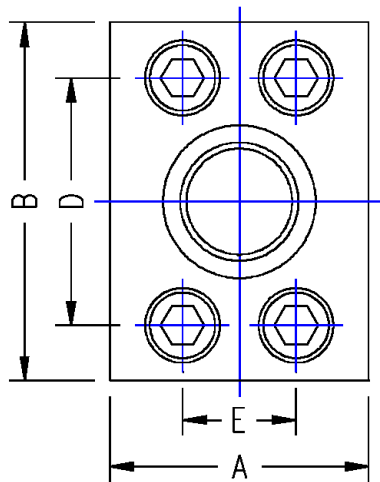
DN		PIPE SIZE	ød	ød1	ød2	I	L	h	h1	B	B1	T	A	'O' RING SIZE	HEX.HD.CAP SCREW SIZE
INCH	MM	OD x WT													AFH
															AFU
1/2"	13	16.0 x 2.5	16	11.0	31.8	40	80	16	22	56	48	40.5	18.2	18.64 x 3.53	M8 x 30/ 5/16" _18UNC x 1 1/4"
		20.0 x 3.0	20	14.0											M8 x 45/ 5/16" _18UNC x 1 3/4"
		21.3 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											
		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

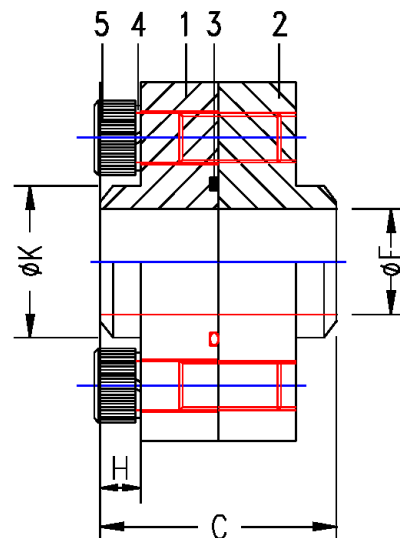
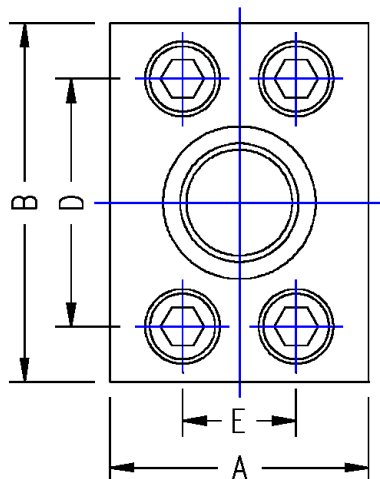
PART	MATERIAL	ABU	ABH
		QTY	
1) FLANGE WITH GROOVE	IS. 2062	1	1
2) FLANGE WITHOUT GROOVE	IS. 2062	1	-
3) "O" RING	NITRILE RUBBER	1	1
4) SPRING WASHER	IS. 3063	4	4
5) SOC. HD. CAP SCREW	IS. 1367 - CLASS 12-9	4	4

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

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

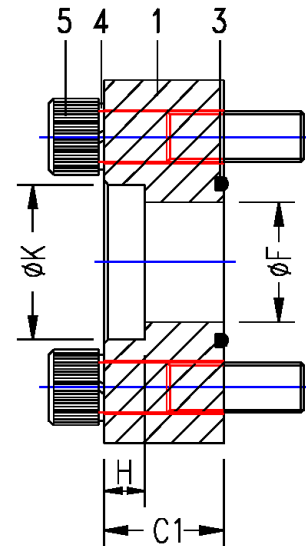
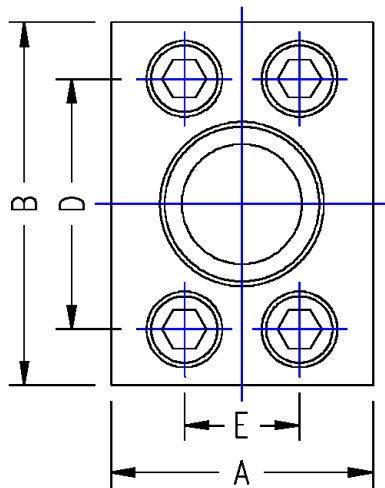
1/2	80	45	56	64	32	40.5	18.2	13.5	10	22.4	18.64 x 3.53	4 / M 8 x 40
	160							12.0				
3/4	80	51	71	64	32	50.8	23.8	19.0	10	28.5	24.99 x 3.53	4 / M 10 x 40
	160							15.5				
1	80	57	81	64	32	57.2	27.8	23.9	10	35.0	32.92 x 3.53	4 / M 12 x 45
	160							20.5				
1 ¼	80	70	95	64	32	66.7	31.8	31.8	10	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

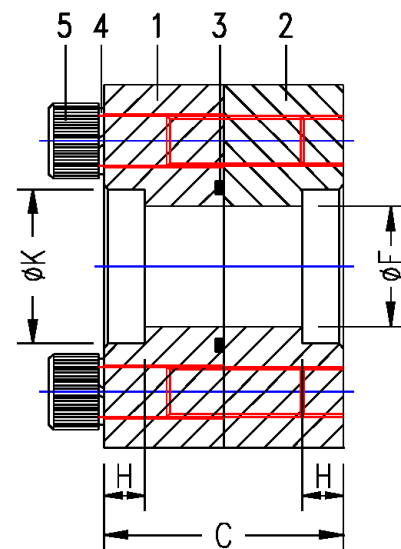
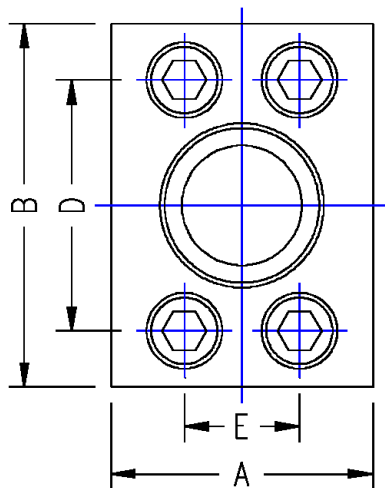
PART	MATERIAL	ASU	ASH
		QTY	
1) FLANGE WITH GROOVE	IS. 2062	1	1
2) FLANGE WITHOUT GROOVE	IS. 2062	1	-
3) "O" RING	NITRILE RUBBER	1	1
4) SPRING WASHER	IS. 3063	4	4
5) SOC. HD. CAP SCREW	IS. 1367 - CLASS 12-9	4	4

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

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

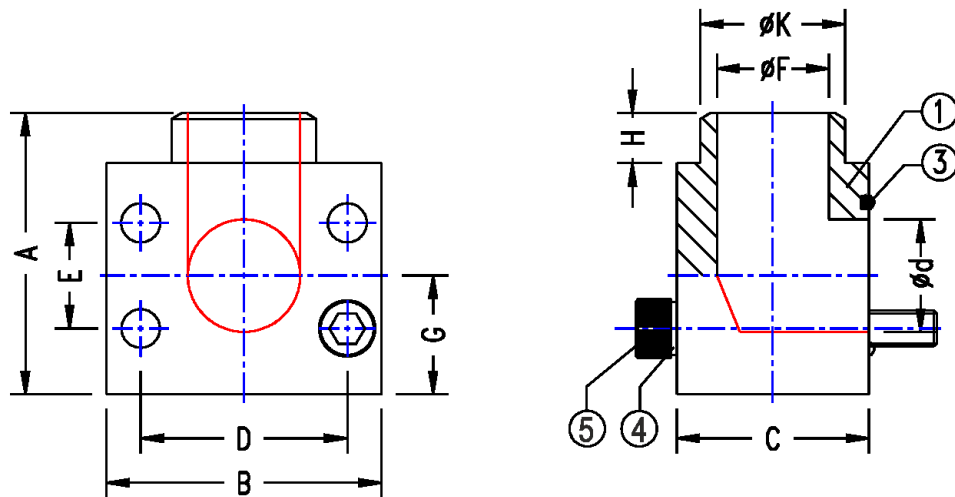
1/2	45	56	51	25.5	40.5	18.2	13	13	22	18.64 x 3.53	4 / M 8 x 40
3/4	51	71	51	25.5	50.8	23.8	19	13	27	24.99 x 3.53	4 / M 10 x 45
1	57	81	51	25.5	57.2	27.8	25	13	34	32.92 x 3.53	4 / M 12 x 45
1¼	70	95	64	32	66.7	31.8	32	13	43	37.69 x 3.53	4 / M 14 x 55
1½	83	114	76	38	79.4	36.7	38	13	49	47.22 x 3.53	4 /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

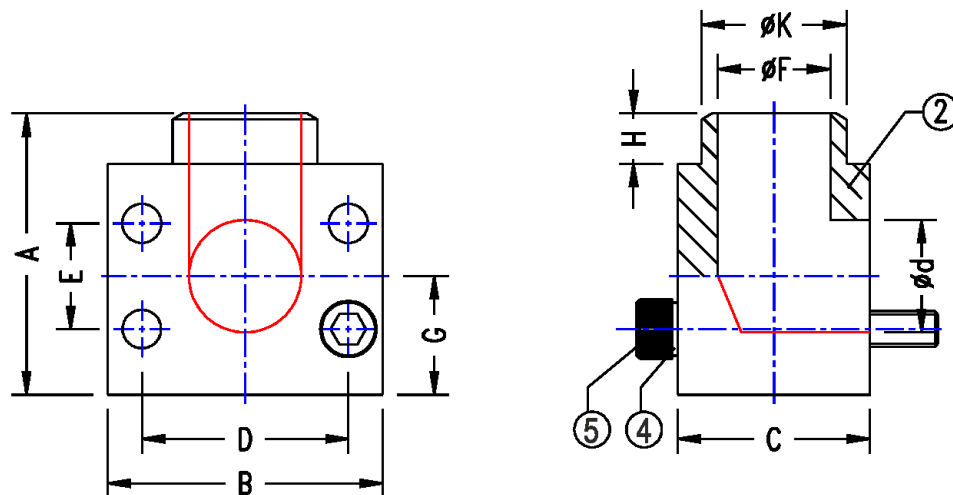
PART	MATERIAL	AEBO	AEB
		QTY	
1) ELBOW FLANGE WITH "O" RING	IS. 2062	1	-
2) ELBOW FLANGE WITHOUT "O" RING	IS. 2062	-	1
3) "O" RING	NITRILE RUBBER	1	1
4) SPRING WASHER	IS. 3063	4	4
5) SOC. HD. CAP SCREW	IS. 1367 - CLASS 12-9	4	4

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

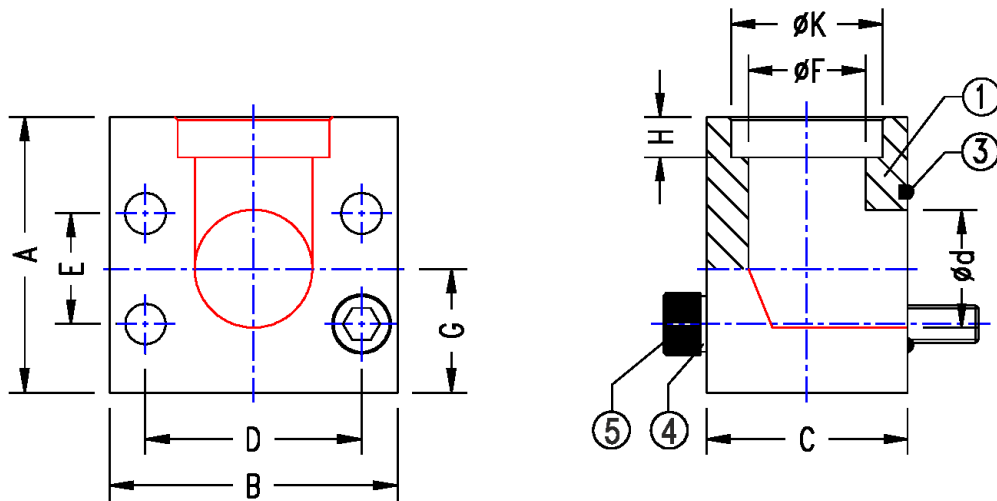
1/2	80	57	56	38	40.5	18.2	13.5	22	10	22.4	18.64 x 3.53	4 / M 8 x 50	M8
	160						11.7						
3/4	80	64	72	45	50.8	23.8	19.0	25	10	28.5	24.99 x 3.53	4 / M 10 x 65	M10
	160						15.5						
1	80	70	81	51	57.2	27.8	24.3	28	10	35.0	32.92 x 3.53	4 / M 12 x 70	M12
	160						20.5						
1 1/4	80	83	95	57	66.7	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

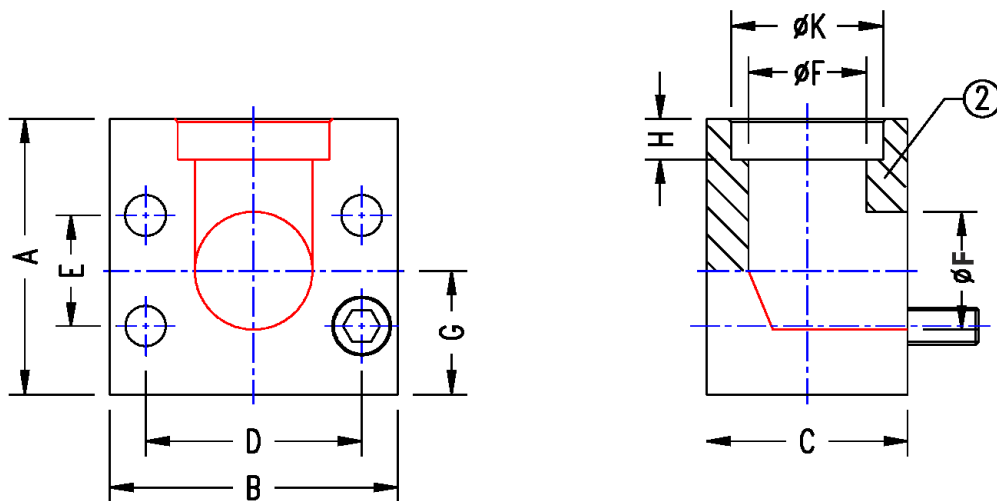
PART	MATERIAL	AESO	AES
		QTY	
1) ELBOW FLANGE WITH "O" RING	IS. 2062	1	-
2) ELBOW FLANGE WITHOUT "O" RING	IS. 2062	-	1
3) "O" RING	NITRILE RUBBER	1	1
4) SPRING WASHER	IS. 3063	4	4
5) SOC. HD. CAP SCREW	IS. 1367 - CLASS 12-9	4	4

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

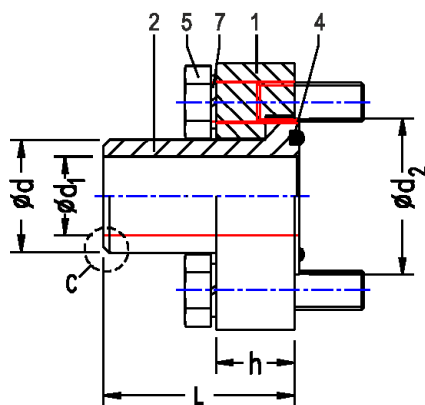
													T
	1/2	51	56	38	40.5	18.2	13	23	13	22	18.64 x 3.53	4 / M 8 x 50	M8
	3/4	57	71	45	50.8	23.8	19	25	13	27	24.99 x 3.53	4 / M 10 x 65	M10
	1	64	81	51	57.2	27.8	25	28	13	34	32.92 x 3.53	4 / M 12 x 70	M12
	1¼	76	95	57	66.7	31.7	32	35	13	43	37.69 x 3.53	4 / M 14 x 80	M14
	1½	89	115	76	79.4	36.5	38	41	13	49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

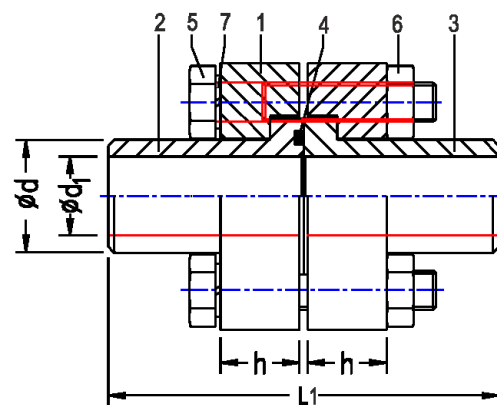
PART	MATERIAL	FH	FU
1) FLANGE	C. S. IS. 2062	1	2
2) SLEEVE WITH GROOVE	C. S. IS. 2062	1	1
3) SLEEVE WITHOUT GROOVE	C. S. IS. 2062	-	1
4) 'O'RING	NITRILE	1	1
5) HEX BOLT	IS. 1363	4 or 8	4 or 8
6) HEX NUT	IS. 1363	-	4 or 8
7) SPRING WASHER	IS. 3063	4 or 8	4 or 8

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

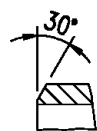


FH
HALF FLANGE ASSEMBLY

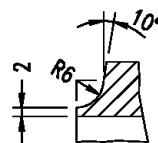


FU
UNION FLANGE ASSEMBLY

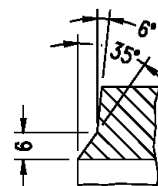
VERSION OF THE FORM OF WELDING SEAM
 ACCORDING TO DIN 2559 (DETAILS 'C')



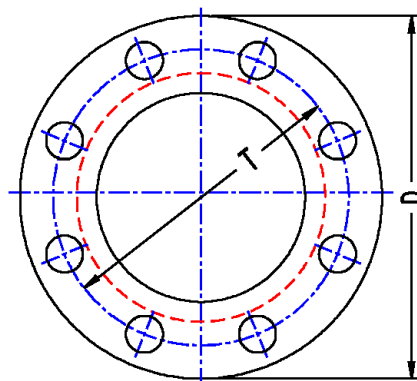
WALL THICKENSS UPTO 12 mm



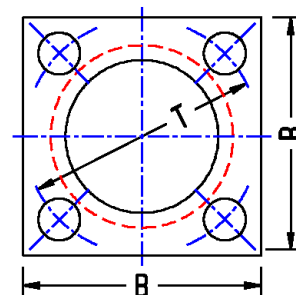
FROM 12 mm UPTO 16 mm



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 (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

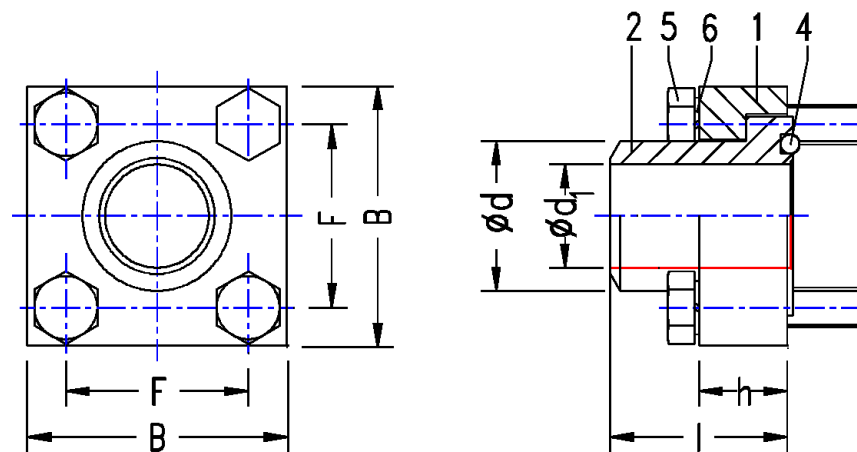
DIMENSIONS : FH SERIES & FU SERIES - PN 315

DN		PIPE SIZE	ϕd	$\phi d 1$	$\phi d 2$	L	L 1	B/D	h	T	'O' RING SIZE	HEX. BOLT
												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
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

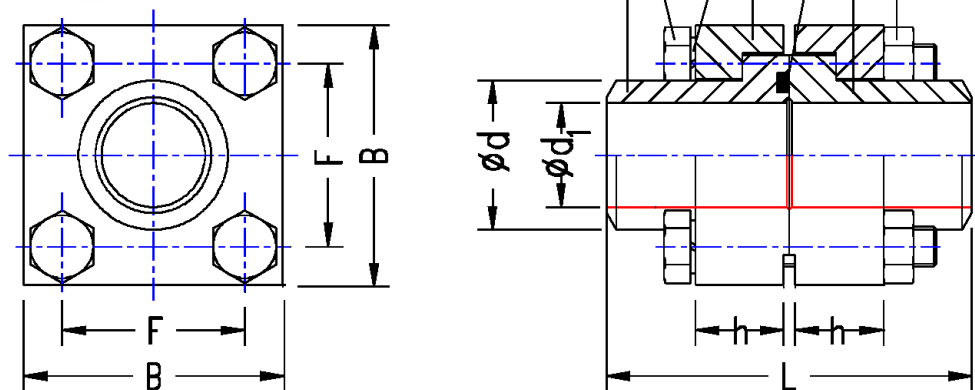
PART	MATERIAL	CBH	QTY	CBU
1) FLANGE	IS. 2062	1		1
2) SLEEVE WITH GROOVE	IS. 2062	1		-1
3) SLEEVE WITHOUT GROOVE	IS. 2062	-		1
4) "O" RING	NITRILE RUBBER	1		1
5) HEX. HD. CAP SCREW	IS. 1363	4		4
6) SPRING WASHER	IS. 3063	4		4
7) HEX NUT	IS. 1363	-		4

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

DIMENSIONS : PN_250 STATIC & PN-160 DYNAMIC

PIPE SIZE		PIPE OD	Φ D1	Φ D	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	Φ D1	Φ D	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

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

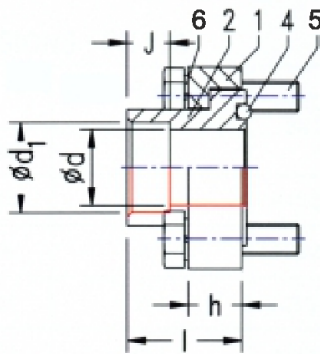
TEST PRESSURE : PN 250 STATIC & PN 160 DYNAMIC = 3750 PSI HYDROSTATIC @ ROOM TEMPERATURE.

PN 400 STATIC & PN 315 DYNAMIC = 6000 PSI HYDROSTATIC @ ROOM TEMPERATURE.

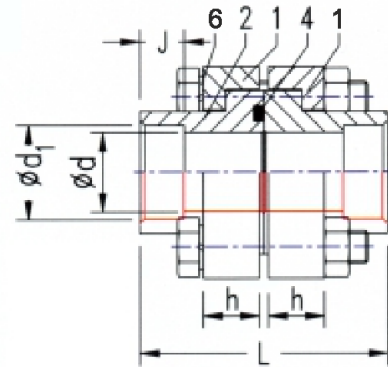
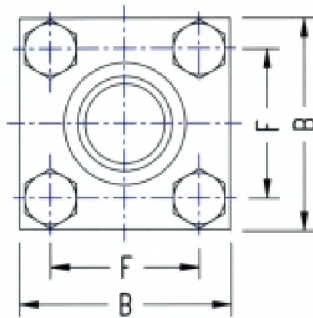


DIMENSIONS : PN 400 STATIC & PN 350 DYNAMIC

DN		PIPE SIZE	φd	φd 1	I	L	J	B	h	F	'O' RING SIZE	HEX, BOLT SIZE
												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								
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
												M 24 x 110
		76.1 x 12	53	77.0								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

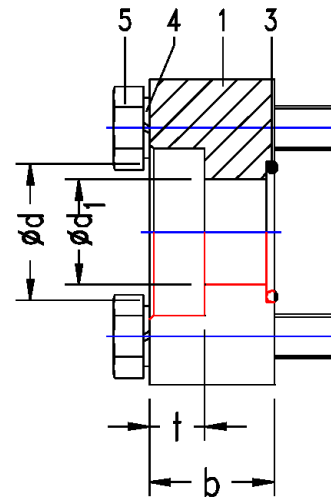
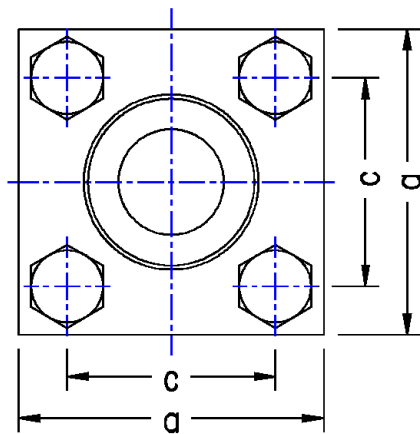
DIMENSIONS : PN 250 STATIC & PN-160 DYNAMIC

DN		PIPE SIZE	Ød	Ød 1	l	L	J	B	h	F	'O' RING SIZE	HEX, BOLT SIZE
INCH	MM											HALF
		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								
1 1/4	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								
1 1/2	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
2 1/2	65	73 x 9.53	54	74.0	80	160	24	150	37	102.5	85.32 x 3.53	M 24 x 75
		76.1 x 9.00	58	77.0								M 24 x 110
												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

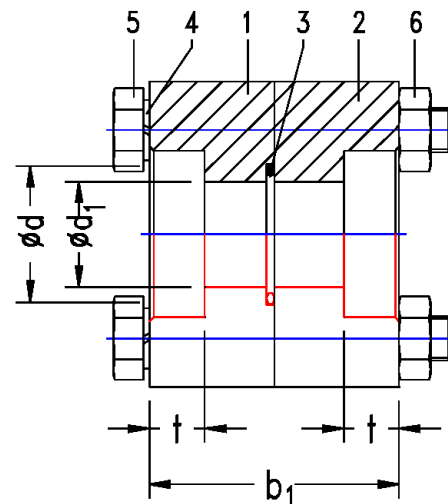
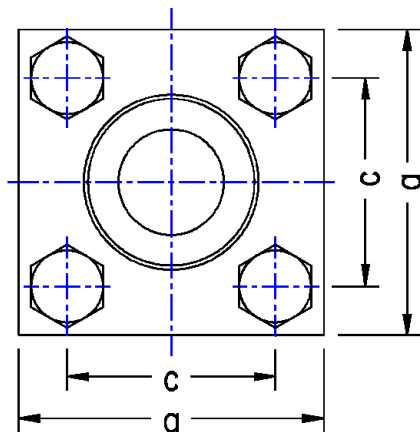
PART	MATERIAL	NSF	QTY	NSU
1) FLANGE WITH GROOVE	IS. 2062	1		1
2) FLANGE WITHOUT GROOVE	IS. 2062	-		1
3) "O" RING	NITRILE RUBBER	1		1
4) SPRING WASHER	IS. 3063	4		4
5) HEX. HD. CAP SCREW	IS. 1363	4		4
6) HEX NUT	IS 1363	-		4

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



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