



5. Connectors

Pipeline Hubs and Clamps

Section 5c. Pipeline Hubs and Clamps

Hubs and Clamps are designed and manufactured in accordance with the following specifications:-

API 16A	Specification for Drill Through Equipment.
API 6A	Specification for Wellhead and Christmas Tree Equipment.
NACE MR-01-75	Sulphide Stress Cracking Resistant Metallic Materials for Oilfield Equipment.
ASME VIII	Boiler and Pressure Vessel Code.
ANSI B31.3	Chemical Plant and Petroleum Piping.

Hubs are available as Weld Neck, Integral & Blinds and are available in the following materials and pressure ratings:-

		HUBS				CLAMPS		SEALRINGS	
		A350 LF2 MOD	AISI 4130	A182 F316L	A182 F51	AISI 4140	A182 F304	AISI 4130	A564 630 (17-4PH)
MIN. TENSILE	70,000 PSI	90,000 PSI	75,000 PSI	90,000 PSI	100,000 PSI	75,000PSI	100,000 PSI	115,000 PSI	
MIN. YIELD	52,000 PSI	60,000 PSI	30,000 PSI	65,000 PSI	75,000 PSI	30,000 PSI	75,000 PSI	75,000 PSI	
HARDNESS (MAX.)	197 BHN	235 BHN	N/A	28HRC	22 HRC	N/A	22 HRC	33 HRC	
IMPACT VALUES	54/40 JOULES	40/32 JOULES	N/A	70/65 JOULES	42/32 JOULES	N/A	27/20 JOULES	27/20 JOULES	
IMPACT TEST TEMR	-46 DEG C	-46 DEG C	N/A	-46 DEG C	-46 DEG C	N/A	-46 DEG C	-46 DEG C	
TEMPER TEMP	650 DEG C	650 DEG C	N/A	N/A	620 DEG C	N/A	N/A	N/A	

visit www.rbvenergy.com for more info

GENERAL NOTE: Please contact RBV Energy for any special material or dimensional requirements.

Section 5c. Pipeline Hubs and Clamps

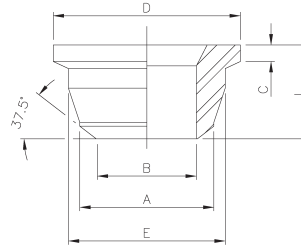


Table 5c.1 Butt Weld Hubs Standard Clamp Series

N.P.S. O.Dia A	(DN)	Pipe Schedule	Typical Designation Hub/S.Ring	Pipe Inside Diameter B		Hub Outside Diameter D		Hub Length L		Hub Backface Diameter E		Lip Thickness C		BW Hub Weight	
				ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	lb	kg
½" 0.840	(DN 15) (21.3)	Std 40 40S	1in/5	0.622	15.8	2.000	50.8	1.750	44.5	1.500	38.1	0.313	8.0	0.6	0.3
		XS 80 80S	1in/5	0.546	13.9	2.000	50.8	1.750	44.5	1.500	38.1	0.313	8.0	0.6	0.3
		160	1in/4	0.466	11.8	2.000	50.8	1.750	44.5	1.500	38.1	0.313	8.0	0.6	0.3
		XXS	1in/4	0.252	6.4	2.000	50.8	1.750	44.5	1.500	38.1	0.313	8.0	0.7	0.3
¾" 1.050	(DN 20) (26.7)	Std 40 40S	1in/7	0.824	20.9	2.000	50.8	1.750	44.5	1.500	38.1	0.313	8.0	0.5	0.2
		XS 80 80S	1in/7	0.742	18.8	2.000	50.8	1.750	44.5	1.500	38.1	0.313	8.0	0.6	0.3
		160	1in/5	0.614	15.6	2.000	50.8	1.750	44.5	1.500	38.1	0.313	8.0	0.7	0.3
		XXS	1in/4	0.434	11.0	2.000	50.8	1.750	44.5	1.500	38.1	0.313	8.0	0.7	0.3
1" 1.315	(DN 25) (33.4)	Std 40 40S	1in/11	1.049	26.6	2.000	50.8	1.750	44.5	1.500	38.1	0.313	8.0	0.5	0.2
		XS 80 80S	1in/11	0.957	24.3	2.000	50.8	1.750	44.5	1.500	38.1	0.313	8.0	0.5	0.2
		160	1in/7	0.815	20.7	2.000	50.8	1.750	44.5	1.500	38.1	0.313	8.0	0.6	0.3
		XXS	1in/5	0.599	15.2	2.000	50.8	1.750	44.5	1.500	38.1	0.313	8.0	0.7	0.3

Table 5c.1 Butt Weld Hubs Standard Clamp Series

N.P.S. O.Dia A	(DN)	Pipe Schedule	Typical Designation Hub/S.Ring	Pipe Inside Diameter B		Hub Outside Diameter D		Hub Length L		Hub Backface Diameter E		Lip Thickness C		BW Hub Weight	
				ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	lb	kg
1½"	(DN40)	Std 40 40S	1-½ in/14	1.610	40.9	3.125	79.4	2.375	60.3	2.375	60.3	0.473	11.1	1.6	0.7
1.900	(48.3)	XS 80 80S	1-½ in/13	1.500	38.1	3.125	79.4	2.375	60.3	2.375	60.3	0.500	12.7	1.9	0.8
		160	1-½ in/13	1.338	34.0	3.125	79.4	2.375	60.3	2.375	60.3	0.500	12.7	2.0	0.9
		XXS	1-½ in/11	1.100	27.9	3.125	79.4	2.375	60.3	2.375	60.3	0.500	12.7	2.4	1.1
2"	(DN50)	Std 40 40S	2in/20	2.067	52.5	3.625	92.1	2.750	69.9	2.875	73.0	0.473	11.1	2.2	1.0
2.375	(60.3)	XS 80 80S	2in/20	1.939	49.3	3.625	92.1	2.750	69.9	2.875	73.0	0.473	11.1	2.5	1.1
		160	2in/16	1.689	42.9	3.625	92.1	2.750	69.9	2.875	73.0	0.473	11.1	3.0	1.4
		XXS	2in/14	1.503	38.2	3.625	92.1	2.750	69.9	2.875	73.0	0.473	11.1	3.4	1.5
3"	(DN75)	Std 40 40S	3in/27	3.068	77.9	5.000	127.0	3.250	82.6	4.000	101.6	0.500	12.7	4.7	2.1
3.500	(88.9)	XS 80 80S	3in/27	2.900	73.7	5.000	127.0	3.250	82.6	4.000	101.6	0.500	12.7	5.2	2.4
		160	3in/26	2.624	66.6	5.000	127.0	3.250	82.6	4.000	101.6	0.500	12.7	6.3	2.9
		XXS	3in/23	2.300	58.4	5.000	127.0	3.250	82.6	4.000	101.6	0.500	12.7	7.4	3.3
4"	(DN100)	Std 40 40S	4in/40	4.026	102.3	6.000	152.4	3.625	92.1	5.000	127.0	0.500	12.7	6.7	3.1
4.500	(114.3)	XS 80 80S	4in/40	3.826	97.2	6.000	152.4	3.625	92.1	5.000	127.0	0.500	12.7	7.7	3.5
		160	4in/34	3.438	87.3	6.000	152.4	3.625	92.1	5.000	127.0	0.500	12.7	10.0	4.5
		XXS	4in/31	3.152	80.1	6.000	152.4	3.625	92.1	5.000	127.0	0.500	12.7	11.5	5.2
5"	(DN125)	Std 40 40S	5in/52	5.047	128.2	7.500	190.5	4.375	111.1	6.500	165.1	0.625	15.9	13.3	6.0
5.563	(141.3)	XS 80 80S	5in/52	4.813	122.3	7.500	190.5	4.375	111.1	6.500	165.1	0.625	15.9	14.8	6.7
		160	5in/46	4.313	109.6	7.500	190.5	4.375	111.1	6.500	165.1	0.625	15.9	19.2	8.7
		XXS	5in/40	4.063	103.2	7.500	190.5	4.375	111.1	6.500	165.1	0.625	15.9	21.9	9.9

visit www.rbvenergy.com for more info



Section 5c. Pipeline Hubs and Clamps



visit www.rbvenergy.com for more info

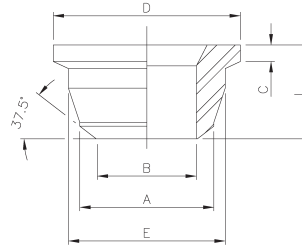


Table 5c.1 Butt Weld Hubs Standard Clamp Series

N.P.S. O.Dia A	(DN)	Pipe Schedule	Typical Designation Hub/S.Ring	Pipe Inside Diameter B		Hub Outside Diameter D		Hub Length L		Hub Backface Diameter E		Lip Thickness C		BW Hub Weight		
				ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	lb	kg	
6"	(DN150)	Std 40 40S	6in/62	6.065	154.1	9.250	235.0	4.625	117.5	7.750	196.9	0.750	19.1	20.4	9.2	
		6.625 (168.3)	XS 80 80S	6in/56	5.761	146.3	9.250	235.0	4.625	117.5	7.750	196.9	0.812	20.6	24.9	11.3
		120	6in/54	5.501	139.7	9.250	235.0	4.625	117.5	7.750	196.9	0.812	20.6	27.7	12.6	
		160	6in/52	5.189	131.8	9.250	235.0	4.625	117.5	7.750	196.9	0.812	20.6	30.7	13.9	
		XXS	6in/52	4.897	124.4	9.250	235.0	4.625	117.5	7.750	196.9	0.812	20.6	32.7	14.8	
8"	(DN200)	Std 40 40S	8in/82	7.981	202.7	11.500	292.1	5.375	136.5	10.000	254.0	0.750	19.1	33.0	15.0	
		6.625 (219.1)	XS 80 80S	8in/76	7.625	193.7	11.500	292.1	5.375	136.5	10.000	254.0	0.750	19.1	40.3	18.3
		100	8in/76	7.439	189.0	11.500	292.1	5.375	136.5	10.000	254.0	0.750	19.1	42.4	19.2	
		120	8in/72	7.189	182.6	11.500	292.1	5.375	136.5	10.000	254.0	0.750	19.1	47.8	21.7	
		140	8in/72	7.001	177.8	11.500	292.1	5.375	136.5	10.000	254.0	0.750	19.1	49.9	22.6	
		XXS	8in/67	6.875	174.6	11.500	292.1	5.375	136.5	10.000	254.0	0.750	19.1	52.9	24.0	
160	8in/67	6.813	173.1	11.500	292.1	5.375	136.5	10.000	254.0	0.750	19.1	53.6	24.3			

Section 5c. Pipeline Hubs and Clamps

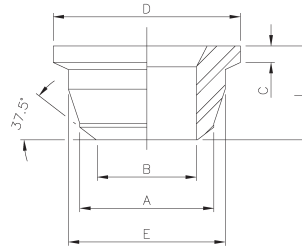


Table 5c.2 Butt Weld Hubs Heavy Duty Clamp Series (Non-standard)

N.P.S. O.Dia A	(DN)	Pipe Schedule	Typical Designation Hub/S.Ring	Pipe Inside Diameter B		Hub Outside Diameter D		Hub Length L		Hub Backface Diameter E		Lip Thickness C		BW Hub Weight			
				ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	lb	kg		
2"	(DN50)	Std 40 40S	H2in/20	2.067	52.5	4.750	120.7	3.250	82.6	3.750	95.3	0.625	15.9	6.2	2.8		
		2.375	(60.3)	XS 80 80S	H2in/20	1.939	49.3	4.750	120.7	3.250	82.6	3.750	95.3	0.625	15.9	6.5	2.9
				160	H2in/16	1.689	42.9	4.750	120.7	3.250	82.6	3.750	95.3	0.625	15.9	7.1	3.2
			XXS	H2in/14	1.503	38.2	4.750	120.7	3.250	82.6	3.750	95.3	0.625	15.9	7.5	3.4	
3"	(DN75)	Std 40 40S	H3in/27	3.068	77.9	5.500	139.7	3.500	88.9	4.500	114.3	0.625	15.9	7.3	3.3		
		3.500	(88.9)	XS 80 80S	H3in/27	2.900	73.7	5.500	139.7	3.500	88.9	4.500	114.3	0.625	15.9	8.0	3.6
				160	H3in/25	2.624	66.6	5.500	139.7	3.500	88.9	4.500	114.3	0.625	15.9	9.2	4.2
				XXS	H3in/23	2.300	58.4	5.500	139.7	3.500	88.9	4.500	114.3	0.625	15.9	10.3	4.7
4"	(DN100)	Std 40 40S	H4in/40	4.026	102.3	6.750	171.5	4.000	101.6	5.750	146.1	0.625	15.9	11.9	5.4		
		4.500	(114.3)	XS 80 80S	H4in/40	3.826	97.2	6.750	171.5	4.000	101.6	5.750	146.1	0.625	15.9	13.0	5.9
				160	H4in/34	3.438	87.3	6.750	171.5	4.000	101.6	5.750	146.1	0.625	15.9	15.5	7.0
				XXS	H4in/31	3.152	80.1	6.750	171.5	4.000	101.6	5.750	146.1	0.625	15.9	17.2	7.8

visit www.rbvenergy.com for more info

Section 5c. Pipeline Hubs and Clamps



visit www.rbvenergy.com for more info

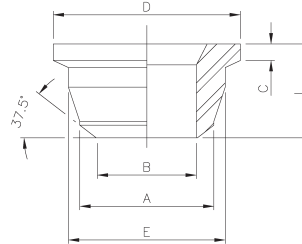


Table 5c.2 Butt Weld Hubs Heavy Duty Clamp Series (Non-standard)

N.P.S. O.Dia A	(DN)	Pipe Schedule	Typical Designation Hub/S.Ring	Pipe Inside Diameter B		Hub Outside Diameter D		Hub Length L		Hub Backface Diameter E		Lip Thickness C		BW Hub Weight	
				ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	lb	kg
8" 8.625	(DN200)	Std 40 40S	H8in/82	7.981	202.7	11.500	292.1	5.000	127.0	9.500	241.3	1.000	25.4	31.6	14.3
		XS 80 80S	H8in/76	7.625	193.7	11.500	292.1	5.000	127.0	9.500	241.3	1.000	25.4	38.3	17.4
		100	H8in/76	7.439	189.0	11.500	292.1	5.000	127.0	9.500	241.3	1.000	25.4	40.3	18.3
		120	H8in/72	7.189	182.6	11.500	292.1	5.000	127.0	9.500	241.3	1.000	25.4	45.4	20.6
		140	H8in/72	7.001	177.8	11.500	292.1	5.000	127.0	9.500	241.3	1.000	25.4	47.2	21.4
		XXS	H8in/67	6.875	174.6	11.500	292.1	5.000	127.0	9.500	241.3	1.000	25.4	50.1	22.7
10" 10.750	(DN250)	Std 40 40S	H10in/102	10.020	254.5	13.625	346.1	6.000	152.4	11.625	295.3	1.250	31.8	49.9	22.6
		XS 60 80S	H10in/97	9.750	247.7	13.625	346.1	6.000	152.4	11.625	295.3	1.250	31.8	57.5	26.1
		80	H10in/97	9.564	242.9	13.625	346.1	6.000	152.4	11.625	295.3	1.250	31.8	60.7	27.6
		100	H10in/94	9.314	236.6	13.625	346.1	6.000	152.4	11.625	295.3	1.250	31.8	67.6	30.7
		120	H10in/94	9.064	230.2	13.625	346.1	6.000	152.4	11.625	295.3	1.250	31.8	71.4	32.4
		XXS 140	H10in/87	8.750	222.3	13.625	346.1	6.000	152.4	11.625	295.3	1.250	31.8	80.5	36.5
		160	H10in/84	8.500	215.9	13.625	346.1	6.000	152.4	11.625	295.3	1.250	31.8	86.2	39.1

Table 5c.2 Butt Weld Hubs Heavy Duty Clamp Series (Non-standard)

N.P.S. O.Dia A	(DN)	Pipe Schedule	Typical Designation Hub/S.Ring	Pipe Inside Diameter B		Hub Outside Diameter D		Hub Length L		Hub Backface Diameter E		Lip Thickness C		BW Hub Weight	
				ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	lb	kg
12" 12.750 (323.9)	(DN300)	Std 40S	H12in/120	12.000	304.8	16.000	406.4	6.625	168.3	14.000	355.6	1.375	34.9	77.1	35.0
		40	H12in/120	11.938	303.2	16.000	406.4	6.625	168.3	14.000	355.6	1.375	34.9	78.8	35.8
		XS 80S	H12in/116	11.750	298.5	16.000	406.4	6.625	168.3	14.000	355.6	1.375	34.9	85.4	38.7
		80	H12in/116	11.376	289.0	16.000	406.4	6.625	168.3	14.000	355.6	1.375	34.9	94.4	42.8
		100	H12in/112	11.064	281.0	16.000	406.4	6.625	168.3	14.000	355.6	1.250	31.8	104.3	47.3
		XXS 120	H12in/106	10.750	273.1	16.000	406.4	6.625	168.3	14.000	355.6	1.375	34.9	112.9	51.2
		140	H12in/106	10.500	266.7	16.000	406.4	6.625	168.3	14.000	355.6	1.375	34.9	118.3	53.7
		160	H12in/102	10.126	257.2	16.000	406.4	6.625	168.3	14.000	355.6	1.375	34.9	129.3	58.7
		14"	(DN350)	40	H14in/134	13.124	333.3	18.500	469.9	7.250	184.2	16.500	419.1	1.187	30.1
14.000 (355.6)		XS	H14in/130	13.000	330.2	18.500	469.9	7.250	184.2	16.500	419.1	1.187	30.1	133.2	60.4
		80	H14in/124	12.500	317.5	18.500	469.9	7.250	184.2	16.500	419.1	1.250	31.8	153.3	69.5
		100	H14in/124	12.124	307.9	18.500	469.9	7.250	184.2	16.500	419.1	1.250	31.8	163.8	74.3
		120	H14in/120	11.814	300.1	18.500	469.9	7.250	184.2	16.500	419.1	1.250	31.8	177.3	80.4
		140	H14in/116	11.500	292.1	18.500	469.9	7.250	184.2	16.500	419.1	1.250	31.8	187.2	84.9
16" 16.000 (406.4)		160	H14in/112	11.188	284.2	18.500	469.9	7.250	184.2	16.500	419.1	1.125	28.6	197.0	89.4
		XS 40	H16in/152	15.000	381.0	21.000	533.4	7.875	200.0	19.000	482.6	1.688	42.9	194.8	88.4
		60	H16in/152	14.688	373.1	21.000	533.4	7.875	200.0	19.000	482.6	1.688	42.9	206.3	93.6
		80	H16in/144	14.314	363.6	21.000	533.4	7.875	200.0	19.000	482.6	1.688	42.9	229.1	103.9
		100	H16in/140	13.398	354.0	21.000	533.4	7.875	200.0	19.000	482.6	1.688	42.9	247.5	112.3
		120	H16in/137	13.564	344.5	21.000	533.4	7.875	200.0	19.000	482.6	1.625	41.3	260.5	118.2
		140	H16in/134	13.124	333.3	21.000	533.4	7.875	200.0	19.000	482.6	1.688	42.9	279.4	126.8
160	H16in/130	12.812	325.4	21.000	533.4	7.875	200.0	19.000	482.6	1.688	42.9	293.9	133.3		

visit www.rbvenergy.com for more info



Section 5c. Pipeline Hubs and Clamps



visit www.rbvenergy.com for more info

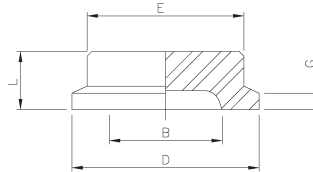


Table 5c.3 Blind Hubs Standard Clamp Series

N.P.S. O.Dia A	(DN)	Pipe Schedule	Typical Designation Hub/S.Ring	Pipe Inside Diameter B		Hub Outside Diameter D		Hub Length L		Hub Backface Diameter E		Lip Thickness G		BW Hub Weight	
				ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	lb	kg
½" 0.840	(DN 15) (21.3)	Std 40 40S	1in/5	0.622	15.8	2.000	50.8	1.313	33.4	1.500	38.1	0.313	8.0	0.8	0.4
		XS 80 80S	1in/5	0.546	13.9	2.000	50.8	1.313	33.4	1.500	38.1	0.313	8.0	0.8	0.4
		160	1in/4	0.466	11.8	2.000	50.8	1.313	33.4	1.500	38.1	0.313	8.0	0.8	0.4
		XXS	1in/4	0.252	6.4	2.000	50.8	1.313	33.4	1.500	38.1	0.313	8.0	0.8	0.4
¾" 1.050	(DN 20) (26.7)	Std 40 40S	1in/7	0.824	20.9	2.000	50.8	1.313	33.4	1.500	38.1	0.313	8.0	0.8	0.4
		XS 80 80S	1in/7	0.742	18.8	2.000	50.8	1.313	33.4	1.500	38.1	0.313	8.0	0.8	0.4
		160	1in/5	0.614	15.6	2.000	50.8	1.313	33.4	1.500	38.1	0.313	8.0	0.8	0.4
		XXS	1in/4	0.434	11.0	2.000	50.8	1.313	33.4	1.500	38.1	0.313	8.0	0.8	0.4
1" 1.315	(DN 25) (33.4)	Std 40 40S	1in/11	1.049	26.6	2.000	50.8	1.313	33.4	1.500	38.1	0.313	8.0	0.8	0.4
		XS 80 80S	1in/11	0.957	24.3	2.000	50.8	1.313	33.4	1.500	38.1	0.313	8.0	0.8	0.4
		160	1in/7	0.815	20.7	2.000	50.8	1.313	33.4	1.500	38.1	0.313	8.0	0.8	0.4
		XXS	1in/5	0.599	15.2	2.000	50.8	1.313	33.4	1.500	38.1	0.313	8.0	0.8	0.4
1½" 1.900	(DN 40) (48.3)	Std 40 40S	1-½ in/14	1.610	40.9	3.125	79.4	1.625	41.3	2.375	60.3	0.437	11.1	2.4	1.1
		XS 80 80S	1-½ in/13	1.500	38.1	3.125	79.4	1.625	41.3	2.375	60.3	0.500	12.7	2.5	1.1
		160	1-½ in/13	1.338	34.0	3.125	79.4	1.625	41.3	2.375	60.3	0.500	12.7	2.5	1.1
		XXS	1-½ in/11	1.100	27.9	3.125	79.4	1.625	41.3	2.375	60.3	0.500	12.7	2.5	1.1

Table 5c.3 Blind Hubs Standard Clamp Series

N.P.S. O.Dia A	(DN)	Pipe Schedule	Typical Designation Hub/S.Ring	Pipe Inside Diameter B		Hub Outside Diameter D		Hub Length L		Hub Backface Diameter E		Lip Thickness G		BW Hub Weight	
				ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	lb	kg
2"	(DN 50)	Std 40 40S	2in/20	2.067	52.5	3.625	92.1	1.750	44.5	2.875	73.0	0.437	11.1	3.7	1.7
2.375	(60.3)	XS 80 80S	2in/20	1.939	49.3	3.625	92.1	1.750	44.5	2.875	73.0	0.437	11.1	3.7	1.7
		160	2in/16	1.689	42.9	3.625	92.1	1.750	44.5	2.875	73.0	0.437	11.1	3.7	1.7
		XXS	2in/14	1.503	38.2	3.625	92.1	1.750	44.5	2.875	73.0	0.437	11.1	3.7	1.7
3"	(DN 75)	Std 40 40S	3in/27	3.068	77.9	5.000	127.0	1.875	47.6	4.000	101.6	0.500	12.7	7.7	3.5
3.500	(88.9)	XS 80 80S	3in/27	2.900	73.7	5.000	127.0	1.875	47.6	4.000	101.6	0.500	12.7	7.7	3.5
		160	3in/25	2.624	66.6	5.000	127.0	1.875	47.6	4.000	101.6	0.500	12.7	7.7	3.5
		XXS	3in/23	2.300	58.4	5.000	127.0	1.875	47.6	4.000	101.6	0.500	12.7	7.7	3.5
4"	(DN 100)	Std 40 40S	4in/40	4.026	102.3	6.000	152.4	2.125	54.0	5.000	127.0	0.500	12.7	13.0	5.9
4.500	(114.3)	XS 80 80S	4in/40	3.826	97.2	6.000	152.4	2.125	54.0	5.000	127.0	0.500	12.7	13.0	5.9
		160	4in/34	3.438	87.3	6.000	152.4	2.125	54.0	5.000	127.0	0.500	12.7	13.0	5.9
		XXS	4in/31	3.152	80.1	6.000	152.4	2.125	54.0	5.000	127.0	0.500	12.7	13.0	5.9
5"	(DN 125)	Std 40 40S	5in/52	5.047	128.2	7.500	190.5	2.750	69.9	6.500	165.1	0.625	15.9	27.8	12.6
5.563	(141.3)	XS 80 80S	5in/52	4.813	122.3	7.500	190.5	2.750	69.9	6.500	165.1	0.625	15.9	27.8	12.6
		160	5in/46	4.313	109.6	7.500	190.5	2.750	69.9	6.500	165.1	0.625	15.9	27.8	12.6
		XXS	5in/40	4.063	103.2	7.500	190.5	2.750	69.9	6.500	165.1	0.625	15.9	27.8	12.6
6"	(DN 150)	Std 40 40S	6in/62	6.065	154.1	9.250	235.0	2.875	73.0	7.750	196.9	0.750	19.1	42.6	19.3
6.625	(168.3)	XS 80 80S	6in/56	5.761	146.3	9.250	235.0	2.875	73.0	7.750	196.9	0.812	20.6	43.0	19.5
		120	6in/54	5.501	139.7	9.250	235.0	2.875	73.0	7.750	196.9	0.812	20.6	43.0	19.5
		160	6in/52	5.189	131.8	9.250	235.0	2.875	73.0	7.750	196.9	0.812	20.6	43.0	19.5
		XXS	6in/52	4.897	124.4	9.250	235.0	2.875	73.0	7.750	196.9	0.812	20.6	43.0	19.5

visit www.rbvenergy.com for more info



Section 5c. Pipeline Hubs and Clamps



visit www.rbvenergy.com for more info

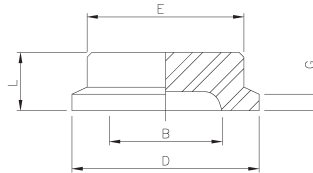


Table 5c.3 Blind Hubs Standard Clamp Series

N.P.S. O.Dia A	(DN)	Pipe Schedule	Typical Designation Hub/S.Ring	Pipe Inside Diameter B		Blind Hub Diameter D		Blind Hub Length L		Blind Hub Backface Diameter E		Lip Thickness G		BW Hub Weight	
				ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	lb	kg
8"	(DN 200)	Std 40 40S	8in/82	7.981	202.7	11.500	292.1	3.188	81.0	10.000	254.0	0.750	19.1	76.2	34.6
8.625	(168.3)	XS 80 80S	8in/76	7.625	193.7	11.500	292.1	3.188	81.0	10.000	254.0	0.750	19.1	76.2	34.6
		100	8in/76	7.439	189.0	11.500	292.1	3.188	81.0	10.000	254.0	0.750	19.1	76.2	34.6
		120	8in/72	7.189	182.6	11.500	292.1	3.188	81.0	10.000	254.0	0.750	19.1	76.2	34.6
		140	8in/72	7.001	177.8	11.500	292.1	3.188	81.0	10.000	254.0	0.750	19.1	76.2	34.6
		XXS	8in/67	6.875	174.6	11.500	292.1	3.188	81.0	10.000	254.0	0.750	19.1	76.2	34.6
		160	8in/67	6.813	173.1	11.500	292.1	3.188	81.0	10.000	254.0	0.750	19.1	76.2	34.6

Section 5c. Pipeline Hubs and Clamps

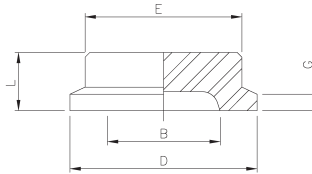


Table 5c.4 Blind Hubs Heavy Duty Clamp Series

N.P.S. O.Dia A	(DN)	Pipe Schedule	Typical Designation Hub/S.Ring	Pipe Inside Diameter B		Blind Hub Diameter D		Blind Hub Length L		Blind Hub Backface Diameter E		Lip Thickness G		BW Hub Weight			
				ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	lb	kg		
2"	(DN 50)	Std 40 40S	H2in/20	2.067	52.5	4.750	120.7	2.500	63.5	3.750	95.3	0.625	15.9	9.0	4.1		
		2.375	(60.3)	XS 80 80S	H2in/20	1.939	49.3	4.750	120.7	2.500	63.5	3.750	95.3	0.625	15.9	9.0	4.1
				160	H2in/16	1.689	42.9	4.750	120.7	2.500	63.5	3.750	95.3	0.625	15.9	9.0	4.1
			XXS	H2in/14	1.503	38.2	4.750	120.7	2.500	63.5	3.750	95.3	0.625	15.9	9.0	4.1	
3"	(DN 75)	Std 40 40S	H3in/27	3.068	77.9	5.500	139.7	2.625	66.7	4.500	144.3	0.625	15.9	13.2	6.0		
		3.500	(88.9)	XS 80 80S	H3in/27	2.900	73.7	5.500	139.7	2.625	66.7	4.500	144.3	0.625	15.9	13.2	6.0
				160	H3in/25	2.624	66.6	5.500	139.7	2.625	66.7	4.500	144.3	0.625	15.9	13.2	6.0
			XXS	H3in/23	2.300	58.4	5.500	139.7	2.625	66.7	4.500	144.3	0.625	15.9	13.2	6.0	
4"	(DN 100)	Std 40 40S	H4in/40	4.026	102.3	6.750	171.5	3.250	82.6	5.750	146.1	0.625	15.9	25.6	11.6		
		4.500	(114.3)	XS 80 80S	H4in/40	3.826	97.2	6.750	171.5	3.250	82.6	5.750	146.1	0.625	15.9	25.6	11.6
				160	H4in/34	3.483	87.3	6.750	171.5	3.250	82.6	5.750	146.1	0.625	15.9	25.6	11.6
			XXS	H4in/31	3.152	80.1	6.750	171.5	3.250	82.6	5.750	146.1	0.625	15.9	25.6	11.6	

visit www.rbvenergy.com for more info

Section 5c. Pipeline Hubs and Clamps



visit www.rbvenergy.com for more info

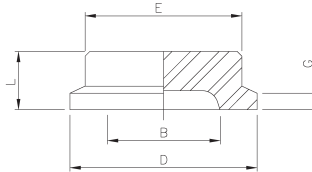


Table 5c.4 Blind Hubs Heavy Duty Clamp Series

N.P.S. O.Dia A	(DN)	Pipe Schedule	Typical Designation Hub/S.Ring	Pipe Inside Diameter B		Blind Hub Diameter D		Blind Hub Length L		Blind Hub Backface Diameter E		Lip Thickness G		BW Hub Weight	
				ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	lb	kg
8" 8.625	(DN 200)	Std 40 40S	H8in/82	7.981	202.7	11.500	292.1	3.500	88.9	9.500	241.3	1.000	25.4	79.5	36.1
		XS 80 80S	H8in/76	7.625	193.7	11.500	292.1	3.500	88.9	9.500	241.3	1.000	25.4	79.5	36.1
		100	H8in/76	7.439	189.0	11.500	292.1	3.500	88.9	9.500	241.3	1.000	25.4	79.5	36.1
		120	H8in/72	7.189	182.6	11.500	292.1	3.500	88.9	9.500	241.3	1.000	25.4	79.5	36.1
		140	H8in/72	7.001	177.8	11.500	292.1	3.500	88.9	9.500	241.3	1.000	25.4	79.5	36.1
		XXS	H8in/67	6.875	174.6	11.500	292.1	3.500	88.9	9.500	241.3	1.000	25.4	79.5	36.1
10" 10.750	(DN 250)	160	H8in/67	6.813	173.1	11.500	292.1	3.500	88.9	9.500	241.3	1.000	25.4	79.5	36.1
		Std 40 40S	H10in/102	10.020	254.5	13.625	346.1	3.188	81.0	11.625	295.3	1.250	31.8	109.8	49.8
		XS 60 80S	H10in/97	9.750	247.7	13.625	346.1	3.188	81.0	11.625	295.3	1.250	31.8	109.8	49.8
		80	H10in/97	9.564	242.9	13.625	346.1	3.188	81.0	11.625	295.3	1.250	31.8	109.8	49.8
		100	H10in/94	9.314	236.6	13.625	346.1	3.188	81.0	11.625	295.3	1.250	31.8	109.8	49.8
		120	H10in/94	9.064	230.2	13.625	346.1	3.188	81.0	11.625	295.3	1.250	31.8	109.8	49.8
		XXS 140	H10in/87	8.750	222.3	13.625	346.1	3.188	81.0	11.625	295.3	1.250	31.8	109.8	49.8
		160	H10in/84	8.500	215.9	13.625	346.1	3.188	81.0	11.625	295.3	1.250	31.8	109.8	49.8

Table 5c.4 Blind Hubs Heavy Duty Clamp Series

N.P.S. O.Dia A	(DN)	Pipe Schedule	Typical Designation Hub/S.Ring	Pipe Inside Diameter B		Blind Hub Diameter D		Blind Hub Length L		Blind Hub Backface Diameter E		Lip Thickness G		BW Hub Weight		
				ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	lb	kg	
12" (DN 300)	Std 40S	40	H12in/120	12.000	304.8	16.000	406.4	3.813	96.9	14.000	355.6	1.375	34.9	184.5	83.7	
				12.750 (232.9)	11.938	303.2	16.000	406.4	3.813	96.9	14.000	355.6	1.375	34.9	184.5	83.7
12.750 (232.9)	XS 80S	80	H12in/116	11.750	298.5	16.000	406.4	3.813	96.9	14.000	355.6	1.375	34.9	184.5	83.7	
				11.376	298.0	16.000	406.4	3.813	96.9	14.000	355.6	1.375	34.9	184.5	83.7	
				11.064	281.0	16.000	406.4	3.813	96.9	14.000	355.6	1.375	31.8	182.8	82.9	
				10.750	273.1	16.000	406.4	3.813	96.9	14.000	355.6	1.375	34.9	184.5	83.7	
				10.500	266.7	16.000	406.4	3.813	96.9	14.000	355.6	1.375	34.9	184.5	83.7	
12.750 (232.9)	160	H12in/102	H12in/106	10.126	257.2	16.000	406.4	3.813	96.9	14.000	355.6	1.375	34.9	184.5	83.7	
				10.500	266.7	16.000	406.4	3.813	96.9	14.000	355.6	1.375	34.9	184.5	83.7	
				10.126	257.2	16.000	406.4	3.813	96.9	14.000	355.6	1.375	34.9	184.5	83.7	
14" (DN 350)	40	H14in/134	H14in/130	13.124	333.3	18.500	469.9	4.500	114.3	16.500	419.1	1.187	30.1	290.8	131.9	
				14.000 (355.6)	13.000	320.2	18.500	469.9	4.500	114.3	16.500	419.1	1.187	30.1	290.8	131.9
14.000 (355.6)	XS	80	H14in/124	12.500	317.5	18.500	469.9	4.500	114.3	16.500	419.1	1.250	30.8	291.8	132.3	
				12.124	307.9	18.500	469.9	4.500	114.3	16.500	419.1	1.250	30.8	291.8	132.3	
				11.814	300.1	18.500	469.9	4.500	114.3	16.500	419.1	1.250	30.8	291.8	132.3	
				11.500	292.1	18.500	469.9	4.500	114.3	16.500	419.1	1.250	30.8	291.8	132.3	
				11.188	284.2	18.500	469.9	4.500	114.3	16.500	419.1	1.125	28.6	289.8	131.5	
16" (DN 400)	XS 40	60	H16in/152	15.000	381.0	21.000	533.4	5.000	127.0	19.000	482.6	1.688	42.9	431.2	195.6	
				16.000 (406.4)	14.688	373.1	21.000	533.4	5.000	127.0	19.000	482.6	1.688	42.9	431.5	195.7
				14.314	363.6	21.000	533.4	5.000	127.0	19.000	482.6	1.688	42.9	431.8	195.9	
				13.938	354.0	21.000	533.4	5.000	127.0	19.000	482.6	1.688	42.9	432.1	196.0	
				13.564	344.5	21.000	533.4	5.000	127.0	19.000	482.6	1.625	41.3	431.2	195.6	
				13.124	333.3	21.000	533.4	5.000	127.0	19.000	482.6	1.688	42.9	432.6	196.2	
16.000 (406.4)	160	H16in/130	H16in/152	12.812	325.4	21.000	533.4	5.000	127.0	19.000	482.6	1.688	42.9	432.9	196.4	
				12.812	325.4	21.000	533.4	5.000	127.0	19.000	482.6	1.688	42.9	432.9	196.4	

visit www.rbvenergy.com for more info



Section 5c. Pipeline Hubs and Clamps



visit www.rbvenergy.com for more info

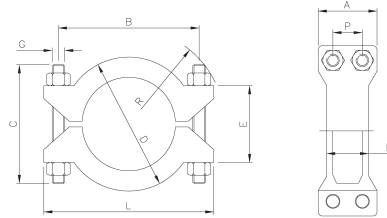


Table 5c.5 Clamps

Clamp Bolts Coating	Bolt Centres B		Clamp OD D		Overall Length L		Clamp Width F		Lug Separation E		Clamp Clearance R		Bolt Dia G		Bolt Length C		Bolt Lug Width A		Bolt Pitch P		Clamp Weight	
	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	lb	kg
Standard Series Clamp size																						
1"	3.25	83	2.81	71	4.25	108	1.38	35	2.13	54	2.63	67	0.500	13	3.50	89	2.25	57	1.25	32	4.2	1.9
1½"	5.00	127	4.50	114	6.50	165	2.00	51	3.25	83	4.00	102	0.625	16	5.00	127	3.13	79	1.63	41	9.9	4.5
2"	5.75	146	5.50	140	7.50	191	2.00	51	3.63	92	4.50	114	0.750	19	5.25	133	3.38	86	1.81	46	13.2	6.0
3"	7.50	191	6.88	175	9.25	235	2.38	60	4.50	114	5.25	133	0.750	19	6.50	165	3.38	86	1.81	46	23.6	10.7
4"	8.50	216	8.25	210	10.50	267	2.38	60	5.25	133	6.00	152	0.875	22	7.50	191	4.00	102	2.06	52	28.7	13.0
5"	10.25	260	9.88	251	12.38	314	3.13	79	6.13	156	7.25	184	1.000	25	8.00	203	4.50	114	2.31	59	41.0	18.6
6"	12.63	321	12.0	305	15.25	387	3.75	95	6.63	168	8.75	222	1.125	29	10.00	254	5.25	133	2.44	62	70.3	31.9
8"	15.25	387	14.5	366	18.5	470	3.75	95	7.5	191	9.88	251	1.250	32	10.50	267	5.75	146	2.88	73	110	50.0
Heavy Duty Series Clamp size																						
2"	7.25	184	6.88	175	9.00	229	2.88	73	5.00	127	5.63	143	0.875	22	7.50	191	3.75	95	2.00	51	24.3	11.0
3"	8.00	203	7.75	197	10.00	254	3.00	76	5.25	133	6.13	156	0.875	22	7.50	191	4.00	102	2.06	52	33.1	15.0
4"	9.56	243	9.00	229	11.75	298	3.00	76	5.75	146	7.00	178	1.000	25	8.00	203	4.38	111	2.31	59	39.9	18.1
8"	16.00	406	14.75	375	18.63	473	4.50	114	7.00	178	10.75	273	1.375	35	11.00	279	5.88	149	3.13	79	138	62.6

Table 5c.5 Clamps

Clamp Bolts Coating	Bolt Centres B		Clamp OD D		Overall Length L		Clamp Width F		Lug Separation E		Clamp Clearance R		Bolt Dia G		Bolt Length C		Bolt Lug Width A		Bolt Pitch P		Clamp Weight	
	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	lb	kg
10"	18.25	464	17.63	448	22.50	572	5.50	140	10.00	254	12.75	324	1.625	41	14.25	362	7.25	184	3.63	92	243	110.0
12"	21.00	533	20.38	518	25.00	635	5.75	146	10.63	270	14.25	362	1.750	44	17.00	432	7.50	191	3.75	95	320	145.0
14"	24.75	629	23.00	584	29.25	743	6.13	156	12.25	311	16.25	413	1.875	48	16.50	419	8.25	210	4.25	108	430	195.0
16"	29.25	743	27.19	691	34.25	870	7.63	194	13.50	343	19.13	486	2.250	57	22.00	559	9.63	244	5.00	127	683	310.0

visit www.rbvenergy.com for more info

Section 5c. Pipeline Hubs and Clamps



visit www.rbvenergy.com for more info

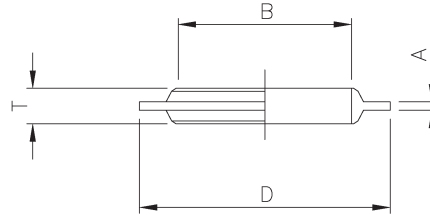


Table 5c.6 Sealrings

Sealring Size	Outside Diameter D		Inside Diameter B		Rib Thickness A		Overall Thickness T		Sealring Weight	
	ins	mm	ins	mm	ins	mm	ins	mm	lbs	kg
4	1.000	25.4	0.500	12.7	0.125	3.2	0.375	9.5	0.03	0.01
5	1.094	27.8	0.625	15.9	0.125	3.2	0.375	9.5	0.03	0.01
7	1.375	34.9	0.906	23	0.125	3.2	0.375	9.5	0.04	0.02
11	1.750	44.5	1.125	28.6	0.125	3.2	0.375	9.5	0.06	0.03
13	2.375	60.3	1.500	38.1	0.125	3.2	0.375	9.5	0.11	0.05
14	2.625	66.7	1.609	40.9	0.250	6.4	0.563	14.3	0.28	0.13
16	2.750	69.9	1.868	47.4	0.250	6.4	0.625	15.9	0.28	0.13
20	3.250	82.6	2.063	52.4	0.250	6.4	0.750	19.1	0.45	0.2
23	3.500	88.9	2.375	60.3	0.250	6.4	0.750	19.1	0.48	0.22
25	4.000	102	2.672	67.9	0.250	6.4	0.750	19.1	0.62	0.28
27	4.250	108	3.063	77.8	0.250	6.4	0.750	19.1	0.62	0.28
31	4.500	114	3.250	82.6	0.250	6.4	0.750	19.1	0.69	0.31
34	5.000	127	3.688	93.7	0.250	6.4	0.750	19.1	0.80	0.36
40	5.500	140	4.063	103	0.250	6.4	1.000	25.4	1.13	0.51

Table 5c.6 Sealrings

Sealring Size	Outside Diameter D		Inside Diameter B		Rib Thickness A		Overall Thickness T		Sealring Weight	
	ins	mm	ins	mm	ins	mm	ins	mm	lbs	kg
42	6.375	162	4.188	106	0.250	6.4	1.000	25.4	1.68	0.76
46	6.250	159	4.750	121	0.250	6.4	1.000	25.4	1.34	0.61
52	6.625	168	5.313	135	0.250	6.4	1.000	25.4	1.33	0.60
54	6.812	173	5.500	140	0.250	6.4	1.000	25.4	1.57	0.71
56	7.500	191	5.750	146	0.250	6.4	1.000	25.4	1.82	0.83
62	7.875	200	6.065	154	0.375	9.5	1.375	34.9	3.13	1.42
64	8.625	219	6.500	165	0.375	9.5	1.375	34.9	3.80	1.72
67	8.750	222	6.875	175	0.375	9.5	1.375	34.9	3.61	1.64
72	9.500	241	7.250	184	0.375	9.5	1.375	34.9	4.40	2.00
76	10.000	254	7.750	197	0.375	9.5	1.375	34.9	4.67	2.12
82	10.125	257	8.250	210	0.375	9.5	1.375	34.9	4.26	1.93
84	11.125	283	8.500	216	0.375	9.5	1.375	34.9	5.79	2.63
87	11.375	289	8.875	225	0.375	9.5	1.375	34.9	5.77	2.62
91	11.500	292	9.125	232	0.375	9.5	1.375	34.9	5.66	2.57
92	11.625	295	9.250	235	0.375	9.5	1.375	34.9	5.78	2.62
94	11.750	298	9.500	241	0.375	9.5	1.375	34.9	5.61	2.54
97	12.000	305	9.875	251	0.375	9.5	1.375	34.9	5.55	2.52
102	12.250	311	10.250	260	0.375	9.5	1.375	34.9	5.48	2.49
106	12.750	324	10.750	273	0.375	9.5	1.375	34.9	5.72	2.59
112	14.125	359	11.250	286	0.625	15.9	1.625	41.3	12.30	5.59
116	14.125	359	11.750	298	0.375	9.5	1.375	34.9	7.21	3.27
120	13.875	352	12.000	305	0.375	9.5	1.375	34.9	6.04	2.74

visit www.rbvenergy.com for more info

Section 5c. Pipeline Hubs and Clamps



visit www.rbvenergy.com for more info

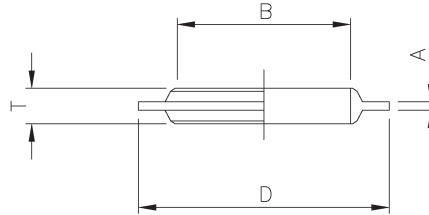


Table 5c.6 Sealrings

Sealring Size	Outside Diameter D		Inside Diameter B		Rib Thickness A		Overall Thickness T		Sealring Weight	
	ins	mm	ins	mm	ins	mm	ins	mm	lbs	kg
122	14.125	359	12.250	311	0.375	9.5	1.375	34.9	6.16	2.79
124	14.625	371	12.500	318	0.375	9.5	1.375	34.9	7.10	3.22
130	15.000	381	13.000	330	0.500	12.7	1.500	38.1	8.47	3.84
134	15.500	394	13.500	343	0.500	12.7	1.500	38.1	8.78	3.98
137	16.500	419	13.875	352	0.625	15.9	1.625	41.3	13.70	6.21
140	16.500	419	14.000	356	0.500	12.7	1.500	38.1	10.98	4.98
144	17.000	432	14.500	368	0.500	12.7	1.500	38.1	11.35	5.15
152	17.750	451	15.250	387	0.500	12.7	1.500	38.1	11.89	5.39
160	18.500	470	16.000	406	0.500	12.7	1.500	38.1	12.44	5.64