



Solid 山西索立得工贸有限公司

Shanxi Solid Industrial Co.,Ltd.

STAINLESS STEEL PIPE FITTINGS

Shanxi Solid Industrial Co.,Ltd.

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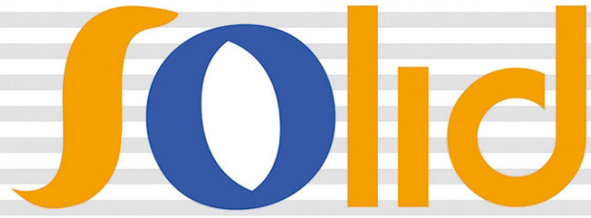
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**For years
we supply customers
quality goods with quick delivery,
we are still
trying our best to do better and better.
Your demand
is what we supply
Shanxi Solid Industrial Co.,Ltd.---
The company
you can rely on to be competitive!**

**We are the castings specialist,
we are the pipeline specialist!**

SHANXI SOLID INDUSTRIAL CO.,LTD

Introduction of the Company

SHANXI SOLID INDUSTRIAL CO.,LTD. is located in the heavy industry province of Shanxi, China with rich resources of pig irons ,coke, steel and other industrial raw materials , we are one of the leading manufacturers of steel pipes, steel pipe fittings, steel flanges, valves, fasteners and other steel products according to various international standards such as ANSI, ASTM, ASME, BS, JIS, GB, etc. Our products are widely used in pipeline system for drinkable water, sewage, oil, gas, chemical plants and so on, and they have been widely exported to Europe, Middle East, South East Asia, Africa, Middle and South America for years. Up to now, we have exported our products to more than seventy countries, they are well accepted by the customers and have won good reputation both at home and abroad.

The business principle of Shanxi Solid Industrial Co.,LTD is credit and sincerity . We are eager to get your inquiries and to establish long term mutual benefit cooperation relationship. We have our advantage in manufacturing and you have your advantages in sales, we are sure with our working together we can get one "in-in" situation .We hope we can grow together!

Use Specialized Person makes the Most Specialized Matter

以专业人才 做专业事



GRADE PROMOTING AS OBJECTIVE AND TEST OPTIMIZING AS GUARANTEE

提升档次为目标, 优化检测为保障

严谨、务实、永不松懈的工作作风，植根于索立得的每一道生产工序之中。检验员高度负责的用心溶于每一个部件之中，加上先进的检测设备和严格的科学化管理，使每一个生产的成品经得住顾客的精心挑选。索立得人庄严承诺让每一个生产产品都得100分。这正是索立得产品得以畅销的秘诀所在。

The rigorous, practical and unremitting working attitude governs every production procedure in SOLID. All our inspectors take high responsibility on every component. Plus, the most advanced testing facilities and strict scientific management make every product a fine choice for our customers. People of SOLID solemnly promise that all of products are completely qualified, this is why our products are well sold in market.

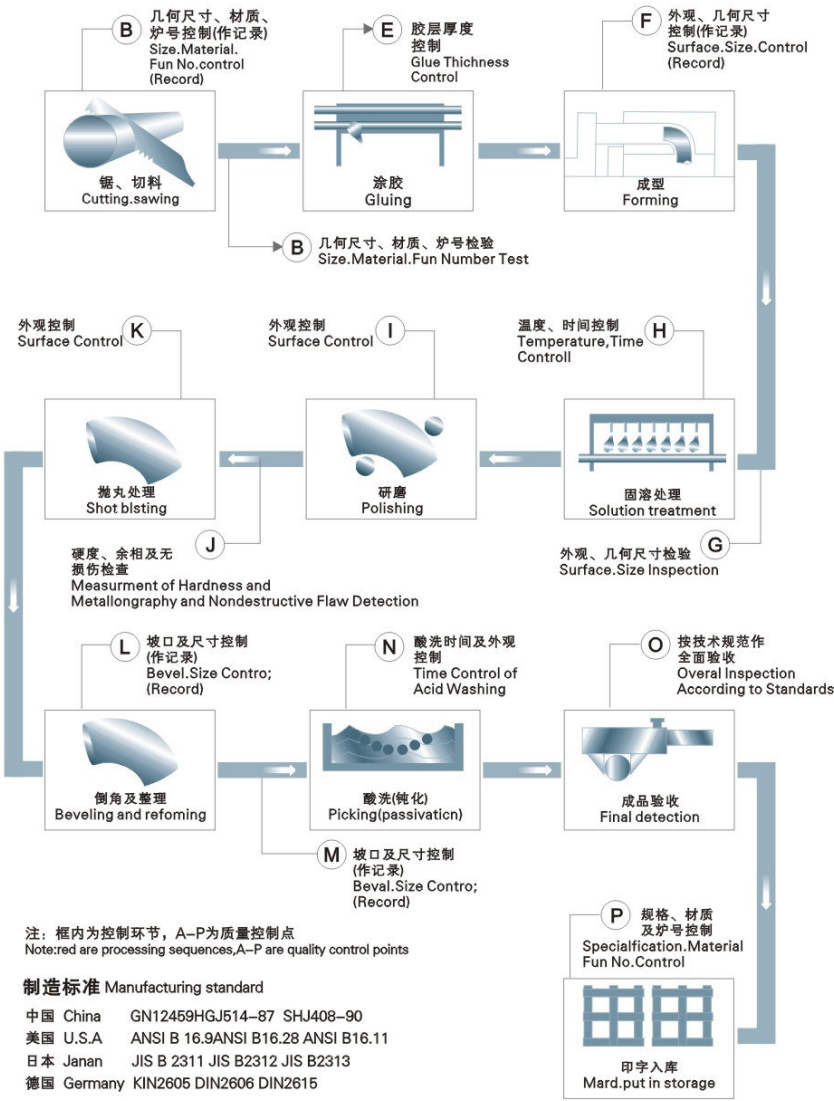
在市场大潮的洗礼中，海阔凭鱼跃，天高任鸟飞，索立得不断创新，逐步完善，建立起适应索立得不同时期发展需求的现代化企业管理体系，技术的成熟，人才的凝聚，索立得正阔步向更深、更广的领域开拓。如朝阳，朝着做管件行业强者的目标前进，如雄鹰，展翅翱翔在管件行业这片广阔的天空……

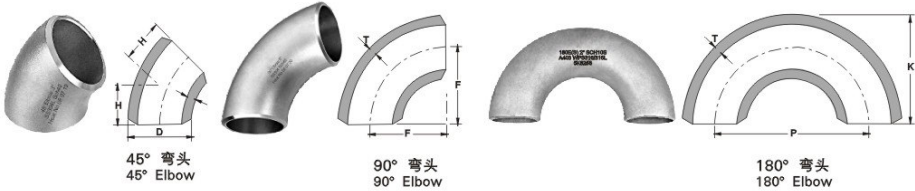
In the market flood tide baptism, the sea depends on fish Vietnam extravagantly, day Gao Renniao flies, great innovates unceasingly, consummates gradually, establishes the adaptation the great different time development demand modernized enterprise to manage the system, the technical maturity, talented person's condensation, great is taking big strides deeply, the broader to domain development. If Chaoyang, faces is making the fitting profession powerhouse's goal advance, if the tiercel, spreads the wings to hover in fitting profession this broad sky





Flow Chart 工艺流程图

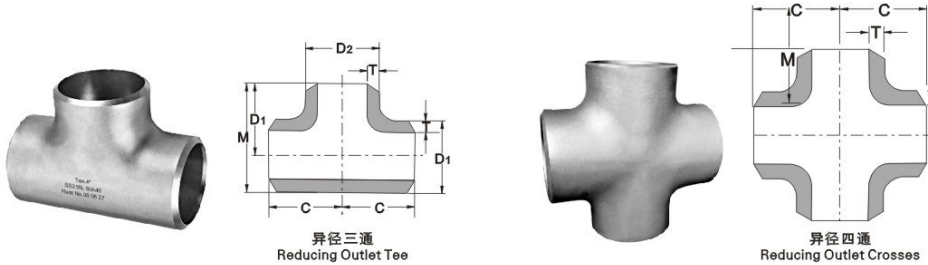




对焊弯头 GB12459、GB/T13401 Butt Welding Elbow

公称通径 Nominal Pipe Size		端部外径 Outside diameter at Bevel		中心至端面 Center to End			中心至中心 Center to Center			背面至端面 Back to Faces	
				45° 弯头 Elbows	90° 弯头 Elbows		180° 弯头 Return			180° 弯头 Return	
				H			F			P	
DN	INCH	A系列 Series A	B系列 Series B	长半径 Long Radius	长半径 Long Radius	短半径 Short Radius	长半径 Long Radius	短半径 Short Radius	长半径 Long Radius	短半径 Short Radius	
15	1/2	21.3	18	16	38	—	76	—	48	—	
20	3/4	26.9	25	16	38	—	76	—	51	—	
25	1	33.7	32	16	38	25	76	51	56	41	
32	1.1/4	42.4	38	20	48	32	95	64	70	52	
40	1.1/2	48.3	45	24	57	38	114	76	83	62	
50	2	60.3	57	32	76	51	152	102	106	81	
65	2.1/2	76.1(73)	76	40	95	64	191	127	132	100	
80	3	88.9	89	47	114	76	229	152	156	121	
90	3.1/2	101.6	—	55	133	89	267	178	184	140	
100	4	114.3	108	63	152	102	305	203	210	159	
125	5	139.7	133	79	190	127	381	254	262	197	
150	6	168.3	159	95	229	152	457	305	313	237	
200	8	219.1	219	126	305	203	610	406	414	313	
250	10	273.0	273	158	381	254	762	508	518	391	
300	12	323.9	325	189	457	305	914	610	619	467	
350	14	355.6	377	221	533	356	1067	711	711	533	
400	16	406.4	426	253	610	406	1219	813	813	610	
450	18	457.2	478	284	686	457	1372	914	914	686	
500	20	508.0	529	316	762	508	1524	1016	1016	762	
550	22	559	—	347	838	559					
600	24	610	630	379	914	610					
650	26	660	—	410	991	660					
700	28	711	720	442	1067	711					
750	30	762	—	473	1143	762					
800	32	813	820	505	1219	813					
850	34	864	—	537	1295	864					
900	36	914	920	568	1372	914					
950	38	965	—	600	1448	965					
1000	40	1016	1020	631	1524	1016					
1050	42	1067	—	663	1600	1067					
1100	44	1118	1120	694	1676	1118					
1150	46	1168	—	726	1753	1168					
1200	48	1220	1220	758	1829	1219					

注：1)尽可能不采用括号内的数值
2)优先选用A系列

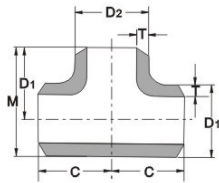


对焊等径三通、四通 GB12459、GB/T13401 Butt-Welding Equal Tees and Equal Crosses

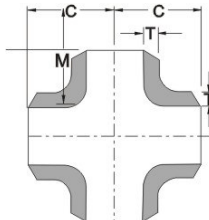
公称通径 Nominal Pipe Size		端部外径 Outside diameter at Bevel		中心至端面 Center to End	
				C	M
		D			
DN	INCH	A系列 Series A	B系列 Series B		
15	1/2	21.3	18	25	
20	3/4	26.9	25	29	
25	1	33.7	32	38	
32	1.1/4	42.4	38	48	
40	1.1/2	48.3	45	57	
50	2	60.3	57	64	
65	2.1/2	76.1(73)	76	76	
80	3	88.9	89	86	
90	3.1/2	101.6	—	95	
100	4	114.3	108	105	
125	5	139.7	133	124	
150	6	168.3	159	143	
200	8	219.1	219	178	
250	10	273.0	273	216	
300	12	323.9	325	254	
350	14	355.6	377	279	
400	16	406.4	426	305	

注：1)尽可能不采用括号内的数值 2)优先选用A系列
Note: 1) does not use in the parenthesis as far as possible the value 2) first selects A series

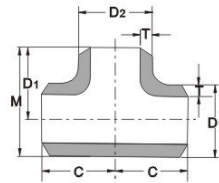
公称通径 Nominal Pipe Size		端部外径 Outside diameter at Bevel		中心至端面 Center to End	
				C	M
		D			
DN	INCH	A系列 Series A	B系列 Series B		
450	18	457.2	478	343	
500	20	508.0	529	381	
550	22	559	—	419	
600	24	610	630	432	
650	26	660	—	495	
700	28	711	720	521	
750	30	762	—	559	
800	32	813	820	597	
850	34	864	—	635	
900	36	914	920	673	
950	38	965	—	711	
1000	40	1016	1020	749	
1050	42	1067	—	762	711
1100	44	1118	1120	813	762
1150	46	1168	—	851	800
1200	48	1220	1220	889	838



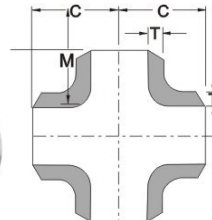
异径三通
Reducing Outlet Tee



异径四通
Reducing Outlet Crosses



异径三通
Reducing Outlet Tee



异径四通
Reducing Outlet Crosses

对焊异径三通、四通 GB12459、GB/T13401 Butt-Welding Reducing Tees and Reducing Crosses

公称通径 Nominal Pipe Size DN	端部外径 Outside diameter at Bevel				中心至端面 Center to End	
	D1		D2		C	M
	A系列 Series A	B系列 Series B	A系列 Series A	B系列 Series B		
20x15	26.9	25	21.3	18	29	29
25x20	33.7	32	26.9	25	38	38
25x15	33.7	32	21.3	18	38	38
32x25	42.4	38	33.7	32	48	48
32x20	42.4	38	26.9	25	48	48
32x15	42.4	38	21.3	18	48	48
40x32	48.3	45	42.4	38	57	57
40x25	48.3	45	33.7	32	57	57
40x20	48.3	45	26.9	25	57	57
40x15	48.3	45	21.3	18	57	57
50x40	60.3	57	48.3	45	64	60
50x32	60.3	57	42.4	38	64	57
50x25	60.3	57	33.7	32	64	51
50x20	60.3	57	26.9	25	64	44
65x50	76.1(73)	76	60.3	57	76	70
65x40	76.1(73)	76	48.3	45	76	67
65x32	76.1(73)	76	42.4	38	76	64
65x25	76.1(73)	76	33.7	32	76	57
80x65	88.9	89	76.1(73)	76	86	83
80x50	88.9	89	60.3	57	86	76
80x40	88.9	89	48.3	45	86	73
80x32	88.9	89	42.4	38	86	70
90x80	101.6	-	88.9	-	95	92
90x65	101.6	-	76.1(73)	-	95	89
90x50	101.6	-	60.3	-	95	83
90x40	101.6	-	48.3	-	95	79

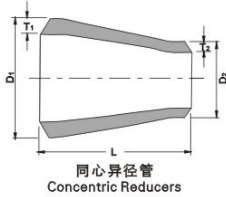
公称通径 Nominal Pipe Size DN	端部外径 Outside diameter at Bevel				中心至端面 Center to End	
	D1		D2		C	M
	A系列 Series A	B系列 Series B	A系列 Series A	B系列 Series B		
100x90	114.3	-	101.6	-	105	102
100x80	114.3	108	88.9	89	105	98
100x65	114.3	108	76.1(73)	76	105	95
100x50	114.3	108	60.3	57	105	89
100x40	114.3	108	48.3	45	105	86
125x100	139.7	133	114.3	108	124	117
125x90	139.7	-	101.6	-	124	114
125x80	139.7	133	88.9	89	124	111
125x65	139.7	133	76.1(73)	76	124	108
125x50	139.7	133	60.3	57	124	105
150x125	168.3	159	139.7	133	143	137
150x100	168.3	159	114.3	108	143	130
150x90	168.3	-	101.6	-	143	127
150x80	168.3	159	88.9	89	143	124
150x65	168.3	159	76.1(73)	76	143	121
200x150	219.1	219	168.3	159	178	168
200x125	219.1	219	139.7	133	178	162
200x100	219.1	219	114.3	108	178	156
200x90	219.1	219	101.6	-	178	152
250x200	273.0	273	219.1	219	216	208
250x150	273.0	273	168.3	159	216	194
200x125	273.0	273	139.7	133	216	191
200x100	273.0	273	114.3	108	216	184
300x250	323.9	325	273.0	273	254	241
300x200	323.9	325	219.1	219	254	229
300x150	323.9	325	168.3	159	254	219

对焊异径三通、四通 GB12459、GB/T13401 Butt-Welding Reducing Tees and Reducing Crosses

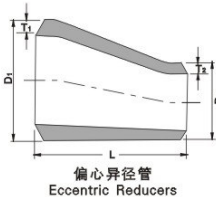
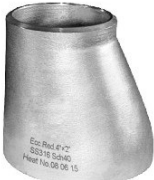
公称通径 Nominal Pipe Size DN	端部外径 Outside diameter at Bevel				中心至端面 Center to End	
	D1		D2		C	M
	A系列 Series A	B系列 Series B	A系列 Series A	B系列 Series B		
300x125	323.9	325	139.7	133	254	216
350x300	355.6	377	323.9	325	279	270
350x250	355.6	377	273.0	273	279	257
350x200	355.6	377	219.1	219	279	248
350x150	355.6	377	168.3	159	279	238
400x350	406.4	426	355.6	377	305	305
400x300	406.4	426	323.9	325	305	295
400x250	406.4	426	273.0	273	305	283
400x200	406.4	426	219.1	219	305	273
400x150	406.4	426	168.1	159	305	264
450x400	457.2	478	406.4	426	343	330
450x350	457.2	478	355.6	377	343	330
450x300	457.2	478	323.9	325	343	321
450x250	457.2	478	273.0	273	343	308
450x200	457.2	478	219.1	219	343	298
500x450	508.0	529	457.2	478	381	368
500x400	508.0	529	406.4	426	381	356
500x350	508.0	529	355.6	377	381	356
500x300	508.0	529	323.9	325	381	346
500x250	508.0	529	273.0	273	381	333
500x200	508.0	529	219.1	219	381	324
550x500	559	-	508	-	419	406
550x450	559	-	457	-	419	394
550x400	559	-	406	-	419	381
600x550	610	-	559	-	432	432
600x500	610	630	508	530	432	432
600x450	610	630	457	480	432	419
650x600	660	-	610	-	495	483
650x550	660	-	559	-	495	470
650x500	660	-	508	-	495	457
700x650	711	-	660	-	521	521
700x600	711	720	610	630	521	508

公称通径 Nominal Pipe Size DN	端部外径 Outside diameter at Bevel				中心至端面 Center to End	
	D1		D2		C	M
	A系列 Series A	B系列 Series B	A系列 Series A	B系列 Series B		
700x550	711	-	599	-	521	495
750x700	762	-	711	-	559	546
750x650	762	-	660	-	559	546
750x600	762	-	610	-	559	533
800x750	813	-	762	-	597	584
800x700	813	820	711	720	597	572
800x650	813	-	660	-	597	572
850x800	864	-	713	-	635	622
850x750	864	-	762	-	635	610
850x700	864	-	711	-	635	597
900x850	914	-	864	-	673	660
900x800	914	920	813	820	673	648
900x750	914	-	762	-	673	635
950x900	965	-	914	-	711	711
950x850	965	-	864	-	711	698
950x800	965	-	813	-	711	686
1000x950	1016	-	965	-	749	749
1000x900	1016	1020	914	920	749	737
1000x850	1016	-	864	-	749	724
1050x1000	1067	-	1016	-	762	711
1050x950	1067	-	965	-	762	711
1050x900	1067	-	914	-	762	711
1100x1050	1118	-	1067	-	813	762
1100x1000	1118	1120	1016	1020	813	749
1100x950	1118	-	965	-	813	737
1150x1100	1168	-	1118	-	851	800
1150x1050	1168	-	1067	-	851	787
1150x1000	1168	-	1016	-	851	775
1200x1150	1220	-	1168	-	889	838
1200x1100	1220	1220	1118	1120	889	838
1200x1050	1220	-	1067	-	889	813

注：1）尽可能不采用括号内的数值 2）优先选用A系列
Note: 1) does not use in the parenthesis as far as possible the value 2) first selects A series



同心异径管
Concentric Reducers



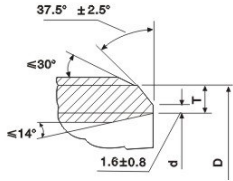
偏心异径管
Eccentric Reducers

对焊同心、偏心异径管 GB12459、GB/T13401 Butt-Welding Concentric & Eccentric Reducers

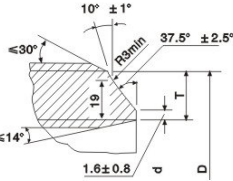
公称通径 Nominal Pipe Size DN	端部外径 Outside diameter at Bevel				中心至端面 Center to End 长度 End to End L
	D1		D2		
	A系列 Series A	B系列 Series B	A系列 Series A	B系列 Series B	
	A系列 Series A	B系列 Series B	A系列 Series A	B系列 Series B	
20x15	26.9	25	21.3	18	38
25x20	33.7	32	26.9	25	51
25x15	33.7	32	21.3	18	51
32x25	42.4	38	33.7	32	51
32x20	42.4	38	26.9	25	51
32x15	42.4	38	21.3	18	51
40x32	48.3	45	42.4	38	64
40x25	48.3	45	33.7	32	64
40x20	48.3	45	26.9	25	64
40x15	48.3	45	21.3	18	64
50x40	60.3	57	48.3	45	76
50x32	60.3	57	42.4	38	76
50x25	60.3	57	33.7	32	76
50x20	60.3	57	26.9	25	76
65x50	76.1(73)	76	60.3	57	89
65x40	76.1(73)	76	48.3	45	89
65x32	76.1(73)	76	42.4	38	89
65x25	76.1(73)	76	33.7	32	89
80x65	88.9	89	76.1(73)	76	89
80x50	88.9	89	60.3	57	89
80x40	88.9	89	48.3	45	89
80x32	88.9	89	42.4	38	89
90x80	101.6	—	88.9	—	102
90x65	101.6	—	76.1(73)	—	102
90x50	101.6	—	60.3	—	102
90x40	101.6	—	48.3	—	102
90x32	101.6	—	42.4	—	102
100x90	114.3	—	101.6	—	102
100x80	114.3	108	88.9	89	102
100x65	114.3	108	76.1(73)	76	102
100x50	114.3	108	60.3	57	102
100x40	114.3	108	48.3	45	102
125x100	139.7	133	114.3	108	127
125x90	139.7	—	101.6	—	127
125x80	139.7	133	88.9	89	127

规定的对焊管件端坡口的结构型式

GB12459、GB/T13401 End Preparation of Butt-Welding Fittings to Gb 12459&GB/T13401



(a) 壁厚≤22



(b) 壁厚≥22

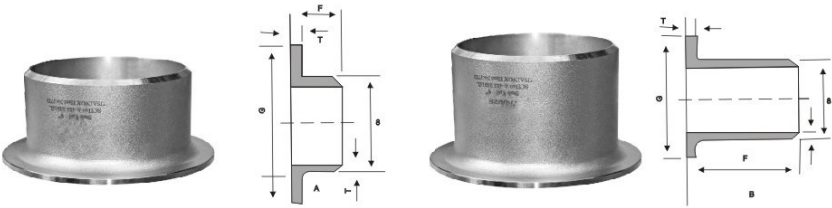
对焊同心、偏心异径管 GB12459、GB/T13401 Butt-Welding Concentric&Eccentric Reducers

公称通径 Nominal Pipe Size DN	端部外径 Outside diameter at Bevel				中心至端面 Center to End 长度 End to End L
	D1		D2		
	A系列 Series A	B系列 Series B	A系列 Series A	B系列 Series B	
550x500	559	—	508	—	508
550x450	559	—	457	—	508
550x400	559	—	406	—	508
550x350	559	—	356	—	508
600x550	610	—	559	—	508
600x500	610	630	508	530	508
600x450	610	630	457	480	508
600x400	610	630	406	426	508
650x600	660	—	610	—	610
650x550	660	—	559	—	610
650x500	660	—	508	—	610
650x450	660	—	457	—	610
700x650	711	—	660	—	610
700x600	711	720	610	630	610
700x550	711	—	559	—	610
700x500	711	720	508	530	610
750x700	762	—	711	—	610
750x650	762	—	660	—	610
750x600	762	—	610	—	610
750x550	762	—	559	—	610
800x750	813	—	762	—	610
800x700	813	820	711	720	610
800x650	813	—	660	—	610
800x600	813	820	610	630	610
850x800	864	—	813	—	610
850x750	864	—	862	—	610
850x700	864	—	711	—	610
850x650	864	—	660	—	610

公称通径 Nominal Pipe Size DN	端部外径 Outside diameter at Bevel				中心至端面 Center to End 长度 End to End L
	D1		D2		
	A系列 Series A	B系列 Series B	A系列 Series A	B系列 Series B	
900x850	914	—	864	—	610
900x800	914	920	813	820	610
900x750	914	—	762	—	610
900x700	914	920	711	720	610
950x900	965	—	914	—	610
950x850	965	—	864	—	610
950x800	965	—	813	—	610
950x750	965	—	762	—	610
1000x950	1016	—	965	—	610
1000x900	1016	1020	914	920	610
1000x850	1016	—	864	—	610
1000x800	1016	1020	813	820	610
1050x1000	1067	—	1016	—	610
1050x950	1067	—	965	—	610
1050x900	1067	—	914	—	610
1050x850	1067	—	864	—	610
1100x1050	1118	—	1067	—	610
1100x1000	1118	1120	1016	1020	610
1100x950	1118	—	965	—	610
1100x900	1118	1120	914	920	610
1150x1100	1168	—	1118	—	711
1150x1050	1168	—	1067	—	711
1150x1000	1168	—	1016	—	711
1150x950	1168	—	965	—	711
1200x1150	1220	—	1168	—	711
1200x1100	1220	1220	1118	1120	711
1200x1050	1220	—	1067	—	711
1200x1000	1220	1220	1016	1020	711

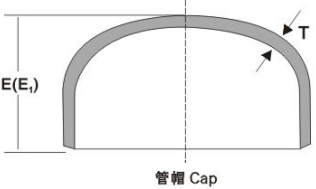
注：1)尽可能不才用括号内的数值。2)优先选用A系列。

Note: 1) the no talent uses in the parenthesis as far as possible the value. 2) first selects A series.



MSS SP-43, ANSI B16.9 Lap Joint Stub End

Nominal Pipe Size		Outside diameter OD	Lenth F		Dia of Lap-G Nominal& Maximun	Radius of Fillet		Approx Weight kg/pcs					
DN	INCH		Mss	ANSI		A Max	B Max	Sch5s Mss ANSI		Sch10s Mss ANSI		Sch40s Mss ANSI	
15	1/2	21.3	50.8	76.2	35.1	3	0.75	0.049	0.067	0.062	0.084	0.079	0.106
20	3/4	26.7	50.8	76.2	42.9	3	0.75	0.064	0.087	0.081	0.109	0.101	0.144
25	1	33.4	50.8	101.6	50.8	3	0.75	0.082	0.144	0.134	0.233	0.160	0.279
32	1.1/4	42.4	50.8	101.6	63.5	5	0.75	0.109	0.188	0.178	0.307	0.225	0.386
40	1.1/2	48.3	50.8	101.6	73.2	6	0.75	0.129	0.219	0.213	0.358	0.279	0.467
50	2	60.3	63.5	152.4	91.9	8	0.75	0.204	0.406	0.338	0.667	0.471	0.924
65	2.1/2	73	63.5	152.4	104.6	8	0.75	0.313	0.626	0.448	0.893	0.740	1.465
80	3	88.9	63.5	152.4	127	10	0.75	0.400	0.781	0.574	1.117	1.01	1.954
90	3.1/2	101.6	76.2	152.4	139.7	10	0.75	0.522	0.896	0.650	1.283	1.38	2.35
100	3.1/2	114.3	76.2	152.4	157.2	11	0.75	0.606	1.024	0.870	1.474	1.68	2.822
125	5	141.3	76.2	203.2	185.7	11	1.5	0.985	2.153	2.21	2.635	2.08	4.957
150	6	168.3	88.9	203.2	215.9	13	1.5	1.34	2.591	1.64	3.174	3.37	6.482
200	8	219.1	101.6	203.2	269.7	13	1.5	1.96	3.409	2.65	4.607	5.67	9.819
250	10	273.1	127	254	323.9	13	1.5	3.57	6.389	4.38	7.843	9.55	17.023
300	12	323.9	152.4	254	381	13	1.5	5.85	8.922	6.74	10.275	13.8	21.075
350	14	355.6	152.4	304.8	412.8	13	1.5	6.55	11.571	7.49	13.912	16.88	
400	16	406.4	152.4	304.8	469.9	13	1.5	7.778	14.216	8.797	16.078		
450	18	457.2	152.4	304.8	533.4	13	1.5	9.009	16.216	10.252	18.453		
500	20	508	152.4	304.8	584.2	13	1.5	11.102	19.984	13.202	23.764		
550	22	559	152.4	304.8	641.4	13	1.5	12.763	22.81	14.779	26.413		
600	24	610	152.4	304.8	692.2	13	1.5	16.132	28.839	18.476	33.028		



对焊管帽 GB12459、GB/T13401 Butt-Welding Caps

公称通径 Normal Pipe Size DN	端部外径 Outside diameter at Bevel				中心至端面 Center to End	
	D1		D2		长度 End to End L	
	A系列 Series A	B系列 Series B	A系列 Series A	B系列 Series B		
15	21.3	18	25	-	-	
20	26.9	25	25	-	-	
25	33.7	32	38	-	-	
32	42.4	38	38	-	-	
40	48.3	45	38	-	-	
50	60.3	57	38	44	5.5	
65	76.1(73)	76	38	51	7.0	
80	88.9	89	51	64	7.6	
90	101.6	-	64	76	8.1	
100	114.3	108	64	76	8.6	
125	139.7	133	76	89	9.5	
150	168.3	159	89	102	11.0	
200	219.1	219	102	127	12.7	
250	273.0	273	127	152	12.7	
300	323.9	325	152	178	12.7	
350	355.6	377	165	191	12.7	
400	406.4	426	178	203	12.7	
450	457.2	478	203	229	12.7	
500	508.0	529	229	254	12.7	

公称通径 Nominal Pipe Size DN	端部外径		全长 Length
	Outside diameter at Bevel		
	A系列 Series A	B系列 Series B	
E			
550	559	—	254
600	610	630	267
650	660	—	267
700	711	720	267
750	762	—	267
800	813	820	267
850	864	—	267
900	914	920	267
950	965	—	305
1000	1016	1020	305
1050	1067	—	305
1100	1118	1120	343
1150	1168	—	343
1200	1220	1220	343

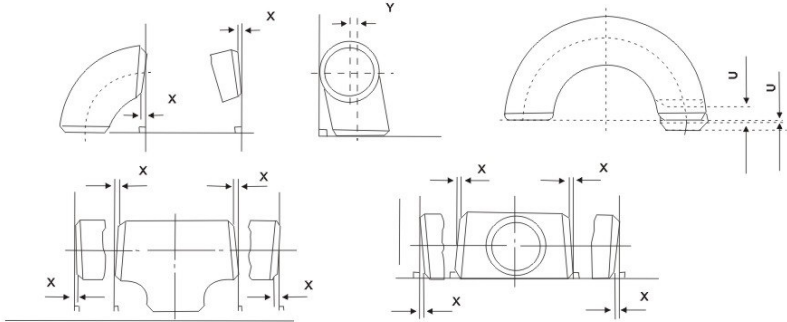
注：1) DN600的管帽，当壁厚超过13mm时，其E值改为305mm
2) 尽可能不采用括号内的数值
3) 管帽的全长不大于限制厚度时为E，超过限制厚度为E1
Note: 1) DN600 hose cap, when wall thickness surpasses 13mm, its E value changes 305mm
2) does not use in the parenthesis as far as possible the value
3) the hose cap span is not bigger than when the limit thickness is E, surpasses the limit thickness is E1

公称直径		ANSI B36.10、B36.19															
in	mm	Sch5s	Sch10s	Sch10	Sch20	Sch30	STD	Sch40	Sch60	XS	Sch80	Sch100	Sch120	Sch140	Sch160	XXS	
6	1/8	10.29	—	1.24	—	—	—	1.73	1.73	—	2.41	2.41	—	—	—	—	
8	1/4	13.72	—	1.65	—	—	—	1.73	2.24	—	3.02	3.02	—	—	—	—	
10	3/8	17.14	—	1.65	—	—	—	2.31	2.31	—	3.20	3.20	—	—	—	—	
15	1/2	21.34	1.65	2.11	—	2.1	—	2.77	2.77	—	3.73	3.73	—	—	—	4.78 7.47	
20	3/4	26.67	1.65	2.11	—	2.5	—	2.87	2.87	—	3.91	3.91	—	—	—	5.56 7.82	
25	1	33.40	1.65	2.77	—	3	—	3.38	3.38	—	4.55	4.55	—	—	—	6.35 9.09	
32	1 1/4	42.16	1.65	2.77	—	3	—	3.56	3.56	—	4.85	4.85	—	—	—	6.35 9.70	
40	1 1/2	48.26	1.65	2.77	—	3	—	3.68	3.68	—	5.08	5.08	—	—	—	7.14 10.16	
50	2	60.32	1.65	2.77	—	3	—	3.91	3.91	5	5.54	5.54	—	—	—	8.74 11.07	
65	2 1/2	73.02	2.11	3.05	—	4	—	5.16	5.16	6	7.01	7.01	—	—	—	9.53 14.02	
80	3	88.90	2.11	3.05	—	4.5	—	5.49	5.49	6.5	7.62	7.62	—	—	—	11.12 15.24	
90	3 1/2	101.60	2.11	3.05	—	4	—	5.74	5.74	6.5	8.08	8.08	—	—	—	—	
100	4	114.30	2.11	3.05	—	4.5	—	6.02	6.02	7	8.56	8.56	—	11.12	—	13.49 17.12	
125	5	141.30	2.77	3.40	—	4.5	—	6.55	6.55	5.8	9.53	9.53	—	12.70	—	15.88 19.05	
150	6	168.28	2.77	3.40	—	5	—	7.11	7.11	9.5	10.97	10.97	—	14.27	—	18.26 21.94	
200	8	219.08	2.77	3.76	—	6.35	7.04	8.18	8.18	10.31	12.70	12.70	15.09	18.26	20.62	23.01 22.22	
250	10	273.05	3.40	4.19	—	6.35	7.80	9.27	9.27	12.70	12.70	15.09	18.26	21.44	25.40	28.58 25.40	
300	12	323.85	3.96	4.57	—	6.35	8.38	9.52	10.31	14.27	12.70	17.48	21.44	25.40	28.58	33.32 25.40	
350	14	365.60	3.96	4.78	—	7.92	9.52	9.52	11.13	15.09	12.70	19.05	23.83	27.79	31.75	35.71 —	
400	16	406.40	4.19	4.78	—	7.92	9.52	9.52	12.70	16.66	12.70	21.44	26.19	30.96	36.52	40.49 —	
450	18	457.20	4.78	4.78	—	7.92	11.12	9.52	14.27	19.05	12.70	23.82	29.36	34.92	39.47	45.24 —	
500	20	508.00	4.78	5.54	—	9.52	12.70	9.52	15.09	20.62	12.70	26.19	32.54	38.10	44.45	50.01 —	
550	22	558.8	4.78	5.54	—	9.52	14.27	9.52	16.17	22.22	12.70	28.58	34.92	41.28	47.62	53.98 —	
600	24	609.6	5.54	6.35	—	9.52	—	9.52	17.48	24.61	12.70	30.96	38.89	46.02	52.37	59.54 —	
650	26	660.4	—	6.35	7.92	12.70	15.88	9.52	—	—	12.70	—	—	—	—	—	
700	28	711.2	—	6.35	7.92	12.70	15.88	9.52	—	—	12.70	—	—	—	—	—	
750	30	762.0	6.35	*7.92	7.92	12.70	15.88	9.52	—	—	12.70	—	—	—	—	—	
800	32	812.0	—	*7.92	7.92	12.70	15.88	9.52	17.48	—	12.70	—	—	—	—	—	
850	34	863.6	—	*7.92	7.92	12.70	—	9.52	17.48	—	12.70	—	—	—	—	—	
900	36	914.4	—	*7.92	7.92	12.70	—	9.52	19.05	—	12.70	—	—	—	—	—	
950	38	965.2	—	*7.92	7.92	—	—	9.52	—	—	12.70	—	—	—	—	—	
1000	40	1016.0	—	*7.92	7.92	—	—	9.52	—	—	12.70	—	—	—	—	—	
1050	42	1066.8	—	*7.92	7.92	—	—	9.52	—	—	12.70	—	—	—	—	—	
1100	44	1117.6	—	*7.92	7.92	—	—	9.52	—	—	12.70	—	—	—	—	—	
1150	46	1168.4	—	—	7.92	—	—	*9.52	—	—	12.70	—	—	—	—	—	
1200	48	1219.2	—	—	—	—	—	*9.52	—	—	12.70	—	—	—	—	—	
1300	52	1320.8	—	—	—	—	—	*9.52	—	—	12.70	—	—	—	—	—	
1350	54	1371.6	—	—	—	—	—	*9.52	—	—	12.70	—	—	—	—	—	
1400	56	1422.4	—	—	—	—	—	*9.52	—	—	12.70	—	—	—	—	—	
1500	60	1524.0	—	—	—	—	—	*9.52	—	—	12.70	—	—	—	—	—	
1600	64	1625.6	—	—	—	—	—	*9.52	—	—	12.70	—	—	—	—	—	
1700	68	1727.2	—	—	—	—	—	*9.52	—	—	12.70	—	—	—	—	—	
1800	72	1828.8	—	—	—	—	—	*9.52	—	—	12.70	—	—	—	—	—	
1900	76	1930.4	—	—	—	—	—	*9.52	—	—	12.70	—	—	—	—	—	
2000	80	2032.0	—	—	—	—	—	*9.52	—	—	12.70	—	—	—	—	—	

项目 Project	管件种类 Fitting type	公称通径Nominal Pipe Size DN				
		15—65	80—100	125—200	250—450	500
极限偏差 Limit deviation						
端部外径 D1、D2、D3 Nose outer diameter D1, D2, D3	所有管件 All fittings	+1.6 -0.8	± 1.6	+2.4 -1.6	+4.0 -3.2	+6.4 -4.8
端部内径d1) Nose inside diameter d1)		± 8	± 1.6		± 3.2	± 4.8
壁厚T、T1、T2 Wall thickness T, T1, T2		不小于公称壁厚的87.5% not smaller than wall thickness 87.5%				
中心至端面B、A Center to end surface B, A		45° 弯头、90° 弯头 45° Bend, 90° Elbow	± 2		± 3	
中心至中心P Center to central P		180° 弯头 180° Elbow	± 7		± 10	
背面至端面K Back to end surface K			± 7			
长度L Length L		异径管 Tapered Pipe	± 2		± 3	
中心至端面C、M Center to end surface C, M		三通、四通 Tees, Crosses	± 2		± 3	
全长E、E1 Span E, E1	管帽 Cap	± 4		± 7		

注：除非用户有特殊要求，应优先保证端部外径和公称壁厚的极限偏差
Note: If the user has special request, we will first guarantee the nose outer diameter and the nominal wall thickness limit deviation

GB12549中对焊管件的开位公差 Angularity Tolerances of Butt-Welding Fitting



项目 Project	管件种类 Fitting type	公称通径 Normal Pipe Size DN				
		15—100	125—200	250—300	350—400	450—500
公差 Common difference						
X	弯头、三通、异径管、四通 Elbow, Tee, Reducer, Cross	1	2	3		4
Y	弯头、三通、四通 Elbow, Tee, Cross	2	4	5	7	10
U	180° 弯头 180° Elbow	1		2		

项目 Project	管件种类 Fitting type	工程通径范围 Project latus rectum scope				
		15—65	80—100	125—200	250—450	500
极限偏差 Limit deviation						
端部外径 Nose outer diameter	所有管件 All fittings	±1.6 —0.8	±1.6	±2.4 —1.6	±4.0 —3.2	±6.4 —4.8
端部内径① Nose outer diameter					±3.2	±4.6
壁厚 Wall thickness		不小于公称壁厚的87.5% not smaller than wall thickness 87.5%				
中心主端部尺寸H, F Central host nose size H, F		45° 弯头、90°弯头 45° Elbow, 90° Elbow	±2			±3
中心至中心尺寸P Center to central size P	180° 弯头 180° Elbow	±7			±10	
背面至端部尺寸K Back to nose size K	异径接头 Reducer	±7				
长度L Length L		±2			±2	
中心至端面尺寸C, M Center to end surface size C, M		±3			±3	
背面至端面尺寸E, E1 Back to end surface size E, E1	管帽 cap	±4		±7		

项目 Project	管件种类 Fitting type	公称通径范围 Nominal Pipe Size DN				
		15—100	125—200	250—300	350—400	450—500
公差 Common difference						
X	弯头、三通、异径管、四通 Elbow, Tee, Reducer, Cross	1	2	3		4
Y	弯头、三通、四通 Elbow, Tee, Cross	2	4	5	7	10
U	180° 弯头 180° Elbow	1		2		

注：①除非用户有特殊要求，应优先保证端部外径和公称壁厚的极限偏差。

Note: ①If the user has special request, we will first guarantee the nose outer diameter and the nominal wall thickness limit deviation.

对焊管件形位公差表 GB/T13401-92 Butt welding fitting shape position table of limits

项目 Project	管件种类 Fitting type	公称通径范围 Nominal Pipe Size DN				
		150-200	250-450	500-600	650-750	800-1200
		极限偏差 Limit deviation				
端部外径D Nose outer diameter D	所有管件 All fittings	±2.4 -1.6	+4.0 -3.2	±6.4 -4.8		
端部内径② Nose outer diameter		±1.6	±3.2	±4.8		
壁厚 Wall thickness		不小于公称壁厚的87.5% not smaller than wall thickness 87.5%				
中心至端部H, F Center to nose H, F	45°弯头、90°弯头 45° Elbow, 90° Elbow	-		±3	±5	
长度L Length L	异径接头 Reducer	-		±3	±5	
中心至端面C, M Center to end surface C, M	三通、四通 Tee, Cross	-		±3	±5	
背面至端面E Back to end surface E	管帽 cap	-	±7		±10	
端部最大最小外径差③ Outside the nose is most greatly smaller the difference of longitude	所有管件All Fittings	不大于0.01DN, 且大于S not bigger than 0.01DN, also is bigger than S				

项目 Project	管件种类 Fitting type	公称通径范围 Nominal Pipe Size DN				
		350-400	400-600	650-750	800-1050	450-500
		公差 Common difference				
端面偏摆X The top surface twist X	弯头、异径管接头、三通 Elbow, Reducer, Tee	3	4		5	
中心偏摆Y The center twist Y	弯头、三通、四通 Elbow, Tee, Cross	7		10	13	19

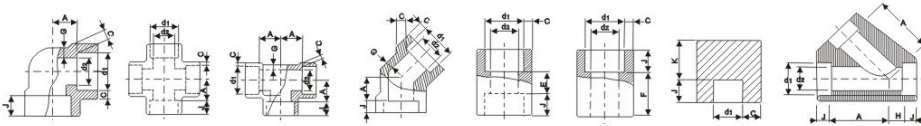
注：①除非用户有特殊要求，应优先保证端部外径和公称壁厚的极限偏差。

②对于异径管件，其尺寸偏差是按大径端的通径划分给定的。

Note: ①If the user has special request, we will first guarantee the nose outer diameter and the nominal wall thickness limit deviation.

②Regarding the reducing pipe, its deviation size is according to the great diameter end latus.

承插管件 SOCKET WELDING FITTINGS



公称 通径 Nom. Pipe Size	承插孔 深度 Depth of Socket Min	中心至承插孔底 Center To Bottom of Socket							结构长度 Laying Length		管帽壁厚 End Wall Thickness Class Designation Min K			中心至承插孔底 Center To Bottom of Socket 45° 斜三通Lateral			
		90° 弯头、三通、四通 90° Elbows, Tees, and Crosses Class Designation A			45° 弯头 45° Elbows Class Designation A				双承口 管箍 Couplings	单承口 管箍 Half Couplings	3000	6000	9000	A		H	
		3000	6000	9000	3000	6000	9000	3000 sch80						6000 sch160	3000 sch80	6000 sch160	
DN	NPS	J	3000	6000	9000	3000	6000	9000	E	F	3000	6000	9000	3000 sch80	6000 sch160	3000 sch80	6000 sch160
6	1/8	10	12 10	12 10		9 7	9 7		8 5	17 15	5.0	6.5	-	-	-	-	-
8	1/4	10	12 10	17 13		9 7	9 7		8 5	17 15	5.0	6.5	-	32	-	8	-
10	3/8	10	15 12	17 14		9 6	13 10		9 6	19 16	5.0	6.5	-	37	-	8	-
15	1/2	10	17 14	21 18	27 24	13 10	14 11	17 14	13 6	24 21	6.5	8.0	11.0	41	51	11	13
20	3/4	13	21 18	24 21	30 27	14 11	16 13	21 17	13 6	25 22	6.5	8.0	12.5	51	60	13	14
20	1	13	24 20	29 25	34 30	16 12	19 15	23 19	17 9	31 27	9.5	11.0	14.0	60	71	14	18
32	1 1/4	13	29 25	34 30	37 33	19 15	23 19	24 20	17 9	32 28	9.5	11.0	14.0	71	81	18	21
40	1 1/2	13	34 30	40 36	40 36	23 19	27 23	28 23	17 9	34 30	11.0	12.5	16.0	81	98	21	25
50	2	16	40 36	43 39	56 52	27 23	31 27	31 26	23 15	43 39	12.5	16.0	19.0	98	120	25	29
65	2 1/2	16	44 39			31 27			24 14	45 40	16.0	19.0		-	-	-	-
80	3	16	60 55			34 29			24 14	47 42	19.0	22.0		-	-	-	-
100	4	19	69 64			44 39			24 14	50 45	22.0	28.5		-	-	-	-

备注:

(1)承插壁厚外围平均值不低于所列值。最小值仅限于局部区域。

(2)每种规格的上下值分别代表最大、最小尺寸。

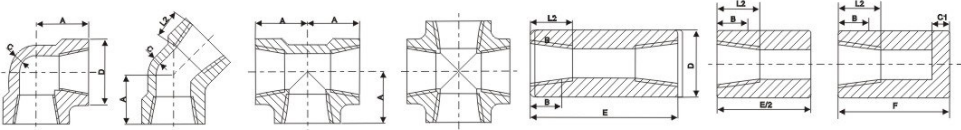
NOTE:

(1)Average of Socket Wall Thickness around periphery shall be no less than listed values.The minimum values are permitted in localized areas.

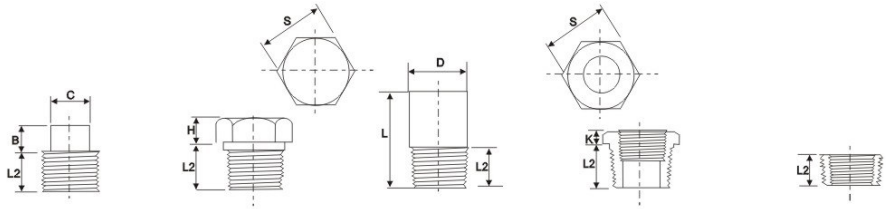
(2)Upper and lower values for each size are the respective maximum and minimum dimensions.

上述尺寸符合GB/T 14383、SH3410、HG/T21634、JIS B 2316、ASME 16.11、BS3799标准。Above dimensions acc. to GB/T 14383、HG/T21634、JIS B 2316、ASME 16.11、BS3799.

螺纹管件 THREADED FITTING

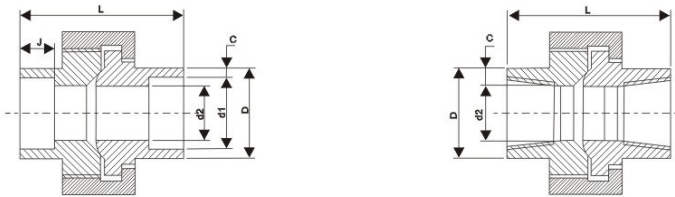


90° 弯头、三通、四通 90° Elbows, Tees and Crosses												双接口管箍、单接口管箍、管帽 Half Coupling, Coupling, Cup														
公称通径 Nominal Pipe Size		中心至端面 Center to End 90° 弯头、三通、四通 Elbows, Tees and Crosses						45° 弯头 45° Elbows			外径 Outside Diameter			壁厚 Wall Thickness			全长 End to End		外径 Outside Diameter		管帽顶厚 End wall Thickness		螺纹长度 Length of Thread			
		A			A			D			C			E F		D		C1		B L2						
DN	NPS	2000	3000	6000	2000	3000	6000	2000	3000	6000	2000	3000	6000	2000	3000	6000	3000	6000	3000	6000	3000	6000	3000	6000	B	L2
6	1/8	21	21	25	17	17	19	22	22	25	3.0	3.0	6.5	32	19	—	16	22	5.0	—	6.5	6.5				
8	1/4	21	25	29	17	19	22	22	25	33	3.0	3.5	6.5	35	25	27	19	25	5.0	6.5	8.0	10.0				
10	3/8	25	29	33	19	22	25	25	33	38	3.0	3.5	7.0	38	25	27	22	32	5.0	6.5	9.0	10.5				
15	1/2	29	33	38	22	25	29	33	38	46	3.0	4.0	8.0	48	32	33	29	38	6.5	8.0	11.0	13.5				
20	3/4	33	38	44	25	29	33	38	43	56	3.0	4.5	8.5	51	37	38	35	44	6.5	8.0	12.5	14.0				
25	1	38	44	51	29	33	35	46	56	62	3.5	5.0	10.0	60	41	43	44	57	9.5	11.0	14.5	17.5				
32	1 1/4	44	51	60	33	35	43	56	62	75	4.0	5.5	10.5	67	44	46	57	64	9.5	11.0	17.0	18.0				
40	1 1/2	51	60	64	35	43	44	62	75	84	4.0	5.5	11.0	79	44	48	64	76	11.0	12.5	18.0	18.5				
50	2	60	64	83	43	45	52	75	84	102	4.5	7.0	12.0	86	48	51	76	92	12.5	16.0	19.0	19.0				
65	2 1/2	76	83	95	52	62	64	92	102	121	5.5	7.5	15.5	92	60	64	92	108	16.0	19.0	23.5	29.0				
80	3	86	96	106	64	64	79	110	121	146	6.0	9.0	16.5	108	65	68	108	127	19.0	22.0	26.0	30.5				
100	4	106	114	114	79	79	79	146	152	152	6.5	11.0	18.5	121	68	75	140	159	22.0	28.5	27.5	33.0				



方头管塞 Square Head Plugs				圆头管塞 Round Head Plugs			六角头管塞和接头 Hex Head Plugs and Bushings			
公称通径 Nominal Pipe Size		螺纹长度 Length Min L2	方头高度 Height of Square Min B	平面宽度 Width of Flats Min C	圆头直径 Diameter of Round Head Nominal D		平面宽度 Width of Flats Nominal S	六角头高度 Hex Height Min K H		
DN	NPS					全长 Length Min L				
6	1/8	9.5	6	7.0	10	35	11.0	—	6	
8	1/4	11.0	6	9.5	13	41	16.0	3	6	
10	3/8	12.5	8	11.0	17	41	17.5	4	8	
15	1/2	14.5	10	14.5	21	44	22.0	5	8	
20	3/4	16.0	11	16.0	27	44	27.0	6	10	
25	1	19.0	13	20.5	33	51	35.0	6	10	
32	1 1/4	20.5	14	24.5	43	51	44.5	7	14	
40	1 1/2	20.5	16	28.5	48	51	51.0	8	16	
50	2	22.0	17	33.5	60	64	63.5	9	17	
65	2 1/2	27.0	19	38.0	73	70	76.0	10	19	
80	3	28.5	21	43.0	89	70	89.0	10	21	
100	4	32.0	25	63.5	114	76	117.5	13	25	

上述尺寸符合GB/T14626、ANSI B 16.11、BS3799标准。
Above dimensions acc. to GB/T14626、ANSI B 16.11、BS3799.



承插式 螺纹式活接头 SOCKET AND THREADED UNIONS

公称通径 Nominal Pipe Size		外径 Outside Diameter D		壁厚 Wall Thickness C		承插孔径 Socket Bore Min d1	流通孔径 Water Way Bore Min d2	承插孔深度 Depth of Socket J	公称装配长度 Length Assem Nominal
DN	NPS	承插焊 Socket	螺纹 Threaded	承插焊 Socket	螺纹 Threaded	承插焊 Socket	承插焊、螺纹 Socket & Threaded	承插焊 Socket	承插焊、螺纹 Socket & Threaded
6	1/8	21.8	14.7	3.2	2.5	10.65	6.43	10	41.4
8	1/4	21.8	19.0	3.3	3.1	14.10	9.45	10	41.4
10	3/8	25.9	22.9	3.5	3.2	17.55	13.51	10	46.0
15	1/2	31.2	27.7	4.1	3.8	21.70	17.07	10	49.0
20	3/4	37.1	33.5	4.3	4.0	27.05	21.39	13	56.9
25	1	45.5	41.4	5.0	4.6	33.80	27.74	13	62.0
32	1 1/4	54.9	50.5	5.3	4.9	42.55	35.36	13	71.1
40	1 1/2	61.5	57.2	5.6	5.1	48.65	41.20	13	76.5
50	2	75.2	70.1	6.1	5.6	61.10	52.12	16	86.1
65	2 1/2	91.7	85.3	7.7	7.1	73.80	64.31	16	102.4
80	3	109.2	102.4	8.4	7.7	89.80	77.27	16	109.0

上述尺寸符合MSS SP-83、BS3799标准。 Above dimensions acc.to MSS SP-83、BS3799.

Technology Parameter 技术参数

化学成份(%) (Chemical Composition)										机械性能(Mechanical Properties)					
	C	Si	Mn	P	S	Ni	Cr	Mo	C	6b (MPa)	6s (MPa)	65 (MPa)	Φ (%)	硬度 HB	备注 Note
China stainless steel 中国不锈钢材料	0Cr18Ni9	0.04-0.10	≤1.00	≤2.00	≤0.035	≤0.030	8.00-11.00	17.00-19.00	-	-	≤520	≤205	≤35	-	-
	0Cr18Ni10Ti	≤0.08	≤1.00	≤2.00	≤0.035	≤0.030	9.00-11.00	17.00-19.00	-	-	Ti5xC%-0.8	≤539	≤196	≤40	≤55
	1Cr18Ni9Ti	≤0.08	≤1.00	≤2.00	≤0.035	≤0.030	8.00-11.00	17.00-19.00	-	-	Ti5xC%-0.7	≤539	≤196	≤40	≤140-170
	00Cr18Ni10	≤0.030	≤1.00	≤2.00	≤0.035	≤0.030	8.00-11.00	18.00-19.00	-	-	-	≤480	≤178	≤40	≤60
	0Cr18Ni12Mo	≤0.08	≤1.00	≤2.00	≤0.035	≤0.030	11.00-14.00	16.00-19.00	1.80-2.50	0.30-0.60	-	≤539	≤216	≤40	≤60
00Cr17Ni14Mo	≤0.03	≤1.00	≤2.00	≤0.035	≤0.030	12.00-16.00	16.00-18.00	1.80-2.50	-	-	≤480	≤176	≤40	≤60	-
U.S.A stainless steel 美国不锈钢材料	WP304	0.08-0.15	0.75-1.00	2.00	0.040	0.030	8.00-11.00	18.00-20.00	-	-	517	207	35	-	-
	WP304H	0.04-0.10	0.75-1.00	2.00	0.040	0.030	8.00-11.00	18.00-20.00	-	-	517	207	35	-	-
	WP304L	0.035	0.75	2.00	0.040	0.030	8.00-13.00	18.00-20.00	-	-	448	172	35	-	-
	WP316	0.08	0.75-1.00	2.00	0.040	0.030	11.00-14.00	16.00-18.00	2.00-3.00	-	517	207	35	-	-
	WP316H	0.04-0.10	0.75-1.00	2.00	0.040	0.030	11.00-14.00	16.00-18.00	2.00-3.00	-	517	207	35	-	-
Japan stainless steel 日本不锈钢材料	WP316L	0.035	0.75-1.00	2.00	0.040	0.030	10.00-15.00	17.00-18.00	2.00-3.00	-	483	172	35	-	-
	WP316	0.08	0.75-1.00	2.00	0.040	0.030	9.00-13.00	16.00-20.00	-	-	Ti5xC%-0.60	517	207	35	-
	SUS304TP	≤0.08	≤1.00	≤2.00	≤0.040	≤0.030	8.00-11.00	18.00-20.00	-	-	-	519	206	35	-
	SUS304HTP	0.04-0.10	≤0.75	≤2.00	≤0.040	≤0.030	8.00-11.00	18.00-20.00	-	-	-	519	206	35	-
	SUS304LTP	≤0.030	≤1.00	≤2.00	≤0.040	≤0.030	9.00-13.00	18.00-20.00	-	-	-	480	176	35	-
Japan stainless steel 日本不锈钢材料	SUS316TP	≤0.08	≤1.00	≤2.00	≤0.040	≤0.030	10.00-14.00	16.00-18.00	2.00-3.00	-	519	206	35	-	-
	SUS316HTP	0.04-0.10	≤0.75	≤2.00	≤0.030	≤0.030	11.00-14.00	16.00-18.00	2.00-3.00	-	519	206	35	-	-
	SUS316LTP	≤0.030	≤1.00	≤2.00	≤0.040	≤0.030	12.00-16.00	18.00-18.00	2.00-3.00	-	-	480	176	35	-
	SUS321TP	≤0.08	≤1.00	≤2.00	≤0.040	≤0.030	9.00-13.00	17.00-19.00	-	-	Ti>5xC%	519	206	35	-
	SUS321HTP	0.04-0.10	≤0.75	≤2.00	≤0.030	≤0.030	9.00-13.00	17.00-20.00	-	-	Ti>4xC%-0.6	519	206	35	-
	SUS3095TP	≤0.15	≤1.00	≤2.00	≤0.040	≤0.030	12.00-15.00	22.00-24.00	-	-	-	519	206	35	-
	SUS310STP	≤0.15	≤1.50	≤2.00	≤0.040	≤0.030	19.00-22.00	24.00-26.00	-	-	-	519	206	35	-
	SUS347TP	≤0.18	≤1.00	≤2.00	≤0.040	≤0.030	9.00-13.00	17.00-19.00	-	-	Nb+Ta≥10xC%	519	206	35	-