



KAO JUNG

KAO JUNG ENTERPRISE CO., LTD.



高容企業有限公司



**STAINLESS
STEEL
BUTT / WELDING
PIPE FITTING**

KAO JUNG

公司簡介 | Company prospectus

高容企業有限公司



本公司成立於民國七十年，即從事專業加工製造生產不銹鋼有縫、無縫之對焊彎頭、大小頭、三通、管帽等產品，至今承蒙各大五金公司的照顧，業績方能蒸蒸日上。

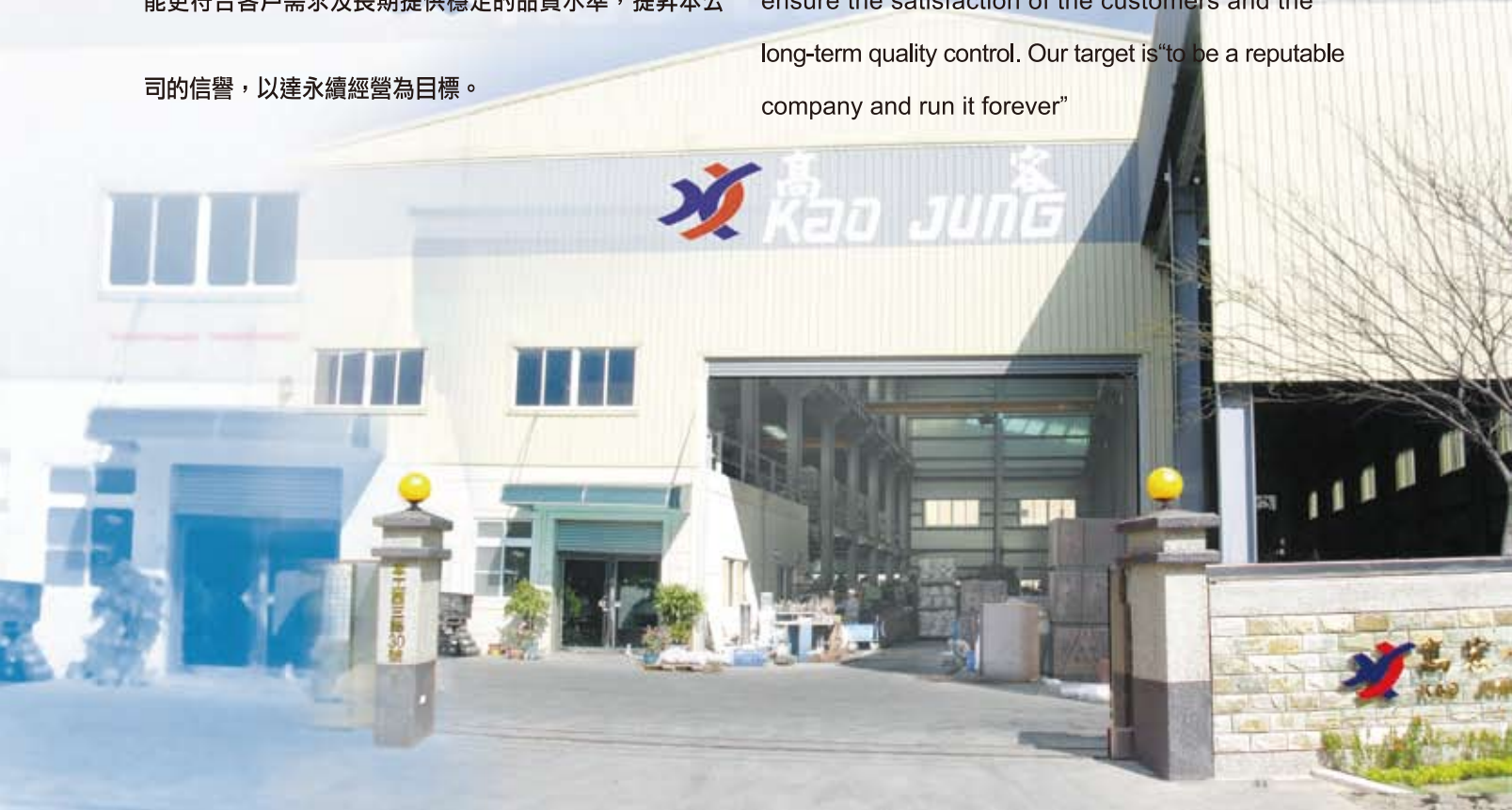
所使用之對象為：半導體、石化業、食品業、水電空調、扶手等行業。

本公司已取得ISO 9001品質認證，使不銹鋼配件的生產能更符合客戶需求及長期提供穩定的品質水準，提昇公司的信譽，以達永續經營為目標。

The KaoJung Enterprise CO., LTD., founded in 1981, specializes in the production of seam/seamless stainless steel butt-welding pipe fittings, including elbows, reducers, tees, and caps. With the strong support from many customers, KaoJung has been prospering over the past twenty years.

The products could be widely applied in semiconductor, Petroleum & Products, Food Processing, Engineering and Air conditioning, Metal industries.

KaoJung is awarded the certification of ISO 9001 to ensure the satisfaction of the customers and the long-term quality control. Our target is "to be a reputable company and run it forever"



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Introduction to "Branching pipe"

分岐管之說明簡介

高容企業有限公司是專門製造不銹鋼管配件的製造商，多年來致力於提供各大產業各項管配件的需求，對於技術提昇與品質的進步更是不遺餘力。其領先業界的分岐管(見圖1、2、3)管路配件，更深獲各大半導體業、光電及生技產業廣泛使用，提供有效益又節省成本的工法。

The KaoJung Enterprise CO., LTD. is the professional manufacturer of stainless steel pipe fittings in Taiwan, having been devoted for many years to satisfying many industries' needs for various pipe fittings and enhancing techniques and product quality. Our industry-leading branching pipes (See Figure 1, 2, 3) have been successfully and widely applied in semiconductor, optoelectronic, and bio-tech industries for the economic and efficient purposes.



(Figure 1) Branching Outlets 分岐孔



(Figure 2) Branching Outlets 分岐孔



(Figure 3) Branching Outlets 分岐孔

Why Branching Pipes?

節省成本 & 提高效率

傳統的插管管路裝配技術(見圖4)會有直角產生，而造成管路的撓流問題；而三通焊接(見圖5)，雖無撓流困擾，但其成本過高而不易負擔。上述兩種配線管路皆有下列缺點：

1. 接合處強度不足
2. 增加 X-ray 的檢驗成本。

本公司創新研發之“分岐管”不但可降低組裝焊接數，進而提高管路裝配效率，可依施工需求，製作不同方向與口徑的分歧孔，進而節省成本與材料(見圖6)。

The conventional pipe assembly method, the pipe insertion (See Figure 4), could form a right angle that creates the flow problem. Another assembly method, the welding of tees (See Figure 5), improves the flow characteristics but might be too costly to burden. Both of the two assembly methods above have two disadvantages - more chance of leakage and more X-ray inspection cost. Yet, our unique branching pipes, in substitution for the current pipe fittings, not only eliminate the number of welded joints to increase the assembly efficiency but also minimize X-ray inspection cost. Moreover, the directions and diameters of the outlets in branching pipes (See Figure 6) could be manufactured as customers require. Thus, more money and material could be saved. °



(Figure 4) Insertion of Pipes 插管



(Figure 5) The Welding of Tees 三通焊接



(Figure 6) Different Directions and Diameters of Outlets 不同分歧孔方向與外徑

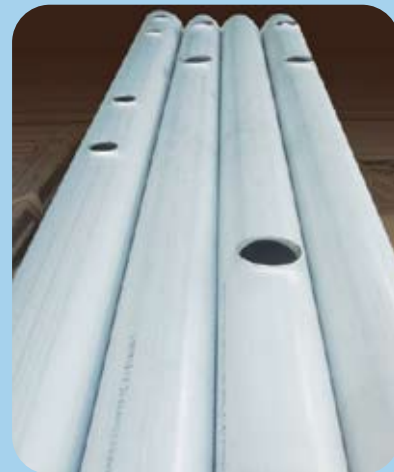
Technique Specifications

可加工條件

Material: Applicable in many materials including stainless, carbon, alloy steel, etc.

鋼管材質：如不銹鋼、碳鋼、合金鋼……等。

- OD Range of Run Tube: 2" to 48"
分歧管外徑：2" ~48"
- Length of Run Tube: Depend on the requests of Customers
分歧管長度：依客戶需求製作。
- Outside Diameter of Outlets: 1/2" to 36"
分歧孔外徑：1/2" ~36"
- Height of Outlets: Trimmed to the desired height, from 10mm~25mm
分歧管高度：材料的外徑、厚度、長度而有所不同，約10mm~25mm
- Wall thickness: Min. 2mm. Max. 20mm.
鋼管厚度：2mm~20mm



Our Customers

分枝管實積表

Longtan Science Park 龍潭科技園區：

- 1.Quanta Display Inc. 廣輝電子
- 2.AU Optronics Corporation (Plant 4、6、8) 友達光電 (第四、六、八廠)

Hsinchu Science Park 新竹科技園區：

- 1.Powerchip semiconductor Corp. 力晶半導體
- 2.International Semiconductor Corporation. 世界先進
- 3.Lianhua Electronics Co., Ltd. 聯華電子
- 4.AU Optronics Corp. (Plant 3) 友達光電第三廠
- 5.Taiwan Semiconductor Manufacturing CO., Ltd. (Plant 4、7、8、12A、12B)
台灣積體電路 (4、7、8、12A、12B廠)

Taichung Science Park 台中科技園區：

- 1.AU Optronics Corp. (Plant 10, 8c) 友達光電 (十廠、八C廠、十一廠)
2. Winbond Electronics 華邦電子
- 3.ProMOS Technologies 茂德電子
- 4.Coring Display Technologies 康寧

Tainan Science park 台南科技園區：

- 1.Taiwan Semiconductor Manufacturing CO., Ltd. (Plant 6) 台積電第6 廠
- 2.HannStar Display 瀚宇彩晶
- 3.Chi Mei Optoelectronics 奇美第5.6 廠

Tou-fen 頭份：

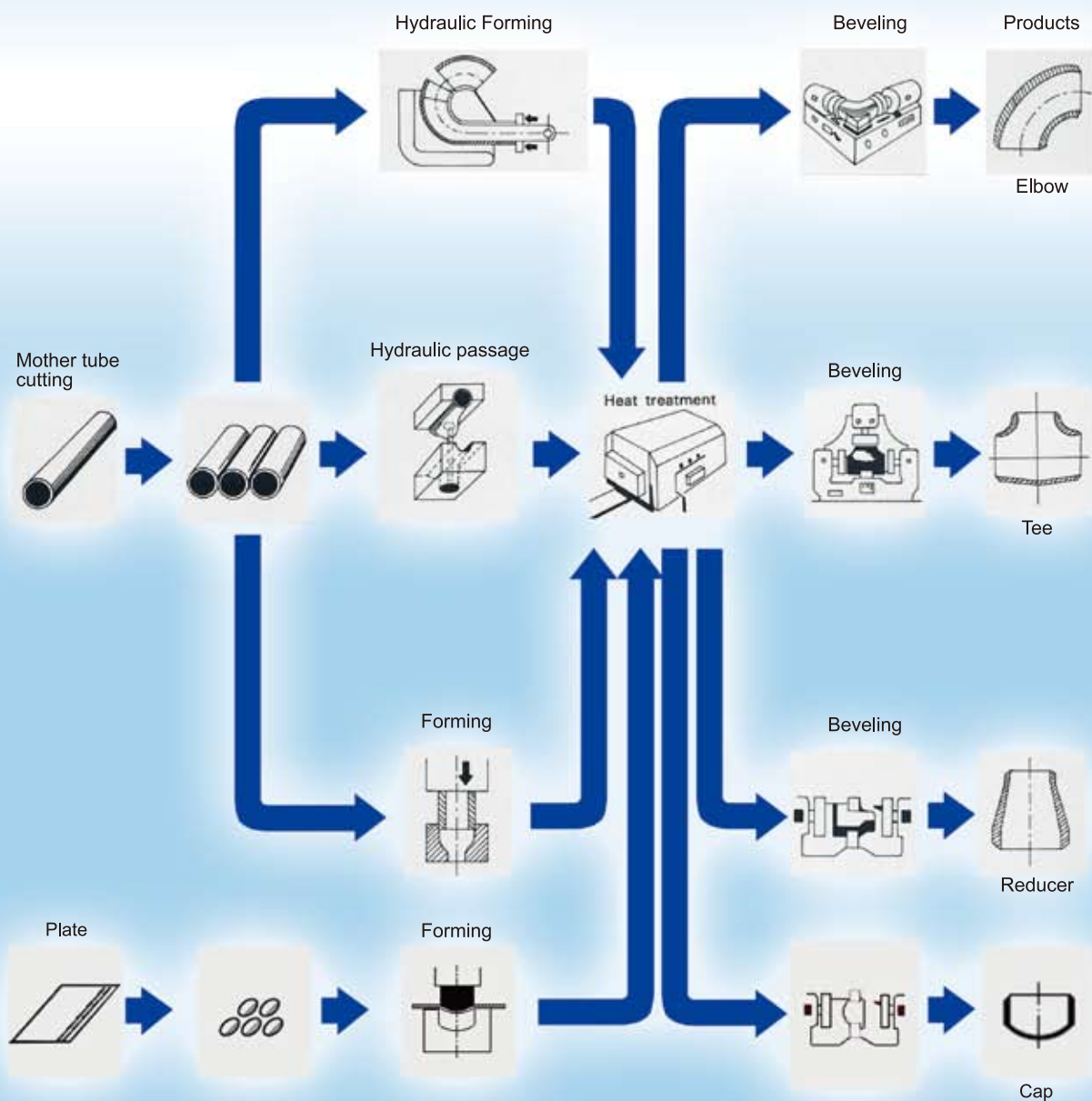
- 1.China Petroleum and Chemical Corp. 中國石油化工股份有限公司

Taipei 台北：

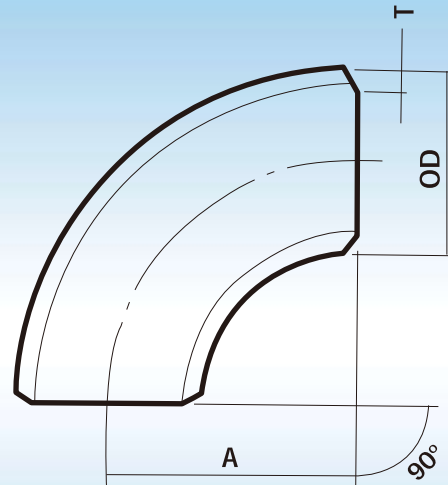
- 1.Dihua Sewage Treatment Plant 迪化污水處理廠

MANUFACTURING PROCESS OF

SEAMLESS AND SEAM STAINLESS STEEL BUTT-WELDING FITTINGS



90° LONG RADIUS ELBOWS



DIMENSIONS

(unit: inch/mm)

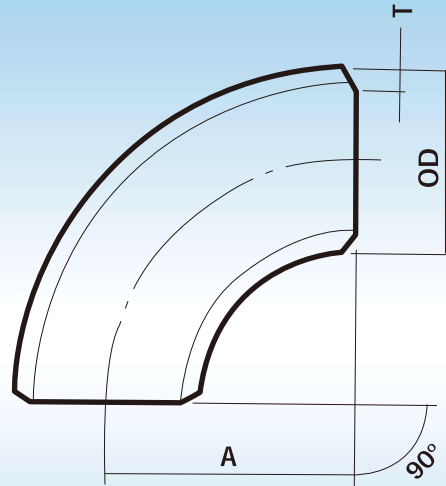
Nominal Pipe Size	Out-side Dia. (OD)	Wall Thickness (T)				Center to End A
		Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S	
1/2	0.840	0.065	0.083	0.109	0.147	1.50
	21.34	1.65	2.11	2.77	3.73	38.10
3/4	1.050	0.065	0.083	0.113	0.154	1.12
	26.67	1.65	2.11	2.87	3.91	28.45
1	1.315	0.065	0.109	0.133	0.179	1.50
	33.40	1.65	2.77	3.38	4.55	38.10
1 1/4	1.660	0.065	0.109	0.140	0.191	1.88
	42.16	1.65	2.77	3.56	4.85	47.75
1 1/2	1.900	0.065	0.109	0.145	0.200	2.25
	48.26	1.65	2.77	3.68	5.08	57.15
2	2.375	0.065	0.109	0.154	0.218	3.00
	60.32	1.65	2.77	3.91	5.54	76.20
2 1/2	2.875	0.083	0.120	0.203	0.276	3.75
	73.02	2.11	3.05	5.16	7.01	95.25
3	3.500	0.083	0.120	0.216	0.300	4.50
	88.90	2.11	3.05	5.49	7.62	114.30
3 1/2	4.000	0.083	0.120	0.226	0.318	5.25
	101.60	2.11	3.05	5.74	8.08	133.35
4	4.500	0.083	0.120	0.237	0.337	6.00
	114.30	2.11	3.05	6.02	8.56	152.40
5	5.563	0.109	0.134	0.258	0.375	7.50
	141.30	2.77	3.40	6.55	9.53	190.50
6	6.625	0.109	0.134	0.280	0.432	9.00
	168.27	2.77	3.40	7.11	10.97	228.60
8	8.625	0.109	0.148	0.322	0.500	12.00
	219.08	2.77	3.76	8.18	12.70	304.08
10	10.750	0.134	0.165	0.365	0.500	15.00
	273.05	3.40	4.19	9.27	12.70	381.00
12	12.750	0.156	0.180	0.375	0.500	18.00
	323.85	3.96	4.57	9.53	12.70	457.20

WEIGHTS

(unit: kg)

Nominal Pipe Size	Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S
1/2	0.049	0.061	0.078	0.100
3/4	0.062	0.078	0.103	0.104
1	0.078	0.128	0.154	0.204
1 1/4	0.125	0.206	0.260	0.349
1 1/2	0.170	0.283	0.368	0.507
2	0.286	0.478	0.652	0.938
2 1/2	0.576	0.812	1.37	1.79
3	0.810	1.14	2.04	2.87
3 1/2	1.08	1.53	2.82	4.10
4	1.39	1.97	3.84	5.62
5	2.83	3.42	6.48	9.69
6	4.03	4.87	9.94	15.99
8	7.06	10.00	20.10	32.16
10	12.20	15.50	35.40	49.83
12	22.30	25.90	56.20	72.48

90° LONG RADIUS ELBOWS



DIMENSIONS

(unit: inch/mm)

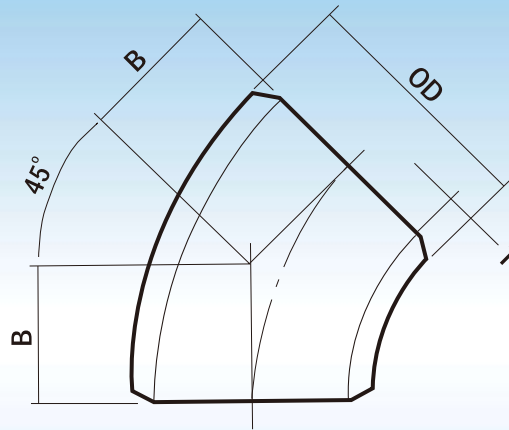
Nominal Pipe Size	Out-side Dia. (OD)	Wall Thickness (T)				Center to End A
		Sch. 10S	Sch. 20	Std	XS	
14	14.000	0.188	0.312	0.375	0.500	21.00
	355.60	4.78	7.92	9.53	12.70	533.40
16	16.000	0.188	0.312	0.375	0.500	24.00
	406.40	4.78	7.92	9.53	12.70	609.60
18	18.000	0.188	0.312	0.375	0.500	27.00
	457.20	4.78	7.92	9.53	12.70	685.80
20	20.000	0.218	0.375	0.375	0.500	30.00
	508.00	5.54	9.53	9.53	12.70	762.00
22	22.000	0.218	0.375	0.375	0.500	33.00
	558.80	5.54	9.53	9.53	12.70	838.20
24	24.000	0.250	0.375	0.375	0.500	36.00
	609.60	6.35	9.53	9.53	12.70	914.40
26	26.000	0.312	0.500	0.375	0.500	39.00
	660.40	7.92	12.70	9.53	12.70	990.60
28	28.000	0.312	0.500	0.375	0.500	42.00
	711.20	7.92	12.70	9.53	12.70	1066.80
30	30.000	0.312	0.500	0.375	0.500	45.00
	762.00	7.92	12.70	9.53	12.70	1143.00
32	32.000	0.312	0.500	0.375	0.500	48.00
	812.80	7.92	12.70	9.53	12.70	1219.20
34	34.000	0.312	0.500	0.375	0.500	51.00
	863.60	7.92	12.70	9.53	12.70	1295.40
36	36.000	0.312	0.500	0.375	0.500	54.00
	914.40	7.92	12.70	9.53	12.70	1371.60
38	38.000	0.312		0.375	0.500	57.00
	965.20	7.92		9.53	12.70	1447.80
40	40.000	0.312		0.375	0.500	60.00
	1016.00	7.92		9.53	12.70	1524.00

WEIGHTS

(unit: kg)

Nominal Pipe Size	Sch. 10S	Sch. 20	Std.	XS
14	34.60	57.58	66.36	85.53
16	45.20	70.03	87.11	112.34
18	57.30	89.01	110.67	142.79
20	82.00	136.99	136.99	176.90
22	99.40	163.03	163.03	210.83
24	136.00	198.05	198.05	256.13
26	198.00	296.76	229.17	296.53
28	230.00	345.05	266.50	344.96
30	264.00	397.15	306.59	396.74
32	301.00	453.00	349.53	452.68
34	339.00	512.16	395.24	511.98
36	381.00	575.13	443.71	574.95
38	425.00		497.71	644.75
40	471.00		551.98	715.51

45° LONG RADIUS ELBOWS



DIMENSIONS

(unit: inch/mm)

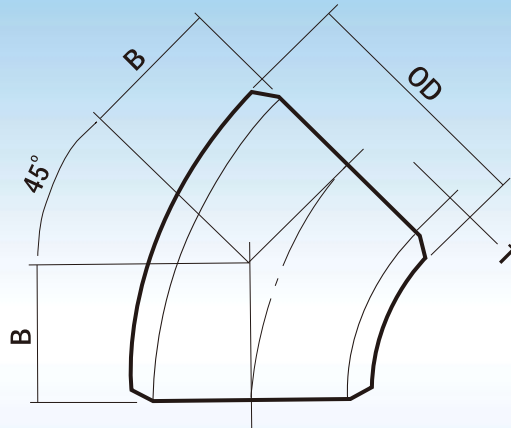
Nominal Pipe Size	Out-side Dia. (OD)	Wall Thickness (T1, T2)				Center to End B
		Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S	
1/2	0.840	0.065	0.083	0.109	0.147	0.625
	21.34	1.65	2.11	2.77	3.73	15.88
3/4	1.050	0.065	0.083	0.113	0.154	0.438
	26.67	1.65	2.11	2.87	3.91	11.13
1	1.315	0.065	0.109	0.133	0.179	0.875
	33.40	1.65	2.77	3.38	4.55	22.22
1 1/4	1.660	0.065	0.109	0.140	0.191	1.00
	42.16	1.65	2.77	3.56	4.85	25.40
1 1/2	1.900	0.065	0.109	0.145	0.200	1.12
	48.26	1.65	2.77	3.68	5.08	28.45
2	2.375	0.065	0.109	0.154	0.218	1.38
	60.32	1.65	2.77	3.91	5.54	35.05
2 1/2	2.875	0.083	0.120	0.203	0.276	1.75
	73.02	2.11	3.05	5.16	7.01	44.45
3	3.500	0.083	0.120	0.216	0.300	2.00
	88.90	2.11	3.05	5.49	7.62	50.80
3 1/2	4.000	0.083	0.120	0.226	0.318	2.25
	101.60	2.11	3.05	5.74	8.08	57.15
4	4.500	0.083	0.120	0.237	0.337	2.50
	114.30	2.11	3.05	6.02	8.56	63.50
5	5.563	0.109	0.134	0.258	0.375	3.12
	141.30	2.77	3.40	6.55	9.53	79.25
6	6.625	0.109	0.134	0.280	0.432	3.75
	168.27	2.77	3.40	7.11	10.97	95.25
8	8.625	0.109	0.148	0.322	0.500	5.00
	219.08	2.77	3.76	8.18	12.70	127.00
10	10.750	0.134	0.165	0.365	0.500	6.25
	273.05	3.40	4.19	9.27	12.70	158.75
12	12.750	0.156	0.180	0.375	0.500	7.50
	323.85	3.96	4.57	9.53	12.70	190.50

WEIGHTS

(unit: kg)

Nominal Pipe Size	Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S
1/2	0.024	0.030	0.039	0.050
3/4	0.031	0.039	0.052	0.078
1	0.039	0.064	0.077	0.100
1 1/4	0.063	0.103	0.130	0.177
1 1/2	0.085	0.142	0.184	0.254
2	0.143	0.239	0.326	0.471
2 1/2	0.288	0.406	0.683	0.897
3	0.405	0.571	1.02	1.44
3 1/2	0.540	0.764	1.41	2.05
4	0.696	0.985	1.92	2.81
5	1.42	1.71	3.24	4.85
6	2.01	2.43	4.97	8.02
8	3.53	5.01	10.10	16.22
10	6.62	7.77	17.70	25.37
12	11.10	12.50	28.10	36.69

45° LONG RADIUS ELBOWS



DIMENSIONS

(unit: inch/mm)

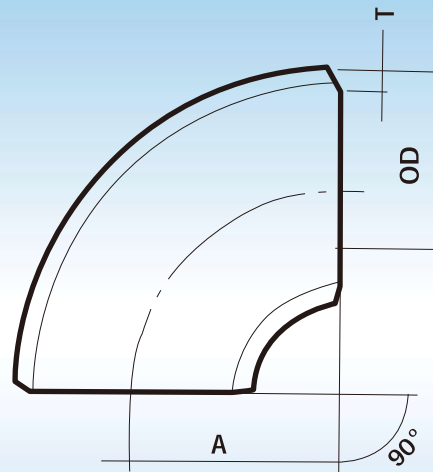
Nominal Pipe Size	Out-side Dia. (OD)	Wall Thickness (T)				Center to End A
		Sch. 10S	Sch. 20S	Std	XS	
14	14.000	0.188	0.312	0.375	0.500	8.75
	355.60	4.78	7.92	9.53	12.70	222.25
16	16.000	0.188	0.312	0.375	0.500	10.00
	406.40	4.78	7.92	9.53	12.70	254.00
18	18.000	0.188	0.312	0.375	0.500	11.25
	457.20	4.78	7.92	9.53	12.70	285.75
20	20.000	0.218	0.375	0.375	0.500	12.50
	508.00	5.54	9.53	9.53	12.70	317.50
22	22.000	0.218	0.375	0.375	0.500	13.50
	558.80	5.54	9.53	9.53	12.70	342.90
24	24.000	0.250	0.375	0.375	0.500	15.00
	609.60	6.35	9.53	9.53	12.70	381.00
26	26.000	0.312	0.500	0.375	0.500	16.00
	660.40	7.92	12.70	9.53	12.70	406.40
28	28.000	0.312	0.500	0.375	0.500	17.25
	711.20	7.92	12.70	9.53	12.70	438.15
30	30.000	0.312	0.500	0.375	0.500	18.50
	762.00	7.92	12.70	9.53	12.70	469.90
32	32.000	0.312	0.500	0.375	0.500	19.75
	812.80	7.92	12.70	9.53	12.70	501.65
34	34.000	0.312	0.500	0.375	0.500	21.00
	863.60	7.92	12.70	9.53	12.70	533.40
36	36.000	0.312	0.500	0.375	0.500	22.25
	914.40	7.92	12.70	9.53	12.70	565.15
38	38.000	0.312		0.375	0.500	23.62
	965.20	7.92		9.53	12.70	599.95
40	40.000	0.312		0.375	0.500	24.88
	1016.00	7.92		9.53	12.70	631.95

WEIGHTS

(unit: kg)

Nominal Pipe Size	Sch. 10S	Sch. 20S	Std.	XS
14	17.30	28.63	32.93	42.40
16	22.60	34.84	43.31	55.76
18	28.70	44.21	54.99	70.94
20	41.00	68.13	68.13	88.02
22	49.70	81.13	81.13	104.87
24	68.00	98.57	98.57	127.52
26	99.00	147.63	114.11	147.68
28	115.00	171.82	132.73	171.82
30	132.00	197.78	152.75	197.78
32	151.00	225.59	156.24	225.59
34	170.00	255.22	196.96	255.13
36	191.00	286.66	221.20	286.57
38	213.00		248.15	321.58
40	236.00		257.35	356.69

90° SHORT RADIUS ELBOWS



DIMENSIONS

(unit: inch/mm)

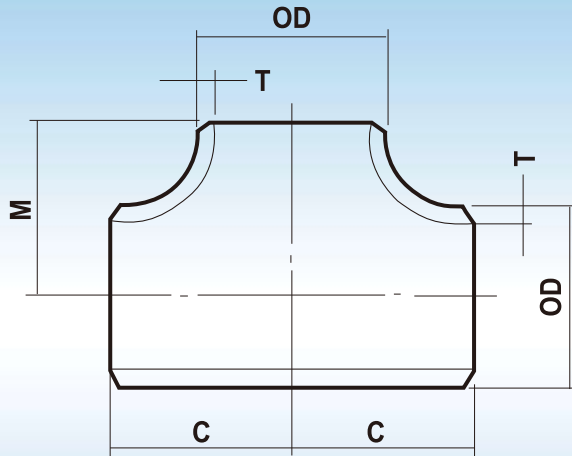
Nominal Pipe Size	Out-side Dia. (OD)	Wall Thickness (T)				Center to End A
		Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S	
1	1.315	0.065	0.109	0.133	0.179	1.00
	33.40	1.65	2.77	3.38	4.55	25.40
1 1/4	1.660	0.065	0.109	0.140	0.191	1.25
	42.16	1.65	2.77	3.56	4.85	31.75
1 1/2	1.900	0.065	0.109	0.145	0.200	1.50
	48.26	1.65	2.77	3.68	5.08	38.10
2	2.375	0.065	0.109	0.154	0.218	2.00
	60.32	1.65	2.77	3.91	5.54	50.80
2 1/2	2.875	0.083	0.120	0.203	0.276	2.50
	73.02	2.11	3.05	5.16	7.01	63.50
3	3.500	0.083	0.120	0.216	0.300	3.00
	88.90	2.11	3.05	5.49	7.62	76.20
3 1/2	4.000	0.083	0.120	0.226	0.318	3.50
	101.60	2.11	3.05	5.74	8.08	88.90
4	4.500	0.083	0.120	0.237	0.337	4.00
	114.30	2.11	3.05	6.02	8.56	101.60
5	5.563	0.109	0.134	0.258	0.375	5.00
	141.30	2.77	3.40	6.55	9.53	127.00
6	6.625	0.109	0.134	0.280	0.432	6.00
	168.27	2.77	3.40	7.11	10.97	152.40
8	8.625	0.109	0.148	0.322	0.500	8.00
	219.08	2.77	3.76	8.18	12.70	203.20
10	10.750	0.134	0.165	0.365	0.500	10.00
	273.05	3.40	4.19	9.27	12.70	254.00
12	12.750	0.156	0.180	0.375	0.500	12.00
	323.85	3.96	4.57	9.53	12.70	304.80
14	14.000	0.156	0.188	*0.375	**0.500	14.00
	355.60	3.96	4.78	9.53	12.70	355.60
16	16.000	0.156	0.188	*0.375	**0.500	16.00
	406.40	3.96	4.78	9.53	12.70	406.40
18	18.000	0.156	0.188	*0.375	**0.500	18.00
	457.20	3.96	4.78	9.53	12.70	457.20
20	20.000	0.188	0.218	*0.375	**0.500	20.00
	508.00	4.78	5.54	9.53	12.70	508.00
22	22.000	0.188	0.218	*0.375	**0.500	22.00
	558.80	4.78	5.54	9.53	12.70	558.80
24	24.000	0.218	0.250	*0.375	**0.500	24.00
	609.60	5.54	6.35	9.53	12.70	609.60

WEIGHTS

(unit: kg)

Nominal Pipe Size	Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S
1	0.077	0.094	0.118	0.122
1 1/4	0.101	0.152	0.204	0.217
1 1/2	0.114	0.189	0.245	0.317
2	0.191	0.318	0.434	0.593
2 1/2	0.383	0.541	0.909	1.13
3	0.540	0.761	1.36	1.82
3 1/2	0.719	1.02	1.88	2.61
4	0.928	1.31	2.56	3.56
5	1.89	2.28	4.32	6.20
6	2.68	3.24	6.63	10.26
8	4.71	6.68	13.40	20.84
10	8.83	10.40	23.60	32.94
12	14.80	16.70	37.50	47.30
14	15.21	24.55	*48.33	**59.25
16	25.60	32.00	*63.37	**81.81
18	40.40	40.40	*73.57	**103.96
20	50.42	60.25	*99.66	**128.79
22	61.06	73.02	*120.83	**156.29
24	86.98	101.56	*144.06	**186.41

EQUAL TEES



DIMENSIONS

(unit: inch/mm)

Nominal Pipe Size	Out-side Dia. (OD)	Wall Thickness (T)				Center to End C,M
		Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S	
1/2	0.840	0.065	0.083	0.109	0.147	1.000
	21.34	1.65	2.11	2.77	3.73	25.40
3/4	1.050	0.065	0.083	0.113	0.154	1.130
	26.67	1.65	2.11	2.87	3.91	28.70
1	1.315	0.065	0.109	0.133	0.179	1.50
	33.40	1.65	2.77	3.38	4.55	38.10
1 1/4	1.660	0.065	0.109	0.140	0.191	1.88
	42.16	1.65	2.77	3.56	4.85	47.75
1 1/2	1.900	0.065	0.109	0.145	0.200	2.25
	48.26	1.65	2.77	3.68	5.08	57.15
2	2.375	0.065	0.109	0.154	0.218	2.50
	60.32	1.65	2.77	3.91	5.54	63.50
2 1/2	2.875	0.083	0.120	0.203	0.276	3.00
	73.02	2.11	3.05	5.16	7.01	76.20
3	3.500	0.083	0.120	0.216	0.300	3.38
	88.90	2.11	3.05	5.49	7.62	85.85
4	4.500	0.083	0.120	0.237	0.337	4.13
	114.30	2.11	3.05	6.02	8.56	104.90
5	5.563	0.109	0.134	0.258	0.375	4.88
	141.30	2.77	3.40	6.55	9.53	123.95
6	6.625	0.109	0.134	0.280	0.432	5.63
	168.27	2.77	3.40	7.11	10.97	143.00
8	8.625	0.109	0.148	0.322	0.500	7.00
	219.08	2.77	3.76	8.18	12.70	177.80
10	10.750	0.134	0.165	0.365	0.500	8.50
	273.05	3.40	4.19	9.27	12.70	215.90
12	12.750	0.156	0.180	0.375	0.500	10.00
	323.85	3.96	4.57	9.53	12.70	254.00
14	14.00	0.156	0.188	*0.375	**0.500	11.00
	355.60	3.96	4.78	9.53	12.70	279.40
16	16.000	0.165	0.188	*0.375	**0.500	12.00
	406.40	3.96	4.78	9.53	12.70	304.80
18	18.000	0.165	0.188	*0.375	**0.500	13.50
	457.20	3.96	4.78	9.53	12.70	342.90
20	20.000	0.188	0.218	*0.375	**0.500	15.00
	508.00	4.78	5.54	9.53	12.70	381.00
22	22.000	0.188	0.218	*0.375	**0.500	16.50
	558.80	4.78	5.54	9.53	12.70	419.10
24	24.000	0.218	0.250	*0.375	**0.500	17.00
	609.60	5.54	6.35	9.53	12.70	431.80

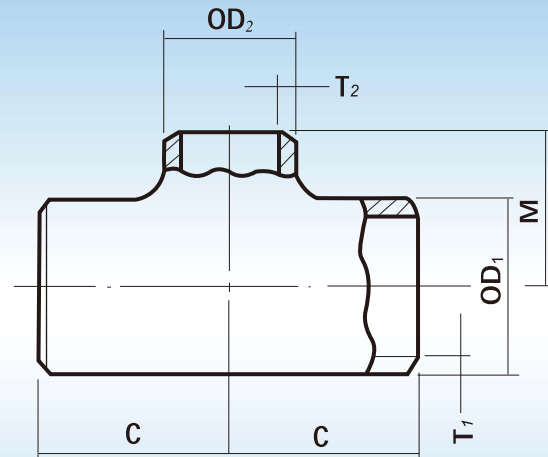
WEIGHTS

(unit: kg)

Nominal Pipe Size	Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S
1/2	0.090	0.090	0.181	0.204
3/4	0.129	0.129	0.258	0.294
1	0.223	0.223	0.256	0.399
1 1/4	0.356	0.356	0.463	0.725
1 1/2	0.497	0.497	0.648	1.02
2	0.681	0.681	0.893	1.81
2 1/2	1.20	1.20	1.98	3.17
3	1.57	1.57	2.61	3.85
4	2.46	2.46	4.76	7.11
5	4.04	4.04	7.84	11.78
6	5.50	5.50	9.54	18.12
8	11.07	11.07	19.56	33.98
10	19.87	19.87	32.61	47.57
12	27.86	27.86	56.65	72.48
14	28.74	35.98	*71.21	**91.78
16	35.69	44.69	*88.56	**114.23
18	45.21	56.62	*112.33	**144.98
20	69.97	83.69	*138.99	**179.66
22	84.72	101.35	*170.07	**217.46
24	113.23	132.24	*192.66	**243.13

*Std **XS

REDUCING TEES



DIMENSIONS

(unit: inch/mm)

Nominal Pipe Size	Out-Side Dia. OD ₁	Out-Side Dia. OD ₂	Wall Thickness (T ₁ , T ₂)								Center to End C	Center to End M	
			Sch. 5S		Sch. 10S		Sch. 40S		Sch. 80S				
Run	Out-let	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂				
3/4	1/2	1.050	0.840	0.065	0.065	0.083	0.083	0.113	0.109	0.154	0.147	1.13	1.13
		26.67	21.34	1.65	1.65	2.11	2.11	2.87	2.77	3.91	3.73	28.70	28.70
1	1/2	1.315	0.840	0.065	0.065	0.109	0.083	0.133	0.109	0.179	0.147	1.50	1.50
		33.40	21.34	1.65	1.65	2.77	2.11	3.38	2.77	4.55	3.73	38.10	38.10
1	3/4	1.315	1.050	0.065	0.065	0.109	0.083	0.133	0.113	0.179	0.154	1.50	1.50
		33.40	26.67	1.65	1.65	2.77	2.11	3.38	2.87	4.55	3.91	38.10	38.10
1 1/4	3/4	1.660	1.050	0.065	0.065	0.109	0.083	0.140	0.113	0.191	0.154	1.88	1.88
		42.16	26.67	1.65	1.65	2.77	2.11	3.56	2.87	4.85	3.91	47.75	47.75
1 1/4	1	1.660	1.315	0.065	0.065	0.109	0.109	0.140	0.133	0.191	0.179	1.88	1.88
		42.16	33.40	1.65	1.65	2.77	2.77	3.56	3.38	4.85	4.55	47.75	47.75
1 1/2	1/2	1.900	0.840	0.065	0.065	0.109	0.083	0.145	0.109	0.200	0.147	2.25	2.25
		48.26	21.34	1.65	1.65	2.77	2.11	3.68	2.77	5.08	3.73	57.15	57.15
1 1/2	3/4	1.900	1.050	0.065	0.065	0.109	0.083	0.145	0.113	0.200	0.154	2.25	2.25
		48.26	26.67	1.65	1.65	2.77	2.11	3.68	2.87	5.08	3.91	57.15	57.15
1 1/2	1	1.900	1.315	0.065	0.065	0.109	0.109	0.145	0.133	0.200	0.179	2.25	2.25
		48.26	33.40	1.65	1.65	2.77	2.77	3.68	3.38	5.08	4.55	57.15	57.15
1 1/2	1 1/4	1.900	1.660	0.065	0.065	0.109	0.109	0.145	0.140	0.200	0.191	2.25	2.25
		48.26	42.16	1.65	1.65	2.77	2.77	3.68	3.56	5.08	4.85	57.15	57.15
2	3/4	2.375	1.050	0.065	0.065	0.109	0.033	0.154	0.113	0.218	0.154	2.50	1.75
		60.32	26.67	1.65	1.65	2.77	0.84	3.91	2.87	5.54	3.91	63.50	44.45
2	1	2.375	1.315	0.065	0.065	0.109	0.109	0.154	0.133	0.218	0.179	2.50	2.00
		60.32	33.40	1.65	1.65	2.77	2.77	3.91	3.38	5.54	4.55	63.50	50.80
2	1 1/4	2.375	1.660	0.065	0.065	0.109	0.109	0.154	0.140	0.218	0.191	2.50	2.25
		60.32	42.16	1.65	1.65	2.77	2.77	3.91	3.56	5.54	4.85	63.50	57.15
2	1 1/2	2.375	1.900	0.065	0.065	0.109	0.109	0.154	0.145	0.218	0.200	2.50	2.38
		60.32	48.26	1.65	1.65	2.77	2.77	3.91	3.68	5.54	5.08	63.50	60.45

WEIGHTS

(unit: kg)

Nominal Pipe Size		Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S
Run	Out-let				
3/4	1/2	0.083	0.123	0.200	0.230
1	1/2	0.187	0.204	0.234	0.349
1	3/4	0.187	0.212	0.244	0.353
1 1/4	3/4	0.290	0.327	0.423	0.612
1 1/4	1	0.312	0.339	0.441	0.643
1 1/2	1/2	0.397	0.431	0.561	0.897
1 1/2	3/4	0.397	0.446	0.578	0.901
1 1/2	1	0.421	0.461	0.600	0.929
1 1/2	1 1/4	0.442	0.482	0.629	0.978
2	3/4	0.625	0.702	1.11	1.44
2	1	0.643	0.725	1.14	1.46
2	1 1/4	0.680	0.747	1.18	1.51
2	1 1/2	0.734	0.766	1.23	1.57

DIMENSIONS

(unit: inch/mm)

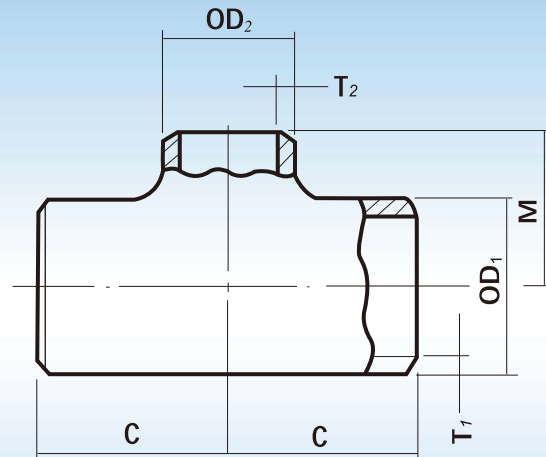
Nominal Pipe Size	Out-Side Dia. OD ₁	Out-Side Dia. OD ₂	Wall Thickness (T1, T2)								Center to End C	Center to End M	
			Sch. 5S		Sch. 10S		Sch. 40S		Sch. 80S				
			T1	T2	T1	T2	T1	T2	T1	T2			
2 1/2	1 1/2	2.875	1.900	0.083	0.065	0.120	0.109	0.203	0.145	0.276	0.200	3.00	2.63
		73.02	48.26	2.11	1.65	3.05	2.77	5.16	3.68	7.01	5.08	76.20	66.80
2 1/2	2	2.875	2.375	0.083	0.065	0.120	0.109	0.203	0.154	0.276	0.218	3.00	2.75
		73.02	60.32	2.11	1.65	3.05	2.77	5.16	3.91	7.01	5.54	76.20	69.85
3	1 1/2	3.500	1.900	0.083	0.065	0.120	0.109	0.216	0.145	0.300	0.200	3.13	2.88
		88.90	48.26	2.11	1.65	3.05	2.77	5.49	3.68	7.62	5.08	79.50	73.15
3	2	3.500	2.375	0.083	0.065	0.120	0.109	0.216	0.154	0.300	0.218	3.38	3.00
		88.90	60.32	2.11	1.65	3.05	2.77	5.49	3.91	7.62	5.54	85.85	76.20
3	2 1/2	3.500	2.875	0.083	0.83	0.120	0.120	0.216	0.203	0.300	0.276	3.38	3.25
		88.90	73.02	2.11	2.11	3.05	3.05	5.49	5.16	7.62	7.01	85.85	82.55
4	1 1/2	4.500	1.900	0.083	0.065	0.120	0.109	0.237	0.145	0.337	0.200	4.13	3.38
		114.30	48.26	2.11	1.65	3.05	2.77	6.02	3.68	8.56	5.08	104.90	85.85
4	2	4.500	2.375	0.083	0.065	0.120	0.109	0.237	0.154	0.337	0.218	4.13	3.50
		114.30	60.32	2.11	1.65	3.05	2.77	6.02	3.91	8.56	5.54	104.90	88.90
4	2 1/2	4.500	2.875	0.083	0.083	0.120	0.120	0.237	0.203	0.337	0.276	4.13	3.75
		114.30	73.02	2.11	2.11	3.05	3.05	6.02	5.16	8.56	7.01	104.90	95.25
4	3	4.500	3.500	0.083	0.083	0.120	0.120	0.237	0.216	0.337	0.300	4.13	3.88
		114.30	88.90	2.11	2.11	3.05	3.05	6.02	5.49	8.56	7.62	104.90	98.55
5	3	5.563	3.500	0.109	0.083	0.134	0.120	0.258	0.216	0.375	0.300	4.88	4.38
		141.30	88.90	2.77	2.11	3.40	3.05	6.55	5.49	9.53	7.62	123.95	111.25
5	4	5.563	4.500	0.109	0.083	0.134	0.120	0.258	0.237	0.375	0.337	4.88	4.63
		141.30	114.30	2.77	2.11	3.40	3.05	6.55	6.02	9.53	8.56	123.95	117.60
6	2 1/2	6.625	2.875	0.109	0.083	0.134	0.120	0.280	0.203	0.432	0.276	5.63	4.75
		168.27	73.02	2.77	2.11	3.40	3.05	7.11	5.16	10.97	7.01	143.00	120.65
6	3	6.625	3.500	0.109	0.083	0.134	0.120	0.280	0.216	0.432	0.300	5.63	4.88
		168.27	88.90	2.77	2.11	3.40	3.05	7.11	5.49	10.97	7.62	143.00	123.95
6	4	6.625	4.500	0.109	0.083	0.134	0.120	0.280	0.237	0.432	0.337	5.63	5.13
		168.27	114.30	2.77	2.11	3.40	3.05	7.11	6.02	10.97	8.56	143.00	130.30
6	5	6.625	5.563	0.109	0.109	0.134	0.134	0.280	0.258	0.432	0.375	5.63	5.38
		168.27	141.30	2.77	2.77	3.40	3.40	7.11	6.55	10.97	9.53	143.00	136.65
8	4	8.625	4.500	0.109	0.083	0.148	0.120	0.322	0.237	0.500	0.337	7.00	6.13
		219.08	114.30	2.77	2.11	3.76	3.05	8.18	6.02	12.70	8.56	177.80	155.70
8	5	8.625	5.563	0.109	0.109	0.148	0.134	0.322	0.258	0.500	0.375	7.00	6.38
		219.08	141.30	2.77	2.77	3.76	3.40	8.18	6.55	12.70	9.53	177.80	162.05
8	6	8.625	6.625	0.109	0.109	0.148	0.134	0.322	0.280	0.500	0.432	7.00	6.63
		219.08	168.27	2.77	2.77	3.76	3.40	8.18	7.11	12.70	10.97	177.80	168.40
10	5	10.750	5.563	0.134	0.109	0.165	0.134	0.365	0.258	0.500	0.375	8.50	7.50
		273.05	141.30	3.40	2.77	4.19	3.40	9.27	6.55	12.70	9.53	215.90	190.50
10	6	10.750	6.625	0.134	0.109	0.165	0.134	0.365	0.280	0.500	0.432	8.50	7.63
		273.05	168.27	3.40	2.77	4.19	3.40	9.27	7.11	12.70	10.97	215.90	193.80
10	8	10.750	8.625	0.134	0.109	0.165	0.148	0.365	0.322	0.500	0.500	8.50	8.00
		273.05	219.08	3.40	2.77	4.19	3.76	9.27	8.18	12.70	12.70	215.90	203.20
12	6	12.750	6.625	0.156	0.109	0.180	0.134	0.375	0.280	0.500	0.432	10.00	8.63
		323.85	168.27	3.96	2.77	4.57	3.40	9.53	7.11	12.70	10.97	254.00	219.20
12	8	12.750	8.625	0.156	0.109	0.180	0.148	0.375	0.322	0.500	0.500	10.00	9.00
		323.85	219.08	3.96	2.77	4.57	3.76	9.53	8.18	12.70	12.70	254.00	228.60
12	10	12.750	10.750	0.156	0.104	0.180	0.165	0.375	0.365	0.500	0.500	10.00	9.50
		323.85	273.05	3.96	2.64	4.57	4.19	9.53	9.27	12.70	12.70	254.00	241.30

WEIGHTS

(unit: kg)

Nominal Pipe Size		Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S
Run	Out-let				
2 1/2	1 1/2	0.824	1.18	2.08	2.61
2 1/2	2	0.838	1.21	2.12	2.66
3	1 1/2	1.33	1.60	2.98	3.84
3	2	1.42	1.63	3.01	3.86
3	2 1/2	1.58	1.69	3.15	3.97
4	1 1/2	2.45	2.51	5.04	6.63
4	2	2.47	2.53	5.08	6.70
4	2 1/2	2.52	2.59	5.22	6.79
4	3	2.55	2.61	5.27	6.93
5	3	3.38	4.17	8.13	10.95
5	4	3.43	4.24	8.36	11.18
6	2 1/2	4.62	5.69	11.87	17.05
6	3	4.67	5.75	11.92	17.07
6	4	4.75	5.85	12.10	17.19
6	5	4.80	5.92	12.34	17.47
8	4	7.35	9.80	21.26	30.76
8	5	7.41	9.83	21.35	30.85
8	6	7.44	9.90	21.62	31.25
10	5	13.43	16.47	36.14	47.47
10	6	13.49	16.58	36.27	47.95
10	8	13.54	16.69	36.85	48.39
12	6	22.93	25.10	51.96	67.48
12	8	23.01	25.32	52.38	67.92
12	10	23.13	25.48	53.72	68.81

REDUCING TEES



DIMENSIONS

(unit: inch/mm)

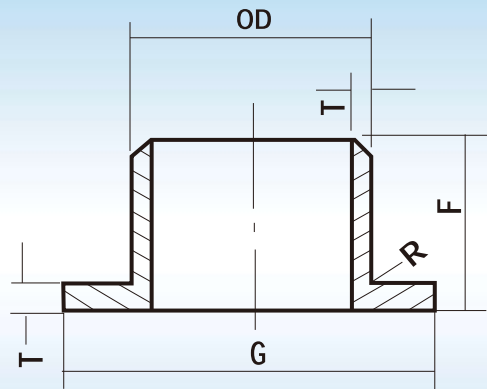
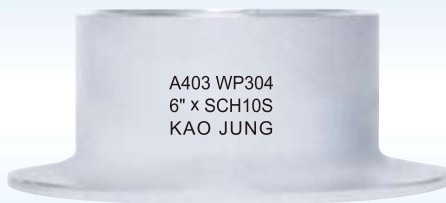
Nominal Pipe Size	Out-Side Dia. OD ₁	Out-Side Dia. OD ₂	Wall Thickness (T ₁ , T ₂)								Center to End C	Center to End M	
			Sch. 10S		Sch. 20		Std		XS				
Run	Out-let		T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂			
14	8	14.000	8.625	0.188	0.148	0.312	0.250	0.375	0.322	0.500	0.500	11.00	9.75
		355.60	219.08	4.78	3.76	7.92	6.35	9.53	8.18	12.70	12.70	279.40	247.65
14	10	14.000	10.750	0.188	0.165	0.312	0.250	0.375	0.365	0.500	0.500	11.00	10.13
		355.60	273.05	4.78	4.19	7.92	6.35	9.53	9.27	12.70	12.70	279.40	257.30
14	12	14.000	12.750	0.188	0.180	0.312	0.250	0.375	0.375	0.500	0.500	11.00	10.63
		355.60	323.85	4.78	4.57	7.92	6.35	9.53	9.53	12.70	12.70	279.40	270.00
16	10	16.000	10.750	0.188	0.165	0.312	0.250	0.375	0.365	0.500	0.500	12.00	11.13
		406.40	273.05	4.78	4.19	7.92	6.35	9.53	9.27	12.70	12.70	304.80	282.70
16	12	16.000	12.750	0.188	0.180	0.312	0.250	0.375	0.375	0.500	0.500	12.00	11.63
		406.40	323.85	4.78	4.57	7.92	6.35	9.53	9.53	12.70	12.70	304.80	295.40
16	14	16.000	14.000	0.188	0.188	0.312	0.312	0.375	0.375	0.500	0.500	12.00	12.00
		406.40	335.60	4.78	4.78	7.92	7.92	9.53	9.53	12.70	12.70	304.80	304.80
18	12	18.000	12.750	0.188	0.180	0.312	0.250	0.375	0.375	0.500	0.500	13.50	12.63
		457.20	323.85	4.78	4.57	7.92	6.35	9.53	9.53	12.70	12.70	342.90	320.80
18	14	18.000	14.000	0.188	0.188	0.312	0.312	0.375	0.375	0.500	0.500	13.50	13.00
		457.20	355.60	4.78	4.78	7.92	7.92	9.53	9.53	12.70	12.70	342.90	330.20
18	16	18.000	16.000	0.188	0.188	0.312	0.312	0.375	0.375	0.500	0.500	13.50	13.00
		457.20	406.40	4.78	4.78	7.92	7.92	9.53	9.53	12.70	12.70	342.90	330.20
20	14	20.000	14.000	0.218	0.188	0.375	0.312	0.375	0.375	0.500	0.500	15.00	14.00
		508.00	355.60	5.54	4.78	9.53	7.92	9.53	9.53	12.70	12.70	381.00	355.60
20	16	20.000	16.000	0.218	0.188	0.375	0.312	0.375	0.375	0.500	0.500	15.00	14.00
		508.00	406.40	5.54	4.78	9.53	7.92	9.53	9.53	12.70	12.70	381.00	355.60
20	18	20.000	18.000	0.218	0.188	0.375	0.312	0.375	0.375	0.500	0.500	15.00	14.50
		508.00	457.20	5.54	4.78	9.53	7.92	9.53	9.53	12.70	12.70	381.00	368.30
22	16	22.000	16.000	0.218	0.188	0.375	0.312	0.375	0.375	0.500	0.500	16.50	15.00
		558.80	406.40	5.54	4.78	9.53	7.92	9.53	9.53	12.70	12.70	419.10	381.00
22	18	22.000	18.000	0.218	0.188	0.375	0.312	0.375	0.375	0.500	0.500	16.50	15.50
		558.80	457.20	5.54	4.78	9.53	7.92	9.53	9.53	12.70	12.70	419.10	393.70
22	20	22.000	20.000	0.218	0.218	0.375	0.375	0.375	0.375	0.500	0.500	16.50	16.00
		558.80	508.00	5.54	5.54	9.53	9.53	9.53	9.53	12.70	12.70	419.10	406.40
24	16	24.000	16.000	0.250	0.188	0.375	0.312	0.375	0.375	0.500	0.500	17.00	16.00
		609.60	406.40	6.35	4.78	9.53	7.92	9.53	9.53	12.70	12.70	431.80	406.40
24	18	24.000	18.000	0.250	0.188	0.375	0.312	0.375	0.375	0.500	0.500	17.00	16.50
		609.60	457.20	6.35	4.78	9.53	7.92	9.53	9.53	12.70	12.70	431.80	419.10
24	20	24.000	20.000	0.250	0.218	0.375	0.375	0.375	0.375	0.500	0.500	17.00	17.00
		609.60	508.00	6.35	5.54	9.53	9.53	9.53	9.53	12.70	12.70	431.80	431.80
24	22	24.000	22.000	0.250	0.218	0.375	0.375	0.375	0.375	0.500	0.500	17.00	17.00
		609.60	558.80	6.35	5.54	9.53	9.53	9.53	9.53	12.70	12.70	431.80	431.80

WEIGHTS

(unit: kg)

Nominal Pipe Size	Sch. 10S	Sch. 20	Std.	XS	
					Run
14	8	28.79	52.00	57.88	75.22
14	10	28.96	52.37	58.34	75.89
14	12	29.14	52.73	58.81	76.57
16	10	34.26	61.89	68.88	89.51
16	12	34.47	62.32	69.43	90.32
16	14	34.67	62.76	69.98	91.13
18	12	43.37	78.33	87.17	113.28
18	14	43.62	78.88	87.87	114.30
18	16	43.89	79.43	88.57	115.33
20	14	64.47	107.63	107.63	139.86
20	16	64.85	108.38	108.38	141.12
20	18	65.24	109.14	109.14	142.39
22	16	78.00	130.23	130.23	169.22
22	18	78.47	131.14	131.14	170.74
22	20	78.94	132.06	132.06	172.28
24	16	96.84	138.24	138.24	179.64
24	18	97.69	139.21	139.21	181.25
24	20	98.00	140.18	140.18	182.89
24	22	98.59	141.16	141.16	184.53

STUB ENDS TYPE



DIMENSIONS

(unit: inch/mm)

Nominal Pipe Size	Outside Dia. (OD)	Wall Thickness (T)				Dia. of Lap (G)	Length F		Radius R	
		Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S		ANSI	MSS	Type A (Max)	Type B (Max)
1/2	0.840	0.065	0.083	0.109	0.147	1.375	3.00	2.00	0.13	0.03
	21.34	1.65	2.11	2.77	3.73	34.93	76.20	50.80	3.30	0.76
3/4	1.050	0.065	0.083	0.113	0.154	1.688	3.00	2.00	0.13	0.03
	26.67	1.65	2.11	2.87	3.91	42.88	76.20	50.80	3.30	0.76
1	1.315	0.065	0.109	0.133	0.179	2.000	4.00	2.00	0.13	0.03
	33.40	1.65	2.77	3.38	4.55	50.80	101.60	50.80	3.30	0.76
1 1/4	1.660	0.065	0.109	0.140	0.191	2.500	4.00	2.00	0.19	0.03
	42.16	1.65	2.77	3.56	4.85	63.50	101.60	50.80	4.83	0.76
1 1/2	1.900	0.065	0.109	0.145	0.200	2.875	4.00	2.00	0.25	0.03
	48.26	1.65	2.77	3.68	5.08	73.02	101.60	50.80	6.35	0.76
2	2.375	0.065	0.109	0.154	0.218	3.625	6.00	2.50	0.31	0.03
	60.32	1.65	2.77	3.91	5.54	92.07	152.40	63.50	7.87	0.76
2 1/2	2.875	0.083	0.120	0.203	0.276	4.125	6.00	2.50	0.31	0.03
	73.02	2.11	3.05	5.16	7.01	104.77	152.40	63.50	7.87	0.76
3	3.500	0.083	0.120	0.216	0.300	5.000	6.00	2.50	0.38	0.03
	88.90	2.11	3.05	5.49	7.62	127.00	152.40	63.50	9.65	0.76
4	4.500	0.083	0.120	0.237	0.337	6.188	6.00	3.00	0.44	0.03
	114.30	2.11	3.05	6.02	8.56	157.18	152.40	76.20	11.18	0.76
5	5.563	0.109	0.134	0.258	0.375	7.313	8.00	3.00	0.44	0.06
	141.30	2.77	3.40	6.55	9.53	185.75	203.20	76.20	11.18	1.52
6	6.625	0.109	0.134	0.280	0.432	8.500	8.00	3.50	0.50	0.06
	168.27	2.77	3.40	7.11	10.97	215.90	203.20	88.90	12.70	1.52
8	8.625	0.109	0.148	0.322	0.520	10.625	8.00	4.00	0.50	0.06
	219.08	2.77	3.76	8.18	12.70	269.88	203.20	101.60	12.70	1.52
10	10.750	0.134	0.165	0.365	0.500	12.750	10.00	5.00	0.50	0.06
	273.05	3.40	4.19	9.27	12.70	323.85	254.00	127.00	12.70	1.52
12	12.750	0.156	0.180	0.375	0.500	15.000	10.00	6.00	0.50	0.06
	323.85	3.96	4.57	9.53	12.70	381.00	254.00	152.40	12.70	1.52

WEIGHTS

(unit: kg)

Nominal Pipe Size	F	Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S
1/2	ANSI	0.068	0.091	0.136	0.115
	MSS	0.059	0.077	0.118	0.127
3/4	ANSI	0.077	0.100	0.181	0.199
	MSS	0.068	0.086	0.154	0.168
1	ANSI	0.145	0.227	0.299	0.385
	MSS	0.091	0.140	0.186	0.240
1 1/4	ANSI	0.204	0.326	0.412	0.548
	MSS	0.131	0.208	0.263	0.349
1 1/2	ANSI	0.231	0.367	0.553	0.675
	MSS	0.159	0.249	0.376	0.458
2	ANSI	0.449	0.693	0.992	1.364
	MSS	0.245	0.376	0.539	0.743
2 1/2	ANSI	0.684	0.924	1.563	2.079
	MSS	0.349	0.471	0.797	1.060
3	ANSI	0.879	1.205	2.134	2.840
	ANSI	0.467	0.638	1.133	1.508
4	MSS	1.191	1.640	3.035	4.227
	ANSI	0.711	0.978	1.812	2.523
5	MSS	2.188	2.582	5.300	7.520
	ANSI	1.046	1.237	2.537	3.601
6	MSS	3.01	3.61	6.89	10.42
	ANSI	1.62	1.95	3.72	5.57
8	ANSI	2.96	3.76	10.42	15.86
	MSS	2.45	3.10	5.89	10.12
10	ANSI	7.02	8.45	18.12	24.28
	MSS	4.04	4.86	10.42	13.95
12	ANSI	9.11	10.51	22.20	29.81
	MSS	6.60	7.11	14.92	19.93

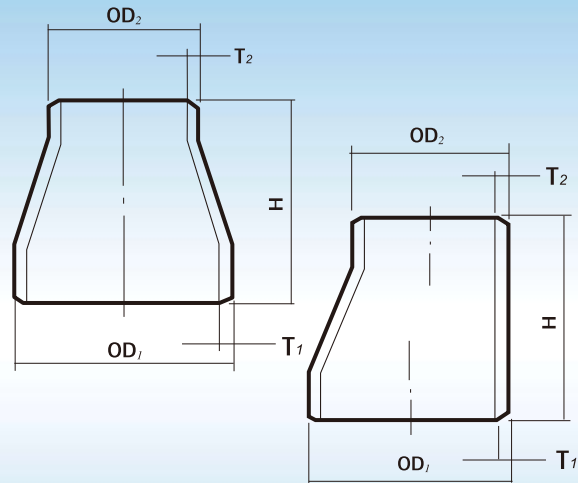
CON., ECC. REDUCERS



A403 WP304
6" x SCH10S
KAO JUNG



A403 WP304
6" x SCH10S
KAO JUNG



DIMENSIONS

(unit: inch/mm)

Nominal Pipe Size		Out-Side Dia. OD ₁	Out-Side Dia. OD ₂	Wall Thickness (T ₁ , T ₂)								Length H
Run	Out-let			Sch. 5S		Sch. 10S		Sch. 40S		Sch. 80S		
				T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	
3/4	1/2	1.050	0.840	0.065	0.065	0.083	0.083	0.113	0.109	0.154	0.147	1.50
		26.67	21.34	1.65	1.65	2.11	2.11	2.87	2.77	3.91	3.73	38.10
1	1/2	1.315	0.840	0.065	0.065	0.109	0.083	0.133	0.109	0.179	0.147	2.00
		33.40	21.34	1.65	1.65	2.77	2.11	3.38	2.77	4.55	3.73	50.80
1	3/4	1.315	1.050	0.065	0.065	0.109	0.083	0.133	0.113	0.179	0.154	2.00
		33.40	26.67	1.65	1.65	2.77	2.11	3.38	2.87	4.55	3.91	50.80
1 1/4	1	1.660	1.315	0.065	0.065	0.109	0.109	0.140	0.133	0.191	0.179	2.00
		42.16	33.40	1.65	1.65	2.77	2.77	3.56	3.38	4.85	4.55	50.80
1 1/2	1/2	1.900	0.84	0.065	0.065	0.109	0.083	0.145	0.109	0.200	0.147	2.50
		48.26	21.34	1.65	1.65	2.77	2.11	3.68	2.77	5.08	3.73	63.50
1 1/2	3/4	1.900	1.050	0.065	0.065	0.109	0.083	0.145	0.113	0.200	0.154	2.50
		48.26	26.67	1.65	1.65	2.77	2.11	3.68	2.87	5.08	3.91	63.50
1 1/2	1	1.900	1.315	0.065	0.065	0.109	0.109	0.145	0.133	0.200	0.179	2.50
		48.26	33.40	1.65	1.65	2.77	2.77	3.68	3.38	5.08	4.55	63.50
1 1/2	1 1/4	1.900	1.660	0.065	0.065	0.109	0.109	0.145	0.140	0.200	0.191	2.50
		48.26	42.16	1.65	1.65	2.77	2.77	3.68	3.56	5.08	4.85	63.50
2	3/4	2.375	1.050	0.065	0.065	0.109	0.083	0.154	0.113	0.218	0.154	3.00
		60.32	26.67	1.65	1.65	2.77	2.11	3.91	2.87	5.54	3.91	76.20
2	1	2.375	1.315	0.065	0.065	0.109	0.109	0.154	0.133	0.218	0.179	3.00
		60.32	33.40	1.65	1.65	2.77	2.77	3.91	3.38	5.54	4.55	76.20
2	1 1/4	2.375	1.660	0.065	0.065	0.109	0.109	0.154	0.140	0.218	0.191	3.00
		60.32	42.16	1.65	1.65	2.77	2.77	3.91	3.56	5.54	4.85	76.20
2	1 1/2	2.375	1.900	0.065	0.065	0.109	0.109	0.154	0.145	0.218	0.200	3.00
		60.32	48.26	1.65	1.65	2.77	2.77	3.91	3.68	5.54	5.08	76.20
2 1/2	1	2.875	1.315	0.083	0.065	0.120	0.109	0.203	0.133	0.276	0.179	3.50
		73.02	33.40	2.11	1.65	3.05	2.77	5.16	3.38	7.01	4.55	88.90
2 1/2	1 1/4	2.875	1.660	0.083	0.065	0.120	0.109	0.203	0.140	0.276	0.191	3.50
		73.02	42.16	2.11	1.65	3.05	2.77	5.16	3.56	7.01	4.85	88.90
2 1/2	1 1/2	2.875	1.900	0.083	0.065	0.120	0.109	0.203	0.145	0.276	0.200	3.50
		73.02	48.26	2.11	1.65	3.05	2.77	5.16	3.68	7.01	5.08	88.90
2 1/2	2	2.875	2.375	0.083	0.065	0.120	0.109	0.203	0.154	0.276	0.218	3.50
		73.02	60.32	2.11	1.65	3.05	2.77	5.16	3.91	7.01	5.54	88.90

WEIGHTS

(unit: kg)

Nominal Pipe Size		Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S
Run	Out-let				
3/4	1/2	0.034	0.043	0.059	0.075
1	1/2	0.060	0.089	0.105	0.163
1	3/4	0.060	0.098	0.116	0.168
1 1/4	1	0.066	0.125	0.157	0.245
1 1/2	1/2	0.091	0.154	0.204	0.276
1 1/2	3/4	0.095	0.156	0.201	0.294
1 1/2	1	0.103	0.170	0.219	0.308
1 1/2	1 1/4	0.118	0.195	0.263	0.331
2	3/4	0.121	0.214	0.298	0.458
2	1	0.143	0.237	0.322	0.458
2	1 1/4	0.156	0.258	0.352	0.525
2	1 1/2	0.164	0.273	0.372	0.544
2 1/2	1	0.256	0.370	0.630	0.739
2 1/2	1 1/4	0.276	0.394	0.670	0.825
2 1/2	1 1/2	0.281	0.396	0.661	0.856
2 1/2	2	0.307	0.432	0.724	0.938

DIMENSIONS

(unit: inch/mm)

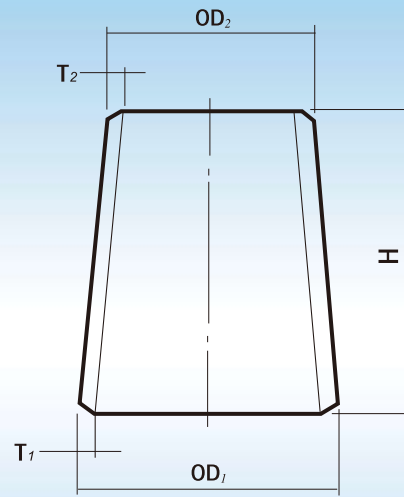
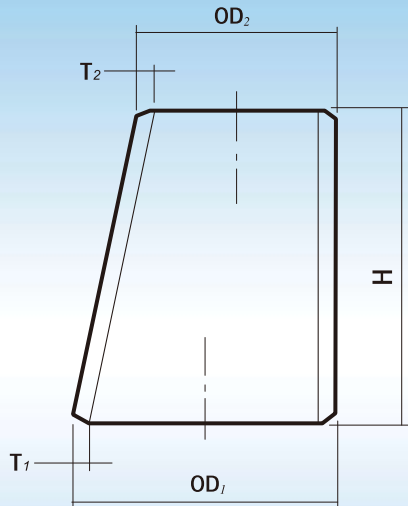
Nominal Pipe Size		Out-Side Dia. OD ₁	Out-Side Dia. OD ₂	Wall Thickness (T1, T2)								Length H
Run	Out-let			Sch. 5S		Sch. 10S		Sch. 40S		Sch. 80S		
				T1	T2	T1	T2	T1	T2	T1	T2	
3	1	3.500	1.315	0.083	0.065	0.120	0.109	0.216	0.133	0.300	0.179	3.50
		88.90	33.40	2.11	1.65	3.05	2.77	5.48	3.38	7.62	4.55	88.90
3	1 1/4	3.500	1.660	0.083	0.065	0.120	0.109	0.216	0.140	0.300	0.191	3.50
		88.90	42.16	2.11	1.65	3.05	2.77	5.49	3.56	7.62	4.85	88.90
3	1 1/2	3.500	1.900	0.083	0.065	0.120	0.109	0.216	0.145	0.300	0.200	3.50
		88.90	48.26	2.11	1.65	3.05	2.77	5.49	3.68	7.62	5.08	88.90
3	2	3.500	2.375	0.083	0.065	0.120	0.109	0.216	0.154	0.300	0.218	3.50
		88.90	60.32	2.11	1.65	3.05	2.77	5.49	3.91	7.62	5.54	88.90
3	2 1/2	3.500	2.875	0.083	0.083	0.120	0.120	0.216	0.203	0.300	0.276	3.50
		88.90	73.02	2.11	2.11	3.05	3.05	5.49	5.16	7.62	7.01	88.90
4	1 1/2	4.500	1.900	0.083	0.065	0.120	0.109	0.237	0.145	0.337	0.200	4.00
		114.30	48.26	2.11	1.65	3.05	2.77	6.02	3.68	8.56	5.08	101.60
4	2	4.500	2.375	0.083	0.065	0.120	0.109	0.237	0.154	0.337	0.218	4.00
		114.30	60.32	2.11	1.65	3.05	2.77	6.02	3.91	8.56	5.54	101.60
4	2 1/2	4.500	2.875	0.083	0.083	0.120	0.120	0.237	0.203	0.337	0.276	4.00
		114.30	73.02	2.11	2.11	3.05	3.05	6.02	5.16	8.56	7.01	101.60
4	3	4.500	3.500	0.083	0.083	0.120	0.120	0.237	0.216	0.337	0.300	4.00
		114.30	88.90	2.11	2.11	3.05	3.05	6.02	5.49	8.56	7.62	101.60
5	3	5.563	3.500	0.109	0.083	0.134	0.120	0.258	0.216	0.375	0.300	5.00
		141.30	88.90	2.77	2.11	3.40	3.05	6.55	5.49	9.53	7.65	127.00
5	4	5.563	4.500	0.109	0.083	0.134	0.120	0.258	0.237	0.375	0.337	5.00
		141.30	114.30	2.77	2.11	3.40	3.05	6.55	6.02	9.53	8.56	127.00
6	2 1/2	6.625	2.875	0.109	0.083	0.134	0.120	0.280	0.203	0.432	0.276	5.50
		168.27	73.02	2.77	2.11	3.40	3.05	7.11	5.16	10.97	7.01	139.70
6	3	6.625	3.500	0.109	0.083	0.134	0.120	0.280	0.216	0.432	0.300	5.50
		168.27	88.90	2.77	2.11	3.40	3.05	7.11	5.49	10.97	7.62	139.70
6	4	6.625	4.500	0.109	0.083	0.134	0.120	0.280	0.237	0.432	0.337	5.50
		168.27	114.30	2.77	2.11	3.40	3.05	7.11	6.02	10.97	8.56	139.70
6	5	6.625	5.563	0.109	0.109	0.134	0.134	0.280	0.258	0.432	0.375	5.50
		168.27	141.30	2.77	2.77	3.40	3.40	7.11	6.55	10.97	9.53	139.70
8	4	8.625	4.500	0.109	0.083	0.148	0.120	0.322	0.237	0.500	0.337	6.00
		219.08	114.30	2.77	2.11	3.76	3.05	8.18	6.02	12.70	8.56	152.40
8	5	8.625	5.563	0.109	0.109	0.148	0.134	0.322	0.258	0.500	0.375	6.00
		219.08	141.30	2.77	2.77	3.76	3.40	8.18	6.55	12.70	9.53	152.40
8	6	8.625	6.625	0.109	0.109	0.148	0.134	0.322	0.280	0.500	0.432	6.00
		219.08	168.27	2.77	2.77	3.76	3.40	8.18	7.11	12.70	10.97	152.40
10	5	10.750	5.563	0.134	0.109	0.165	0.134	0.365	0.258	0.500	0.375	7.00
		273.05	141.30	3.40	2.77	4.19	3.40	9.27	6.55	12.70	9.53	177.80
10	6	10.750	6.625	0.134	0.109	0.165	0.134	0.365	0.280	0.500	0.432	7.00
		273.05	168.27	3.40	2.77	4.19	3.40	9.27	7.11	12.70	10.97	177.80
10	8	10.750	8.625	0.134	0.109	0.165	0.148	0.365	0.322	0.500	0.500	7.00
		273.05	219.08	3.40	2.77	4.19	3.76	9.27	8.18	12.70	12.70	177.80
12	6	12.750	6.625	0.156	0.109	0.180	0.134	0.375	0.280	0.500	0.432	7.00
		323.85	168.27	3.96	2.77	4.57	3.40	9.53	7.11	12.70	10.97	203.20
12	8	12.750	8.625	0.156	0.109	0.180	0.148	0.375	0.322	0.500	0.500	8.00
		323.85	219.08	3.96	2.77	4.57	3.76	9.53	8.18	12.70	12.70	203.20
12	10	12.750	10.750	0.156	0.134	0.180	0.165	0.375	0.365	0.500	0.500	8.00
		323.85	273.05	3.96	3.40	4.57	4.19	9.53	9.27	12.70	12.70	203.20

WEIGHTS

(unit: kg)

Nominal Pipe Size		Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S
Run	Out-let				
3	1	0.281	0.408	0.716	0.888
3	1 1/4	0.299	0.430	0.775	1.037
3	1 1/2	0.315	0.444	0.783	1.105
3	2	0.339	0.478	0.846	1.178
3	2 1/2	0.376	0.548	0.983	1.291
4	1 1/2	0.435	0.630	1.241	1.730
4	2	0.464	0.656	1.27	1.780
4	2 1/2	0.499	0.706	1.37	2.007
4	3	0.528	0.748	1.45	2.129
5	3	0.991	1.20	2.27	3.547
5	4	1.107	1.32	2.50	3.769
6	2 1/2	1.12	1.35	2.74	4.51
6	3	1.24	1.50	3.04	5.03
6	4	1.34	1.62	3.30	5.44
6	5	1.45	1.75	3.57	5.71
8	4	1.80	2.56	5.10	8.43
8	5	1.90	2.70	5.40	8.83
8	6	2.01	2.85	5.71	9.24
10	5	2.82	3.30	8.21	13.00
10	6	3.30	3.87	8.78	13.50
10	8	3.59	4.21	9.58	14.22
12	6	4.97	5.73	12.40	18.39
12	8	5.45	6.11	13.70	19.07
12	10	5.83	6.55	14.70	19.48

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DIMENSIONS

(unit: inch/mm)

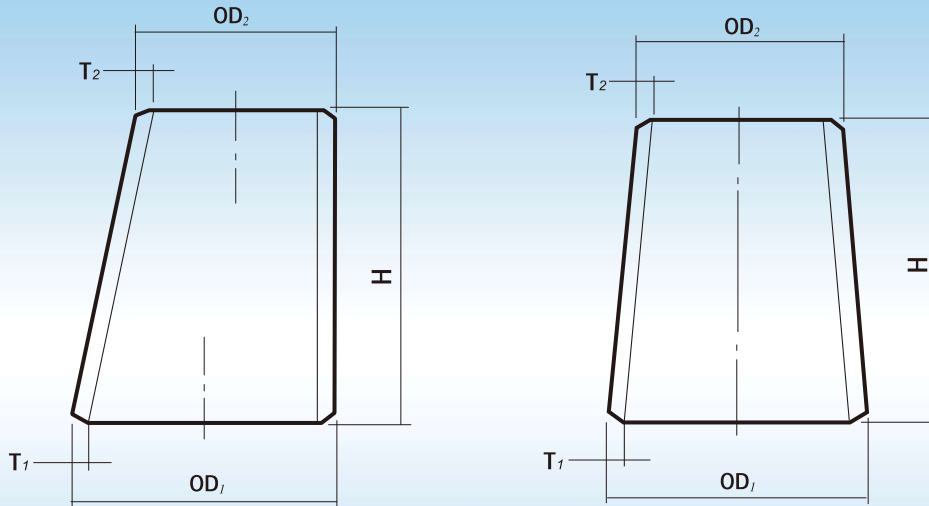
Nominal Pipe Size		Out-Side Dia. OD ₁	Out-Side Dia. OD ₂	Wall Thickness (T1, T2)								Length H
Run	Out-let			Sch. 10S		Sch. 20		Std.		XS		
				T1	T2	T1	T2	T1	T2	T1	T2	
14	12	14.000	12.750	0.188	0.180	0.312	0.250	0.375	0.375	0.500	0.500	13
		355.60	323.85	4.78	4.57	7.92	6.35	9.53	9.53	12.70	12.70	330.20
14	10	14.000	10.750	0.188	0.165	0.312	0.250	0.375	0.365	0.500	0.500	13
		355.60	273.05	4.78	4.19	7.92	6.35	9.53	9.27	12.70	12.70	330.20
14	8	14.000	8.625	0.188	0.148	0.312	0.250	0.375	0.322	0.500	0.500	13
		355.60	219.08	4.78	3.76	7.92	6.35	9.53	8.18	12.70	12.70	330.20
14	6	14.000	6.625	0.18	0.134	0.312	-	0.375	0.280	0.500	0.432	13
		355.60	168.27	4.78	3.40	7.92	-	9.53	7.11	12.70	10.97	330.20
16	14	16.000	14.000	0.188	0.188	0.312	0.312	0.375	0.375	0.500	0.500	14
		406.40	355.60	4.78	4.78	7.92	7.92	9.53	9.53	12.70	12.70	355.60
16	12	16.000	12.750	0.188	0.180	0.312	0.250	0.375	0.375	0.500	0.500	14
		406.40	323.85	4.78	4.57	7.92	6.35	9.53	9.53	12.70	12.70	355.60
16	10	16.000	10.750	0.188	0.165	0.312	0.250	0.375	0.365	0.500	0.500	14
		406.40	273.05	4.78	4.19	7.92	6.35	9.53	9.27	12.70	12.70	355.60
16	8	16.000	8.625	0.188	0.148	0.312	0.250	0.375	0.322	0.500	0.500	14
		406.40	219.08	4.78	3.76	7.92	6.35	9.53	8.18	12.70	12.70	355.60
18	16	18.000	16.000	0.188	0.188	0.312	0.312	0.375	0.375	0.500	0.500	15
		457.20	406.40	4.78	4.78	7.92	7.92	9.53	9.53	12.70	12.70	381.00
18	14	18.000	14.000	0.188	0.188	0.312	0.312	0.375	0.375	0.500	0.500	15
		457.20	355.60	4.78	4.748	7.92	7.92	9.53	9.53	12.70	12.70	381.00
18	12	18.000	12.750	0.188	0.180	0.312	0.250	0.375	0.375	0.500	0.500	15
		457.20	323.85	4.78	4.57	7.92	6.35	9.53	9.53	12.70	12.70	381.00
18	10	18.000	10.750	0.188	0.165	0.312	0.250	0.375	0.365	0.500	0.500	15
		457.20	273.05	4.78	4.19	7.92	6.35	9.53	9.27	12.70	12.70	381.00
20	18	20.000	18.000	0.218	0.188	0.375	0.312	0.375	0.375	0.500	0.500	20
		508.00	457.20	5.54	4.78	9.53	7.92	9.53	9.53	12.70	12.70	508.00
20	16	20.000	16.000	0.218	0.188	0.375	0.312	0.375	0.375	0.500	0.500	20
		508.00	406.40	5.54	4.78	9.53	7.92	9.53	9.53	12.70	12.70	508.00

WEIGHTS

(unit: kg)

Nominal Pipe Size		Sch. 10S	Sch. 20S	Std.	XS
Run	Out-let				
14	12	14.27	25.65	28.55	37.18
14	10	13.21	23.73	26.41	34.40
14	8	12.07	21.70	24.15	31.44
14	6	11.01	19.78	22.01	28.66
16	14	17.24	30.98	34.48	44.90
16	12	16.52	29.69	33.05	43.03
16	10	15.37	27.62	30.75	40.04
16	8	14.15	25.43	28.30	36.86
18	16	20.94	37.62	41.87	54.52
18	14	19.71	35.41	39.41	51.32
18	12	18.94	34.02	37.87	49.32
18	10	17.70	31.81	35.41	46.11
20	18	38.01	62.40	62.40	81.25
20	16	36.01	59.11	5.11	76.97

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DIMENSIONS

(unit: inch/mm)

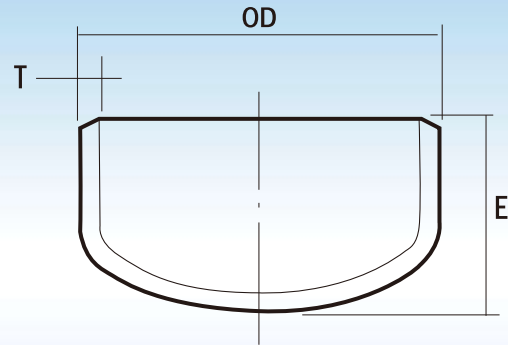
Nominal Pipe Size		Out-Side Dia. OD ₁	Out-Side Dia. OD ₂	Wall Thickness (T1, T2)								Length H
Run	Out-let			Sch. 10S		Sch. 20		Std.		XS		
				T1	T2	T1	T2	T1	T2	T1	T2	
20	14	20.000	14.000	0.218	0.188	0.375	0.312	0.375	0.375	0.500	0.500	20
		508.00	355.60	5.54	4.78	9.53	7.92	9.53	9.53	12.70	12.70	508.00
20	12	20.000	12.750	0.218	0.180	0.375	0.250	0.375	0.375	0.500	0.500	20
		508.00	323.85	5.54	4.57	9.53	6.35	9.53	9.53	12.70	12.70	508.00
22	20	22.000	20.000	0.218	0.218	0.375	0.375	0.375	0.375	0.500	0.500	20
		558.80	508.00	5.54	5.54	9.53	9.53	9.53	9.53	12.70	12.70	508.00
22	18	22.000	18.000	0.218	0.188	0.375	0.312	0.375	0.375	0.500	0.500	20
		558.80	457.20	5.54	4.78	9.53	7.92	9.53	9.53	12.70	12.70	508.00
22	16	22.000	16.000	0.218	0.188	0.375	0.312	0.375	0.375	0.500	0.500	20
		558.80	406.40	5.54	4.78	9.53	7.92	9.53	9.53	12.70	12.70	508.00
22	14	22.000	14.000	0.218	0.188	0.375	0.312	0.375	0.375	0.500	0.500	20
		558.80	355.60	5.54	4.78	9.53	7.92	9.53	9.53	12.70	12.70	508.00
24	22	24.000	22.000	0.250	0.218	0.375	0.375	0.375	0.375	0.500	0.500	20
		609.60	558.80	6.35	5.54	9.53	9.53	9.53	9.53	12.70	12.70	508.00
24	20	24.000	20.000	0.250	0.218	0.375	0.375	0.375	0.375	0.500	0.500	20
		609.60	508.00	6.35	5.54	9.53	9.53	9.53	9.53	12.70	12.70	508.00
24	18	24.000	18.000	0.250	0.188	0.375	0.312	0.375	0.375	0.500	0.500	20
		609.60	457.20	6.35	4.78	9.53	7.92	9.53	9.53	12.70	12.70	508.00
24	16	24.000	16.000	0.250	0.188	0.375	0.312	0.375	0.375	0.500	0.500	20
		609.60	406.40	6.35	4.78	9.53	7.92	9.53	9.53	12.70	12.70	508.00
24	14	24.000	14.000	0.250	0.188	0.375	0.312	0.375	0.375	0.500	0.500	20
		609.60	355.60	6.35	4.78	9.53	7.92	9.53	9.53	12.70	12.70	508.00

WEIGHTS

(unit: kg)

Nominal Pipe Size		Sch. 10S	Sch. 20S	Std.	XS
Run	Out-let				
20	14	33.98	55.83	55.83	72.70
20	12	32.76	53.78	53.78	70.02
22	20	42.01	68.96	68.96	89.80
22	18	40.01	65.68	65.68	85.53
22	16	38.01	62.40	62.40	81.25
22	14	36.01	59.08	59.08	76.97
24	22	52.91	75.53	75.53	98.36
24	20	50.61	72.25	72.25	94.08
24	18	48.31	68.96	68.96	89.80
24	16	46.01	65.68	65.68	85.53
24	14	43.71	62.40	62.40	81.25

CAPS



DIMENSIONS

(unit: inch/mm)

Nominal Pipe Size	OutSide Dia. (OD)	Wall Thickness (T)				Center to End E
		Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S	
1/2	0.840	0.065	0.083	0.109	0.147	1.00
	21.34	1.65	2.11	2.77	3.73	25.40
3/4	1.050	0.065	0.083	0.113	0.154	1.00
	26.67	1.65	2.11	2.87	3.91	25.40
1	1.315	0.065	0.109	0.133	0.179	1.50
	33.40	1.65	2.77	3.38	4.55	38.10
1 1/4	1.660	0.065	0.109	0.140	0.191	1.50
	42.16	1.65	2.77	3.56	4.85	38.10
1 1/2	1.900	0.065	0.109	0.145	0.200	1.50
	48.26	1.65	2.77	3.68	5.08	38.10
2	2.375	0.065	0.109	0.154	0.218	1.50
	60.32	1.65	2.77	3.91	5.54	38.10
2 1/2	2.875	0.083	0.120	0.203	0.276	1.50
	73.02	2.11	3.05	5.16	7.01	38.10
3	3.500	0.083	0.120	0.216	0.300	2.00
	88.90	2.11	3.05	5.49	7.62	50.80
4	4.500	0.083	0.120	0.237	0.337	2.50
	114.30	2.11	3.05	6.02	8.56	63.50
5	5.563	0.109	0.134	0.258	0.375	3.00
	141.30	2.77	3.40	6.55	9.53	76.20
6	6.625	0.109	0.134	0.280	0.432	3.50
	168.27	2.77	3.40	7.11	10.97	88.90
8	8.625	0.109	0.148	0.322	0.500	4.00
	219.08	2.77	3.76	8.18	12.70	101.60
10	10.750	0.134	0.165	0.375	0.500	5.00
	273.00	3.40	4.19	9.53	12.70	127.00
12	12.750	0.156	0.180	0.375	0.500	6.00
	323.85	3.96	4.57	9.53	12.70	152.40
14	14.000		0.188	*0.375	**0.500	6.50
	355.60		4.78	9.53	12.70	165.10
16	16.000		0.188	*0.375	**0.500	7.00
	406.40		4.78	9.53	12.70	177.80
18	18.000		0.188	*0.375	**0.500	8.00
	457.20		4.78	9.53	12.70	203.20
20	20.000		0.218	*0.375	**0.500	9.00
	508.00		5.54	9.53	12.70	228.60
24	24.000		0.250	*0.375	**0.500	10.50
	609.60		6.35	9.53	12.70	266.70

WEIGHTS

(unit: kg)

Nominal Pipe Size	Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S
1/2	0.036	0.040	0.046	0.045
3/4	0.049	0.052	0.059	0.086
1	0.053	0.090	0.109	0.109
1 1/4	0.066	0.113	0.145	0.159
1 1/2	0.076	0.130	0.171	0.222
2	0.099	0.168	0.234	0.344
2 1/2	0.169	0.242	0.420	0.512
3	0.253	0.362	0.664	0.888
4	0.409	0.585	1.17	1.51
5	0.805	0.978	1.90	2.89
6	1.11	1.35	2.83	4.24
8	1.74	2.49	5.11	7.76
10	3.26	3.84	8.92	13.11
12	5.47	6.15	14.10	17.94
14	7.19	7.85	*16.35	**21.11
16	10.99	9.56	*18.60	**25.73
18	13.92	12.10	*23.54	**32.57
20	17.19	17.90	*29.06	**40.21
24	27.43	30.15	*41.85	**57.86

DIMENSIONAL TOLERANCES AND WELDING ENDS

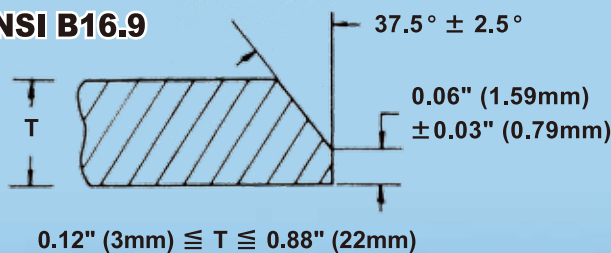
(MSS SP-43)

Nominal Pipe Size	All Fittings		90 Elbows 45 Elbows Tees	Reducers Lap-Joint Stub Ends	180° Returns			Caps	Lap-Joint Stub Ends	
	Outside Diameter at Welding End	Wall Thickness	Center-to-End Dimension A B C M	Overall Length FH	Center-to-Center Dimension P	Back-to-Face Dimension K	Alignment of End U	Over Length E	Fillet Radius of Lap A	Outside Diameter of Lap G
1/2 to 1 1/2	±0.03	Not less than 87.5% of nominal thickness	±0.06	±0.06	±0.25	±0.25	±0.03	±0.12	+0 -0.03	+0 -0.03
2 to 3 1/2	±0.03		±0.06	±0.06	±0.25	±0.25	±0.03	±0.12	+0 -0.03	+0 -0.03
4	±0.03		±0.06	±0.06	±0.25	±0.25	±0.03	±0.12	+0 -0.06	+0 -0.03
5 to 8	+0.06 -0.03		±0.06	±0.06	±0.25	±0.25	±0.03	±0.25	+0 -0.06	+0 -0.03
10 to 18	+0.09 -0.03		±0.09	±0.09	±0.38	±0.25	±0.06	±0.25	+0 -0.06	+0 -0.06
20 to 24	+0.12 -0.03		±0.09	±0.09	±0.38	±0.25	±0.06	±0.25	+0 -0.06	+0 -0.06

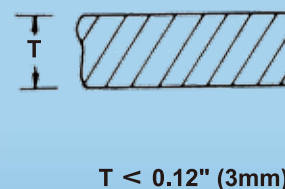
(ANSI B16.9)

Nominal Pipe Size	All Fittings			90° and 45° Elbows and Tees	Reducers and Lap-Joint Stub-End	Caps	180° Returns			Lap-Joint Stub Ends		
	Outside Diameter at Bevel	Inside Diameter at End	Wall Thickness	Center-to-End Dimension A B C M	Over-all Length F H	Over-all Length E	Center-to-center Dimension P	Back-to-Face Dimension K	Alignment of Ends U	Outside Diameter of Lap G	Thickness of Lap T	Fillet Radius of Lap R
1/2 to 2 1/2	+0.06 -0.03	±0.03	Not less than 87.5% of nominal thickness	±0.06	±0.06	±0.12	±0.25	±0.25	±0.03	+0 -0.03	+0.06 -0	+0 -0.03
3 to 3 1/2	±0.06	±0.06		±0.06	±0.06	±0.12	±0.25	±0.25	±0.03	+0 -0.03	+0.06 -0	+0 -0.03
4	±0.06	±0.06		±0.06	±0.06	±0.12	±0.25	±0.25	±0.03	+0 -0.03	+0.06 -0	+0 -0.06
5 to 8	+0.09 -0.06	±0.06		±0.06	±0.06	±0.25	±0.25	±0.25	±0.06	+0 -0.03	+0.06 -0	+0 -0.06
10 to 18	+0.16 -0.12	±0.12		±0.09	±0.09	±0.25	±0.38	±0.25	±0.06	+0 -0.06	+0.06 -0	+0 -0.06
20 to 24	+0.25 -0.19	±0.19		±0.09	±0.09	±0.25	±0.38	±0.25	±0.06	+0 -0.06	+0.06 -0	+0 -0.06
26 to 30	+0.25 -0.19	±0.19		±0.12	±0.19	±0.38						
32 to 48	+0.25 -0.19	±0.19		±0.19	±0.19	±0.38						

ANSI B16.9



BEVEL



JIS-ASTM CONTRAST LIST OF RELATIVE MATERIALS

Steel Items	J I S Specification		A S T M Specification				B S Specificaion	D I N Specificaion	
	Steel Tube	Steel Plate	Steel Tube	Steel Plate	Steel Material	Marks of Tube Jointing Materials	Steel Tube	Steel Tube	
Carbon Steel & &	SGP	SS41	A53-type F	283-A	A283-A	-	3601-320	1626-st33	
	STPG38	SM41B	A53-A	A242	A105	-	3601-360	1626-st37	
	STPG42	SM41B	A53-B	A242	A105	-	3601-410	1626-st42	
	STS35	SB35	-	-	-	-	-	-	
	STS38	SB42	-	-	-	-	-	-	
	STS42	SB42	-	-	-	-	-	-	
	STS49	SB49	-	-	-	-	-	-	
	STPT38	SB42	A106-A	285-B	A105	-	3602-360	17175-st35.8	
	STPT42	SB42	A106-B	A515- ⁶⁵ / ₇₀	A105	WPB	3602-410	17175-st45.8	
STPT49	SB49-	A106-C	-	-	WPC	3602-460	-		
Alloy Steel	1/2 Mo Steel	STPA12	SB46M	A335-P1	A204-B	A182-F1	WP1	-	17175-15Mo3
	1Cr- 1/2 Mo Steel	STPA22	SCMV2	A335-P12	A387-12	A182-F12	WP12	3604-620-440	17175-13CrMo44
	1 1/4 Cr- 1/2 Mo Steel	STPA23	SCMV3	A335-P11	A387-11	A182-F11	WP11	3604-621	-
	2 1/4 Cr- 1Mo Steel	STPA24	SCMV4	A335-P22	A387-22	A182-F22	WP22	3604-622	17175-10CrMo910
	5Cr- 1/2Mo Steel	STPA25	SCMV6	A335-P5	A387-5	A182-5	WP5	3604-625	-
	9Cr- 1Mo Steel	STPA26	-	A335-P9	A387-9	A182-9	WP9	-	-
Steel For Low temperature	A l gilt Steel	STPL39	SLA33A	A333-6	A516-60, 65, 70	A350-LF2	WPL6	3603-410LT50	-
	3 1/2 Ni Steel	STPL46	-	A333-3	A203-D	A350+LF3	WPL3	3603-503LT100	-
	9Ni Steel	STPL70	-	A333-8	A353	A522	WPL8	3603-503LT196	-
Stainless Steel	18-8 Stainless Steel	SUS304TP	SUS304	A312-TP304	A240-Type304	A182-F304	WP304	3605-304S18, S25	17440-X5CrNi189
	High Temperature 18-8 Stainless Steel	SUS304HTP	-	A312-TP304H	A240-Type304H	A182-F304H	WP304H	3605-304S59	-
	Low Carbon 18-8 Stainless Steel	SUS304LTP	SUS304L	A312-TP304L	A240-Type304L	A182-F304L	WP304L	3605-304S14, S22	17440-X2CrNi189
	22-12 Stainless Steel	SUS304LTP	SUS309S	A312-TP309	A240-Type309S	-	WP309	-	-
	25-20 Stainless Steel	SUS309STP	SUS310S	A312-TP310	A240-Type310S	A182-F310	WP310	-	-
	18-8-(Nb+Ta) Stainless Steel	SUS310STP	SUS347	A312-TP347	A240-Type347	A182-347	WP347	3605-347S18, S17	17440-X10CrNiNb189
	18-8-Mo Stainless Steel	SUS347TP	SUS316	A312-TP316	A240-Type316	A182-F316	WP316	3605-316S18, S26	17440-X5CrNiMo1810
	High Temperature 18-8 Mo Stainless Steel	SUS316HTP	-	A312-TP316H	A240-Type316H	A182-F316H	WP316H	3605-316S59	-
	Low Carbon 18-8-Mo Stainless Steel	SUS316LTP	SUS316L	A312-TP316L	A240-Type316L	A182-F316L	WP316L	3605-316S14, S22	17440-X2CrNiMo1810
	18-8-Ti Stainless Steel	SUS321TP	SUS321	A312-TP321	A240-Type321	A182-F321	WP321	3605-321S18, S22	17440-X10CrNiTi189
	High Temperature 18-8-Ti Stainless Steel	SUS321HTP	-	A312-TP321H	A240-Type321H	A182-F321H	WP321H	3605-321S59	-
	High Temperature 18-8-(Nb+Ta) Stainless Steel	SUS347HTP	-	A312-TP347H	A240-Type347H	A182-F347H	WP347	3605-347S59	-
	25-5-Mo Stainless Steel	SUS329JITP	SUS329JI	A312-TP329	-	-	-	-	-



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