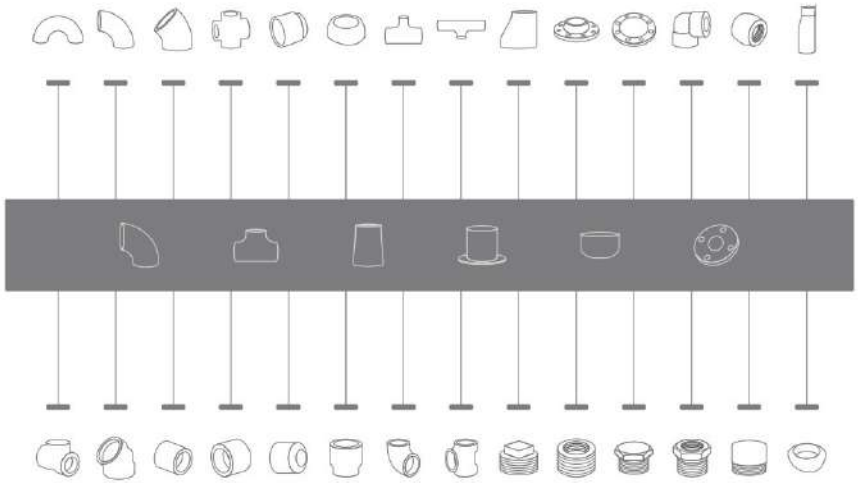


SINOTEC

HUNAN GREAT STEEL PIPE CO.,LTD

Address:
No.9 Xiangfu Rd, Yuhua District, Changsha, Hunan, China

Phone:
0086 0731 8873 9521

Website :
https://www.hnssd.com

SINOTEC

HUNAN GREAT STEEL PIPE CO.,LTD

One-stop Procurement

PERFECT TESTING EQUIPMENTS

完善的检测设备

X射线探伤检测（实时成像/定像拍片）
X-ray Test(Real time radiographic/film)

SINOTEC

HUNAN GREAT STEEL PIPE CO.,LTD

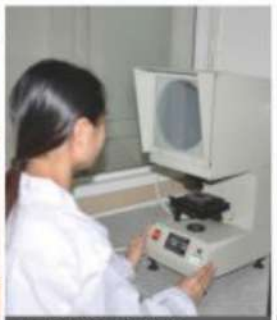
直读光谱仪
Spectrum analyzer

万能材料试验机
Universal tensile tester

金相分析仪
Metallographic analyzer

涡流探伤检测仪
Eddy current inspecting

冲击试验机
Impact inspection machine



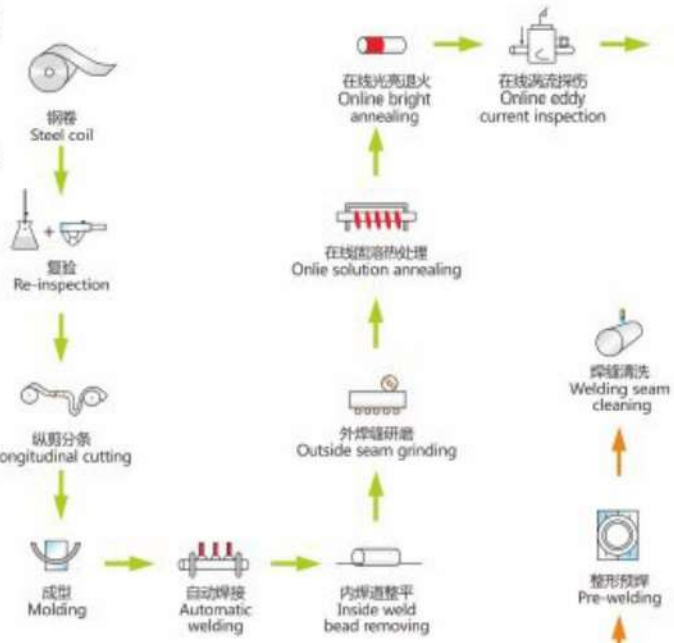
冲击试样缺口投影仪
Impact specimen notch projector

洛氏硬度计
Rockwell hardness tester

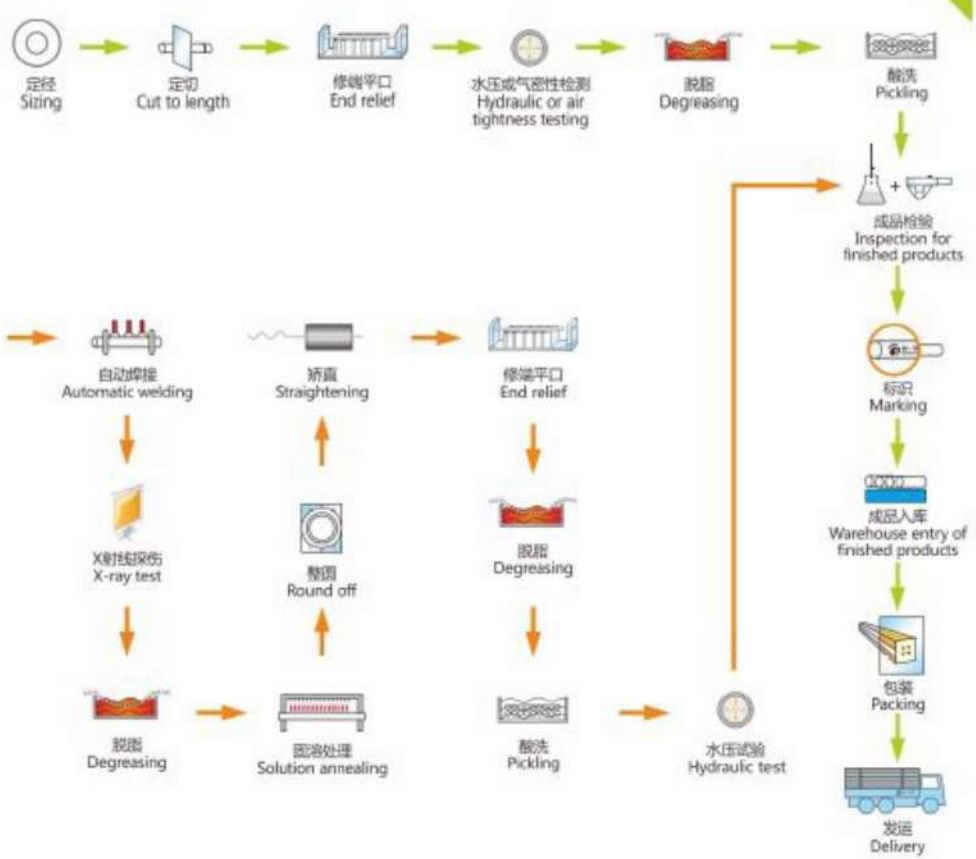
ADVANCED PRODUCTION TECHNOLOGY

先进的生产工艺

连续成型生产工艺流程图
（生产线设备产品）
The continuous molding production process flow chart (The production line equipment products)



单支成型生产工艺流程图
（大口径工业焊管）
The single molding production process flow chart (Large-caliber industrial welded pipes)



ADVANCED PRODUCTION TECHNOLOGY
先进的生产工艺

PARTIAL EQUIPMENTS OF THE CONTINUOUS MOLDING PRODUCTION PROCESS 连续成型生产工艺部分设备

生产线
Production line


成型
Molding


130型号机组生产线（最大外径426mm）
The 130 type unit production line (The maximum outer diameter is 426mm)


自动焊接
Automatic welding


在线固溶热处理
Online solution annealing

SINOTEC

HUNAN GREAT STEEL PIPE CO.,LTD

PARTIAL EQUIPMENTS OF THE SINGLE MOLDING PRODUCTION PROCESS

单支成型生产工艺部分设备

悬臂焊接机
Cantilevered welding machine

折弯成型机
Bending forming machine

大管焊接
Large caliber pipe welding

整型机
Integer machine

内焊边梁焊机
Edge beam inside welder

热处理
Heat treatment

酸洗钝化
Pickling

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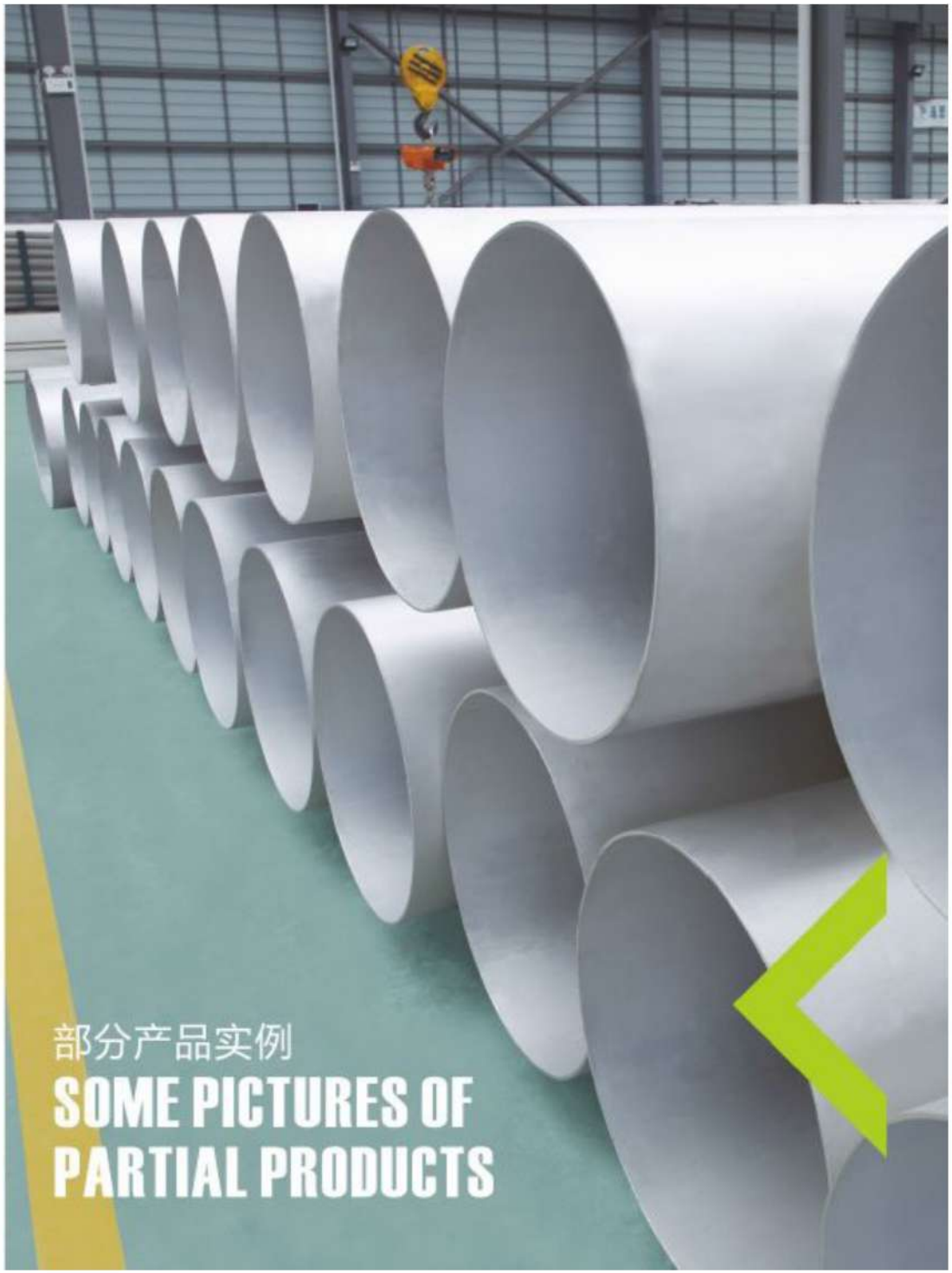
HUNAN GREAT STEEL PIPE CO.,LTD



部分产品实例

SOME PICTURES OF PARTIAL PRODUCTS

SOME PICTURES OF PARTIAL PRODUCTS

部分产品实例

SINOTEC

HUNAN GREAT STEEL PIPE CO.,LTD

INDUSTRIAL STAINLESS STEEL PIPES
工业配管用不锈钢管

SINOTEC
HUNAN GREAT STEEL PIPE CO.,LTD

PRODUCT DESCRIPTION
产品说明

【应用领域：石油、化工、能源、造纸、海工、冶金热送、给排水、管件、阀门等行业或工程项目的流体（液体、气体、干粉、物料等介质）输送用管】
ASTM A312、ASTM A778、ASTM A358规格尺寸如下列表(尺寸规范仅符合ASME B36.19M)；GB/T12771、HG20537等其他标准的规格尺寸作为参照或买卖双方议定。

公称外径 OD		外径 Outside Diameter	厚度 Nominal Wall Thickness		
			SCH 5S	SCH 10S	SCH 40S
DN	NPS	mm	mm	mm	mm
8	1/4"	13.72	1.24	1.65	2.24
10	3/8"	17.15	1.24	1.65	2.31
15	1/2"	21.34	1.65	2.11	2.77
20	3/4"	26.67	1.65	2.11	2.87
25	1"	33.4	1.65	2.77	3.38
32	1-1/4"	42.16	1.65	2.77	3.56
40	1-1/2"	48.26	1.65	2.77	3.68
50	2"	60.33	1.65	2.77	3.91
65	2-1/2"	73.03	2.11	3.05	5.16
80	3"	88.9	2.11	3.05	5.49
90	3-1/2"	101.6	2.11	3.05	5.74
100	4"	114.3	2.11	3.05	6.02
125	5"	141.3	2.77	3.4	6.55
150	6"	168.28	2.77	3.4	7.11
200	8"	219.08	2.77	3.76	8.18
250	10"	273.05	3.40	4.19	9.27
300	12"	323.85	3.96	4.57	9.53
其他外径、厚度参照ASME B36.10M规范尺寸					

JIS G3459规格尺寸表(SPECIFICATION)

称呼外径 Nominal Diameter		外径 Outside Diameter	厚度 Nominal Wall Thickness			
			SCH 5S	SCH 10S	SCH 20S	SCH 40S
(A)	(B)	mm	mm	mm	mm	mm
8	1/4"	13.8	1.2	1.65	2.0	2.2
10	3/8"	17.3	1.2	1.65	2.0	2.3
15	1/2"	21.7	1.65	2.1	2.5	2.8
20	3/4"	27.2	1.65	2.1	2.5	2.9
25	1"	34.0	1.65	2.8	3.0	3.4
32	11/4 "	42.7	1.65	2.8	3.0	3.6
40	11/2 "	48.6	1.65	2.8	3.0	3.7
50	2"	60.5	1.65	2.8	3.5	3.9
65	21/2 "	76.3	2.1	3.0	3.5	5.2
80	3"	89.1	2.1	3.0	4.0	5.5
90	31/2 "	101.6	2.1	3.0	4.0	5.7
100	4"	114.3	2.1	3.0	4.0	6.0
125	5"	139.8	2.8	3.4	5.0	6.6
150	6"	165.2	2.8	3.4	5.0	7.1
200	8"	216.3	2.8	4.0	6.5	8.2
250	10"	267.4	3.4	4.0	6.5	9.3
300	12"	318.5	4.0	4.5	6.5	10.3

超大口径工业配管用不锈钢管（应用领域：石油、化工、造纸、能源、冶金热送、海工、排污等行业或工程项目）
ASTM A312、ASTM A778、ASTM A358超大口径管规格尺寸表（规格尺寸仅符合ASME B36.19M）

公称直径 DN		外径 Outside Diameter	厚度 Nominal Wall Thickness		
			SCH 5S	SCH 10S	SCH 40S
DN	NPS	mm	mm	mm	mm
350	14"	355.6	3.96	4.78	9.53
400	16"	406.4	4.19	4.78	9.53
450	18"	457	4.19	4.78	9.53
500	20"	508	4.78	5.54	9.53
550	22"	559	4.78	5.54	-
600	24"	610	5.54	6.35	9.53
750	30"	762	6.35	7.92	-

尺寸公差表 (DIMENSION TOLERANCE TABLE)

标准 Standard	外径 (mm) Outside Diameter		厚度(mm) Thickness	长度(mm) Length
ASTM A312	≤48.26	+0.40 -0.80	+未特别规定（Unspecified） -12.50%	指定长度 Definite cut length +6.40 -0
	>48.26~114.30	+0.80 -0.80		
	>114.30~219.08	+1.60 -0.80		
	>219.08~457.20	+2.40 -0.80		
	>457~660	+3.20/-0.80		
JIS G3459	<30.00 ≥30.00	±0.30 ±1.00%（外径基准）	<2.00 ±0.20 ≥2.00 ±10%	指定长度 Definite cut Length
GB/T 12771	<13.00 13.00~40.00 ≥40.00	±0.20 ±0.30 ±0.80%（外径基准）	≤4.00 +0.50 -0.60 >4.00 ±10%(厚度基准)	+20.00 -0
EN 10217-7	D1 ± 1.50% with ± 0.75mm(min) D2 ± 1.00% with ± 0.50mm(min) D3 ± 0.75% with ± 0.30mm(min) D4 ± 0.50% with ± 0.10mm(min) EN ISO 1127		T1 ± 15.00% with ± 0.60mm(min) T2 ± 12.5% with ± 0.40mm(min) T3 ± 10.00% with ± 0.20mm(min) T4 ± 7.50% with ± 0.15mm(min) T5 ± 5.00% with ± 0.10mm(min) EN ISO 1127	≤6000 +5.00 -0 >6000~12000 +10.00 -0

不锈钢管重量计算公式表(WEIGHT CALCULATING FORMULA TABLE OF STAINLESS STEEL)

钢种 Grade		密度ρ (kg/cm³)	计算公式 Calculation Formula
0Cr18Ni9(06Cr19Ni10) SUS304 TP304	00Cr19Ni10(022Cr19Ni10) SUS304L TP304L	7.93	W=0.02491 t(D-t)
0Cr17Ni12Mo2 SUS316 TP316	00Cr17Ni14Mo2 SUS316L TP316L	7.98	W=0.02507 t(D-t)

机械结构用不锈钢管
STAINLESS STEEL MECHANICAL TUBING
ASTM A554 / DIN / EN10296-2 / JIS G3446 / GB/T 12770

PRODUCT SPECIFICATIONS AND TECHNICAL PARAMETERS
产品规格及技术参数

SINOTEC
HUNAN GREAT STEEL PIPE CO.,LTD

圆管(ROUND TUBING)

外径 Outside Diameter (inch)	(mm)	厚度 Thickness (mm)												
		0.5	0.6	0.7	0.8	0.9	1	1.2	1.5	2	2.5	3	4	5
	9.5													
	12													
1/2"	12.7													
	13													
	14													
5/8"	15.9													
3/4"	19.1													
7/8"	22.2													
1"	25.4													
1-1/8"	28.6													
1-1/4"	31.8													
1-1/2"	38.1													
	40													
	45													
2"	50.8													
	52													
2-1/4"	57.15													
2-3/8"	60.3													
2-1/2"	63.5													
	70													
3"	76.2													
	85													
3-1/2"	88.9													
4"	101.6													
4-1/8"	104.78													
4-1/4"	107.95													
4-1/2"	114.3													
5-1/4"	133.35													
6-1/4"	158.75													
8-5/8"	219.08													

圆管尺寸公差表(DIMENSION TOLERANCE TABLE OF ROUND TUBING)

标准 Standard	外径(mm) Outside Diameter	厚度(mm) Thickness	外径公差(mm) Outside Diameter Tolerance	厚度公差 Thickness Tolerance (mm)	长度公差(mm) Length Tolerance
ASTM A554	≤12.7	0.51~1.24	±0.10	±10.00%T (±10.00%of nominal wall thickness)	+4.08 -0
	>12.7~25.4	0.51~1.65	±0.13		
		>1.65~3.4	±0.25		
	>25.4~38.1	0.64~1.65	±0.20		
		>1.65~3.40	±0.25		
	>38.1~50.8	0.64~1.24	±0.25		
		>1.24~2.11	±0.28		
	>50.8~63.5	>2.11~3.78	±0.30		
		0.81~1.65	±0.30		
		>1.65~2.77	±0.33		
	>63.5~88.9	>2.77~4.19	±0.36		
		0.81~4.19	±0.36		
	>88.9~127.0	0.89~4.19	±0.51		
		>4.19	±0.64		
	>127.0~190.5	1.24~6.35	±0.64		
		>6.35	±0.76		
GB/T 12770	<25		±0.15	冷轧 Cold Rolled ≤0.50 ±0.05 >0.50~1.00 ±0.11 >1.00~2.00 ±0.17 >2.00~3.00 ±7.00%S >3.00 ±10.00%S 热轧 Hot Rolled ±10.00%S	+20.00 -0
	≥25~40		±0.18		
	≥40~50		±0.20		
	≥50~60		±0.23		
	≥60~70		±0.30		
	≥70~80		±0.30		
	≥80~90		±0.30		
	≥90~100		±0.40		
	≥100~200		±0.50%D		
	≥200		协议To Be Agreed		
JIS G3446	<50		±0.25	<3.00 ±0.30	+50 -0
	≥50		±0.5%	≥3.00 ±10.00%	

ASTM A249 / GB/T24593 / JIS G3463 / DIN 17457
锅炉、热交换器管和冷凝器不锈钢焊管
STAINLESS STEEL WELDED TUBES FOR BOILER、HEAT EXCHANGER AND CONDENSER

ASTM A269 一般用途不锈钢焊管
STAINLESS STEEL WELDED TUBES FOR ORDINARY SERVISE

PRODUCT SPECIFICATIONS AND TECHNICAL PARAMETERS
产品规格及技术参数

SINOTEC
HUNAN GREAT STEEL PIPE CO.,LTD

ASTM A249、ASTM A269规格尺寸表(SPECIFICATION)

外径 Outside Diameter (inch)	(mm)	厚度 Thickness (mm) 0.5	0.6	0.7	0.8	0.9	1	1.2	1.5	2	2.5	3	4	5
	9.5													
	12													
1/2"	12.7													
	13													
	14													
5/8"	15.9													
3/4"	19.1													
7/8"	22.2													
1"	25.4													
1-1/8"	28.6													
1-1/4"	31.8													
1-1/2"	38.1													
	40													
	45													
2"	50.8													
	52													
2-1/4"	57.15													
2-3/8"	60.3													
2-1/2"	63.5													
	70													
3"	76.2													
	85													
3-1/2"	88.9													
4"	101.6													
4-1/8"	104.78													
4-1/4"	107.95													
4-1/2"	114.3													
5-1/4"	133.35													
6-1/4"	158.75													
8-5/8"	219.08													

黄色部分仅是 ASTM A269
The yellow part is just for ASTM A269

蓝色部分 ASTM A249、ASTM A269标准共用
The blue part is for both ASTM A249 & ASTM A269

ASTM A249 尺寸公差表(DIMENSION TOLERANCE TABLE)

外径 Outside Diameter		厚度 Thickness	长度 Length
< 25.4mm	±0.10mm	±10%	OD<50.8mm +3.0mm-0mm
≥25.4~38.1mm	±0.15mm		
≥38.1~50.8mm	±0.20mm		
≥50.8~63.5mm	±0.25mm		OD≥50.8mm +5.0mm-0mm
≥63.5~76.2mm	±0.30mm		
≥76.2~101.6mm	±0.38mm		
≥101.6~190.5mm	+0.38mm -0.64mm		
≥190.5~228.6mm	+0.38mm -1.14mm		

ASTM A269 尺寸公差表(DIMENSION TOLERANCE TABLE)

外径 Outside Diameter		厚度 Thickness	长度 Length
< 38.1mm	±0.13mm	OD < 12.7mm ±15% OD ≥ 12.7mm ±10%	OD<38.1mm +3.2mm-0mm OD≥38.1mm +4.8mm-0mm
≥38.1mm~88.9mm	±0.25mm		
≥88.9mm~139.7mm	±0.38mm		
≥139.7mm~203.2mm	±0.76mm		
≥203.2mm~304.8mm	±1.01mm		
≥304.8mm~355.6mm	±1.26mm		

PRODUCT SPECIFICATIONS AND TECHNICAL PARAMETERS
产品规格及技术参数

ADVANCED PRODUCTION TECHNOLOGY
先进的生产工艺

SINOTEC
HUNAN GREAT STEEL PIPE CO.,LTD

GB/T 24593 尺寸公差表(DIMENSION TOLERANCE TABLE)

外径 Outside Diameter		厚度 Thickness
≤25mm	+0.10mm -0.10mm	±10%
>25~40mm	+0.15mm -0.15mm	
>40~50mm	+0.20mm -0.20mm	
>50~65mm	+0.25mm -0.25mm	
>65~75mm	+0.30mm -0.30mm	
>75~100mm	+0.38mm -0.38mm	
>100~200mm	+0.38mm -0.64mm	
>200~225mm	+0.38mm -1.14mm	
>225~305mm	+0.75%D mm -0.75%D mm	

对于壁厚与外径之比不大于3%的薄壁钢管，钢管实测的平均外径应符合本表所列的外径允许偏差。
About the thin-walled of the thickness -outside diameter ratio is less than 3%, the average diameter pipe test shall conform to the allowable deviation of outside diameter on the table.

自动焊接
Automatic welding

光亮退火
Bright annealing

在线固溶热处理
Online solution annealing

食品卫生用不锈钢钢管
STAINLESS STEEL SANITARY TUBING
ASTM A270 / DIN 11850 / ISO 2037

PRODUCT SPECIFICATIONS AND TECHNICAL PARAMETERS
产品规格及技术参数

SINOTEC
HUNAN GREAT STEEL PIPE CO.,LTD

ASTM A270规格尺寸表(SPECIFICATION)

外径 Outside Diameter		厚度 (mm) Thickness				
(inch)	(mm)	1.2	1.5	2	2.5	3
3/4"	19.1					
7/8"	22.2					
1"	25.4					
1-1/8"	28.6					
1-1/4"	31.8					
1-1/2"	38.1					
	40					
	45					
2"	50.8					
	52					
2-1/4"	57.15					
2-3/8"	60.3					
2-1/2"	63.5					
	70					
3"	76.2					
	85					
3-1/2"	88.9					
4"	101.6					
4-1/8"	104.78					
4-1/4"	107.95					
4-1/2"	114.3					
5-1/4"	133.35					
6-1/4"	158.75					
8-5/8"	219.08					

ASTM A270尺寸公差表(DIMENSION TOLERANCE TABLE)

外径 Outside Diameter		厚度 Thickness	长度 Length
<25.40mm	±0.13mm	±10.00%	OD<101.60mm +3.20mm -0mm OD≥101.60mm +4.80mm -0mm
≥25.40mm~50.80mm	±0.20mm		
≥50.80mm~76.20mm	±0.25mm		
≥76.20mm~101.60mm	±0.38mm		
≥101.60mm~139.70mm	±0.38mm		
≥139.70mm~203.20mm	±0.76mm		
≥203.20mm~304.80mm	±1.27mm		

ISO 2037 / DIN11850规格尺寸表(SPECIFICATION)

ISO2037	OD	21.30	25.40	33.70	38.10	40.00	50.80	63.50	70.00	76.30	88.90	101.60	114.30	139.70	168.30
	T	1.00	1.20	1.20	1.50	1.50	1.50	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.60
DIN 11850	Nom. Size	20.00	25.00	32.00		40.00	50.00		65.00		80.00	100.00	125.00		150.00
	OD	23.00	29.00	36.00		41.00	54.00		70.00		85.00	104.00	129.00		154.00
	T	1.50	1.50	1.50		1.50	1.50		2.00		2.00	2.00	2.00		2.00

薄壁不锈钢水管
THIN-WALL STAINLESS STEEL WATER TUBES
GB/T 19228 / CJ/T 151 / JIS G3448 / EN 10312

PRODUCT SPECIFICATIONS AND TECHNICAL PARAMETERS
产品规格及技术参数

SINOTEC
HUNAN GREAT STEEL PIPE CO.,LTD

JIS G3448 / EN10312 / CJ/T 151规格尺寸表(SPECIFICATION)

JIS G3448		EN10312		CJ/T151		
外径 (mm) Outside Diameter	厚度(mm) Thickness	外径 (mm) Outside Diameter	厚度(mm) Thickness	外径 (mm) Outside Diameter	厚度(mm) Thickness	
9.52	0.70	10.00	0.60	10.00	0.60	0.80
12.70	0.80	12.00		12.00		
15.88		15.00		16.00		
22.22	1.00	22.00	0.70	20.00		
28.58		28.00	0.80	22.00	0.80	1.00
34.00	1.20	35.00	1.00	25.40		
42.70		42.00	1.10	28.00		
48.60		76.10	1.50	35.00	1.00	1.20
60.50	1.50	103.00		38.00		
76.30		108.00		42.00		
89.10	2.00	128.00		50.80		
114.30		133.00		76.10	1.50	2.00
139.80		159.00	2.00	88.90		
165.20	3.00			102.00		
				108.00		
				133.00	2.00	
				159.00		3.00

尺寸公差表(DIMENSION TOLERANCE TABLE)

规范 Specification	外径(mm) Outside Diameter		厚度(mm) Thickness		长度公差(mm)Length tolerance	
JIS G3448	< 34.00	+0/-0.37	0.70~1.20 1.50 2.00 3.00	±0.12 ±0.15 ±0.30 ±0.40	指定长度 Definite Cut Length	
	≥34.00 < 42.70	±0.34				
	≥42.70 < 48.60	±0.43				
	≥48.60 < 60.50	±0.49				
	≥60.50 < 76.30	±0.60				
	≥76.30	±1.00%				
EN10312	< 22.00	+0.04/-0.06	0.60~2.00	±10.00%	指定长度 Definite Cut Length	±20.00
	≥22.00 < 35.00	±0.05				
	≥35.00 < 54.00	+0.07-0.03				
	54.00	+0.07-0.16				
	66.70	+0.05-0.62				
	76.10	+0.20-0.56				
	103.00	±0.80				
	108.00	+0.30/-0.80				
	128.00	±1.00				
	133.00	+0.50/-0.80				
	153.00	+0.50/-1.50				
	159.00	+0.50/-2.00				
CJ/T 151	< 35.00	±0.10	0.60~2.00	±10.00%	指定长度 Definite Cut Length	+20.00 -0
	≥35.00 < 42.00	±0.12				
	≥42.00 < 76.10	±0.15				
	≥76.10 < 88.90	±0.23				
	≥88.90 < 102.00	±0.25				
	≥102.00	±0.40%D				

常用不锈钢化学成分表
(CHEMICAL COMPOSITION TABLE FOR COMMON STAINLESS STEEL)

		化学成份 (%) Chemical composition							
		C	Si	Mn	P	S	Ni	Cr	Mo
ASTM	TP304 TP304L TP316 TP316L	≤0.08 ≤0.035 ≤0.08 ≤0.035	≤1.00 ≤1.00 ≤1.00 ≤1.00	≤2.00 ≤2.00 ≤2.00 ≤2.00	≤0.045 ≤0.045 ≤0.045 ≤0.045	≤0.03 ≤0.03 ≤0.03 ≤0.03	8.00~11.00 8.00~13.00 10.00~14.00 10.00~14.00	18.00~20.00 18.00~20.00 16.00~18.00 16.00~18.00	 2.00~3.00 2.00~3.00
JIS	SUS304 SUS304L SUS316 SUS316L	≤0.08 ≤0.03 ≤0.08 ≤0.03	≤1.00 ≤1.00 ≤1.00 ≤1.00	≤2.00 ≤2.00 ≤2.00 ≤2.00	≤0.040 ≤0.040 ≤0.040 ≤0.040	≤0.03 ≤0.03 ≤0.03 ≤0.03	8.00~11.00 8.00~13.00 10.00~14.00 12.00~16.00	18.00~20.00 18.00~20.00 16.00~18.00 16.00~18.00	 2.00~3.00 2.00~3.00
GB	0Cr18Ni9 00Cr19Ni10 0Cr17Ni12Mo2 00Cr17Ni14Mo2	≤0.07 ≤0.03 ≤0.07 ≤0.03	≤1.00 ≤1.00 ≤1.00 ≤1.00	≤2.00 ≤2.00 ≤2.00 ≤2.00	≤0.035 ≤0.035 ≤0.035 ≤0.035	≤0.03 ≤0.03 ≤0.03 ≤0.03	8.00~11.00 8.00~12.00 10.00~14.00 12.00~15.00	17.00~19.00 18.00~20.00 16.00~18.00 16.00~18.00	 2.00~3.00 2.00~3.00
GB (新牌号)	06Cr19Ni10 022Cr19Ni10 06Cr17Ni12Mo2 022Cr17Ni12Mo2	≤0.08 ≤0.030 ≤0.08 ≤0.030	≤0.75 ≤0.75 ≤0.75 ≤0.75	≤2.00 ≤2.00 ≤2.00 ≤2.00	≤0.040 ≤0.040 ≤0.040 ≤0.040	≤0.030 ≤0.030 ≤0.030 ≤0.030	8.00~11.00 8.00~12.00 10.00~14.00 10.00~14.00	18.00~20.00 18.00~20.00 16.00~18.00 16.00~18.00	 2.00~3.00 2.00~3.00
EN10217-7	1.4301 1.4307 1.4401 1.4404	≤0.07 ≤0.03 ≤0.07 ≤0.03	≤1.00 ≤1.00 ≤1.00 ≤1.00	≤2.00 ≤2.00 ≤2.00 ≤2.00	≤0.045 ≤0.045 ≤0.045 ≤0.045	≤0.015 ≤0.015 ≤0.015 ≤0.015	8.00~10.50 8.00~10.00 10.00~13.00 10.00~13.00	17.00~19.50 17.50~19.50 16.50~18.50 16.50~18.50	 2.00~2.50 2.00~2.50

常用不锈钢的机械性能
(MECHANICAL PROPERTY FOR COMMON STAINLESS STEEL)

钢种 Grade		机械性质 Mechanical propcrites			
		抗拉强度 Tensile strength	屈服强度 Yied strength	伸长率 Elongation	硬度 Hardness
		KSi(MPa)	KSi(MPa)	%	HRB
ASTM	TP304 TP304L TP316 TP316L	≥75(515) ≥70(483) ≥75(515) ≥70(483)	≥30(205) ≥25(170) ≥30(205) ≥25(170)	≥35 ≥35 ≥35 ≥35	≤90 ≤90 ≤90 ≤90
JIS	SUS304 SUS304L SUS316 SUS316L	≥75(520) ≥70(481) ≥75(520) ≥70(481)	≥30(206) ≥25(177) ≥30(206) ≥25(177)	≥35 ≥35 ≥35 ≥35	≤90 ≤90 ≤90 ≤90
GB	0Cr18Ni9 00Cr19Ni10 0Cr17Ni12Mo2 00Cr17Ni14Mo2	≥75(520) ≥70(480) ≥75(520) ≥70(480)	≥30(210) ≥25(180) ≥30(210) ≥25(180)	≥35 ≥35 ≥35 ≥35	≤90 ≤90 ≤90 ≤90
EN10217-7	1.4301 1.4307 1.4401 1.4404	(500~700) (470~670) (510~710) (490~690)	≥(195) ≥(180) ≥(205) ≥(190)	≥40b ≥40b ≥40b ≥40b	≤90 ≤90 ≤90 ≤90

DUPLEX STAINLESS PIPE

REGULAR DUPLEX - UNS S32205

The 2205 is the most widely used duplex occupying more than 80% of the duplex stainless steel market. The 2205 alloy provides better corrosion resistance in various environments, where 316L is generally used, with an added advantage of its higher yield strength. All 2205 alloys are metallographically examined to ensure that the shipped product is free from presence of detrimental phases such as sigma.

It is often used in form of welded pipe or tubular components. The alloy has also been applied as a formed and welded sheet product in environments where resistance to general corrosion and chloride stress corrosion cracking is important.

Chemistry

UNS	C%	Cr%	Ni%	Mo%	N%	Mn%
S31803	≤0.03	21.0-23.0	4.5-6.5	2.5-3.5	0.08-0.2	≤2.0
S32205	≤0.03	22.0-23.0	4.5-6.5	3.0-3.5	0.14-0.20	≤2.0

Specification Equivalents

- UNS S31803, UNS S32205, EN1.4462
- ASTM: A182, A240, A276, A789, A790, and A815

Mechanical Properties (as per ASTM 240)

Grade	YS (MPa)	UTS (MPa)	% Elongation	Hardness (BHN)
S31803	450 min.	620 min.	25 min.	293 max.
S32205	450 min.	655 min.	25 min.	293 max.

Typical Values of Mechanical Properties

Grade	YS (MPa)	UTS (MPa)	% Elongation	Hardness (BHN)
S31803	550	750	30	228
S32205	530	720	30	220

General Characteristics

- PREN value 34 (Pitting Resistance Equivalent Number: %Cr+3.3*%Mo+16*%N)
- It is an extra low carbon duplex stainless steel.
- Its yield strength is nearly twice as that of the austenitic stainless steel.
- It has good weldability with minimal inter-granual corrosion in as welded condition.
- It has high resistance to SCC in chloride and in hydrogen sulfide containing environments.
- It exhibits high resistance to corrosion fatigue, pitting and crevice corrosion, and erosion-corrosion.

Machinability

- Cutting procedures with high speed steel tools are same as AISi 316.
- With carbide tipped tools, the cutting speeds should be 40% less than for AISi 316 in roughing operations and 20% less for finish machining.

Fabricability

- Nearly twice the force is required to initiate plastic deformation, compared to that required for AISI 304L and 316L.
- Plastic deformation proceeds as easily as in austenitic stainless steel beyond yield strength.
- It can be cold bent to 25% deformation without requiring subsequent heat treatment
- Bending should be followed by annealing if the service conditions are prone to SCC.
- Hot bending may be carried out in the range 950-1100°C, and should be followed by quench annealing.
- Normal expanding methods can be used while expanding its tubes, but higher initial force is required, and should be completed in a single operation.

Weldability

- It is welded easily by Manual Metal Arc Welding (MMAW) using covered electrode, Gas Tungsten ARC Welding (GTAW), or Gas Metal Arc Welding (GMAW).
- Heat input should be in the range of 0.5-2.5 KJ/mm
- Inter-pass temperature should be held to 150°C max.
- Pre-heat or post-weld heat treatment is normally not required.
- Typical filler metals are over alloyed with nickel like E2209.
- Welding with carbon steels, other stainless steels, and nickel alloys is readily achieved.

Corrosion Resistance

- It has better general corrosion resistance as compared to AISI 316L and 317L
- Welded joints easily pass inter-granular corrosion testing as per ASTM A262 Practice E-Strauss Test.
- It has better resistance to pitting and crevice attack than 304 and 316 at higher temperatures and chloride contents.
- The combined high strength, hardness, and corrosion resistance provide 2205 with superior corrosion fatigue and erosion/corrosion resistance.

Applications

- Chemical Industries: Pumps, fans, centrifuges, sulphur melting coils, chemical tanks
- Pulp & Paper Industries: Digester in sulphate and sulfite plants, blow lines
- Petrochemical Industries
- Power Generation Industries
- Oil & Gas Industries
- Desalination
- Architecture and Construction
- Food Processing Equipments
- Bio-fuels Plants
- Cargo Tanks for Ships and Trucks

WIDE APPLICATION FIELDS
广泛的应用领域


ASTM A554 GB/T12770

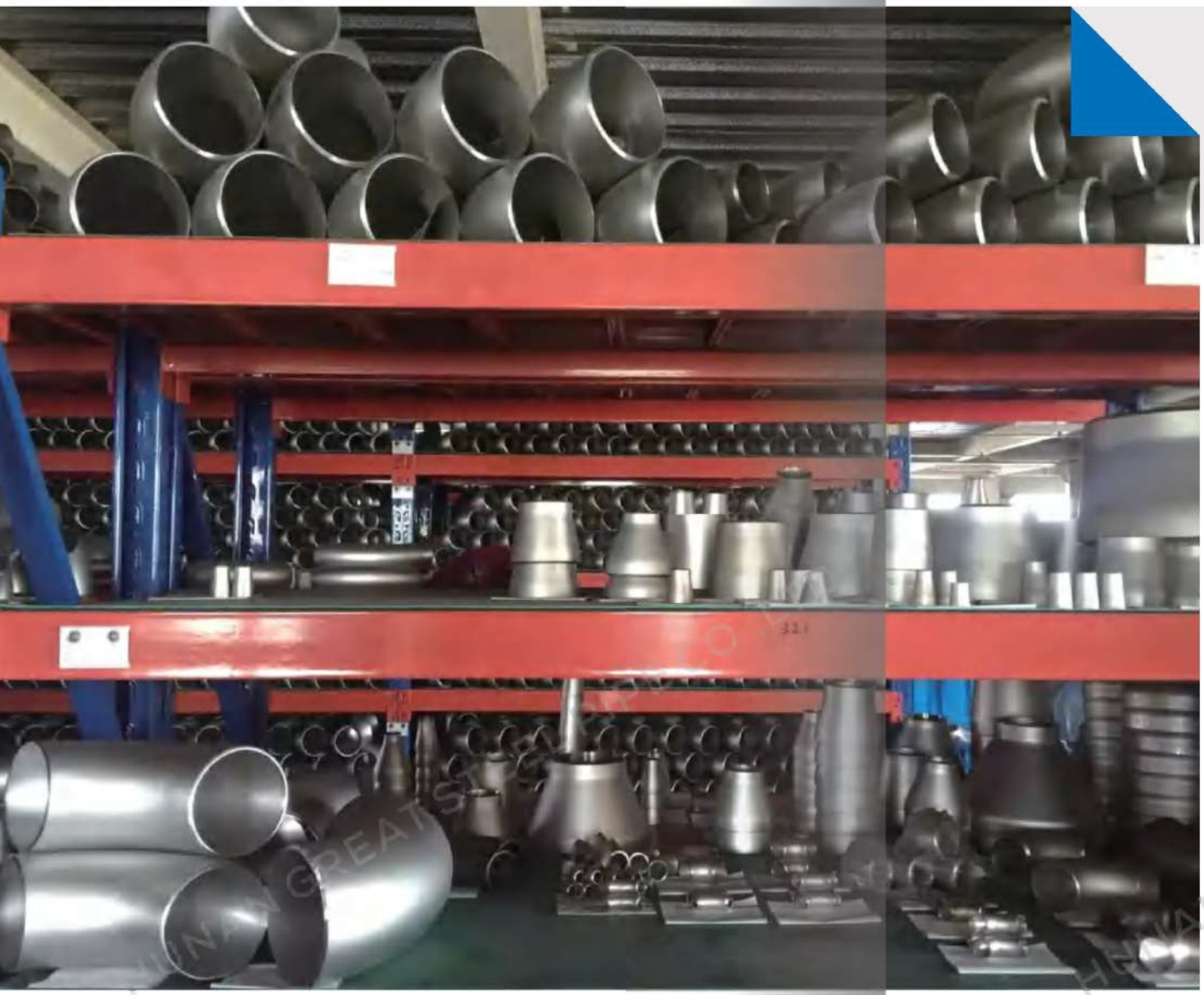
ASTM A249 A270


ASTM A312 GB/T12771 HG20537

MARKETING NETWORKS
营销网络

RAW MATERIAL SUPPLIERS
原材料合作供应商

TISCO 太原钢铁(集团)有限公司
宝钢 上海宝钢集团
ZPSS 张家港浦项
新日本製鐵
posco 윤리경영
KDKC
YUSCO
德国克虏伯
SANDVIK Materials Technology 山特维克
宝新不锈钢



BASED IN CHINA, SERVING THE WORLD

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05 QUALITY

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PROFILE

Pipe Fittings Manufacture

SHINESTAR STEEL GROUP is specialized in manufacturing superior quality steel products, and providing outstanding service for valued clients all over the world. Founded in 1993, our business covers from steel pipe and fittings manufacturing, stocking and one-stop purchasing.

Hunan Great Steel Pipe Co., Ltd is THE LONGEST ESTABLISHED and THE LARGEST OPERATED subsidiary under the group. Starting from the selling of carbon steel pipes, after years of developing, now we have a complete product matrix for meeting the needs of different cleints in piping system area. Pipe fittings is used for piping connection, control, change of directon, diversion, sealing, supping, etc. Stainless steel is relatively durable and have a strong resisitance to various chemicals. Therefore stainless steel pipe fittings play a very important role in the whole steel piping system. Hunan Great Steel Pipe Co., Ltd is dedicated in offering one-stop procurement service for the steel piping system area.

With strong technical force, advanced equipment and skilled craftsmanship, we can supply various type of fittings with quality guaranteed. The production of industrial pipe fittings Outside Diameter ranges from 12mm to 508mm, and the Wall Thickness ranges from 1mm to 40mm, covering type such as 45 degree, 80 degree and 180 degree stainless steel elbow, equal tee, reducing tee, cross, concentric reducer, eccentric reducer, cap stub end and flanges. The production of industrial pipe fittings is strictly in accordance with the international and domestic standard, such as GB standard, ASTM B16.9/16.5, ASTM A403, DIN 2605, EN 10253, BS 1965, JISB2312, with material TP304L, TP304H, TP316L, TP321H, TP317L, TP310, Duplex stainless SS31803/2205 and special materials as 904L, TP347H, TP316Ti etc. We use high quality raw materials and technical advanced equipment to ensure the quality of pipe fittings. There are three branches and 12 advanced production lines for pipe fittings and flanges, including forging machine, intermediate frequency pushing machine, cold forming machine, hot extrusion machine, heat treatment machine and other craftsmanship. The Production Capacity is over 20,000 tons.

20,000+ tons

Our industrial pipe fittings are widely applied to paper making, shipping line, petroleum transporting, chemical industrial, machinery, electric power, pharmacy line, construction industry, food line etc. Based on the principle of QUALITY FIRST CUSTOMER FOREMOST, we sincerely hope to be your reliable and long term partner.

EQUIPMENTS

There are three branches and 12 advanced production lines for pipe fittings and flanges, including forging machine, intermediate frequency pushing machine, cold forming machine, hot extrusion machine, heat treatment machine and other craftsmanship. The Production capacity is over 20,000 tons.

20,000+ tons

5T Forging machine

2000t Hydraulic press

Workshop

Ring rolling machine

Machining center

CNC lathe

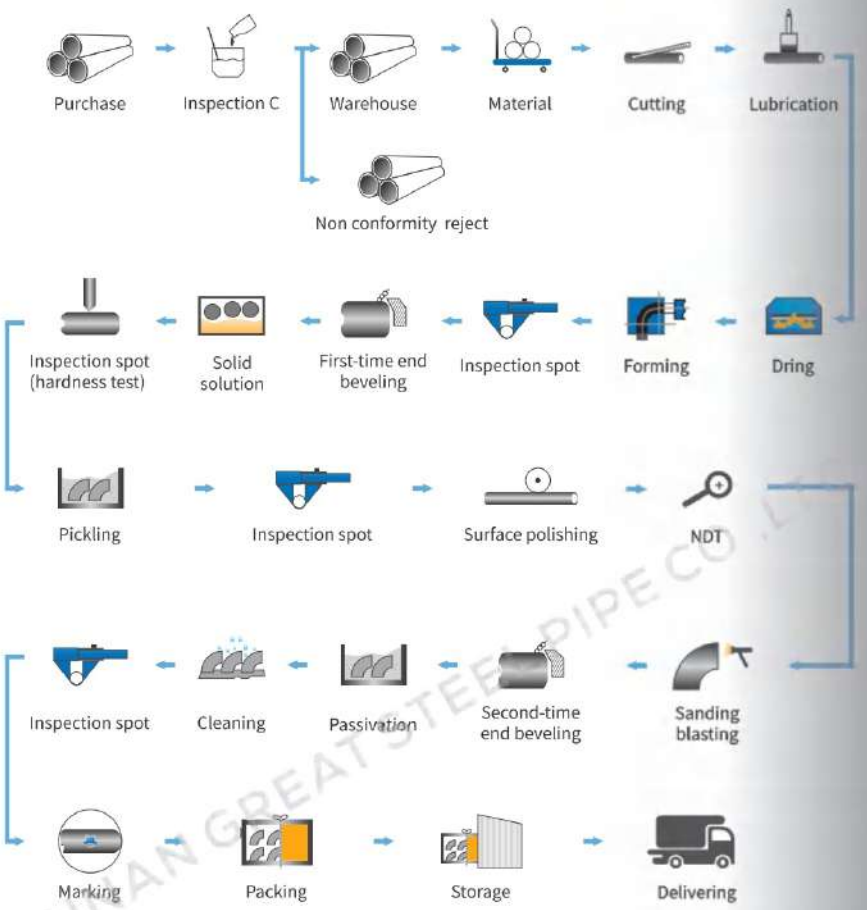
QUALITY

In order to ensure the quality of pipe fittings, we established an independent laboratories to make kinds of testing. Under the strict control system - ISO 9001 certified, we demonstrate our ability to consistently provide products and service that meet customer and applicable statutory and regulatory requirements. We aim to enhance customer satisfaction through the effective application of the system, including processes for improvement of the system and the assurance of the conformity to customer and applicable statutory and regulatory requirements.

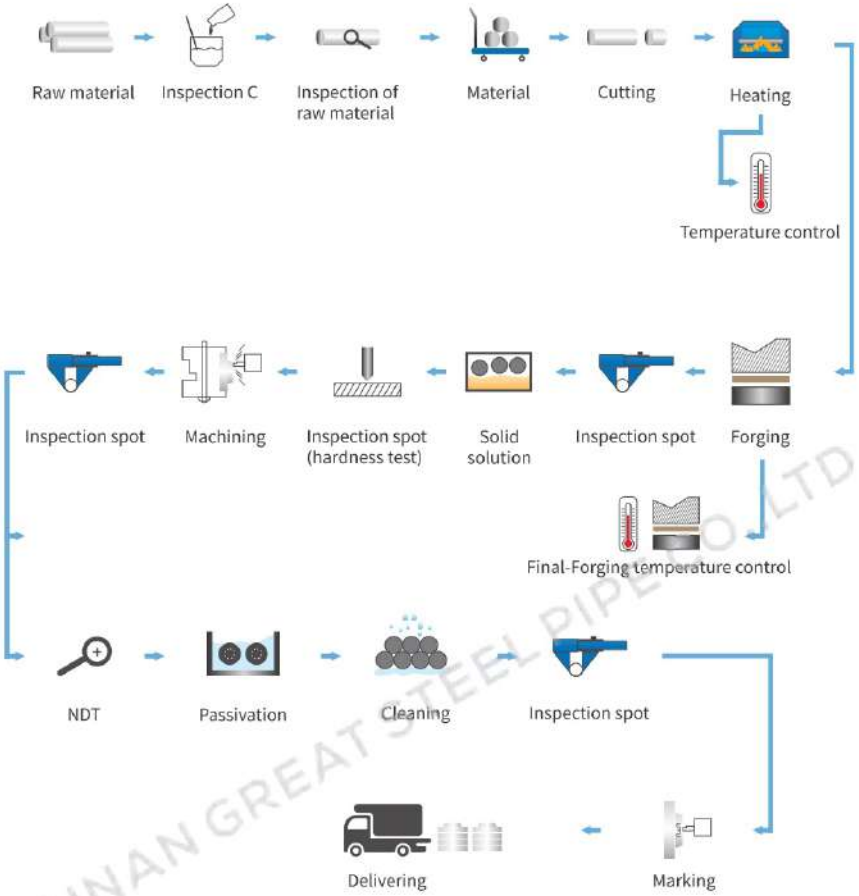
We have a full set of testing equipment and methods, such as Hydraulic Universal Testing, Bend Tests, Eddy-Current Testing, Tensile Test, Weld Decay Test, Weld Decay Test, Ultrasonic Test, Rockwell Hardness Test, Ultrasonic Testing etc.

PROCESS

Production Process Flow Chart of Steel Pipe Fittings



Production Process Flow Chart of Forged Flange



PRODUCTS

45° Long Radius Elbow

workmanship	Mandrel forming
size	seamless1/2"-24"(DN15-DN600) Welded 1/2"-48"(DN15-DN1200)
standard	ASME B16.9,DIN 2605,JIS B2313,GB/T 12459,GB/T 13401, SH3408,SH3409, HG/T21635,HG/T21631,MSS SP-43
wall thickness	SCH5S-SCH160
material	317/L、304/L、316/L、310S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60 S31803/F51、S32760/F55

90° Short Radius Elbow

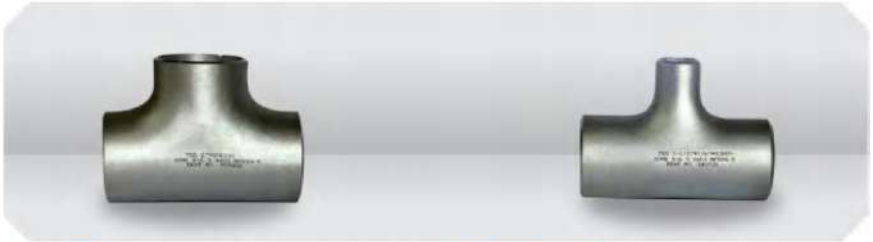
workmanship	Mandrel forming
size	seamless1/2"-24"(DN15-DN600) Welded 1/2"-48"(DN15-DN1200)
standard	ASME B16.9,DIN 2605,JIS B2313,GB/T 12459,GB/T 13401, SH3408,SH3409, HG/T21635,HG/T21631,MSS SP-43
wall thickness	SCH5S-SCH160
material	317/L、304/L、316/L、310S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60 S31803/F51、S32760/F55

90° Long Radius Elbow

workmanship	Mandrel forming
size	seamless1/2"-24"(DN15-DN600) Welded 1/2"-48"(DN15-DN1200)
standard	ASME B16.9,DIN 2605,JIS B2313,GB/T 12459,GB/T 13401, SH3408,SH3409, HG/T21635,HG/T21631,MSS SP-43
wall thickness	SCH5S-SCH160
material	317/L、304/L、316/L、310S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60 S31803/F51、S32760/F55

180° Elbow

workmanship	Ball forming/Hot forming
size	seamless1/2"-12"(DN15-DN300) Welded 1/2"-12"(DN15-DN300)
standard	ASME B16.9,DIN 2605,JIS B2313,GB/T 12459,GB/T 13401,SH3408, SH3409, HG/T21635,HG/T21631,MSS SP-43
wall thickness	SCH5S-SCH160
material	317/L、304/L、316/L、310S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60 S31803/F51、S32760/F55

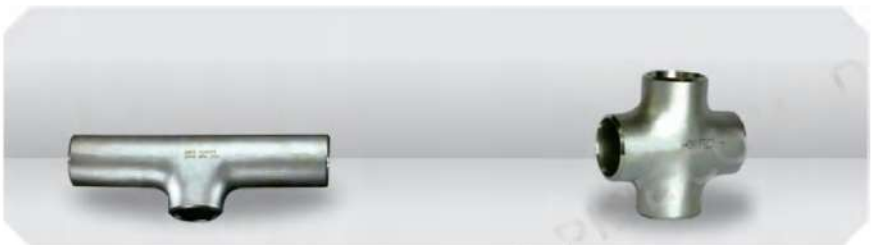


Equal Tee

workmanship	Bulge forming
size	seamless1/2"-24"(DN15-DN600) Welded 1/2"-48"(DN15-DN1200)
standard	ASME B16.9,DIN 2605,JIS B2313,GB/T 12459,GB/T 13401,SH3408, SH3409, HG/T21635,HG/T21631,MSS SP-43
wall thickness	SCH5S-SCH160
material	317/L、304/L、316/L、310S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60 S31803/F51、S32760/F55

Reducing Tee

workmanship	Bulge forming
size	seamless1/2"-24"(DN15-DN600) Welded 1/2"-48"(DN15-DN1200)
standard	ASME B16.9,DIN 2605,JIS B2313,GB/T 12459,GB/T 13401,SH3408, SH3409, HG/T21635,HG/T21631,MSS SP-43
wall thickness	SCH5S-SCH160
material	317/L、304/L、316/L、310S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60 S31803/F51、S32760/F55

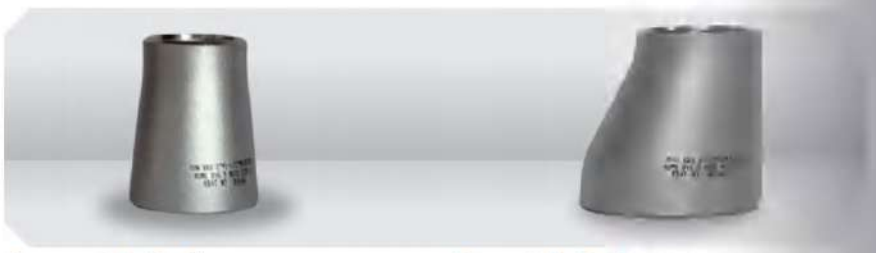


Non-standard Tee

workmanship	Bulge forming
size	seamless1/2"-24"(DN15-DN600) Welded 1/2"-48"(DN15-DN1200)
standard	ASME B16.9,DIN 2605,JIS B2313,GB/T 12459,GB/T 13401,SH3408, SH3409, HG/T21635,HG/T21631,MSS SP-43
wall thickness	SCH5S-SCH160
material	317/L、304/L、316/L、310S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60 S31803/F51、S32760/F55

Cross

workmanship	Bulge forming
size	seamless1/2"-24"(DN15-DN600) Welded 1/2"-48"(DN15-DN1200)
standard	ASME B16.9,DIN 2605,JIS B2313,GB/T 12459,GB/T 13401,SH3408, SH3409, HG/T21635,HG/T21631,MSS SP-43
wall thickness	SCH5S-SCH160
material	317/L、304/L、316/L、310S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60 S31803/F51、S32760/F55



Concentric Reducer

workmanship	Cold extrusion
size	seamless1/2"-24"(DN15-DN600) Welded 1/2"-48"(DN15-DN1200)
standard	ASME B16.9,DIN 2605,JIS B2313,GB/T 12459,GB/T 13401, H3408,SH3409, HG/T21635,HG/T21631,MSS SP-43
wall thickness	SCH5S-SCH160
material	317/L、304/L、316/L、310S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60 S31803/F51、S32760/F55

Eccentric Reducer

workmanship	Cold extrusion
size	seamless1/2"-24"(DN15-DN600) Welded 1/2"-48"(DN15-DN1200)
standard	ASME B16.9,DIN 2605,JIS B2313,GB/T 12459,GB/T 13401, SH3408,SH3409, HG/T21635,HG/T21631,MSS SP-43
wall thickness	SCH5S-SCH160
material	317/L、304/L、316/L、310S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60 S31803/F51、S32760/F55

Cap

workmanship	Press forming
size	seamless1/2"-48"(DN15-DN600)
standard	ASME B16.9,DIN 2605,JIS B2313,GB/T 12459,GB/T 13401, SH3408,SH3409, HG/T21635,HG/T21631,MSS SP-43
wall thickness	SCH5S-SCH160
material	317/L、304/L、316/L、310S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60 S31803/F51、S32760/F55

Stub Ends

workmanship	Press forming
size	seamless1/2"-24"(DN15-DN600) Welded 1/2"-48"(DN15-DN1200)
standard	ASME B16.9,HG/T 205099,HG/T 20621,MSS SP-43
wall thickness	SCH5S-SCH160
material	317/L、304/L、316/L、310S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60 S31803/F51、S32760/F55

Sockolet　Weldolet　Thread

workmanship	Forging
size	DN6-DN600
standard	MSS SP 97
material	317/L、304/L、316/L、310/S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60、S31803/F51、S32760/F55

Swaged Nipples

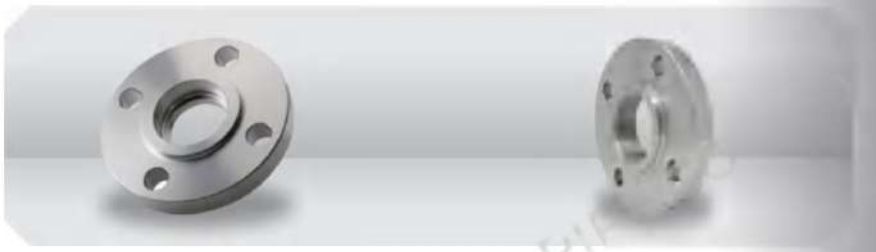
workmanship	Press forming
size	DN6-DN300
standard	MSS SP 95
material	317/L、304/L、316/L、310/S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60、S31803/F51、S32760/F55

Welding Neck Flange

workmanship	Forging
size	DN10-DN4000
standard	ASME B16.47, ASME B16.5, GB9112-9131, SH3406, DIN2576/27/66, DIN2632-2638, EN 1092-1
material	317/L、304/L、316/L、310/S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60 S31803/F51、S32760/F55

Slip-on Flange

workmanship	Forging
size	DN10-DN800
standard	ASME B16.5 GB9112-9131,SH3406, DIN2576/27/66,DIN2632-2638
material	317/L、304/L、316/L、310/S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60 S31803/F51、S32760/F55



Socket Welding Flange

workmanship	Forging
size	DN15-DN600
standard	ASME B16.5
material	317/L、304/L、316/L、310/S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60、S31803/F51、S32760/F55

Threaded Flange

workmanship	Forging
size	DN15-DN600
standard	ASME B16.5, EN1092-1
material	317/L、304/L、316/L、310/S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60、S31803/F51、S32760/F55

Lap Joint Flange

workmanship	Forging
size	DN15-DN600
standard	ASME B16.5, EN1092-1
material	317/L、304/L、316/L、310/S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60、S31803/F51、S32760/F55

Blind Flange

workmanship	Forging
size	DN15-DN1500
standard	ASME B16.5, EN1092-1, ASME B16.47
material	317/L、304/L、316/L、310/S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60、S31803/F51、S32760/F55

Bend

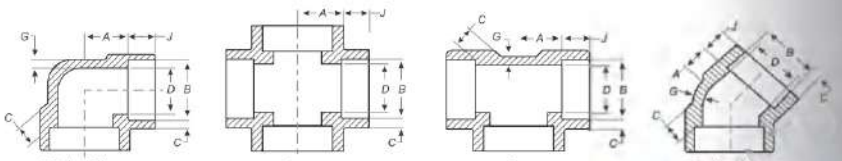
workmanship	Hot expanding
size	DN6-DN650
standard	ASME B36.1M, API 5L EN10210-1, DL/T515, SY5257, API 5L ASTM A106 ASTM A53 EN10219-1 EN 10210-1
material	317/L、304/L、316/L、310/S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60 S31803/F51、S32760/F55

Lateral

workmanship	Bulge forming
size	DN15-DN1500
standard	ASME B16.9
material	317/L、304/L、316/L、310/S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60 S31803/F51、S32760/F55

Socket-Welding Elbows、Tees and Crosses

workmanship	Forging
size	DN6-DN100
standard	ASME B16.11
material	317/L、304/L、316/L、310/S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60、S31803/F51、S32760/F55



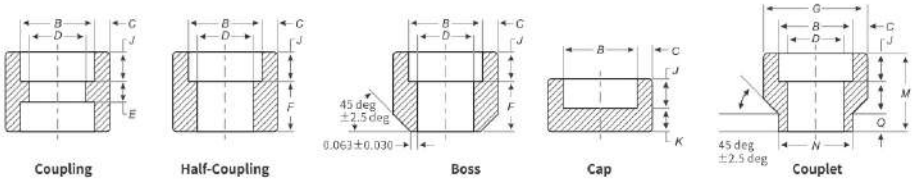
Nominal pipe size	Socket Bore Diam., *B*		Bore Diameter of fittings, *D*						Socket Wall Thickness, *C* (Note(1))						Body Wall, *G*			Socket depth, *J*	Center-to-Bottom of Socket, *A*					
			3000		6000		9000		3000		6000		9000		3000	6000	9000	90EL,Cross, Tee			45-deg Elbow			Tol.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Avg.	Min.	Avg.	Min.	Avg.	Min.	Min.	Min.	Min.	3000	6000	9000	3000	6000	9000	±
1/8	11.2	10.8	7.6	6.1	4.8	3.2	...	...	3.18	3.18	3.96	3.43	...	...	2.41	3.15	...	9.5	11.0	11.0	...	8.0	8.0	...	1.0
1/4	14.6	14.2	10.0	8.5	7.1	5.6	...	...	3.78	3.30	4.60	4.01	...	...	3.02	3.66	...	9.5	11.0	13.5	...	8.0	8.0	...	1.0
3/8	18.0	17.6	13.3	11.8	9.9	8.4	...	...	4.01	3.50	5.03	4.37	...	...	3.39	4.01	...	9.5	13.5	15.5	...	8.0	11.0	...	1.5
1/2	22.2	21.8	16.6	15.0	12.5	11.0	7.2	5.6	4.67	4.09	5.97	5.18	9.35	8.18	3.37	4.78	7.47	9.5	15.5	19.0	25.5	11.0	12.5	15.5	1.5
3/4	27.6	27.2	21.7	20.2	16.3	14.8	11.8	10.3	4.90	4.27	6.96	6.04	9.78	8.56	3.91	5.56	7.82	12.5	19.0	22.5	28.5	13.0	14.0	19.0	1.5
1	34.3	33.9	27.4	25.9	21.5	19.9	16.0	14.4	5.69	4.98	7.92	6.93	11.38	9.96	4.55	6.35	9.09	12.5	22.5	27.0	32.0	14.0	17.5	20.5	2.0
1 1/4	43.1	42.7	35.8	34.3	30.2	28.7	23.5	22.0	6.67	5.21	7.92	6.93	12.14	10.62	4.85	6.35	9.70	12.5	27.0	32.0	35.0	17.5	20.5	22.5	2.0
1 1/2	49.2	48.8	41.6	40.1	34.7	33.2	28.7	27.2	6.35	5.54	8.92	7.80	12.70	11.12	5.08	7.14	10.15	12.5	32.0	38.0	38.0	20.5	25.5	25.5	2.0
2	61.7	61.2	53.3	51.7	43.6	42.1	38.9	37.4	6.93	6.04	10.92	9.50	13.84	12.12	5.54	8.74	11.07	16.0	38.0	41.0	54.0	25.5	28.5	28.5	2.0
2 1/2	74.4	73.9	64.2	61.2	...	...	...	...	8.76	7.67	...	...	...	...	7.01	...	...	16.0	41.0	...	...	28.5	...	...	2.5
3	90.3	89.8	79.4	76.4	...	...	...	...	9.52	8.30	...	...	...	...	7.62	...	...	16.0	57.0	...	...	32.0	...	...	2.5
4	115.7	115.2	103.8	100.7	...	...	...	...	10.69	9.35	...	...	...	...	8.56	...	...	19.0	66.5	...	...	41.0	...	...	2.5

GENERAL NOTE: Dimensions are in millimeters.

NOTE: (1) Average of socket wall thickness around periphery shall not be less than listed values. The minimum values are permitted in localized areas.

Socket-Welding Couplings,Bosses,Caps and Couplets

workmanship	Forging
size	DN6-DN100
standard	ASME B16.11
material	317/L、304/L、316/L、310/S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60、S31803/F51、S32760/F55



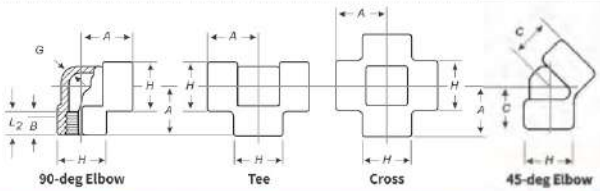
Nominal pipe size	Socket Bore Dia., *B*		Bore Diameter of fittings, *D*						Socket Wall Thickness, (Note(1)) *C*						Outside Dia. Couplet, *G*		Tol.	Socket depth, *J*	Laying Lgth., *E*	Tol.	Laying Lgth., *F*	Tol.	End Wall Thickness, *K*			End To End Couplet, *M*		Tol.	End Ring Diameter, *N*		Tol.	Weld Ring Length *Q*	Tol.
			3000		6000		9000		3000		6000		9000																			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Avg.	Min.	Avg.	Min.	Avg.	Min.	3000	6000	±	Min.	±		±		Min.	Min.	Min.	±		±	3000/6000	±
1/8	11.2	10.8	7.6	6.1	4.8	3.2	...	...	3.18	3.18	3.96	3.43	...	...	...	...	±1.5/-0.0	9.5	6.5	1.5	16.0	1.5	4.8	6.4	...	...	...	...	...	...	...	...
1/4	14.6	14.2	10.0	8.5	7.1	5.6	...	...	3.78	3.30	4.60	4.01	...	...	...	23.8	25.4 ±1.5/-0.0	9.5	6.5	1.5	16.0	1.5	4.8	6.4	...	30.2	±0.8/-0.0	17.5	±1.5/-0.0	9.5	0.8
3/8	18.0	17.6	13.3	11.8	9.9	8.4	...	...	4.01	3.50	5.03	4.37	...	...	...	27.0	31.8 ±1.5/-0.0	9.5	6.5	3.0	17.5	3.0	4.8	6.4	...	30.2	±0.8/-0.0	20.7	±1.5/-0.0	9.5	0.8
1/2	22.2	21.8	16.6	15.0	12.5	11.0	7.2	5.6	4.67	4.09	5.97	5.18	9.35	8.18	33.4	38.1	±1.5/-0.0	9.5	9.5	3.0	22.5	3.0	6.4	7.9	11.2	33.4	±0.8/-0.0	23.8	±1.5/-0.0	9.5	0.8
3/4	27.6	27.2	21.7	20.2	16.3	14.8	11.8	10.3	4.90	4.27	6.96	6.04	9.78	8.56	38.1	44.5	±1.5/-0.0	12.5	9.5	3.0	24.0	3.0	6.4	7.9	12.7	34.9	±0.8/-0.0	27.0	±1.5/-0.0	9.5	0.8
1	34.3	33.9	27.4	25.9	21.5	19.9	16.0	14.4	5.69	4.98	7.92	6.93	11.38	9.96	46.1	57.2	±1.5/-0.0	12.5	12.5	4.0	28.5	4.0	9.6	11.2	14.2	47.6	±0.8/-0.0	42.9	±1.5/-0.0	9.5	0.8
1 1/4	43.1	42.7	35.8	34.3	30.2	28.7	23.5	22.0	6.07	5.28	7.92	6.93	12.14	10.62	55.6	63.5	±1.5/-0.0	12.5	12.5	4.0	30.0	4.0	9.6	11.2	14.2	47.6	±0.8/-0.0	42.9	±1.5/-0.0	9.5	0.8
1 1/2	49.2	48.8	41.6	40.1	34.7	33.2	28.7	27.2	6.35	5.54	8.92	7.80	12.70	11.12	63.5	76.2	±1.5/-0.0	12.5	12.5	4.0	32.0	4.0	11.2	12.7	15.7	50.8	±0.8/-0.0	49.2	±1.5/-0.0	9.5	0.8
2	61.7	61.2	53.3	51.7	43.6	42.1	38.9	37.4	6.93	6.04	10.92	9.50	13.84	12.12	73.4	92.1	±1.5/-0.0	16.0	19.0	4.0	41.0	4.0	12.7	15.7	19.0	57.2	±1.5/-0.0	61.9	±1.5/-0.0	9.5	0.8
2 1/2	74.4	73.9	64.2	61.2	...	...	...	...	8.76	7.67	...	...	...	...	92.1	108.0	±1.5/-0.0	16.0	19.0	5.0	43.0	5.0	15.7	19.0	...	63.5	±1.5/-0.0	73.0	±1.5/-0.0	9.5	0.8
3	90.3	89.8	79.4	76.4	...	...	...	...	9.52	8.30	...	...	...	...	111.1	127.0	±1.5/-0.0	16.0	19.0	5.0	44.5	5.0	19.0	22.4	...	69.9	±1.5/-0.0	88.9	±1.5/-0.0	9.5	0.8
4	115.7	115.2	103.8	100.7	...	...	...	...	10.69	9.35	...	...	...	...	141.3	158.8	±1.5/-0.0	19.0	19.0	5.0	48.0	5.0	22.4	28.4	...	76.2	±1.5/-0.0	114.3	±1.5/-0.0	9.5	0.8

GENERAL NOTE: Dimensions are in millimeters.

NOTE: (1) Average of socket wall thickness around periphery shall not be less than listed values. The minimum values are permitted in localized areas.

Threaded Elbows、Tees and Crosses

workmanship	Forging
size	DN6-DN100
standard	ASME B16.11
material	317/L、304/L、316/L、310/S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60、S31803/F51、S32760/F55



90-deg Elbow　Tee　Cross　45-deg Elbow

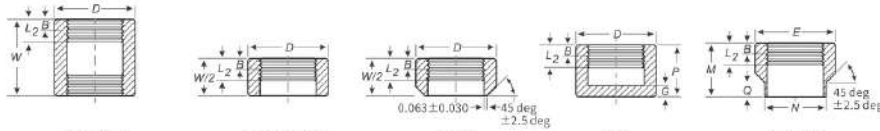
Nominal pipe size	Center-to-End Elbows, Tees, and Crosses, A			Center-to-End 45-deg Elbow, C			Outside Diameter of Band, H			Minimum Wall Thickness, G			Minimum Length of Thread, [Note (1)]	
	2000	3000	6000	2000	3000	6000	2000	3000	6000	2000	3000	6000	B	L_e
$\frac{1}{8}$	21	21	25	17	17	19	22	22	25	3.18	3.18	6.35	6.4	6.7
$\frac{1}{4}$	21	25	28	17	19	22	22	25	33	3.18	3.30	6.60	8.1	10.2
$\frac{3}{8}$	25	28	33	19	22	25	25	33	38	3.18	3.51	6.98	9.1	10.4
$\frac{1}{2}$	28	33	38	22	25	28	33	38	46	3.18	4.09	8.15	10.9	13.6
$\frac{3}{4}$	33	38	44	25	28	33	38	46	56	3.18	4.32	8.53	12.7	13.9
1	38	44	51	28	33	35	46	56	62	3.68	4.98	9.93	14.7	17.3
$1\frac{1}{4}$	44	51	60	33	35	43	56	62	75	3.89	5.28	10.59	17.0	18.0
$1\frac{1}{2}$	51	60	64	35	43	44	62	75	84	4.01	5.56	11.07	17.8	18.4
2	60	64	83	43	44	52	75	84	102	4.27	7.14	12.09	19.0	19.2
$2\frac{1}{2}$	76	83	95	52	52	64	92	102	121	5.61	7.65	15.29	23.6	28.9
3	86	95	106	64	64	79	109	121	146	5.99	8.84	16.64	25.9	30.5
4	106	114	114	79	79	79	146	152	152	6.55	11.18	18.67	27.7	33.0

GENERAL NOTE: Dimensions are in millimeters.

NOTE:(1) Dimension B is minimum length of perfect thread. The length of useful thread(B plus threads with fully formed roots and flat crests) shall not be less than L_e (effective length of external thread) required by American National Standard for Pipe Threads (ASME B1.20.1; see para 6.3)

Threaded Couplings, Bosses, Caps and Couplets

workmanship	Forging
size	DN6-DN100
standard	ASME B16.11
material	317/L、304/L、316/L、310/S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60、S31803/F51、S32760/F55



Coupling　Half-Coupling　Boss　Cap　Couplet

Nominal pipe size	Outside Diameter, D		Outside Diameter Couplet, E		Tol.	End-to-End Coupling, W	End-to-End Caps, P		End-to-End Caplings	Tol.	Minimum End Wall Thickness, G		Weld Ring Length, Q	Tol.	Weld Ring Diameter, N	Tol.	Minimum Length of Thread, [Note (1)]	
	3000	6000	3000	6000	±	3000/6000	3000	6000	3000/6000	±	3000	6000	3000/6000	±	3000/6000	±	3000/6000 B	L_e
$\frac{1}{8}$	16	22	...	...	...	32	19	22	...	...	4.8	6.4	...	...	...	...	6.4	6.7
$\frac{1}{4}$	19	25	23.8	25.4	±1.5/-0.0	35	25	27	30.2	±0.8/-0.0	4.8	6.4	9.5	0.8	17.6	±1.5/-0.0	8.1	10.2
$\frac{3}{8}$	22	32	27.0	31.8	±1.5/-0.0	48	32	27	30.2	±0.8/-0.0	4.8	6.4	9.5	0.8	20.7	±1.5/-0.0	9.1	10.4
$\frac{1}{2}$	28	38	33.4	38.1	±1.5/-0.0	48	32	33	33.4	±0.8/-0.0	6.4	7.9	9.5	0.8	23.8	±1.5/-0.0	10.9	13.6
$\frac{3}{4}$	35	44	38.1	44.5	±1.5/-0.0	51	37	38	34.9	±0.8/-0.0	6.4	7.9	9.5	0.8	27.0	±1.5/-0.0	12.7	13.9
1	44	57	46.1	57.2	±1.5/-0.0	60	41	43	42.9	±0.8/-0.0	9.7	11.2	9.5	0.8	33.4	±1.5/-0.0	14.7	17.3
$1\frac{1}{4}$	57	64	55.6	63.5	±1.5/-0.0	67	44	46	47.6	±0.8/-0.0	9.7	11.2	9.5	0.8	42.9	±1.5/-0.0	17.0	18.4
$1\frac{1}{2}$	64	76	63.5	76.2	±1.5/-0.0	79	44	48	50.8	±0.8/-0.0	11.2	12.7	9.5	0.8	49.2	±1.5/-0.0	17.8	18.4
2	76	92	79.4	79.4	±1.5/-0.0	86	48	51	57.2	±1.5/-0.0	12.7	15.7	9.5	0.8	61.9	±1.5/-0.0	19.0	19.2
$2\frac{1}{2}$	92	108	92.1	92.1	±1.5/-0.0	92	60	64	63.5	±1.5/-0.0	15.7	19.0	9.5	0.8	73.0	±1.5/-0.0	23.6	28.9
3	108	127	111.1	111.1	±1.5/-0.0	105	65	68	69.9	±1.5/-0.0	19.0	22.4	9.5	0.8	114.3	±1.5/-0.0	25.9	30.5
4	140	159	141.3	141.3	±1.5/-0.0	121	68	75	76.2	±1.5/-0.0	22.4	28.4	9.5	0.8	114.3	±1.5/-0.0	27.7	33.0

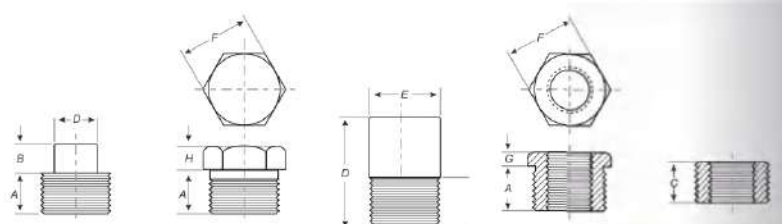
GENERAL NOTES:(a)Dimensions are in millimeters.

(b) The wall thickness away from the threaded ends shall meet the minimum wall thickness requirements of Table 1-2 for the appropriate NPS and Class Designation fitting.

NOTE: (1) Dimension B is minimum length of perfect thread. The length of useful thread (B plus threads with fully formed roots and flat crests) shall not be less than L_e (effective length of external thread) required by American National Standard for Pipe Threads (ASME B1.20.1; see para. 6.3).

Plugs and Bushings

workmanship	Forging
size	DN6-DN100
standard	ASME B16.11
material	317/L、304/L、316/L、310/S、309/S、347/H、321/321H、904/L、S32750/F53/SAF2507、S32205/F60、S31803/F51、S32760/F55



Square Head Plug　Hax Head Plug　Round Head Plug　Hax Head Bushing [Note(1)]　Flush Bushing

Nominal pipe size	Square Head Plugs			Round Head Plugs		Hex Plugs and Bushings		
	Minimum Length, *A*	Minimum Square Height, *B*	Minimum Width Flats, *C* [Note(2)]	Nominal Head Diameter, *E*	Minimum Length, *D*	Nominal Width Flats, *F* [Note(2)]	Minimum Hex Height Bushing, *G*	Minimum Hex Height Plug, *H*
1/8	10	6	7.15	10	35	11.11	...	6
1/4	11	6	9.55	14	41	15.88	3	6
3/8	13	8	11.11	18	41	17.46	4	8
1/2	14	10	14.29	21	44	22.23	5	8
3/4	16	11	15.88	27	44	26.99	6	10
1	19	13	20.64	33	51	34.93	6	10
1 1/4	21	14	23.81	43	51	44.45	7	14
1 1/2	21	16	28.58	48	51	50.80	8	16
2	22	18	33.37	60	64	63.50	9	18
2 1/2	27	19	38.10	73	70	76.20	10	19
3	28	21	42.86	89	70	88.90	10	21
4	32	25	63.50	114	76	117.48	13	25

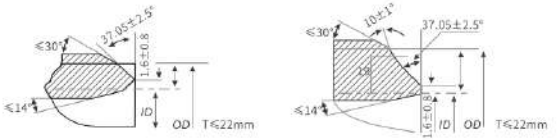
GENERAL NOTE: Dimensions are in millimeters

NOTES: (1) Cautionary Note Regarding Hex Bushings: Hex head bushings of one-size reduction should not be used in services where they might be subject to harmful loads and forces other than internal pressures.

(2) Manufacturer's applied tolerance shall ensure dimension will fit U.S. Customary tooling.

TECHNICAL PARAMETERS

Welding Bevel of Fittings



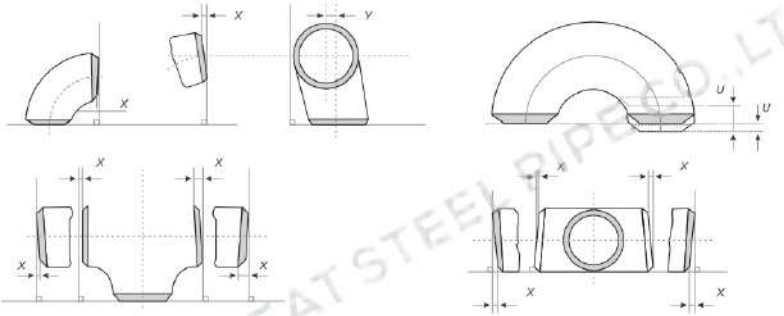
Limiting tolerances can be slightly difference between the different standards and codes.

GB12459、GB/T 13401、ASME/ANSI B169、B16.28

Tolerances for butt-welding fittings

Item	Types of pipe fittings	DN				
		15-65	80-100	125-200	250-450	500
		Limit deviation				
D1、D2、D3	All pipe fittings	±1.6	±1.6	±2.4	±4.0	±6.4
		−0.8		−1.6	−3.2	−4.8
d1		±0.8		±1.6	±3.2	±4.8
T、T1、T2		Not less than 87.5% of the nominal wall thickness				
B、A	45° elbow, 90° elbow	±2			±3	
P	180° elbow	±7			±7	
K		±7				
L	Reducer	±2			±3	
C、M	Tee、Cross	±2			±3	
E、E1	Caps	±4			±7	

Angularity tolerance of butt-welding fittings GB12459



Item	Types of pipe fittings	DN				
		15-100	125-200	250-300	350-400	450-500
		Tolerance				
X	Elbow、Tee、Reducer、Cross	1	2	3		4
Y	Elbow、Tee、Cross	2	4	5	7	10
U	180° elbow	1		2		

Angularity Tolerance of Butt-welding Fittings

GB/T 12459-90

Item	Types of pipe fittings	DN				
		15-65	80-100	125-200	250-450	500
		Limit deviation				
End outer diameter	All pipe fittings	±1.6	±1.6	±2.4	±4.0	±6.4
		−0.8		−1.6	−3.2	−4.8
End inner diameter		±0.8		±1.6	±3.2	±4.8
Wall thickness		Not less than 87.5% of the nominal wall thickness				
H、F	45° elbow, 90° elbow	±2			±3	
P	180° elbow	±7			±10	
K						
L	Reducer	±2			±3	
C、M	Tee	±2			±3	
E、E1	Caps	±4		±7		

Item	Types of pipe fittings	DN				
		15-65	80-100	125-200	250-450	500
		2		Tolerance		
X	Elbow、Tee、Reducer、Cross	1	4	3		4
Y	Elbow、Tee、Cross	2		5	7	10
U	180° elbow	1		2		

GB/T 13401-92

Item	Types of pipe fittings	DN				
		150-200	250-450	500-600	650-750	800-1200
		Limit deviation				
End outer diameter	All pipe fittings	±2.4	±4.0		±6.4	
		−1.6	−3.2		−4.8	
End inner diameter①		±1.6	±3.2		±4.8	
Wall thickness		Not less than 87.5% of the nominal wall thickness				
H、F	45° elbow, 90° elbow	—	±3			±5
L	Reducer	—	±3			±5
C、M	Tee、Cross	—	±3			±5
E	Caps		±7		±10	
The minimum and maximum outer diameter difference of the end	All pipe fittings	Not more than 0.01DN, and not more than 5				

Item	Types of pipe fitting	DN				
		350-400	400-600	650-750	800-1050	1100-1200
		Tolerance				
X	Elbow、Reducing tee、Tee	3	4		5	
Y	Elbow、Tee、Cross	7	10		13	19

NOTES: (1) Unless the customer has special requirements, priority should be given to the limit deviation of the end outer diameter and the nominal wall thickness.

(2) For reducing pipe fittings, the dimensional deviation is given according to the nominal cut of the large diameter end.

Angularity Tolerance of Butt-welding Fittings

ASME/ANSI B16.9、B16.28

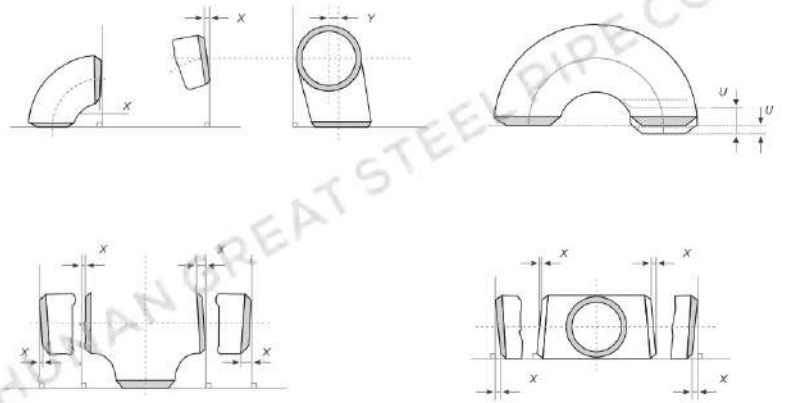
Item	Types of pipe fittings	DN							
		1/2-2(1/2)	3-3(1/2)	4	5-8	10-18	20-24	26-30	32-48
		Limit deviation							
D、D1、D2	All pipe fittings	±1.52	±1.52		+2.29	+4.06	+6.35		
		−0.76			−1.52	−3.05	−4.83		
End inner diameter①②		±0.76				±3.05	±4.83		
T、T1、T2		Not less than 87.5% of the nominal wall thickness							
H、F、C、M	45° elbow, 90° elbow Tee、Cross	±1.52				±2.29		±3.05	±4.83
P	180° elbow	±6.35				±9.65		—	
K		±6.35						—	
U		±0.76				±1.52		—	
L	Reducer、Stub	±1.52				±2.29		±4.83	
E、E1	Caps	±3.05			±6.35			±9.65	
G	Stub	0 -0.76				0 -1.25			
t		+1.52 0							
R		0 -0.76		0 -1.25					

DN		1/2-4	5-8	10-12	14-16	18-24	26-30	32-42	44-48
Elbow、Tee	X	0.76	1.52	2.29	2.29	3.05		4.83	
Cross	Y	1.52	3.05	4.83	6.35	9.65	9.65	12.70	19.05

NOTES: (1) Unless the customer has special requirements, priority should be given to the limit deviation of the end outer diameter and the nominal wall thickness.

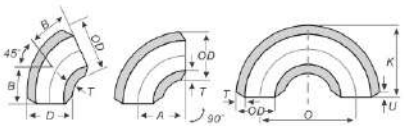
(2) The difference between the inner diameter of the end and the nominal wall thickness twice the outer diameter of the end.

(3) The roundness is the sum of the absolute values of the positive and negative deviations of the outer diameter.



Long Radius Elbows

45° 90° 180°



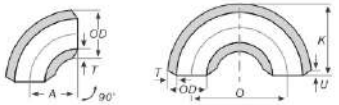
Above dimensions acc. to GB/T 12459、GB/T 13401、SH3408、SH 3409、HG/T 21635、HG/T 21631、SY/T 05010、ASME B16.9

Weights are approximate and based on manufacture's data, according to ASME B36.10M、B36.19M, (sch20S/LG, weights are approximate and based on manufacture's data, according to GB/T 12459, GB/T13401.)

Nominal diameter		Outside diameter	Center to end		Center to center	90°L/R elbow approx weight (kg/pc)					
DN	NPS	OD	B	A	O	sch5S	sch10S	sch20S/LG	sch40S/STD	sch80S/XS	sch80
15	1/2	18	16	38	76	0.04	0.05	0.06	0.06	0.08	0.08
		21.3				0.05	0.06	0.07	0.08	0.10	0.10
20	3/4	25	19	38	76	0.06	0.07	0.09	0.09	0.12	0.12
		26.7				0.06	0.08	0.09	0.10	0.13	0.13
25	1	32	22	38	76	0.07	0.12	0.14	0.14	0.19	0.19
		33.4				0.08	0.13	0.14	0.15	0.19	0.19
32	1(1/4)	38	25	48	96	0.11	0.18	0.21	0.23	0.30	0.30
		42.2				0.13	0.20	0.23	0.26	0.34	0.34
40	1(1/2)	45	29	57	114	0.16	0.26	0.30	0.34	0.45	0.45
		48.3				0.17	0.28	0.32	0.37	0.49	0.49
50	2	57	35	76	152	0.27	0.45	0.57	0.62	0.85	0.85
		60.3				0.29	0.47	0.61	0.65	0.90	0.90
65	2(1/2)	76	44	95	190	0.58	0.82	0.97	1.35	1.79	1.79
		73				0.55	0.79	0.93	1.30	1.71	1.71
80	3	89	51	114	228	0.82	1.17	1.51	2.04	2.76	2.76
90	3(1/2)	101.6	57	133	266	1.09	1.56	2.03	2.85	3.92	3.92
100	4	108	64	152	304	1.32	1.90	2.47	3.64	5.05	5.05
		114				1.40	2.01	2.61	3.85	5.35	5.35
125	5	133	79	190	380	2.67	3.27	4.74	6.14	8.72	8.72
		141.3				2.84	3.47	5.05	6.54	9.31	9.31
		139.7				2.81	3.43	4.99	6.46	9.19	9.19
150	6	168.3	95	229	458	4.10	5.01	7.29	10.24	15.41	15.41
		159				3.86	4.72	6.88	9.64	14.50	14.50
		165				4.01	4.91	7.14	10.03	15.09	15.09
200	8	219	127	305	610	7.12	9.63	15.94	20.51	31.17	31.17
		216				7.03	9.49	15.71	20.22	30.71	30.71
250	10	273	159	381	762	13.62	16.74	24.97	36.33	49.12	57.93
		267.4				13.34	16.39	24.44	35.56	48.06	56.71
300	12	325	190	457	914	22.66	26.10	35.79	53.58	70.69	86.84
		323.9				22.58	26.01	35.66	53.40	70.44	86.46
		318				22.16	25.53	35.00	52.39	69.11	83.93
350	14	377	222	533	1066	30.71	36.98	61.36	72.80	96.17	141.75
		355.6				28.95	34.86	57.80	68.56	90.52	133.27
400	16	426	254	610	1220	42.05	47.90	79.55	94.42	124.87	206.35
		406.4				40.09	45.67	75.82	89.98	118.95	196.35
450	18	478	286	686	1372	53.11	60.52	100.60	119.44	158.10	259.56
		457.2				50.78	57.86	96.14	114.14	151.03	276.29
500	20	529	318	762	1524	74.47	86.18	123.86	147.12	194.86	391.34
		508				71.48	82.72	118.87	141.17	186.94	375.00
550	22	559	343	838	1676	86.58	100.21	144.06	171.14	226.75	495.46
600	24	630	381	914	1828	123.32	141.21	177.37	210.78	279.45	661.10
		610				119.37	136.64	171.67	203.98	270.40	-
650	26	660	406	991	1982	-	-	201.59	239.58	317.72	-
700	28	720	438	1067	2134	-	-	237.03	281.75	373.80	-
		711				-	-	234.03	278.18	369.04	-
750	30	762	470	1143	2286	213.9	266.23	268.89	319.66	424.20	-
800	32	820	502	1219	2438	-	-	308.83	367.20	487.42	-
850	34	813	533	1295	2590	-	-	306.16	364.02	483.20	-
		864				-	-	345.86	411.27	546.04	-
900	36	920	568	1372	2744	-	-	390.39	464.28	616.56	-
		914				-	-	387.83	461.22	612.48	-
950	38	965	600	1448	2896	-	-	432.25	514.21	682.98	-
1000	40	1016	632	1524	3048	-	-	479.29	570.09	757.33	-
		1020				-	-	481.19	572.36	760.35	-
1050	42	1167	660	1600	3200	-	-	528.65	628.85	835.51	-
1100	44	1118	695	1676	3352	-	-	580.43	690.49	917.53	-
		1120				-	-	581.48	691.73	9191.19	-
1150	46	1168	727	1753	3506	-	-	634.45	754.79	1003.10	-
1200	48	1220	759	1829	3658	-	-	691.63	822.86	1093.70	-

Short Radius Elbows

90° 180°

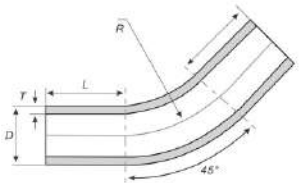


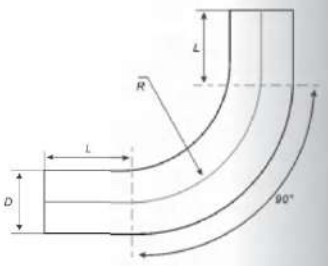
Above dimensions acc. to GB/T 12459、GB/T 13401、SH3408、SH 3409、HG/T 21635、HG/T 21631、SY/T 05010、ASME B16.9.

Weights are approximate and based on manufacture's data, according to ASME B36.10M、B36.19M, (sch20S/LG, weights are approximate and based on manufacture's data, according to GB/T 12459, GB/T13401.)

Nominal diameter		Outside diameter	Center to end	Center to center	90°S/R elbow approx weight (kg/pc)					
DN	NPS	OD	A	O	sch5S	sch10S	sch20S/LG	sch40S/STD	sch80S/XS	sch80
25	1	32	25	50	0.05	0.08	0.09	0.09	0.12	0.12
		33.4			0.05	0.08	0.09	0.10	0.13	0.13
32	1(1/4)	38	32	64	0.07	0.12	0.14	0.15	0.20	0.20
		42.2			0.08	0.14	0.16	0.17	0.23	0.23
40	1	45	38	76	0.11	0.17	0.20	0.23	0.30	0.30
		48.3			0.11	0.19	0.21	0.24	0.33	0.33
50	2	57	51	102	0.18	0.30	0.38	0.41	0.57	0.57
		60.3			0.19	0.32	0.41	0.44	0.60	0.60
65	2(1/2)	76	64	128	0.39	0.56	0.65	0.91	1.21	1.21
		73			0.37	0.53	0.62	0.87	1.15	1.15
80	3	89	76	152	0.54	0.78	1.01	1.36	1.84	1.84
90	3(1/2)	101.6	89	178	0.73	1.04	1.36	1.91	2.62	2.62
100	4	108	102	204	0.89	1.27	1.65	2.44	3.39	3.39
		114			0.94	1.35	1.75	2.59	3.59	3.59
125	5	133	127	254	1.79	2.18	3.17	4.10	5.83	5.83
		141.3			1.90	2.32	3.38	4.37	6.22	6.22
		139.7			1.88	2.30	3.34	4.32	6.14	6.14
150	6	168.3	152	304	2.72	3.32	4.84	6.79	10.23	10.23
		159			2.57	3.14	4.56	6.40	9.63	9.63
		165			2.66	3.26	4.74	6.65	10.02	10.02
200	8	219	203	406	4.74	6.41	10.61	13.65	20.74	20.74
		216			4.68	6.32	10.46	13.46	20.44	20.44
250	10	273	254	508	9.08	11.16	16.64	24.22	32.75	38.55
		267.4			8.89	10.92	16.29	23.70	32.04	37.72
300	12	325	305	610	15.12	17.42	23.88	35.76	47.18	63.44
		323.9			15.07	17.36	23.80	35.64	47.01	63.21
		318			14.79	17.04	23.36	34.97	46.12	62.49
350	14	377	356	712	20.51	24.70	40.99	48.62	64.24	94.67
		355.6			19.33	23.28	38.61	45.79	60.46	89.01
400	16	426	406	812	27.98	31.88	52.95	62.84	83.11	137.34
		406.4			26.68	30.40	50.47	59.85	79.17	130.69
450	18	478	457	914	35.38	40.32	67.01	79.57	105.32	192.90
		457.2			33.38	38.54	64.05	76.04	100.61	184.06
500	20	529	508	1016	49.64	57.45	82.58	98.08	129.91	260.90
		508			47.66	55.15	79.25	94.12	124.62	250.00
550	22	559	559	1118	57.75	66.85	93.10	114.16	151.26	330.49
600	24	630	610	1220	82.30	94.21	118.38	140.67	186.51	441.22
		610			79.67	91.19	114.57	136.14	180.46	-
650	26	660	660	1320	-	-	134.26	159.56	211.60	-
700	28	720	711	1422	-	-	157.94	187.75	249.08	-
		711			-	-	155.95	175.37	245.91	-
750	30	762	762	1524	142.60	117.49	179.26	213.11	282.80	-
800	32	820	813	1626	-	-	205.97	244.90	325.08	-
		813			-	-	204.19	242.78	322.26	-
850	34	864	864	1728	-	-	230.75	274.39	364.30	-
900	36	920	914	1828	-	-	260.07	309.29	410.74	-
		914			-	-	258.36	307.25	408.02	-
950	38	956	965	1930	-	-	288.13	342.69	455.17	-
1000	40	1016	1016	2032	-	-	319.53	380.06	504.89	-
		1020			-	-	320.80	381.57	506.90	-
1050	42	1167	1067	2134	-	-	352.55	419.36	557.18	-
1100	44	1118	1118	2236	-	-	387.19	460.60	612.05	-
		1120			-	-	387.88	461.43	613.16	-
1150	46	1168	1168	2336	-	-	422.72	502.90	668.35	-
1200	48	1220	1220	2440	-	-	461.34	548.87	729.53	-

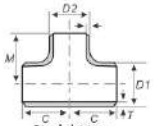
Bend



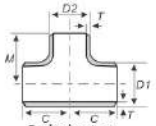


Item	Description
standard	according to DL/T515《power station bend》,Sy5257《steel bend》, or customer' s techincal drawing
material	carbon steel, alloy steel , stainless steel
bend radius R	R≤6000mm, R≥3D (R=3D、4D、5D、6D、7D、8D、9D、10D) , D: outside diameter
bend angle θ	normally 15°、30°、45°、60°、90°、135°、180°、or at customer' s option
length of straight L	normally between 300mm and 1500mm in length of straight, it is at customer' s option
outside diamter D	D≤1220mm
wall thickness T	T≤120mm
end bevel	according to welding bevel of butt welding fitting
weight	weight/kg $\frac{0.043(D-T)TR\theta}{100000}$ +L (weight of doubleside straight length)

Tees(Straight and Reducing)



Straight tee



Reducing tee

Above dimensions acc. to GB/T 12459、GB/T 13401、SH3408、SH 3409、HG/T 21635、HG/T 21631、SY/T 05010、ASME B16.9.

Weights are approximate and based on manufacture's data, according to ANSI B16.19

Nominal diameter		Outside diameter	Center to end	Center to center	Approx weight (kg/pc)					
DN	NPS	D1xD2	C	M	sch5S	sch10S	sch40S/STD	sch40	sch80S/XS	sch80
20x20	3/4x3/4	25x25 26.7x26.7	29	29	0.07 0.08	0.10 0.11	0.13 0.15	0.13 0.15	0.16 0.18	0.16 0.18
20x15	3/4x1/2	25x18 26.7x21.3	29	29	0.06 0.07	0.09 0.10	0.12 0.13	0.12 0.13	0.15 0.16	0.15 0.16
25x25	1x1	32x32 33.4x33.4	38	38	0.11 0.12	0.19 0.20	0.23 0.25	0.23 0.25	0.30 0.32	0.30 0.32
25x20	1x3/4	32x25 33.4x26.7	38	38	0.10 0.11	0.18 0.19	0.22 0.24	0.22 0.24	0.28 0.31	0.28 0.31
25x15	1x1/2	32x18 33.4x21.3	38	38	0.09 0.10	0.17 0.18	0.21 0.23	0.21 0.23	0.27 0.30	0.27 0.30
32x32	1.1/4x1.1/4	38x38 42.2x42.2	48	48	0.19 0.20	0.36 0.39	0.42 0.52	0.42 0.52	0.63 0.73	0.63 0.73
32x25	1.1/4x1	38x32 42.2x33.4	48	48	0.18 0.19	0.33 0.35	0.40 0.42	0.40 0.42	0.58 0.68	0.58 0.68
32x20	1.1/4x3/4	38x25 42.2x26.7	48	48	0.17 0.18	0.31 0.32	0.38 0.40	0.38 0.40	0.55 0.65	0.55 0.65
32x15	1.1/4x1/2	38x18 42.2x21.3	48	48	0.16 0.17	0.30 0.31	0.36 0.38	0.36 0.38	0.52 0.62	0.52 0.62
40x40	1.1/2x1.1/2	45x45 48.3x48.3	57	57	0.35 0.45	0.59 0.69	0.78 0.88	0.78 0.88	1.08 1.18	1.08 1.18
40x32	1.1/2x1.1/4	45x38 48.3x42.2	57	57	0.32 0.42	0.54 0.65	0.72 0.82	0.72 0.82	0.99 1.09	0.99 1.09
40x25	1.1/2x1	45x32 48.3x33.4	57	57	0.27 0.37	0.45 0.65	0.60 0.80	0.60 0.80	0.83 1.08	0.83 1.08
40x20	1.1/2x3/4	45x25 48.3x26.7	57	57	0.26 0.36	0.44 0.64	0.58 0.68	0.58 0.68	0.80 1.00	0.80 1.00
40x15	1.1/2x1/2	45x18 48.3x21.3	57	57	0.25 0.35	0.42 0.62	0.56 0.66	0.56 0.66	0.78 0.78	0.78 0.78
50x50	2x2	57x57 60.3x60.3	64	64	0.49 0.50	1.03 1.05	1.15 1.18	1.15 1.18	1.65 1.67	1.65 1.67
50x40	2x1.1/2	57x45 60.3x48.3	64	60	0.44 0.45	0.93 0.95	1.04 1.06	1.04 1.06	1.48 1.50	1.48 1.50
50x32	2x1.1/4	57x38 60.3x42.2	64	57	0.40 0.43	0.81 0.89	0.98 1.00	0.98 1.00	1.37 1.42	1.37 1.42
50x25	2x1	57x32 60.3x33.4	64	51	0.39 0.40	0.72 0.84	0.92 0.94	0.92 0.94	1.31 1.34	1.31 1.34
50x20	2x3/4	57x25 60.3x26.7	64	44	0.37 0.38	0.70 0.80	0.87 0.90	0.87 0.90	1.24 1.27	1.24 1.27
65x65	2.1/2x2.1/2	76x76 73.0x73.0	76	76	0.87 0.86	1.21 1.25	2.10 2.12	2.10 2.12	2.80 2.88	2.80 2.88
65x50	2.1/2x2	76x57 73.0x60.3	76	70	0.92 0.91	1.17 1.16	2.00 1.98	2.00 1.98	2.70 2.65	2.70 2.65
65x40	2.1/2x1.1/2	76x45 73.0x48.3	76	67	0.77 0.76	1.11 1.10	1.89 1.88	1.89 1.88	2.56 2.55	2.56 2.55
65x32	2.1/2x1.1/4	76x38 73.0x42.2	76	64	0.75 0.74	1.10 1.08	1.80 1.89	1.80 1.89	2.50 2.25	2.50 2.25
65x25	2.1/2x1	76x32 73.0x33.4	76	57	0.76 0.70	1.10 1.07	1.86 1.81	1.86 1.81	2.53 2.08	2.53 2.08
80x80	3x3	89x89	86	86	1.16	1.68	3.02	3.02	4.19	4.19
80x65	3x2.1/2	89x76 88.9x73.0	86	83	1.11 1.10	1.62 1.60	2.89 2.87	2.89 2.87	4.02 3.98	4.02 3.98
80x50	3x2	88.9x57 88.9x60.3	86	76	1.06 1.07	1.53 1.55	2.76 2.79	2.76 2.79	3.81 3.85	3.81 3.85
80x40	3x1.1/2	88.9x45 88.9x48.3	86	73	1.01 1.03	1.49 1.50	2.67 2.69	2.67 2.69	3.70 3.73	3.70 3.73
80x32	3x1.1/4	89x38 88.9x42.2	86	70	1.00 1.00	1.48 1.45	2.65 2.60	2.65 2.60	3.68 3.60	3.68 3.60
90x90	3.1/2x3.1/2	101.6x101.6	95	95	1.33	1.92	3.61	3.61	5.08	5.08
90x80	3.1/2x3	101.6x88.9	95	92	1.26	1.82	3.43	3.43	4.83	4.83

Nominal diameter		Outside diameter	Center to end	Center to center	Approx weight (kg/pc)					
DN	NPS	D1xD2	C	M	sch5S	sch10S	sch40S/STD	sch40	sch80S/XS	sch80
90×65	3.1/2×2.1/2	101.6×73.0	95	89	1.22	1.76	3.32	3.32	4.67	4.67
90×50	3.1/2×2	101.6×60.3	95	83	1.20	1.73	3.25	3.25	4.57	4.57
90×40	3.1/2×1.1/2	101.6×48.3	95	79	1.17	1.70	3.21	3.21	4.51	4.51
100×100	4×4	108×108 114.3×114.3	105	105	1.66 1.75	2.41 2.54	4.75 5.01	4.75 5.01	6.75 7.12	6.75 7.12
100×90	4×3.1/2	114.3×101.6	105	102	1.70	2.46	4.85	4.85	6.89	6.89
100×80	4×3	108×89 114.3×88.9	105	98	1.55 1.61	2.24 2.33	4.42 4.60	4.42 4.60	6.27 6.52	6.27 6.52
100×65	4×2.1/2	108×76 114.3×73.0	105	95	1.53 1.60	2.21 2.31	4.36 4.56	4.36 4.56	6.50 6.50	6.50 6.50
100×50	4×2	108×57 114.3×60.3	105	89	1.51 1.57	2.19 2.29	4.32 4.41	4.32 4.41	6.13 6.12	6.13 6.12
100×40	4×1.1/2	108×45 114.3×48.3	105	86	1.50 1.55	2.09 2.24	4.22 4.00	4.22 4.00	6.03 6.02	6.03 6.02
125×125	5×5	133×133 141.3×141.3	124	124	3.18 3.37	3.91 4.14	7.53 7.98	7.53 7.98	10.9 11.6	10.9 11.6
125×100	5×4	133×108 141.3×114.3	124	117	3.03 3.15	3.73 3.90	7.20 7.52	7.20 7.52	10.4 10.8	10.4 10.8
125×90	5×3.1/2	141.3×101.6	124	114	3.09	3.83	7.39	7.39	10.6	10.6
125×80	5×3	133×89 141.3×88.9	124	111	2.90 3.02	3.59 3.74	6.29 7.21	6.92 7.21	10.0 10.4	10.0 10.4
125×65	5×2.1/2	133×76 141.3×73.0	124	108	2.85 3.00	3.59 3.73	6.92 7.20	6.92 7.20	10.0 10.4	10.0 10.4
125×50	5×2	133×57 141.3×60.3	124	105	2.80 3.92	3.58 3.73	6.92 7.20	6.92 7.20	10.0 10.4	10.0 10.4
150×150	6×6	159×159 168.3×168.3	143	143	4.09 4.32	5.03 5.31	10.5 11.1	10.5 11.1	16.2 17.1	16.2 17.1
150×25	6×5	159×133 168.3×141.3	143	137	3.84 4.13	4.73 5.08	9.88 10.6	9.88 10.6	15.2 16.3	15.2 16.3
150×100	6×4	159×108 168.3×114.3	143	130	3.76 3.95	4.64 4.87	9.70 10.2	9.70 10.2	14.9 15.6	14.9 15.6
150×90	6×3.1/2	168.3×101.6	143	127	3.91	4.82	10.1	10.1	15.5	15.5
150×80	6×3	159×89 168.3×88.9	143	124	3.72 3.93	4.56 4.82	9.56 10.0	9.56 10.0	14.7 15.3	14.7 15.3
150×65	6×2.1/2	159×76 168.3×73.0	143	121	3.70 3.81	4.51 4.72	9.51 10.0	9.51 10.0	14.6 15.2	14.6 15.2
200×200	8	219×219	178	178	7.72	10.40	22.8	22.8	35.4	35.4
200×150	8×6	219×159 219.1×168.3	178	168	6.74 7.17	9.20 9.74	19.9 21.1	19.9 21.1	30.9 32.8	30.9 32.8
200×125	8×5	219×133 219.1×141.3	178	162	6.61 7.03	8.98 9.55	19.5 20.7	19.5 20.7	30.2 32.2	30.2 32.2
200×100	8×4	219×108 219.1×114.3	178	156	6.43 6.84	8.73 9.39	19.0 19.9	20.5 20.2	29.4 31.3	29.4 31.3
200×90	8×3.1/2	219.1×101.6	178	152	6.84	9.18	19.8	20.1	31.1	31.1
250×250	10×10	273×273	216	216	14.6	18.04	40.04	40.04	52.8	65.12
250×200	10×8	273×219	216	203	13.3	16.40	36.4	36.4	49.8	59.2
250×150	10×6	273×159 273.1×168.3	216	194	11.4 12.1	15.0 15.0	31.4 33.4	31.4 33.4	42.7 45.4	50.7 54.0
250×125	10×5	273×133 273.1×141.3	216	191	11.2 11.9	14.6 14.6	30.7 32.7	30.7 32.7	41.8 44.5	49.7 52.9
250×100	10×4	273×108 273.1×114.3	216	184	11.0 11.7	14.4 14.4	30.3 32.2	30.3 32.2	41.2 42.9	49.0 51.1
300×300	12×12	325×325 323.9×323.9	254	241	21.5 21.5	24.8 24.8	51.8 51.8	56.1 56.0	79.0 80.0	85.0 95.8
300×250	12×10	325×273 323.9×273.1	254	241	20.4 20.3	23.6 23.4	49.2 49.1	53.3 53.1	75.6 65.2	90.3 90.2
300×200	12×8	325×219 323.9×219.1	254	229	20.2 20.0	23.3 23.1	48.4 48.2	52.4 52.2	64.4 64.2	88.6 88.4
300×150	12×6	325×159 323.9×168.3	254	219	18.4 19.5	22.5 22.7	44.8 47.1	47.9 51.0	59.0 62.7	81.2 86.4
300×125	12×5	325×133 323.9×141.3	254	216	18.0 19.1	20.8 22.1	43.6 46.3	47.1 50.2	57.8 61.5	79.6 84.6
350×350	14×14	377×377 355.6×355.6	279	279	27.4 25.7	28.1 31.1	66.1 62.0	77.2 72.5	88.0 82.7	132 124
360×300	14×12	377×325 355.6×323.9	279	270	25.4 24.2	31.1 29.2	62.1 58.3	72.5 68.2	82.7 77.7	124 116
350×250	14×10	377×273 355.6×273.1	279	257	25.1 23.7	30.3 28.6	60.5 57.0	70.5 66.7	80.7 76.0	121 114
350×200	14×8	377×219 355.6×219.1	279	248	24.6 23.1	29.7 27.9	59.2 55.7	69.2 65.2	78.0 74.2	118 111
350×150	14×6	377×159 355.6×168.3	279	238	24.0 22.3	29.0 27.1	57.9 54.2	67.8 64.8	77.1 77.8	115 119
400×400	16×16	426×426 406.4×406.4	305	305	33.1 31.4	38.0 36.0	75.95 72.3	101 96.4	101 96.1	170 162
400×350	16×14	426×377 406.4×355.6	305	305	32.0 30.4	36.8 34.9	73.6 70.1	98.1 93.4	97.8 92.9	164 156
400×300	16×12	426×325 406.4×323.9	305	295	31.0 28.2	35.6 34.4	71.4 69.1	95.2 90.8	94.7 89.2	160 150
400×250	10×10	426×273 406.4×273.1	305	283	30.2 28.7	34.7 33.0	69.9 66.6	93.1 88.7	92.5 87.9	156 148
400×200	16×8	426×219 406.4×273.1	305	273	29.5 28.1	33.9 32.3	68.4 65.1	91.1 86.8	90.2 86.0	153 145

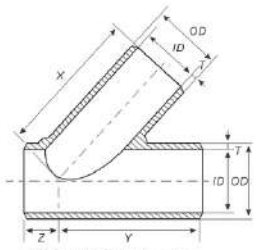
Tees(Straight and Reducing)

Nominal diameter		Outside diameter	Center to end	Center to center	Approx weight (kg/pc)					
DN	NPS	D1xD2	C	M	sch5S	sch10S	sch40S/STD	sch40	sch80S/XS	sch80
400×150	16×6	426×159 406.4×168.3	305	264	29.2 27.7	33.5 31.8	67.6 64.4	217 206	89.2 84.8	90.1 85.8
450×450	18×18	478×476 457×457	343	343	41.9 39.8	47.8 45.5	95.3 90.7	349 332	127 120	142 136
450×400	18×16	478×426 457×406.4	343	330	41.0 39.0	46.8 44.5	93.3 88.9	342 325	144 118	140 133
450×350	18×14	478×377 406.4×355.6	343	330	40.4 38.3	46.1 43.8	91.9 87.3	336 320	142 135	137 130
450×300	18×12	478×325 406.4×323.9	343	321	39.8 37.3	45.4 42.6	90.6 85.0	331 216	140 131	135 127
450×250	18×10	478×273 457×273.1	343	308	39.3 37.3	44.9 42.6	89.6 85.0	228 216	138 131	134 127
450×200	18×18	478×219 457×219.1	343	298	38.8 36.9	44.3 42.1	89.1 84.7	225 213	137 130	132 126
500×500	20×20	529×529 508×508	381	381	58.9 56.3	68.2 65.3	117 112	469 449	156 149	186 178
500×450	20×18	529×478 508×457	381	368	57.9 55.4	67.1 64.2	115 110	462 441	154 147	183 175
500×400	20×16	529×426 507×406.4	381	356	57.0 54.7	66.0 63.4	113 109	454 436	151 145	180 173
500×350	20×14	529×377 508×355.6	381	356	56.0 53.7	64.9 62.3	111 107	446 428	148 142	177 170
500×300	20×12	529×325 508×323.9	381	346	55.0 52.8	63.8 61.2	109 105	438 421	146 140	174 167
500×250	20×10	529×273 508×273.1	381	333	54.4 52.2	63.0 60.5	108 104	433 416	144 138	172 165
500×200	20×8	529×219 508×219.1	381	324	53.7 51.5	62.3 59.7	107 102	428 410	142 137	170 163
550×550	22×22	559×559	419	419	73.5	85.2	146	635	195	-
550×500	22×20	559×508	419	406	70.7	81.9	141	610	187	-
550×450	22×18	659×457	419	394	67.7	78.5	135	584	180	-
550×400	22×16	559×406.4	419	381	66.2	76.7	132	571	179	-
550×350	22×14	559×355.6	419	381	65.5	75.9	130	565	174	-
550×300	22×12	559×323.9	419	371	64.0	74.2	127	552	170	-
550×250	22×10	559×273.1	419	359	62.5	72.5	124	540	166	-
600×600	24×24	630×630 610×610	432	432	96.0 93.9	110 107	165 161	797 779	220 215	303 296
600×550	24×22	610×559	432	432	90.1	103	155	748	206	-
600×500	24×20	630×529 610×508	432	432	92.2 86.4	105 99.4	157 148	765 701	211 198	291 272
600×450	24×18	630×478 610×457	432	419	88.4 84.5	101 96.9	152 145	734 694	202 193	278 266
600×400	24×16	630×426 610×406.4	432	406	86.4 83.2	99.1 95.7	148 143	718 690	198 191	272 263
600×350	24×14	630×377 610×355.6	432	406	85.5 81.7	98.0 93.5	147 140	710 678	195 187	269 257
600×300	24×12	630×325 610×323.9	432	397	83.5 79.8	95.8 91.5	143 137	678 662	191 182	263 251
600×250	24×10	630×273 610×273.1	432	384	81.6 77.9	93.6 89.3	140 134	662 647	187 178	257 245
650×650	26×26	660×660	495	495	-	-	206	-	274	-
650×600	26×24	660×610	495	483	-	-	197	-	263	-
650×550	26×22	660×559	495	470	-	-	189	-	252	-
650×500	26×20	660×508.0	495	457	-	-	185	-	246	-
650×450	26×18	660×457.2	495	444	-	-	183	-	244	-
650×400	26×16	660×406.4	495	432	-	-	179	-	238	-
650×350	26×14	660×355.6	495	432	-	-	175	-	233	-
650×300	26×12	660×323.9	495	422	-	-	171	-	227	-
700×700	28×28	720×720 711×711	521	521	- -	- -	232 229	- -	300 305	- -
700×650	28×26	711×660	521	521	-	-	222	-	293	-
700×600	28×24	720×630 711×610	510	508	- -	- -	222 211	- -	296 275	- -
700×550	28×22	711×559	521	495	-	-	204	-	272	-
700×500	28×20	720×529 711×508	521	483	- -	- -	222 199	- -	296 265	- -
700×450	28×18	720×478 711×457	521	470	- -	- -	208 195	- -	275 263	- -
700×400	28×16	720×426 711×406.4	521	457	- -	- -	206 190	- -	268 259	- -
700×350	28×14	720×377 711×355.6	521	457	- -	- -	201 183	- -	260 253	- -
700×300	28×12	720×325 711×323.9	521	448	- -	- -	197 179	- -	256 244	- -
750×750	30×30	762×762	559	559	176	200	264	-	352	-
750×700	30×28	762×711	559	546	-	-	254	-	338	-
750×650	30×26	762×660	559	546	-	-	243	-	323	-
750×600	30×24	762×610	559	533	158	197	238	-	317	-
750×550	30×22	762×559	559	521	157	195	235	-	314	-
750×500	30×20	762×508	559	508	153	174	230	-	306	-
750×450	30×18	762×457	559	495	149	170	224	-	299	-
750×400	30×16	762×406.4	559	483	146	166	219	-	292	-

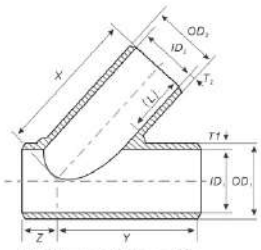
Tees(Straight and Reducing)

Nominal diameter		Outside diameter	Center to end	Center to center	Approx weight (kg/pc)					
DN	NPS	D1xD2	C	M	sch5S	sch10S	sch40S/STD	sch40	sch80S/XS	sch80
750×350	30×14	732×355.6	559	483	141	166	211	-	285	-
750×300	30×12	762×323.9	559	473	137	156	206	-	275	-
750×250	33×10	762×273	559	460	132	150	198	-	264	-
800×800	32×32	820×820	597	597	-	-	303	-	405	-
		813×813			-	-	302	-	402	-
800×750	32×30	813×762	597	584	-	-	290	-	386	-
800×700	32×28	820×720	597	572	-	-	291	-	388	-
		813×711			-	-	277	-	370	-
800×650	32×26	813×660	597	572	-	-	271	-	362	-
800×600	32×24	820×630	597	559	-	-	279	-	356	-
		813×610			-	-	268	-	358	-
800×550	32×22	813×559	597	546	-	-	262	-	350	-
800×500	32×20	820×529	597	533	-	-	273	-	364	-
		813×508			-	-	256	-	342	-
800×450	32×18	820×478	597	521	-	-	270	-	360	-
		813×457			-	-	250	-	334	-
800×400	32×16	820×426	597	508	-	-	264	-	352	-
		813×406.4			-	-	241	-	322	-
800×350	32×14	820×377	597	508	-	-	258	-	344	-
		813×355.6			-	-	235	-	314	-
850×850	34×34	864×864	635	635	-	-	341	-	415	-
850×800	34×32	864×813	635	622	-	-	328	-	437	-
850×750	34×30	864×762	635	610	-	-	314	-	419	-
850×700	34×28	864×711	635	597	-	-	307	-	409	-
850×650	34×26	864×660	635	597	-	-	304	-	405	-
850×600	34×24	864×610	635	584	-	-	297	-	396	-
850×550	34×22	864×599	635	572	-	-	290	-	387	-
850×500	34×20	864×508	635	559	-	-	283	-	378	-
850×450	34×18	864×457	635	546	-	-	273	-	364	-
850×400	34×16	864×406.7	635	533	-	-	266	-	355	-
900×900	36×36	920×920	673	673	-	-	648	-	543	-
		914×914			-	-	639	-	511	-
900×850	36×34	914×864	673	660	-	-	619	-	511	-
900×800	36×32	920×820	673	648	-	-	370	-	594	-
		914×813			-	-	353	-	470	-
900×750	36×30	914×762	673	635	-	-	345	-	460	-
900×700	36×28	920×720	673	622	-	-	355	-	473	-
		914×711			-	-	341	-	455	-
900×650	36×26	914×660	673	622	-	-	333	-	447	-
900×600	36×24	914×610	673	610	-	-	326	-	434	-
900×550	36×22	914×599	673	597	-	-	318	-	424	-
900×500	36×20	920×529	673	584	-	-	347	-	462	-
		914×508			-	-	306	-	409	-
900×450	36×18	920×478	673	572	-	-	343	-	457	-
		914×457			-	-	299	-	398	-
900×400	36×16	920×426	673	559	-	-	335	-	447	-
		914×406.4			-	-	287	-	383	-

Lateral



BW Straight 45° Lateral Tee



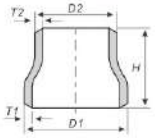
BW Reducing 45° Lateral Tee

ASME B 16.9

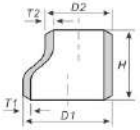
Nominal size		Outside diameter at bevel	Center to end	
DN	NPS	OD	X AND Y	Z
15	1/2	21.3	90	50
20	3/4	26.7	108	50
25	1	33.4	133	50
32	1(1/4)	42.2	184	57
40	1(1/2)	48.3	216	64
50	2	60.3	230	64
65	2(1/2)	73.0	267	64
80	3	88.9	280	76
90	3(1/2)	101.6	292	76
100	4	114.3	343	76
125	5	141.3	381	90
150	6	168.3	445	102
200	8	219.1	520	127
250	10	273.0	610	140
300	12	323.8	700	152
350	14	355.6	787	165
400	16	406.4	876	178
450	18	457.0	953	203
500	20	508.0	1029	216
550	22	559.0	1112	229
600	24	610.0	1207	254
650	26	660.0	1308	267
700	28	711.0	1422	286
750	30	762.0	1524	299
800	32	813.0	1626	311
850	34	864.0	1727	330
900	36	914.0	1829	350
950	38	965.0	1930	483
1000	40	1016.0	2032	508
1050	42	1067.0	2134	533
1100	44	1118.0	2235	559
1150	46	1168.0	2337	584
1200	48	1219.0	2438	610
1250	50	1270.0	2540	635
1300	52	1321.0	2642	660
1350	54	1372.0	2743	686
1400	56	1422.0	2845	711
1450	58	1473.0	2946	737
1500	60	1524.0	3048	762

Note:
1) The value X of the reducing tee shall be according to the one matching the nominal size of branch pipe, but when the varying diameter of branch exceeds and includes two levels(for example NPS20 x 14), the length near the 45° angle shall be equal or larger than the OD, of branch pipe.

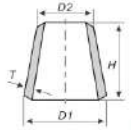
Reducers(Concentric and Eccentric)



Concentric reducer



Eccentric reducer



Concentric reducer

Eccentric reducer

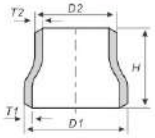
Nominal diameter		Outside diameter	End to end	Approx weight (kg/pc)					
DN	NPS	D1XD2	H	sch5S	sch10S	sch40S/STD	sch40	sch80S/XS	sch80
20×15	3/4×1/2	25×18 26.7×21.3	38	0.03 0.04	0.04 0.04	0.05 0.06	0.05 0.06	0.07 0.07	0.07 0.07
25×20	1×3/4	32×25 33.4×26.7	51	0.06 0.06	0.09 0.10	0.11 0.11	0.11 0.11	0.14 0.15	0.14 0.15
25×15	1×1/2	32×8 33.4×21.3	51	0.05 0.06	0.08 0.09	0.09 0.10	0.09 0.10	0.12 0.13	0.12 0.13
32×25	1.1/4×1	38×32 42.2×33.4	51	0.07 0.08	0.11 0.12	0.14 0.15	0.14 0.15	0.18 0.20	0.18 0.20
32×20	1.1/4×3/4	38×25 42.2×26.7	51	0.06 0.07	0.10 0.11	0.13 0.14	0.13 0.14	0.16 0.18	0.16 0.18
32×15	1.1/4×1/2	38×18 42.2×21.3	51	0.06 0.07	0.09 0.11	0.11 0.13	0.11 0.13	0.14 0.17	0.14 0.17
40×32	1.1/2×1.1/4	45×38 48.3×33.4	64	0.11 0.11	0.17 0.19	0.22 0.24	0.22 0.24	0.29 0.32	0.29 0.32
40×25	1.1/2×1	45×32 48.3×33.4	64	0.10 0.10	0.16 0.17	0.20 0.22	0.20 0.22	0.27 0.29	0.27 0.29
40×20	1.1/2×3/4	45×25 48.3×26.7	64	0.09 0.10	0.15 0.16	0.18 0.20	0.18 0.20	0.24 0.26	0.24 0.26
40×15	1.1/2×1/2	45×18 48.3×21.3	64	0.08 0.09	0.13 0.15	0.16 0.19	0.16 0.19	0.21 0.24	0.21 0.24
50×40	2×1.1/2	57×45 60.3×48.3	76	0.16 0.17	0.26 0.27	0.35 0.37	0.35 0.37	0.47 0.51	0.47 0.51
50×32	2×1.1/4	57×38 60.3×42.2	76	0.15 0.16	0.24 0.26	0.32 0.35	0.32 0.35	0.44 0.48	0.44 0.48
50×25	2×1	57×32 60.3×33.4	76	0.14 0.14	0.22 0.24	0.30 0.32	0.30 0.32	0.41 0.44	0.41 0.44
65×50	2.1/2×2	76×57 73.0×60.3	89	0.30 0.30	0.43 0.43	0.70 0.70	0.70 0.70	0.92 0.92	0.87 0.92
65×40	2.1/2×1.1/2	76×45 73.0×48.3	89	0.28 0.28	0.40 0.40	0.64 0.63	0.64 0.63	0.84 0.83	0.84 0.83
65×32	2.1/2×1.1/4	76×38 73.0×42.2	89	0.26 0.27	0.38 0.38	0.60 0.60	0.60 0.60	0.79 0.79	0.79 0.79
65×25	2.1/2×1	76×32 73.0×33.4	89	0.25 0.25	0.36 0.35	0.57 0.56	0.57 0.56	0.75 0.73	0.75 0.73
80×65	3×2.1/2	89×76 88.9×73.0	89	0.38 0.37	0.54 0.53	0.93 0.91	0.93 0.91	1.26 1.23	1.26 1.23
80×50	3×2	89×57 88.9×60.3	89	0.34 0.35	0.48 0.49	0.83 0.84	0.83 0.84	1.11 1.13	1.11 1.13
80×40	3×1.1/2	89×45 88.9×48.3	89	0.31 0.32	0.45 0.45	0.76 0.78	0.76 0.78	1.02 1.05	1.02 1.05
90×80	3.1/2×3	101.6×88.9	102	0.50	0.72	1.29	1.29	1.77	1.77
90×65	3.1/2×2.1/2	101.6×73.0	102	0.46	0.66	1.12	1.12	1.63	1.63
90×50	3.1/2×2	101.6×60.3	102	0.43	0.62	1.10	1.10	1.51	1.51
90×40	4×3.1/2	101.6×8.3	102	0.41	0.58	1.03	1.03	1.40	1.40
100×90	3.1/2×11/2	114.3×101.6	102	0.57	0.82	1.55	1.55	2.41	2.41
100×80	4×3	108×89 114.3×88.9	102	0.52 0.54	0.75 0.77	1.41 1.46	1.41 1.46	1.94 2.02	1.94 2.02
100×65	4×2.1/2	108×76 114.3×73.0	102	0.49 0.50	0.70 0.72	1.32 1.35	1.32 1.35	1.82 1.87	1.82 1.87
100×50	4×2	108×57 114.3×60.3	102	0.44 0.48	0.64 0.68	1.19 1.27	1.19 1.27	1.64 1.75	1.64 1.75
125×100	5×4	133×108 141.3×114.3	127	1.04 1.11	1.27 1.35	2.35 2.50	2.35 2.50	3.33 3.55	3.33 3.55
125×90	5×3.1/2	141.3×101.6	127	1.06	1.29	2.38	2.38	3.38	3.38
125×80	5×3	133×89 141.3×88.9	127	0.97 1.01	1.18 1.23	2.17 2.27	2.17 2.27	3.07 3.22	3.07 3.22
125×65	5×2.1/2	133×76 141.3×73.0	127	0.92 0.95	1.12 1.16	2.06 2.14	2.06 2.14	2.91 3.02	2.91 3.02

Above dimensions acc. to GB/T 12459、GB/T 13401、SH3408、SH 3409、HG/T 21635、HG/T 21631、SY/T 05010、ASME B16.9.

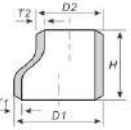
Weights are approximate and based on manufacture's data, according to ASME B36.10M、B36.19M, (sch20S/LG, weights are approximate and based on manufacture's data, according to GB/T 12459, GB/T13401.)

Nominal diameter		Outside diameter	End to end	Approx weight (kg/pc)					
DN	NPS	D1XD2	H	sch5S	sch10S	sch40S/STD	sch40	sch80S/XS	sch80
150×125	6×5	159×133 168.3×141.3	140	1.40 1.48	1.71 1.81	3.42 3.64	3.42 3.64	5.14 5.47	5.14 5.47
150×100	6×4	159×108 168.3×114.3	140	1.29 1.37	1.58 1.67	3.15 3.36	3.15 3.36	4.72 5.03	4.72 5.03
150×90	6×3.1/2	168.3×101.6	140	1.32	1.61	3.23	3.23	4.83	4.83
150×80	6×3	159×89 168.3×88.9	140	1.21 1.26	1.48 1.53	2.96 3.07	2.96 3.87	4.41 4.58	4.41 4.58
200×150	8×6	219×159 219.1×168.3	152	2.00 2.04	2.70 2.75	5.65 5.77	5.65 5.77	8.55 8.73	8.55 8.73
200×125	8×5	219×133 219.1×141.3	152	1.90 1.93	2.56 2.60	5.35 5.44	5.35 5.44	8.09 8.23	8.09 8.23
250×150	10×6	273×159 273.1×168.3	178	3.38 3.43	4.15 4.21	8.83 8.96	14.0 14.2	14.0 14.2	14.0 14.2
250×125	10×5	273×133 273.1×141.3	178	3.25 3.29	3.99 4.04	8.47 8.59	13.4 13.6	13.4 13.6	13.4 13.6
200×100	8×4	219×108 219.1×114.3	152	1.80 1.83	2.43 2.46	5.07 5.14	5.07 5.44	7.64 7.75	7.64 7.75
250×200	10×8	273×219	178	3.72	4.56	9.74	15.5	15.5	15.5
300×250	12×10	325×273 323.9×273.1	203	5.98 5.97	6.89 6.88	13.9 13.9	15.0 15.0	18.3 18.3	24.8 24.8
300×200	12×8	325×219 323.9×219.1	203	5.57 5.56	6.42 6.41	12.9 12.9	14.0 13.9	17.0 17.0	23.0 23.0
300×150	12×6	325×159 323.9×168.3	203	5.17 5.22	5.95 6.00	12.0 12.1	12.9 13.0	15.7 15.9	21.2 21.4
350×300	14×2	377×325 355.6×323.9	330	11.4 11.0	13.7 13.2	26.6 25.6	30.9 29.8	35.1 33.8	51.6 49.8
350×250	14×10	377×273 355.6×273.1	330	10.6 10.2	12.8 12.3	24.8 23.8	28.8 27.7	32.7 31.4	48.0 46.1
350×200	14×8	337×219 355.6×219.1	330	9.89 9.46	11.9 11.4	23.0 22.0	26.7 25.5	30.3 29.0	44.5 42.5
350×150	14×6	377×159 355.6×168.3	330	9.63 9.22	11.0 10.5	21.1 20.2	24.5 23.5	27.8 26.6	40.7 38.9
400×350	16×14	426×377 406.4×355.6	356	14.9 14.1	16.9 16.1	32.9 31.2	43.5 41.2	43.5 41.2	71.7 67.9
400×300	16×12	426×325 406.4×323.9	356	14.0 13.6	16.0 15.4	31.6 30.9	40.9 39.5	40.9 38.5	67.4 65.1
400×250	16×10	426×273 406.4×273.1	356	13.2 12.7	15.0 14.5	29.1 28.1	38.4 37.1	38.4 37.1	63.1 60.9
400×200	16×8	426×219 406.4×219.1	356	12.4 11.9	14.1 13.6	27.3 26.2	36.0 34.6	36.0 34.6	59.1 56.7
400×150	16×6	426×159 406.4×168.3	356	11.5 9.96	13.1 12.7	25.3 24.5	33.3 32.3	33.3 32.3	54.5 52.7
450×400	18×16	478×426 457×406.4	381	17.9 17.1	20.4 19.5	39.7 37.9	58.8 56.1	52.6 50.1	96.1 91.6
450×350	18×14	478×377 457×355.6	381	17.1 16.2	19.4 18.5	37.7 35.8	55.8 53.0	49.9 47.4	91.1 86.3
450×300	18×2	478×325 457×323.9	381	16.2 15.7	18.5 17.9	35.8 34.7	53.0 51.2	47.4 45.8	86.3 83.4
450×250	18×10	478×273 457×273.1	381	15.4 14.8	17.6 16.9	34.1 32.8	50.3 48.4	45.0 43.3	81.8 78.6
450×200	18×8	478×219 457×219.1	381	14.5 14.0	16.5 15.9	32.0 30.8	47.3 45.5	42.3 40.7	76.7 73.7
500×450	20×18	529×478 508×457	508	30.4 29.1	35.2 33.7	59.1 56.6	92.5 88.6	78.2 74.9	156 150
500×400	20×16	529×426 508×406.4	508	28.9 27.7	33.4 32.0	56.2 53.8	87.9 84.1	74.4 71.1	149 142
500×350	20×14	527×377 508×355.6	508	27.6 26.3	31.9 30.4	53.6 51.0	83.8 79.7	70.9 67.4	142 135

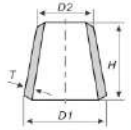
Reducers(Concentric and Eccentric)



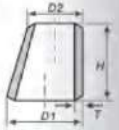
Concentric reducer



Eccentric reducer



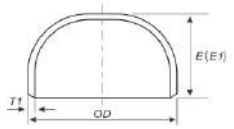
Concentric reducer



Eccentric reducer

Nominal diameter		Outside diameter	End to end	Approx weight (kg/pc)					
DN	NPS	D1XD2	H	sch5S	sch10S	sch40S/STD	sch40	sch80S/XS	sch80
500×300	20×12	529×325	508	26.2	30.3	50.8	79.4	67.2	134
		508×23.9		25.45	29.4	49.3	77.0	65.1	130
500×250	20×10	529×273	508	24.8	28.7	48.2	75.2	63.7	127
		508×273.1		24.0	27.8	26.7	72.8	61.7	123
500×200	20×8	529×219	508	23.5	27.1	45.5	70.9	60.1	119
		508×219.1		22.7	26.2	43.9	68.5	58.0	115
550×500	22×20	559×508	508	32.1	37.3	62.7	-	83.0	182
550×450	22×18	559×457	508	30.8	35.0	59.9	-	79.3	174
550×400	22×16	559×406.4	508	29.4	34.0	57.2	-	75.7	165
550×350	22×14	559×355.6	508	28.0	32.5	54.5	-	72.1	157
600×550	24×22	610×559	508	28.0	46.8	68.8	-	91.2	215
600×500	24×20	630×529	508	40.4	46.2	68.0	123	90.1	212
		610×508		29.2	44.9	66.0	119	87.4	206
600×450	24×18	630×478	508	39.1	44.7	65.8	119	87.1	205
		610×457		37.6	43.1	63.3	114	83.9	197
600×400	24×16	630×426	508	37.5	43.0	63.1	114	83.6	197
		610×406.4		36.1	41.3	60.7	110	80.4	189
650×600	26×24	660×610	610	-	-	89.8	-	119	-
650×550	26×22	660×559	610	-	-	86.3	-	114	-
660×500	26×20	660×508	610	-	-	83.0	-	110	-
650×450	26×18	660×457	610	-	-	89.0	-	105	-
700×650	28×26	711×660	610	-	-	97.1	-	129	-
700×600	28×24	720×630	610	-	-	95.7	-	127	-
		711×610		-	-	93.6	-	124	-
700×550	28×22	711×559	610	-	-	90.4	-	120	-
750×700	30×28	762×711	610	-	-	104	-	139	-
750×650	30×26	762×660	610	-	-	101	-	133	-
750×600	30×24	762×610	610	66.4	82.7	97.8	-	130	-
750×550	30×22	762×559	610	63.9	80.0	94.5	-	125	-
800×750	32×30	813×762	610	-	-	112	-	148	-
800×700	32×28	820×720	610	-	-	109	-	145	-
		812×711		-	-	108	-	144	-
800×650	32×26	812×660	610	-	-	105	-	139	-
800×600	32×24	820×630	610	-	-	104	-	138	-
		813×610		-	-	102	-	135	-
850×800	34×32	864×813	610	-	-	119	-	158	-
850×750	34×30	864×762	610	-	-	116	-	153	-
850×700	34×28	864×711	610	-	-	112	-	149	-
850×650	34×26	864×660	610	-	-	109	-	145	-
900×850	36×34	914×846	610	-	-	126	-	168	-
900×800	36×32	920×820	610	-	-	124	-	164	-
		914×813		-	-	123	-	163	-
900×750	36×30	914×762	610	-	-	120	-	159	-
900×700	36×28	920×720	610	-	-	118	-	156	-
		914×711		-	-	117	-	155	-

Caps



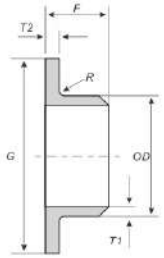
Above dimensions acc. to GB/T 12459、GB/T 13401、SH3408、SH 3409、HG/T 21635、HG/T 21631、SY/T 05010、ASME B16.9.

Weights are approximate and based on manufacture's data, according to ASME B36.10M、B36.19M, (sch20S/LG, weights are approximate and based on manufacture's data, according to GB/T 12459, GB/T13401.)

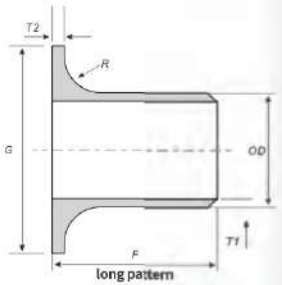
Nominal diameter		Outside diameter	Back to end		Approx weight (kg/pc)					
DN	NPS	OD	E	E1	sch5S	sch10S	sch40S/STD	sch40	sch80S/XS	sch80
15	1/2	18	25	25	0.019	0.024	0.031	0.031	0.042	0.042
		21.3			0.022	0.028	0.037	0.037	0.050	0.050
20	3/4	25	25	25	0.027	0.033	0.045	0.045	0.060	0.060
		26.7			0.029	0.035	0.048	0.048	0.065	0.065
25	1	32	38	38	0.049	0.063	0.101	0.101	0.136	0.136
		33.7			0.052	0.087	0.106	0.106	0.143	0.143
32	1.1/4	38	38	38	0.058	0.099	0.126	0.126	0.173	0.173
		42.4			0.065	0.110	0.141	0.141	0.193	0.193
40	1.1/2	45	38	38	0.071	0.118	0.158	0.158	0.218	0.218
		48.3			0.076	0.127	0.169	0.169	0.234	0.234
50	2	57	38	44	0.094	0.156	0.221	0.221	0.313	0.313
		60.3			0.099	0.165	0.234	0.234	0.331	0.331
65	2.1/2	76	38	51	0.167	0.241	0.409	0.409	0.555	0.555
		73			0.161	0.232	0.393	0.393	0.534	0.534
80	3	89	51	64	0.254	0.367	0.660	0.660	0.917	0.917
90	3.1/2	101.6	64	76	0.355	0.512	0.965	0.965	1.36	1.36
100	4	108	64	76	0.387	0.561	1.11	1.11	1.58	1.58
		114.3			0.410	0.594	1.17	1.17	1.67	1.67
125	5	133	76	89	0.769	0.945	1.82	1.82	2.65	2.65
		139.7			0.808	0.993	1.91	1.91	2.78	2.78
		141.3			0.817	1.00	1.93	1.93	2.81	2.81
150	6	159	89	102	1.07	1.31	2.74	2.74	4.22	4.22
		168.3			1.13	1.39	2.90	2.90	4.47	4.47
		165.2			1.11	1.36	2.85	2.85	4.39	4.39
200	8	219	102	127	1.76	2.38	5.19	5.19	8.05	8.05
		216.1			1.74	2.35	5.13	5.13	7.95	7.95
250	10	273	127	152	3.36	4.14	9.15	9.15	12.5	16.3
		267.4			3.29	4.05	8.96	8.96	12.2	16.4
300	12	325	152	187	5.12	6.40	13.5	14.0	17.9	28.3
		323.9			5.11	6.39	13.3	14.4	17.7	27.1
		318.5			5.02	6.27	13.2	14.2	17.3	26.8
350	14	377	165	191	6.00	8.46	16.9	19.9	22.5	38.5
		355.6			5.66	7.87	15.9	18.8	21.2	35.2
400	16	426	178	203	6.93	7.91	21.0	28.2	28.0	52.0
		406.4			6.60	7.53	20.0	20.0	26.7	49.1
450	18	478	203	229	7.90	9.01	26.9	43.8	35.8	76.1
		457.2			7.52	8.58	25.6	41.4	34.1	69.1
500	20	529	229	254	10.5	12.02	33.2	57.6	44.2	103
		508			10.1	11.7	31.9	54.0	42.5	93.7
550	22	559	254	254	12.1	22.6	38.8	78.3	51.7	116
600	24	630	267	305	14.8	16.9	46.5	92.3	61.9	177
		610			14.3	16.4	45.1	90.1	60.1	160
650	26	660	267	-	23.3	26.1	50.5	103.5	67.3	
700	28	720	267	-	27.1	32.4	56.9	151.1	75.6	
		711			38.7	49.7	56.2	121.3	74.9	
750	30	762	267	-	41.4	51.7	62.1	117.3	82.8	
800	32	820	267	-	43.4	58.3	70.6	127	92.0	
		813			43.1	57.7	70.0	126	91.2	
850	34	864	267	-	57.2	68.5	78.7	144	105	
900	36	920	267	-	60.3	74.6	86.6	172	115	
		914			59.1	72.1	85.7	171	114	

Stub End

Above dimensions acc. to GBMSS SP-43, ASME B16.9.



short pattern

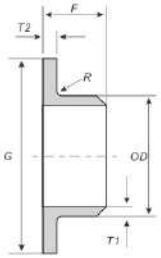


long pattern

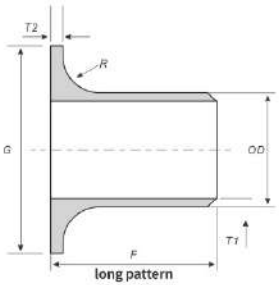
Nominal diameter		Outside diameter	Length F		Diameter of lap nominal&maximum	Radius of fillet R		Approx weight (kg/pc)					
								sch5S		sch10S		sch40S	
DN	NPS	OD	SP	LP	G	A max	B max	SP	LP	SP	LP	SP	LP
15	1/2	21.3	50.8	76.2	35.1	3	0.75	0.049	0.067	0.062	0.084	0.079	0.106
20	3/4	26.7	50.8	76.2	42.9	3	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	73.0	63.5	152.4	104.6	8	0.75	0.313	0.626	0.448	0.893	0.740	1.466
80	3	88.9	63.5	152.4	127.0	10	0.75	0.400	0.781	0.574	1.117	1.01	1.95
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	4	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	1.21	2.635	2.08	4.957
150	6	168.3	88.9	203.0	215.9	13	1.5	1.34	2.591	1.64	3.174	3.374	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	127.0	254.0	323.9	13	1.5	3.57	6.389	4.38	7.843	9.55	17.023
300	12	323.9	152.4	254.0	381.0	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	-	

Sizes one the following table is applied to SE central-song sets of welded stell pipe flanges (HG20599-97) PN1.6Mpa.

Different pressures and models required by customer, should be indicated on the contract.

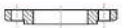
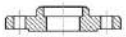
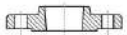
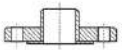


short pattern

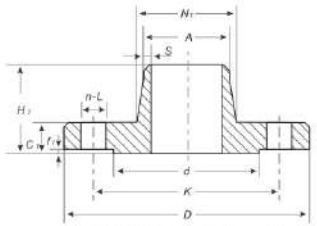


long pattern

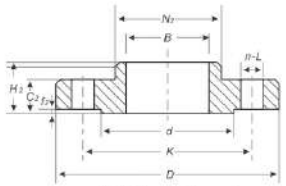
Nominal diameter	Outside diameter at bevel D		End to end	Radius of fillet R	Diameter of lap
DN	series A	series B	L	R	G
15	21.3	18	38	2	46
20	26.9	25	40	2	56
25	33.7	32	40	3	65
32	42.4	38	42	3	76
40	48.3	45	45	3	84
50	60.3	57	48	3	99
65	76.1	76	48	3	118
80	88.9	89	50	4	132
100	114.3	108	52	4	156
125	139.7	133	55	4	184
150	168.3	159	55	4	211
200	219.1	219	62	5	266
250	273	273	70	5	319
300	323.9	325	78	5	370
350	355.6	377	82	5	429
400	406.4	426	85	5	480
450	457	478	87	5	548
500	508	529	90	6	609
600	610	630	95	6	720

Type of Flange	Type of Sealing Surface	Pressure Class(Mpa)	Manufacturing Standard
 (PL)Plate Flange	(RF)	0.25-2.5	Manufacturing standard can be GB/T9112-9124 HG20592-20635 SH3406 ANSIB16.5 JISB2220 ASME B16.47 etc.
	(FF)	0.25-1.6	
 (SO)Slip-on Flange	(RF)	0.6-0.4	
	(MFM)	1.0-4.0	
	(TG)	0.6-1.6	
	(FF)	1.0-25.0	
 (WN)Welding Neck Flange	(RF)	1.0-16.0	
	(MFM)	1.0-16.0	
	(TG)	6.3-25.0	
	(RJ)	1.0-1.6	
	(FF)	1.0-10.0	
 (SW)Socket Welding Flange	(RF)	1.0-10.0	
	(MFM)	1.0-10.0	
	(TG)	0.6-0.4	
 (THD)Threaded Flange	(RF)	0.6-1.6	
	(FF)	0.6-4.0	
 (LF/SE)Butt Welding Ring Loose Flange	(RF)	0.6-1.6	
 (RJ/RJ)Flat Welding Ring Loose Flange	(RF)	1.6-1.6	
	(MFM)	1.0-1.6	
	(TG)	1.0-1.6	
 (BL)Blind Flange	(RF)	0.25-0.25	
	(MFM)	1.0-16.0	
	(TG)	1.0-16.0	
	(RJ)	6.3-25.0	
	(FF)	0.25-1.6	
 (BL(S))Lining Blind Flange	(RF)	0.6-4.0	
	(MFM)	1.0-4.0	
	(TG)	1.0-4.0	

Steel Flange(American System)



(WN) Welding Neck Flange ①



(SO) Slip-on Flange ②

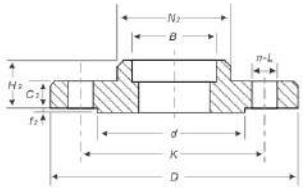
American System Flange Class 150(PN2.0Mpa)

Nominal diameter		Hub Diam. Top	O.D. of Flange	Raised Face Diam.	Diam. of Bolt Circle	Diam. of Bolt Holes	No. of Bolt Holes	Diam. of Bolt (inch)	Thickness of Flange	Diam. of Hub	Length Through Hub			Approximate Weight of Flange			
DN	NPS	A	D	d	K	L	n	Th	C1-4	N	H1	H2	H3	W1	W2	W3	W4
15	1/2	21.3	90	35	60.5	16	4	M14	11.5	30	48	16	16	0.65	0.42	0.53	0.43
20	3/4	26.9	100	43	70	16	4	M14	13	38	52	16	16	0.91	0.6	0.73	0.63
25	1	33.7	110	51	79.5	16	4	M14	14.5	49	56	17	17	1.14	0.83	0.89	0.89
(32)	1(1/4)	42.4	120	63.5	89	16	4	M14	16	59	57	21	21	1.46	1.12	1.17	1.2
40	1(1/2)	48.3	130	73	98.5	16	4	M14	17.5	65	62	22	22	1.86	1.43	1.48	1.58
50	2	60.3	150	92	120.5	18	4	M16	19.5	78	64	25	25	2.72	2.07	2.1	2.39
(65)	2(1/2)	76.1	180	105	139.5	18	4	M16	22.5	90	70	29	29	4.45	3.53	3.56	4.07
80	3	88.9	190	127	152.5	18	4	M16	24	108	70	30	30	5.22	4.01	3.96	4.92
(90)	3(1/2)	101.6	216	140	178	18	8	M16	24	122	71	-	32	5.45	-	4.99	5.9
100	4	114.3	230	157.5	190.5	18	8	M16	24	135	76	33	33	7.49	5.4	5.57	7.13
125	(5)	139.7	255	186	216	22	8	M20	24	164	89	36	36	9.58	6.29	6.33	9.31
(150)	6	168.3	280	216	241.5	22	8	M20	25.5	192	89	40	40	11.8	7.82	7.67	11.7
200	8	219.1	345	270	298.5	22	8	M20	29	246	102	44	48	19.17	12.75	12.67	20.46
250	10	273	405	324	362	26	12	M24	30.5	305	102	49	49	25.67	16.78	16.56	29.19
300	12	323.9	485	381	432	26	12	M24	32	365	114	56	56	39.9	26.91	27.2	44.11
350	14	355.6	535	413	476	29.5	12	M27	35	400	127	57	79	53.3	35.24	39.29	58.83
400	16	406.4	600	470	540	29.5	16	M27	37	457	127	64	87	68.5	46.46	52	78.19
450	18	457	635	533.5	578	32.5	16	M30	40	505	140	68	97	79.99	49.26	56.21	94.72
500	20	508	700	584	635	32.5	20	M30	43	559	145	73	103	101	62.94	73.4	123.6
550	22	559	750	641	692	35.5	20	M33	46	610	149	-	-	113.5	-	-	150.7
600	24	610	816	692	749.5	35.5	20	M33	48	664	152	83	111	139	88.11	99.83	187.1

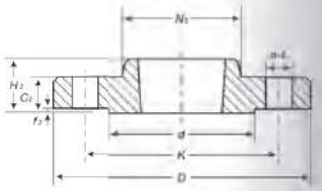
Note:
1) ①Welding Neck Flange(WN), ②Slip-on Flange(SO), Threaded Flange(THD), Socket Welding Flange(SW),③Lap Joint Flange(LJ), ④Blind Flange(BL).

2)ASME B16.5、HG20615-20622、ASME B16.36、ASME B16.48、SH3406、GB9112-9124、GB/T2506、GB/T4450 specifications are available.

Steel Flange(American System)



(SW) Socket Welding Flange②



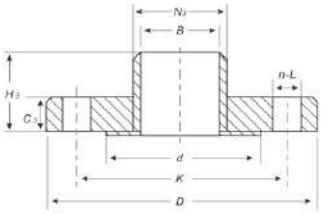
(THD) Threaded Flange②

American System Flange Class 300(PN5.0Mpa)

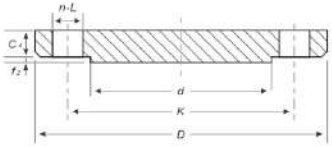
Nominal diameter		Hub Diam. Top	O.D. of Flange	Raised Face Diam.	Diam. of Bolt Circle	Diam. of Bolt Holes	No. of Bolt Holes	Diam. of Bolt (inch)	Thickness of Flange	Diam. of Hub	Length Through Hub			Approximate Weight of Flange			
DN	NPS	A	D	d	K	L	n	Th	C1-4	N	H1	H2	H3	W1	W2	W3	W4
15	1/2	21.3	95	35	66.5	16	4	M14	14.5	38	52	22	22	0.91	0.64	0.71	0.63
20	3/4	26.9	120	43	82.5	18	4	M16	16	48	57	25	25	1.36	1.16	1.26	1.15
25	1	33.7	125	51	89	18	4	M16	17.5	54	62	27	27	1.82	1.37	1.47	1.4
(32)	1(1/4)	42.4	135	63.5	98.5	18	4	M16	19.5	64	65	27	27	2.27	1.76	1.88	1.86
40	1(1/2)	48.3	155	73	114.5	22	4	M20	21	70	68	30	30	3.18	2.53	2.65	2.65
50	2	60.3	165	92	127	18	8	M16	22.5	84	70	33	33	3.79	2.91	2.98	3.38
(65)	2(1/2)	76.1	190	105	149	22	8	M20	25.5	100	76	38	38	5.74	4.43	4.47	5.09
80	3	88.9	210	127	168.5	22	8	M20	29	118	79	43	43	8.17	6.16	6.14	7.22
(90)	3(1/2)	101.6	229	140	184	22	8	M20	30	140	81	45	45	9.1	7.72	7.26	9.53
100	4	114.3	255	157.5	200	22	8	M20	32	146	86	48	48	12.1	9.74	10.05	11.62
(125)	(5)	139.7	280	186	235	22	8	M20	35	178	98	51	51	16.3	12.4	12.56	15.76
150	6	168.3	320	216	270	22	12	M20	37	206	98	52	52	21.29	16.76	16.42	22.16
200	8	219.1	380	270	330	26	12	M24	41.5	260	111	62	62	32.2	24.93	24.42	35.14
250	10	273	445	324	387.5	29.5	16	M27	48	321	117	67	95	47.01	35.59	38.85	54.99
300	12	323.9	520	381	451	32.5	16	M30	51	375	130	73	102	66.64	50.91	55.75	75.96
350	14	355.6	585	413	514.5	32.5	20	M30	54	426	143	76	111	95.69	72.6	81	108.4
400	16	406.4	650	470	571.5	35.5	20	M33	57.5	483	146	83	121	121	91.63	104.9	141.2
450	18	457	710	533.5	628.5	35.5	24	M33	60.5	533	159	89	130	150.2	111.6	128.6	178.8
500	20	508	775	584	686	35.5	24	M33	63.5	587	162	95	140	181.6	136	156	223.3
(550)	(22)	559	840	641	743	42	24	M39	66.5	640	165	-	-	199.4	-	-	268.7
600	24	610	915	692	813	42	24	M39	70	702	168	104	152	265	202.1	235.1	342

Note:
1) ①Welding Neck Flange(WN), ②Slip-on Flange(SO), Threaded Flange(THD), Socket Welding Flange(SW),③Lap Joint Flange(LJ), ④Blind Flange(BL).

Steel Flange(American System)



(LF/SE)ButT Welding Ring Loose Flange ③



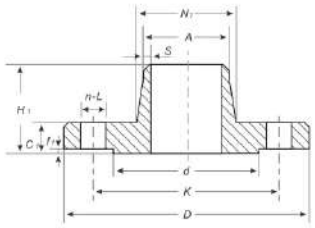
(BL)Blind Flange ④

American System Flange Class 600(PN11.0Mpa)

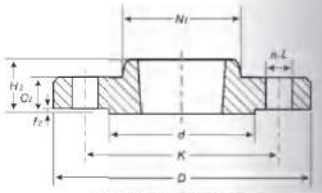
Nominal diameter		Hub Diam. Top	O.D. of Flange	Raised Face Diam.	Diam. of Bolt Circle	Diam. of Bolt Holes	No. of Bolt Holes	Diam. of Bolt (inch)	Thickness of Flange	Diam. of Hub	Length Through Hub			Approximate Weight of Flange			
DN	NPS	A	D	d	K	L	n	Th	C1-4	N	H1	H2	H3	W1	W2	W3	W4
15	1/2	21.3	95	35	66.5	16	4	M14	14.5	38	52	22	22	1.36	0.75	0.76	0.77
20	3/4	26.9	120	43	82.5	18	4	M16	16	48	57	25	25	1.59	1.35	1.38	1.37
25	1	33.7	125	51	89	18	4	M16	17.5	54	62	27	27	1.86	1.58	1.62	1.66
(32)	1(1/4)	42.4	135	63.5	98.5	18	4	M16	21	64	67	29	29	2.57	2.15	2.23	2.37
40	1(1/2)	48.3	155	73	114.5	22	4	M20	22.5	70	70	32	32	3.63	2.99	3.09	3.29
50	2	60.3	165	92	127	18	8	M16	22.5	84	73	37	37	4.54	3.71	3.85	4.24
(65)	2(1/2)	76.1	190	105	149	22	8	M20	29	100	79	41	41	6.39	5.2	5.5	6.24
80	3	88.9	210	127	168.5	22	8	M20	32	117	83	46	46	8.49	7.13	7.74	8.63
(90)	3(1/2)	101.6	229	140	184	26	8	M24	35	133	86	49	49	11.8	9.53	9.08	13.17
100	4	114.3	275	157.5	216	26	8	M24	38.5	152	102	54	54	17.46	14.9	15.4	17.74
(125)	(5)	139.7	330	186	267	29.5	8	M27	44.5	189	114	63	60	30.9	24.99	25.1	29.98
150	6	168.3	355	216	292	29.5	12	M27	48	222	117	67	67	33.96	29.96	29.8	37.35
200	8	219.1	420	270	349	32.5	12	M30	55.5	273	133	76	76	52.23	44.87	45.2	60.65
250	10	273	510	324	432	35.5	16	M33	63.5	343	152	86	111	86.02	72.84	80.2	100.2
300	12	323.9	560	381	489	35.5	20	M33	67	400	156	92	117	102.9	85.89	97.1	126.5
350	14	355.6	605	413	527	39	20	M36	70	432	165	94	127	157.5	101.7	116.2	154.3
400	16	406.4	685	470	603	42	20	M39	76.5	495	178	106	140	218.4	144.1	164.2	216.9
450	18	457	745	533.5	654	45	20	M42	83	546	184	117	152	252	177.4	218.5	278
500	20	508	815	584	724	45	24	M42	89	610	190	127	165	313.3	225.3	275.7	355.5
(550)	(22)	559	870	641	778	48	24	M45	95	665	197	-	-	376.5	-	-	428.5
600	24	610	940	692	838	51	24	M48	102	718	203	140	184	443.6	314	367.1	537.1

Note:
1) ①Welding Neck Flange(WN), ②Slip-on Flange(SO), Threaded Flange(THD), Socket Welding Flange(SW),③Lap Joint Flange(LJ), ④Blind Flange(BL).

Steel Flange(American System)



(WN) Welding Neck Flange ①



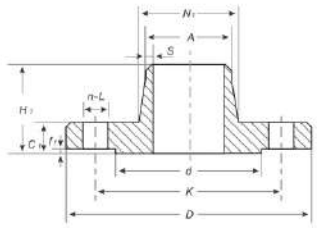
(THD) Threaded Flange ②

American System Flange Class 900(PN15.0Mpa)

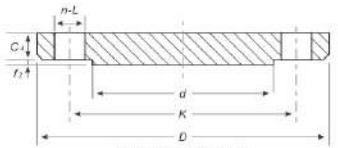
Nominal diameter		Hub Diam. Top	O.D. of Flange	Raised Face Diam.	Diam. of Bolt Circle	Diam. of Bolt Holes	No. of Bolt Holes	Diam. of Bolt (inch)	Thickness of Flange	Diam. of Hub	Length Through Hub		Approximate Weight of Flange		
DN	NPS	A	D	d	K	L	n	Th	C1-4	N	H1	H2	W1	W2	W3
15	1/2	21.3	120	35	82.5	22	4	M20	22.5	38	60	32	3.18	1.75	1.78
20	3/4	26.9	130	43	89	22	4	M20	25.5	44	70	35	3.18	2.35	2.43
25	1	33.7	150	51	101.5	26	4	M24	29	52	73	41	3.86	3.5	3.65
(32)	1(1/4)	42.4	160	63.5	111	26	4	M24	29	64	73	41	4.54	4.01	4.27
40	1(1/2)	48.3	180	73	124	29.5	4	M27	32	70	83	44	6.36	5.52	5.94
50	2	60.3	215	92	165	26	8	M24	38.5	105	102	57	10.9	9.81	10.0
(65)	2(1/2)	76.1	245	105	190.5	29.5	8	M27	41.5	124	105	64	16.3	13.1	14.05
80	3	88.9	240	127	190.5	26	8	M24	38.6	127	102	54	13.44	11.5	18.09
100	4	114.3	290	157.5	235	32.5	8	M30	44.5	159	114	-	25.2	-	21.83
(125)	(5)	139.7	350	186	279.5	35.5	8	M33	51	190	127	-	39.1	-	37.36
150	6	168.3	380	216	317.5	32.5	12	M30	56	238	140	-	49.9	-	48.63
200	8	219.1	470	270	393.5	39	12	M36	63.5	298	162	-	86.91	-	91
250	10	273	545	324	470	39	16	M36	70	368	184	-	121.7	-	124
300	12	323.9	610	381	533.5	39	20	M36	79.5	419	200	-	168.9	-	174.8
350	14	355.6	640	413	559	42	20	M39	86	451	213	-	255.2	-	208
400	16	406.4	705	470	616	45	20	M42	89	508	216	-	311.0	-	262.8
450	18	457	785	533.5	686	51	20	M48	102	565	229	-	419.5	-	369.6
500	20	508	855	584	749.5	55	20	M52	108	672	248	-	528.5	-	461
600	24	610	1040	692	901.5	68	20	M64	140	749	267	-	956.6	-	874.5

Note:
1) ①Welding Neck Flange(WN), ②Socket Welding Flange(SW),④Blind Flange(BL).

Steel Flange(American System)



(WN) Welding Neck Flange ①



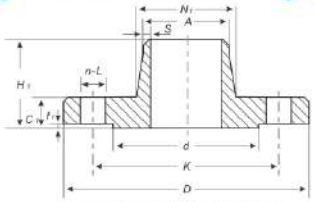
(BL)Blind Flange ④

American System Flange Class 1500(PN26.0Mpa)

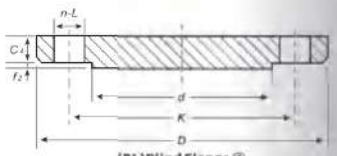
Nominal diameter		Hub Diam. Top	O.D. of Flange	Raised Face Diam.	Diam. of Bolt Circle	Diam. of Bolt Holes	No. of Bolt Holes	Diam. of Bolt (inch)	Thickness of Flange	Diam. of Hub	Length Through Hub		Approximate Weight of Flange	
DN	NPS	A	D	d	K	L	n	Th	C1-4	N	H1	H2	W1	W4
15	1/2	21.3	120	35	82.5	22	4	M20	22.5	38	60	-	3.18	1.78
20	3/4	26.9	130	43	89	22	4	M20	22.5	44	70	-	3.18	2.43
25	1	33.7	150	51	101.5	26	4	M24	29	52	73	82.5	3.86	3.65
(32)	1(1/4)	42.4	160	63.5	111	26	4	M24	29	64	73	-	4.54	4.27
40	1(1/2)	48.3	180	73	124	29.5	4	M27	32	70	83	89	6.36	5.94
50	2	60.3	215	92	165	26	8	M24	38.5	105	102	102	10.9	10.0
(65)	2(1/2)	76.1	245	105	190.5	29.5	8	M27	41.5	124	105	105	16.34	14.0
80	3	88.9	265	127	203	32.5	8	M30	48	133	117	117	21.8	19.98
100	4	114.3	310	157.5	241.5	35.5	8	M33	54	162	124	124	31.3	29.71
(125)	(5)	139.7	375	186	292	42	8	M39	73.5	197	156	-	59.9	58.82
150	6	168.3	395	216	317.5	39	12	M36	83	229	171	171	74.5	72.5
200	8	219.1	485	270	393.5	45	12	M42	92	292	213	213	123.9	122.8
250	10	273	585	324	482.5	51	12	M48	108	368	254	254	206.1	211.6
300	12	323.9	675	381	571.5	55	16	M52	124	451	283	283	313.3	317.6
350	14	355.6	750	413	635	60	16	M56	133.5	495	298	298	406.5	422.9
400	16	406.4	825	470	705	68	16	M64	146.5	552	311	311	525.0	557.5
450	18	457	915	533.5	774.5	74	16	M70	162	597	327	327	687.2	761
500	20	508	985	584	832	80	16	M76	178	641	356	356	852.6	967
600	24	610	1170	692	990.5	94	16	M90	203.5	762	406	406	1366.8	1561

Note:
1) ①Welding Neck Flange(WN), ④Blind Flange(BL).

Large Diameter Steel Flange(American System Type A)



(WN)Welding Neck Flange①



(BL)Blind Flange④

American System Large Diameter Flanges Class 600(PN11.0Mpa) ASME B16.47 A

Nominal diameter		Hub Diam. Top	O.D. of Flange	Raised Face Diam.	Diam. of Bolt Circle	Diam. of Bolt Holes	No. of Bolt Holes	Diam. of Bolt (inch)	Minimum Thickness of Flange		Diam. of Hub	Length Through Hub	Approximate Weight of Flange	
DN	NPS	A	D	d	K	L	n	Th	C1	C2	N	H	W1	W2
650	26	660.4	1015	749	914.4	2	28	M48[1(7/8)]	108.0	125.5	748	222		
700	28	711.2	1075	800	965.2	2(1/8)	28	M52(2)	111.2	131.8	803	235	-	-
750	30	762.0	1130	857	1022.4	2(1/8)	28	M52(2)	114.3	139.7	862	248	-	-
800	32	812.8	1195	914	1079.5	2(3/8)	28	M56[2(1/4)]	117.5	148.0	918	260	-	-
850	34	863.6	1245	965	1130.3	2(3/8)	28	M56[2(1/4)]	120.7	154.0	973	270	-	-
900	36	914.4	1315	1022	1193.8	2(5/8)	28	M64[2(1/2)]	123.9	162.0	1032	283	-	-
950	38	965.2	1270	1054	1162.0	2(3/8)	28	M56[2(1/4)]	152.4	155.0	1022	254	-	-
1000	40	1016.0	1320	1111	1212.8	2(3/8)	32	M56[2(1/4)]	158.8	162.0	1073	264	-	-
1050	42	1066.8	1405	1168	1282.7	2(5/8)	28	M64[2(1/2)]	168.3	171.5	1127	279	-	-
1100	44	1117.6	1455	1226	1333.5	2(5/8)	32	M64[2(1/2)]	173.1	177.8	1181	289	-	-
1150	46	1168.4	1510	1276	1390.6	2(5/8)	32	M64[2(1/2)]	179.4	185.8	1235	300	-	-
1200	48	1219.2	1595	1334	1460.5	2(7/8)	32	M70[2(3/4)]	189.0	195.3	1289	316	-	-
1250	50	1270.0	1670	1384	1524.0	3(1/8)	28	M76(3)	196.9	203.2	1343	329	-	-
1300	52	1320.8	1720	1435	1574.8	3(1/8)	32	M76(3)	203.2	209.6	1394	337	-	-
1350	54	1371.6	1780	1492	1632.0	3(1/8)	32	M76(3)	209.6	217.5	1448	349	-	-
1400	56	1422.4	1855	1543	1695.4	3(3/8)	32	M82[3(1/4)]	217.5	225.5	1502	362	-	-
1450	58	1473.2	1905	1600	1746.2	3(3/8)	32	M82[3(1/4)]	222.3	231.8	1553	370	-	-
1500	60	1524.0	1995	1657	1822.4	3(5/8)	28	M90[3(1/2)]	233.4	242.9	1610	389	-	-

American System Large Diameter Flanges Class 900(PN15.0Mpa) ASME B16.47 A

Nominal diameter		Hub Diam. Top	O.D. of Flange	Raised Face Diam.	Diam. of Bolt Circle	Diam. of Bolt Holes	No. of Bolt Holes	Diam. of Bolt (inch)	Minimum Thickness of Flange		Diam. of Hub	Length Through Hub	Approximate Weight of Flange	
DN	NPS	A	D	d	K	L	n	Th	C1	C2	N	H	W1	W2
650	26	660.4	1085	749	952.5	2(7/8)	20	M70[2(3/4)]	139.7	160.4	775	286	-	-
700	28	711.2	1170	800	1022.4	3(1/8)	20	M76(3)	142.9	171.5	832	298	-	-
750	30	762.0	1230	857	1085.8	3(1/8)	20	M76(3)	149.3	182.6	889	311	-	-
800	32	812.8	1315	914	1155.7	3(3/8)	20	M82[3(1/4)]	158.8	193.7	946	330	-	-
850	34	863.6	1395	965	1235.0	3(5/8)	20	M90[3(1/2)]	165.1	204.8	1006	349	-	-
900	36	914.4	1460	1022	1289.0	3(5/8)	20	M90[3(1/2)]	171.5	214.4	1064	362	-	-
950	38	965.2	1460	1099	1289.0	3(5/8)	20	M90[3(1/2)]	190.5	215.9	1073	352	-	-
1000	40	1016.0	1510	1162	1339.8	3(5/8)	24	M90[3(1/2)]	196.9	223.9	1127	364	-	-
1050	42	1066.8	1560	1213	1390.6	3(5/8)	24	M90[3(1/2)]	206.4	231.8	1176	371	-	-
1100	44	1117.6	1650	1270	1463.7	3(7/8)	24	M95[3(3/4)]	214.4	242.9	1235	391	-	-
1150	46	1168.4	1735	1334	1536.7	4(1/8)	24	M100(4)	225.5	255.6	1292	411	-	-
1200	48	1219.2	1785	1384	1587.5	4(1/8)	24	M100(4)	233.4	263.6	1343	419	-	-

Large Diameter Steel Flange(American System Type A)

American System Large Diameter Flanges Class 150(PN2.0Mpa) ASME B16.47 A

Nominal diameter		Hub Diam. Top	O.D. of Flange	Raised Face Diam.	Diam. of Bolt Circle	Diam. of Bolt Holes	No. of Bolt Holes	Diam. of Bolt (inch)	Minimum Thickness of Flange		Diam. of Hub	Length Through Hub	Approximate Weight of Flange	
DN	NPS	A	D	d	K	L	n	Th	C1	C2	N	H	W1	W2
650	26	660.4	870	749	806.4	1(3/8)	24	M33[1(1/4)]	66.7	66.7	676	119	-	-
700	28	711.2	925	800	863.6	1(3/8)	28	M33[1(1/4)]	69.9	69.9	727	124	-	-
750	30	762.0	985	857	914.4	1(3/8)	28	M33[1(1/4)]	73.1	73.1	781	135	-	-
800	32	812.8	1060	914	977.9	1(5/8)	28	M39[1(1/2)]	79.4	79.4	832	143	-	-
850	34	863.6	1110	965	1028.7	1(5/8)	32	M39[1(1/2)]	81.0	81.0	883	148	-	-
900	36	914.4	1170	1022	1085.8	1(5/8)	32	M39[1(1/2)]	88.9	88.9	933	156	-	-
950	38	965.2	1240	1073	1149.4	1(5/8)	32	M39[1(1/2)]	85.8	85.8	991	156	-	-
1000	40	1016.0	1290	1124	1200.2	1(5/8)	36	M39[1(1/2)]	88.9	88.9	1041	162	-	-
1050	42	1066.8	1345	1194	1257.3	1(5/8)	36	M39[1(1/2)]	95.3	95.3	1092	170	-	-
1100	44	1117.6	1405	1245	1314.4	1(5/8)	40	M39[1(1/2)]	100.1	100.1	1143	176	-	-
1150	46	1168.4	1455	1295	1365.2	1(5/8)	40	M39[1(1/2)]	101.6	101.6	1197	184	-	-
1200	48	1219.2	1510	1359	1422.4	1(5/8)	44	M39[1(1/2)]	106.4	106.4	1248	191	-	-
1250	50	1270.0	1570	1410	1479.6	1(7/8)	44	M45[1(3/4)]	109.6	109.6	1302	202	-	-
1300	52	1320.8	1625	1461	1536.7	1(7/8)	44	M45[1(3/4)]	114.3	114.3	1353	208	-	-
1350	54	1371.6	1685	1511	1593.8	1(7/8)	44	M45[1(3/4)]	119.1	119.1	1403	214	-	-
1400	56	1422.4	1745	1575	1651.0	1(7/8)	48	M45[1(3/4)]	122.3	122.3	1457	227	-	-
1450	58	1473.2	1805	1626	1708.2	1(7/8)	48	M45[1(3/4)]	127.0	127.0	1508	233	-	-
1500	60	1524.0	1855	1676	1759.0	1(7/8)	52	M45[1(3/4)]	130.2	130.2	1559	238	-	-

American System Large Diameter Flanges Class 300(PN5.0Mpa) ASME B16.47 A

Nominal diameter		Hub Diam. Top	O.D. of Flange	Raised Face Diam.	Diam. of Bolt Circle	Diam. of Bolt Holes	No. of Bolt Holes	Diam. of Bolt (inch)	Minimum Thickness of Flange		Diam. of Hub	Length Through Hub	Approximate Weight of Flange	
DN	NPS	A	D	d	K	L	n	Th	C1	C2	N	H	W1	W2
650	26	660.4	970	749	876.3	1(3/4)	28	M42[1(5/8)]	77.8	82.6	721	183	-	-
700	28	711.2	1305	800	939.8	1(3/4)	28	M42[1(5/8)]	84.2	88.9	775	195	-	-
750	30	762.0	1090	857	997.0	1(7/8)	28	M45[1(3/4)]	90.5	93.7	827	208	-	-
800	32	812.8	1150	914	1054.1	2	28	M48[1(7/8)]	96.9	98.5	881	221	-	-
850	34	863.6	1205	965	1104.9	2	28	M48[1(7/8)]	100.1	103.2	937	230	-	-
900	36	914.4	1270	1022	1168.4	2(1/8)	32	M52(2)	103.2	109.6	991	240	-	-
950	38	965.2	1170	1029	1092.2	1(5/8)	32	M39[1(1/2)]	106.4	106.4	994	179	-	-
1000	40	1016.0	1240	1086	1155.7	1(3/4)	32	M42[1(5/8)]	112.8	112.8	1048	192	-	-
1050	42	1066.8	1290	1137	1206.5	1(3/4)	32	M42[1(5/8)]	117.5	117.5	1099	198	-	-
1100	44	1117.6	1355	1194	1263.6	1(7/8)	32	M45[1(3/4)]	122.3	122.3	1149	205	-	-
1150	46	1168.4	1415	1245	1320.8	2	28	M48[1(7/8)]	127.0	127.0	1203	214	-	-
1200	48	1219.2	1465	1302	1371.6	2	32	M48[1(7/8)]	131.8	131.8	1254	222	-	-
1250	50	1270.0	1530	1359	1428.8	2(1/8)	32	M52(2)	138.2	138.2	1305	230	-	-
1300	52	1320.8	1580	1410	1479.6	2(1/8)	32	M52(2)	142.9	142.9	1356	237	-	-
1350	54	1371.6	1660	1467	1540.4	2(3/8)	28	M56[2(1/4)]	150.9	150.9	1410	251	-	-
1400	56	1422.4	1710	1518	1600.2	2(3/8)	28	M56[2(1/4)]	152.4	152.4	1464	259	-	-
1450	58	1473.2	1760	1575	1651.0	2(3/8)	32	M56[2(1/4)]	157.2	157.2	1514	265	-	-
1500	60	1524.0	1810	1626	1701.8	2(3/8)	32	M56[2(1/4)]	162.0	162.0	1565	271	-	-

Note:
1) ①Welding Neck Flange(WN), ②Blind Flange (BL).
2) HG 20623, GB 13402, MSS SP 44 specifications are available.

Large Diameter Steel Flange(American System Type B)

American System Large Diameter Flanges Class 75(PN1.0Mpa) ASME B16.47 B

Nominal diameter		Hub Diam. Top	O.D. of Flange	Raised Face Diam.	Diam. of Bolt Circle	Diam. of Bolt Holes	No. of Bolt Holes	Diam. of Bolt (inch)	Minimum Thickness of Flange		Diam. of Hub	Length Through Hub	Approximate Weight of Flange	
DN	NPS	A	D	d	K	L	n	Th	C1	C2	N	H	W1	W2
650	26	661.9	760	705	723.9	3/4	36	M16(5/8)	31.9	31.9	676	57	29	-
700	28	712.7	815	756	774.7	3/4	40	M16(5/8)	31.9	31.9	727	60	31	-
750	30	763.5	865	806	825.5	3/4	44	M16(5/8)	31.9	31.9	778	64	35	-
800	32	814.3	915	857	876.3	3/4	48	M16(5/8)	33.5	35.0	829	68	48	-
850	34	865.1	965	908	927.1	3/4	52	M16(5/8)	33.5	36.6	879	72	50	-
900	36	915.9	1035	965	992.2	7/8	40	M20(3/4)	35.0	40.9	935	84	62	-
950	38	966.7	1085	1016	1043	7/8	40	M20(3/4)	36.6	43.0	986	87	70	-
1000	40	1017.5	1135	1067	1093.8	7/8	44	M20(3/4)	36.6	43.0	1037	91	74	-
1050	42	1068.3	1185	1118	1144.6	7/8	48	M20(3/4)	38.2	46.3	1087	94	77	-
1100	44	1119.1	1250	1175	1203.3	1	36	M24(7/8)	41.4	47.7	1140	103	82	-
1150	46	1169.9	1300	1226	1254.1	1	40	M24(7/8)	43.0	49.3	1191	106	105	-
1200	48	1220.7	1355	1276	1304.9	1	44	M24(7/8)	44.6	52.5	1241	110	120	-
1250	50	1271.5	1405	1327	1355.7	1	44	M24(7/8)	46.2	54.1	1294	114	120	-
1300	52	1322.3	1455	1378	1409.7	1	48	M24(7/8)	44.2	55.7	1345	119	120	-
1350	54	1373.1	1510	1429	1460.5	1	48	M24(7/8)	47.8	58.9	1397	124	180	-
1400	56	1423.9	1575	1486	1520.8	1(1/8)	40	M27(1)	49.3	60.4	1451	133	180	-
1450	58	1474.7	1625	1537	1571.6	1(1/8)	44	M27(1)	50.9	62.0	1502	137	180	-
1500	60	1525.5	1675	1588	1622.4	1(1/8)	44	M27(1)	54.1	65.2	1553	143	210	-

American System Large Diameter Flanges Class 150(PN2.0Mpa) ASME B16.47 B

Nominal diameter		Hub Diam. Top	O.D. of Flange	Raised Face Diam.	Diam. of Bolt Circle	Diam. of Bolt Holes	No. of Bolt Holes	Diam. of Bolt (inch)	Minimum Thickness of Flange		Diam. of Hub	Length Through Hub	Approximate Weight of Flange	
DN	NPS	A	D	d	K	L	n	Th	C1	C2	N	H	W1	W2
650	26	661.9	785	711	744.5	7/8	36	M20(3/4)	39.8	43.0	684	87	52	-
700	28	712.7	835	762	795.3	7/8	40	M20(3/4)	43.0	46.2	735	94	58	-
750	30	763.5	885	813	846.1	7/8	44	M20(3/4)	43.0	49.3	787	98	65	-
800	32	814.3	940	864	900.1	7/8	48	M20(3/4)	44.6	52.5	840	106	85	-
850	34	865.1	1005	921	957.3	1	40	M24(7/8)	47.7	55.7	892	109	100	-
900	36	915.9	1055	972	1009.6	1	44	M24(7/8)	50.9	57.3	945	116	115	-
950	38	968.2	1124	1022	1070.0	1(1/8)	40	M27(1)	52.5	62.0	997	122	135	-
1000	40	1019.0	1175	1080	1120.8	1(1/8)	44	M27(1)	54.1	65.2	1049	127	150	-
1050	42	1069.8	1225	1130	1171.6	1(1/8)	48	M27(1)	57.3	66.8	1102	132	165	-
1100	44	1120.6	1275	1181	1222.4	1(1/8)	52	M27(1)	58.9	70.0	1153	135	200	-
1150	46	1171.4	1340	1235	1284.3	1(1/4)	40	M30[1(1/8)]	60.4	73.1	1205	143	210	-
1200	48	1222.2	1390	1289	1335.1	1(1/4)	44	M30[1(1/8)]	63.6	76.3	1257	148	240	-
1250	50	1273.0	1445	1340	1385.9	1(1/4)	48	M30[1(1/8)]	66.8	79.5	1308	152	240	-
1300	52	1323.8	1495	1391	1436.7	1(1/4)	52	M30[1(1/8)]	68.4	82.7	1360	156	240	-
1350	54	1374.6	1550	1441	1487.2	1(1/4)	56	M30[1(1/8)]	70.0	85.8	1413	160	310	-
1400	56	1425.4	1600	1492	1543.0	1(1/4)	60	M30[1(1/8)]	71.6	89.0	1465	165	310	-
1450	58	1476.2	1675	1543	1611.3	1(3/8)	48	M33[1(1/4)]	73.1	91.9	1516	173	310	-
1500	60	1527.0	1725	1600	1662.1	1(3/8)	52	M33[1(1/4)]	74.7	95.4	1570	178	410	-

Note:
1) ① Welding Neck Flange(WN),
2) HG 20623, GB 13402, MSS SP 44 specifications are available.

Large Diameter Steel Flange(American System Type B)

American System Large Diameter Flanges Class 300(PN5.0Mpa) ASME B16.47 B

Nominal diameter		Hub Diam. Top	O.D. of Flange	Raised Face Diam.	Diam. of Bolt Circle	Diam. of Bolt Holes	No. of Bolt Holes	Diam. of Bolt (inch)	Minimum Thickness of Flange		Diam. of Hub	Length Through Hub	Approximate Weight of Flange	
DN	NPS	A	D	d	K	L	n	Th	C1	C2	N	H	W1	W2
650	26	665.2	865	737	803.3	1(3/8)	32	M33[1(1/4)]	87.4	87.4	702	168	200	-
700	28	716.0	920	787	857.2	1(3/8)	36	M33[1(1/4)]	87.4	87.4	756	148	210	-
750	30	768.4	990	845	920.8	1(1/2)	36	M36[1(3/8)]	92.1	92.1	813	156	270	-
800	32	819.2	1055	902	977.9	1(5/8)	32	M39[1(1/2)]	101.6	101.6	864	167	330	-
850	34	870.0	1110	953	1031.9	1(5/8)	36	M39[1(1/2)]	101.6	101.6	918	171	360	-
900	36	920.8	1170	1010	1089.0	1(3/4)	32	M42[1(5/8)]	101.6	101.6	965	179	410	-
950	38	971.6	1220	1060	1139.8	1(3/4)	36	M42[1(5/8)]	109.6	109.6	1016	165	570	-
1000	40	1022.4	1275	1114	1190.6	1(3/4)	40	M42[1(5/8)]	114.3	114.3	1067	197	660	-
1050	42	1074.7	1335	1168	1244.6	1(7/8)	36	M45[1(3/4)]	117.5	117.5	1118	203	720	-
1100	44	1125.5	1385	1219	1295.4	1(7/8)	40	M45[1(3/4)]	125.5	125.5	1173	213	800	-
1150	46	1176.3	1460	1270	1365.2	2	36	M48[1(7/8)]	127.0	128.6	1229	221	970	-
1200	48	1227.1	1510	1327	1416.0	2	40	M48[1(7/8)]	127.0	133.4	1278	222	990	-
1250	50	1277.9	1560	1378	1466.8	2	44	M48[1(7/8)]	136.6	138.2	1330	233	990	-
1300	52	1328.7	1615	1429	1517.6	2	48	M48[1(7/8)]	141.3	142.6	1383	241	990	-
1350	54	1379.5	1675	1480	1578.0	2	48	M48[1(7/8)]	145.0	147.7	1435	238	1160	-
1400	56	1430.3	1765	1537	1651.0	2(3/8)	36	M56[2(1/4)]	152.4	155.4	1494	267	1160	-
1450	58	1481.1	1825	1594	1712.9	2(3/8)	40	M56[2(1/4)]	152.4	160.4	1548	273	1160	-
1500	60	1557.3	1880	1651	1763.7	2(3/8)	40	M56[2(1/4)]	149.3	165.1	1599	270	1450	-

American System Large Diameter Flanges Class 600(PN11.0Mpa) ASME B16.47 B

Nominal diameter		Hub Diam. Top	O.D. of Flange	Raised Face Diam.	Diam. of Bolt Circle	Diam. of Bolt Holes	No. of Bolt Holes	Diam. of Bolt (inch)	Minimum Thickness of Flange		Diam. of Hub	Length Through Hub	Approximate Weight of Flange	
DN	NPS	A	D	d	K	L	n	Th	C1	C2	N	H	W1	W2
650	26	660.4	890	727	806.4	1(3/4)	28	M42[1(5/8)]	111.2	111.3	698	181	-	-
700	28	711.2	950	784	863.6	4(7/8)	28	M45[1(3/4)]	115.9	125.9	752	198	-	-
750	30	762.0	1020	841	927.1	2	28	M48[1(7/8)]	125.5	127.0	806	205	-	-
800	32	812.8	1085	985	984.2	2(1/8)	28	M52(2)	130.2	134.9	860	216	-	-
850	34	863.6	1160	953	1054.1	3(3/8)	24	M56[2(1/4)]	141.3	144.3	914	233	-	-
900	36	914.4	1215	1010	1104.9	2(3/8)	28	M56[2(1/4)]	146.1	150.9	968	243	-	-

American System Large Diameter Flanges Class 900(PN15.0Mpa) ASME B16.47 B

Nominal diameter		Hub Diam. Top	O.D. of Flange	Raised Face Diam.	Diam. of Bolt Circle	Diam. of Bolt Holes	No. of bolt Holes	Diam. of Bolt (inch)	Minimum Thickness of Flange		Diam. of Hub	Length Through Hub	Approximate Weight of Flange	
DN	NPS	A	D	d	K	L	n	Th	C1	C2	N	H	W1	W2
650	26	660.4	1020	762	901.7	2(5/8)	20	M46[2(1/2)]	135.0	154.0	743	259	-	-
700	28	711.2	1105	819	971.6	2(7/8)	20	M72[2(3/4)]	147.7	166.7	797	276	-	-
750	30	762.0	1180	876	1035.0	3(1/8)	20	M76(3)	155.6	176.1	851	289	-	-
800	32	811.8	1240	927	1092.2	3(1/8)	20	M76(3)	160.4	186.0	908	303	-	-
850	34	863.6	1315	991	1155.7	3(3/8)	20	M85[3(1/4)]	171.5	195.0	962	319	-	-
900	36	914.4	1345	1029	1200.2	3(1/8)	24	M76(3)	173.1	201.7	1016	325	-	-

Outside Diameter and Wall Thickness GB/T 12459、GB/T 13401

Nominal diameter	Outside diameter D		Nominal wall thickness (T)																
DN	A	B	Sch5S	Sch10S	Sch20S	LG	Sch20	Sch30	STD	Sch40	Sch60	XS	Sch80	Sch100	Sch120	Sch140	Sch160		
15	21.3	18	1.6	2.1	2.6	-	-	-	-	2.9	-	-	3.6	-	-	-	4.5		
20	26.9	25	1.6	2.1	2.6	-	-	-	-	2.9	-	-	4.0	-	-	-	5.6		
25	33.74	32	1.6	2.8	3.2	-	-	-	-	3.2	-	-	4.5	-	-	-	6.3		
32	42.4	38	1.6	2.8	3.2	-	-	-	-	3.6	-	-	5.0	-	-	-	6.3		
40	48.3	45	1.6	2.8	3.2	-	-	-	-	3.6	-	-	5.0	-	-	-	7.1		
50	60.3	57	1.6	2.8	3.2	-	3.6	-	-	4.0	-	-	5.6	-	-	-	8.8		
65	76.1(73)	76	2.0	3.0	3.6	-	4.5	-	-	5.0	-	-	7.1	-	-	-	10.0		
80	88.9	89	2.0	3.0	4.0	-	4.5	-	-	5.6	-	-	8.0	-	-	-	11.0		
90	101.6	-	2.0	3.0	4.0	-	4.5	-	-	5.6	-	-	8.0	-	-	-	12.5		
100	114.3	108	2.0	3.0	4.0	-	5.0	-	-	5.9	-	-	8.8	-	11.0	-	14.2		
125	139.7	133	2.9	3.4	5.0	-	5.0	-	-	6.3	-	-	10.0	-	12.5	-	16.0		
150	168.3	159	2.9	3.4	5.0	-	5.6	-	-	7.1	-	-	11.0	-	14.2	-	17.5		
200	21.91	219	2.9	4.0	6.3	-	6.3	7.1	-	8.0	10.0	-	12.5	16.0	17.5	20.0	22.2		
250	273.0	273	3.6	4.0	6.3	-	6.3	8.0	-	8.8	12.5	-	16.0	17.5	22.2	25.0	28.0		
300	323.9	325	4.0	4.5	6.3	-	6.3	8.8	-	10.0	14.2	-	17.5	22.2	25.0	28.0	32.0		
350	355.6	377	4.0	5.0	-	8.0	8.0	10.0	10.0	11.0	16.0	13.0	20.0	25.8	28.0	32.0	36.0		
400	406.4	426	4.0	5.0	-	8.0	8.8	10.0	10.0	12.5	17.5	13.0	22.2	28.0	30.0	36.0	40.0		
450	457.2	478	4.0	5.0	-	8.0	10.0	11.0	10.0	14.2	20.0	13.0	25.0	30.0	36.0	40.0	45.0		
500	508.0	529	5.0	5.6	-	8.0	-	12.5	10.0	16.0	20.0	13.0	28.0	32.0	40.0	45.0	50.0		
550	559	-	5.0	5.6	-	8.0	-	-	10.0	-	-	13.0	30.0	-	-	-	-		
600	610	630	5.6	6.3	-	8.0	-	-	10.0	17.5	-	13.0	32.0	-	-	-	-		
650	660	-	-	-	-	8.0	-	-	10.0	-	-	13.0	-	-	-	-	-		
700	711	720	-	-	-	8.0	-	-	10.0	-	-	13.0	-	-	-	-	-		
750	762	-	-	-	-	8.0	-	-	10.0	-	-	13.0	-	-	-	-	-		
800	813	820	-	-	-	8.0	-	-	10.0	-	-	13.0	-	-	-	-	-		
850	864	-	-	-	-	8.0	-	-	10.0	-	-	13.0	-	-	-	-	-		
900	914	920	-	-	-	8.0	-	-	10.0	-	-	13.0	-	-	-	-	-		
950	965	-	-	-	-	8.0	-	-	10.0	-	-	13.0	-	-	-	-	-		
1000	1016	1020	-	-	-	8.0	-	-	10.0	-	-	13.0	-	-	-	-	-		
1050	1067	-	-	-	-	8.0	-	-	10.0	-	-	13.0	-	-	-	-	-		
1100	1118	1120	-	-	-	8.0	-	-	10.0	-	-	13.0	-	-	-	-	-		
1150	1168	-	-	-	-	8.0	-	-	10.0	-	-	13.0	-	-	-	-	-		
1200	1220	1120	-	-	-	8.0	-	-	10.0	-	-	13.0	-	-	-	-	-		

Outside Diameter and Wall Thickness SH3408、SH3409

Nominal diameter	Outside diameter	Nominal wall thickness (T)															
DN	D	Sch5S	Sch10S	Sch20S	Sch40S	Sch80S	Sch20	Sch30	Sch40	Sch60	Sch80	Sch100	Sch120	Sch140	Sch160	XXS
10	17	1.2	1.6	2.0	2.5	3.2	-	-	2.5	-	3.5	-	-	-	-	-
15	22	1.6	2.0	2.5	3.0	4.0	-	-	3.0	-	4.0	-	-	-	5.0	7.5
20	27	1.6	2.0	2.5	3.0	4.0	-	-	3.0	-	4.0	-	-	-	5.5	8.0
25	34	1.6	2.8	3.0	3.5	4.5	-	-	3.5	-	4.5	-	-	-	6.5	9.0
(32)	42	1.6	2.8	3.0	3.5	5.0	-	-	3.5	-	5.0	-	-	-	6.5	10.0
40	48	1.6	2.8	3.0	4.0	5.0	-	-	4.0	-	5.0	-	-	-	7.0	10.0
50	60	1.6	2.8	3.5	4.0	5.5	3.5	-	4.0	5.0	5.5	-	7.0	-	8.5	11.0
(65)	76	2.0	3.0	3.5	5.0	7.0	4.5	-	5.0	6.0	7.0	-	8.0	-	9.5	14.0
80	89	2.0	3.0	4.0	5.5	7.5	4.5	-	5.5	6.5	7.5	-	9.0	-	11.0	15.0
100	114	2.0	3.0	4.0	6.0	8.5	5.0	-	6.0	7.0	8.5	-	11.0	-	14.0	17.0
(125)	140	2.8	3.5	5.0	6.5	9.5	5.0	-	6.5	8.0	9.5	-	13.0	-	16.0	19.0
150	168	2.8	3.5	5.0	7.0	11.0	5.5	6.5	7.0	9.5	11.0	-	14.0	-	18.0	22.0
200	219	2.8	4.0	6.5	7.0	13.0	6.5	7.0	8.0	10.0	13.0	15.0	18.0	20.0	24.0	23.0
250	273	3.5	4.0	6.5	9.5	15.0	6.5	8.0	9.5	13.0	15.0	18.0	22.0	25.0	28.0	25.0
300	325	4.0	4.5	6.5	9.5	17.0	6.5	8.5	10.0	14.0	17.0	22.0	25.0	28.0	34.0	26.0
350	356	4.0	5.0	-	-	-	8.0	9.5	11.0	15.0	19.0	24.0	28.0	32.0	36.0	-
400	406	4.5	5.0	-	-	-	8.0	9.5	13.0	17.0	22.0	26.0	32.0	36.0	40.0	-
450	457	-	-	-	-	-	8.0	11.0	14.0	19.0	24.0	30.0	35.0	40.0	45.0	-
500	508	-	-	-	-	-	9.5	13.0	15.0	20.0	26.0	32.0	38.0	45.0	50.0	-
550	559	-	-	-	-	-	9.5	13.0	17.0	22.0	28.0	35.0	42.0	48.0	54.0	-
600	610	-	-	-	-	-	9.5	14.0	18.0	25.0	32.0	38.0	45.0	52.0	60.0	-
650	660	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
700	711	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
750	762	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
800	813	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
850	864	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
900	914	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
950	965	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1000	1016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1050	1067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1100	1118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1150	1168	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1200	1220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Outside Diameter and Wall Thickness ASME B36.10M,B36.19M

Nominal diameter		Outside diameter	Nominal wall thickness (T)																	
DN	NPS	D	Sch5S	Sch10S	Sch10	Sch20	Sch30	Sch40S	STD	Sch40	Sch60	Sch80S	XS	Sch80	Sch100	Sch120	Sch140	Sch160	XXS
6	1/8	10.3	-	1.24	-	-	-	1.73	1.73	1.73	-	2.41	2.41	2.41	-	-	-	-	-
8	1/4	13.7	-	1.65	-	-	-	2.24	2.24	2.24	-	3.02	3.02	3.02	-	-	-	-	-
10	3/8	17.1	-	1.65	-	-	-	2.31	2.31	2.31	-	3.20	3.20	3.20	-	-	-	-	-
15	1/2	21.3	1.65	2.11	-	-	-	2.77	2.77	2.77	-	3.73	3.73	3.73	-	-	-	4.78	7.47
20	3/4	26.7	1.65	2.11	-	-	-	2.87	2.87	2.87	-	3.91	3.91	3.91	-	-	-	5.56	7.82
25	1	33.4	1.65	2.77	-	-	-	3.38	3.38	3.38	-	4.55	4.55	4.55	-	-	-	6.35	9.09
32	1(1/4)	42.2	1.65	2.77	-	-	-	3.56	3.56	3.56	-	4.85	4.85	4.85	-	-	-	6.35	9.70
40	1(1/2)	48.3	1.65	2.77	-	-	-	3.68	3.68	3.68	-	5.08	5.08	5.08	-	-	-	7.14	10.15
50	2	60.3	1.65	2.77	-	-	-	3.91	3.91	3.91	-	5.54	5.54	5.54	-	-	-	8.74	11.07
65	2(1/2)	73.0	2.11	3.05	-	-	-	5.16	5.16	5.16	-	7.01	7.01	7.01	-	-	-	9.53	14.02
80	3	88.9	2.11	3.05	-	-	-	5.49	5.49	5.49	-	7.62	7.62	7.62	-	-	-	11.13	15.24
90	3(1/2)	101.6	2.11	3.05	-	-	-	5.74	5.74	5.74	-	8.08	8.08	8.08	-	-	-	-	-
100	4	114.3	2.11	3.05	-	-	-	6.02	6.02	6.02	-	8.56	8.56	8.56	-	11.13	-	13.49	17.14
125	5	141.3	2.77	3.40	-	-	-	6.55	6.55	6.55	-	9.53	9.53	9.53	-	12.70	-	15.88	19.05
150	6	168.3	2.77	3.40	-	-	-	7.11	7.11	7.11	-	10.97	10.97	10.97	-	14.27	-	18.26	21.95
200	8	219.1	2.77	3.76	-	6.35	7.04	8.18	8.18	8.18	10.31	12.70	12.70	12.70	15.09	18.26	20.62	23.01	22.23
250	10	273.1	3.40	4.19	-	6.35	7.80	9.27	9.27	9.27	12.70	12.70	12.70	15.09	18.26	21.44	25.40	28.58	25.40
300	12	323.9	3.96	4.57	-	6.35	8.38	9.53	9.53	10.31	14.27	12.70	12.70	17.48	21.44	25.40	28.58	33.32	25.40
350	14	355.6	3.96	4.78	6.35	7.92	9.53	-	9.53	11.13	15.09	-	12.70	19.05	23.83	27.79	31.75	35.71	-
400	16	406.4	4.19	4.78	6.35	7.92	8.53	-	9.53	12.70	16.66	-	12.70	21.44	26.19	30.96	36.53	40.49	-
450	18	457.2	4.19	4.78	6.35	7.92	11.13	-	9.53	14.27	19.05	-	12.70	23.83	29.36	34.93	39.67	45.24	-
500	20	508	4.78	5.54	6.35	9.543	12.70	-	9.53	15.09	20.62	-	12.70	26.19	32.54	38.10	44.45	50.01	-
-	22	559	4.78	5.54	6.35	9.53	12.70	-	9.53	-	22.23	-	12.70	28.58	34.93	41.28	47.63	53.98	-
600	24	610	5.54	6.35	6.35	9.53	14.27	-	9.53	17.48	24.61	-	12.70	30.96	38.89	46.02	52.37	59.54	-
-	26	660	-	-	7.92	12.70	-	-	9.53	-	-	-	12.70	-	-	-	-	-	-
700	28	711	-	-	7.92	12.70	15.88	-	9.53	-	-	-	12.70	-	-	-	-	-	-
-	30	762	6.35	7.92	7.92	12.70	15.88	-	9.53	-	-	-	12.70	-	-	-	-	-	-
800	32	813	-	-	7.92	12.70	15.88	-	9.53	17.48	-	-	12.70	-	-	-	-	-	-
-	34	864	-	-	7.92	12.70	15.88	-	9.53	17.48	-	-	12.70	-	-	-	-	-	-
900	36	914	-	-	7.92	12.70	15.88	-	9.53	19.05	-	-	12.70	-	-	-	-	-	-
-	38	965	-	-	-	-	-	-	9.53	-	-	-	12.70	-	-	-	-	-	-
1000	40	1016	-	-	-	-	-	-	9.53	-	-	-	12.70	-	-	-	-	-	-
-	42	1067	-	-	-	-	-	-	9.53	-	-	-	12.70	-	-	-	-	-	-
1100	44	1118	-	-	-	-	-	-	9.53	-	-	-	12.70	-	-	-	-	-	-
-	46	1168	-	-	-	-	-	-	9.53	-	-	-	12.70	-	-	-	-	-	-
1200	48	1219	-	-	-	-	-	-	9.53	-	-	-	12.70	-	-	-	-	-	-

Outside Diameter and Wall Thickness JIS B2311,B2312,B2313

Nominal diameter		Outside diameter	Nominal wall thickness (T)																			
DN	NPS	D	SGP	Sch5S	Sch10S	Sch10	Sch20S	Sch30	Sch40S	STD	Sch40	Sch60	Sch80S	XS	Sch80	Sch100	Sch120	Sch140	Sch160	XXS
15	1/2	21.7	2.8	1.65	2.1	-	2.5	-	2.8	2.8	2.8	-	3.7	3.7	3.7	-	-	-	4.8	7.5
20	3/4	27.2	2.8	1.65	2.1	-	2.5	-	2.9	2.9	2.9	-	3.9	3.9	3.9	-	-	-	5.6	7.8
25	1	34.0	3.2	1.65	2.8	-	3.0	-	3.4	3.4	3.4	-	4.5	4.5	4.5	-	-	-	6.4	9.1
32	1(1/4)	42.7	3.5	1.65	2.8	-	3.0	-	3.6	3.6	3.6	-	4.9	4.9	4.9	-	-	-	6.4	9.7
40	1(1/2)	48.6	3.5	1.65	2.8	-	3.0	-	3.7	3.7	3.7	-	5.1	5.1	5.1	-	-	-	7.1	10.2
50	2	60.5	3.8	1.65	2.8	-	3.5	-	3.9	3.9	3.9	-	5.5	5.5	5.5	-	-	-	8.7	11.1
65	2(1/2)	76.3	4.2	2.1	3.0	-	3.5	-	5.2	5.2	5.2	-	7.0	7.0	7.0	-	-	-	9.5	14.0
80	3	89.1	4.2	2.1	3.0	-	4.0	-	5.5	5.5	5.5	-	7.6	7.6	7.6	-	-	-	11.1	15.2
90	3(1/2)	101.6	4.2	2.1	3.0	-	4.0	-	5.7	5.7	5.7	-	8.1	8.1	8.1	-	-	-	-	-
100	4	114.3	4.5	2.1	3.0	-	4.0	-	6.0	6.0	6.0	-	8.6	8.6	8.6	-	11.1	-	13.5	17.1
125	5	139.8	4.5	2.8	3.4	-	5.0	-	6.6	6.6	6.6	-	9.5	9.5	9.5	-	12.7	-	15.9	19.0
150	6	165.2	5.0	2.8	3.4	-	5.0	-	7.1	7.1	7.1	-	11.0	11.0	11.0	-	14.3	-	18.2	21.9
200	8	216.3	5.8	2.8	4.0	-	6.5	7.0	8.2	8.2	8.2	10.3	12.7	12.7	12.7	15.1	18.2	20.6	23.0	22.2
250	10	267.4	6.6	3.4	4.0	-	6.5	7.8	9.3	9.3	9.3	12.7	12.7	12.7	15.1	18.3	21.4	25.4	28.6	25.4
300	12	318.5	6.9	4.0	4.5	-	6.5	8.4	9.5	9.5	10.3	14.3	12.7	12.7	17.4	21.4	25.4	28.6	33.3	25.4
350	14	355.6	7.9	4.0	5.0	6.4	8.0	9.5	9.5	9.5	11.1	15.1	-	12.7	19.0	23.8	27.8	31.8	35.7	-
400	16	406.4	7.9	4.5	5.0	6.4	8.0	9.5	9.5	9.5	12.7	16.7	-	12.7	21.4	26.2	30.9	36.5	40.5	-
450	18	457.2	7.9	4.5	5.0	6.4	8.0	11.1	9.5	9.5	14.3	19.0	-	12.7	23.8	29.4	34.9	39.7	45.2	-
500	20	508.0	7.9	5.0	5.5	6.4	9.5	12.7	9.5	9.5	15.1	20.6	-	12.7	26.2	32.5	38.1	44.4	50.0	-
-	22	558.8	-	5.0	5.5	6.4	9.5	12.7	9.5	9.5	15.9	22.2	-	12.7	28.6	34.9	41.3	47.6	54.0	-
600	24	609.6	-	5.5	6.5	6.4	9.5	14.3	-	9.5	17.5	24.6	-	12.7	31.0	38.9	46.0	52.4	59.5	-
-	26	660.4	-	5.5	8.0	7.9	12.7	-	-	9.5	-	-	-	12.7	34.9	-	-	-	-	-
700	28	711.2	-	5.5	8.0	7.9	12.7	15.9	9.5	9.5	17.5	-	-	12.7	-	-	-	-	-	-
-	30	762.0	-	6.5	8.0	7.9	12.7	15.9	9.5	9.5	17.5	-	-	12.7	-	-	-	-	-	-
800	32	812.8	-	-	8.0	7.9	12.7	15.9	-	9.5	17.5	-	-	12.7	-	-	-	-	-	-
-	34	863.6	-	-	8.0	7.9	12.7	15.9	-	9.5	17.5	-	-	12.7	-	-	-	-	-	-
900	36	914.4	-	-	8.0	7.9	12.7	15.9	-	9.5	19.1	-	-	12.7	-	-	-	-	-	-
-	38	965.2	-	-	-	-	-	-	-	9.5	-	-	-	12.7	-	-	-	-	-	-
1000	40	1016.0	-	-	9.5	-	14.3	-	-	9.5	26.2	-	-	12.7	-	-	-	-	-	-
-	42	1066.8	-	-	-	-	-	-	-	9.5	-	-	-	12.7	-	-	-	-	-	-
1100	44	1117.6	-	-	-	-	-	-	-	9.5	-	-	-	12.7	-	-	-	-	-	-
-	46	1168.4	-	-	-	-	-	-	-	9.5	-	-	-	12.7	-	-	-	-	-	-
1200	48	1219.2	-	-	-	-	-	-	-	9.5	-	-	-	12.7	-	-	-	-	-	-

Tolerances for Scocket-Welding Fittings

Nominal diameter		All fittings		45°、90°、elbows, tees, crosses,45° laterals	Couplings	Half couplings reducer inserts	Unions (including thread)
		Socket bore	Water way bore	Center to bottom of socket	Laying lengths	Laying lengths	Length assem nominal
DN	NPS	D1	D2	A、H	E	F	L
6-8	1/8-1/4			±0.8	±1.5	±0.8	±1.5
10-20	3/8-3/4	+0.3 0	±0.4	±1.5	±3.0	±1.5	±1.5
25-50	1-2			±2.0	±4.0	±2.0	±1.5
65-100	2(1/2)-4	+0.4 0	±0.8	±2.5	±5.0	±2.5	±1.5

Tolerances for threaded fittings

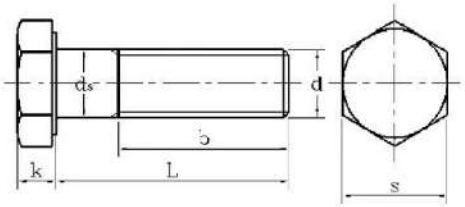
Nominal diameter		45°.90°、elbows, tees,crosses,45° laterals	Coupling cap	Half couplings, boss
		Center to end	End to end	End to end
DN	NPS	A	E、F	E/2
6-8	1/8-1/4	±0.7	±0.7	±0.4
10-20	3/8-3/4	±1.5	±1.5	±0.8
25-50	1-2	±2.0	±2.0	±1.0
65-100	2(1/2)-4	±2.5	±2.5	±1.3

The correlation of thread and socket-welding fittings with pressure class designation or schedule NO.of pipe

Code of pressure grad	Wall thickness class			
	Socket	Thread	Socket	Thread
2000	—	sch80	—	XS
3000	sch80	sch160	XS	—
6000	sch160	—	—	—XS
9000	—	—	—XS	—

Chemical Composition Table of Stainless Steel

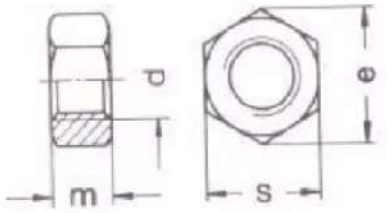
Country	Standard	Gb	Chemical Composition(%)									Mechanical propcrties			
			C≤	Mn≤	Si≤	S≤	P≤	Cr	Ni	Mo	Others	σb (Mpa)	σ0.2 (Mpa)	δ (%)	HRB ≤
China	GB	0Cr18Ni9	0.08	2.00	1.00	0.03	0.035	17.00-19.00	8.00-10.00			520	210		200
		00Cr18Ni10	0.03	2.00	1.00	0.03	0.035	17.00-19.00	8.00-12.00				180	40	200
		1Cr18Ni9Ti (0Cr18Ni9Ti)	0.12	2.00	1.00	0.03	0.035	17.00-19.00	8.00-11.00		Ti:5x(C%-0.02)-0.8			40	200
		0Cr17Ni12Mo2	0.08	2.00	1.00	0.03	0.035	16.00-18.00	10.00-14.00	1.80-2.50		520	210	40	200
		00Cr17Ni14M02	0.03	2.00	1.00	0.03	0.035	16.00-18.00	12.00-16.00	1.80-2.50		480	180	40	200
		0Cr18Ni12M02Ti	0.08	2.00	1.00	0.03	0.035	16.00-18.00	11.00-14.00	2.50-3.50	Ti:5xC-0.7			35	
		0Cr18Ni11Nb	0.10	2.00	0.03	0.03	0.035	17.00-20.00	9.00-13.00		Nb:8xC-1.50	510	205	38	
America	ASTM	TP304	0.08	2.00	1.00	0.03	0.045	18.00-20.00	8.00-10.50			586	241	55	80
		TP304L	0.03	2.00	1.00	0.03	0.045	18.00-20.00	8.00-12.00			517	193	55	79
		TP321	0.08	2.00	0.75	0.03	0.045	17.00-19.00	9.00-12.00		Ti:5xC-0.6	620	241	45	80
		TP316	0.08	2.00	1.00	0.03	0.045	16.00-18.00	10.00-14.00	2.0-3.0		620	276	50	79
		TP316L	0.03	2.00	1.00	0.03	0.045	16.00-18.00	10.00-14.00	2.0-3.0		517	220	50	79
		TP317	0.08	2.00	1.00	0.03	0.045	18.00-20.00	11.00-15.00	3.0-4.0		620	276	45	85
		TP317L	0.03	2.00	1.00	0.03	0.045	18.00-20.00	11.00-15.00	3.0-4.0		586	241	55	85
		TP310S	0.25	2.00	1.00	0.03	0.045	24.00-26.00	19.00-22.00			655	310	45	85
		TP347H	0.08	2.00	1.00	0.03	0.045	17.00-19.00	9.00-13.00		(Nb+Ta)≥10C	655	276	45	85
Germany	DIN	1.4301	0.07	2.00	1.00	0.03	0.045	17.00-19.00	8.50-10.50			500-700	195	40	
		1.4306	0.03	2.00	1.00	0.03	0.045	18.00-20.00	10.00-12.50			460-680	180	40	
		1.4541	0.08	2.00	1.00	0.03	0.045	17.00-19.00	9.00-12.00			490-730	260	35	
		1.4401	0.07	2.00	1.00	0.03	0.045	16.50-18.50	10.50-13.50			510-710	205	40	
		1.4435	0.03	2.00	1.00	0.025	0.045	17.00-18.50	12.50-15.00	2.50-3.00		490-690	190	40	
		1.4571	0.08	2.00	1.00	0.03	0.045	16.50-18.50	10.50-13.50	2.0-2.50	Ti:5xC-0.8	500-730	210	35	
		1.4550	0.08	2.00	1.00	0.03	0.045	17.00-19.00	9.00-12.00			510-740	205	35	
Japan	JIS	SUS304	0.08	2.00	1.00	0.03	0.04	18.00-20.00	8.00-11.00			480	175	35	90
		SUS304L	0.03	2.00	1.00	0.03	0.04	18.00-30.00	9.00-13.00						
		SUS321	0.08	2.00	1.00	0.03	0.04	17.00-19.00	9.00-13.00		Ti:5xC-0.7	520	205	35	90
		SUS316	0.03	2.00	1.00	0.03	0.04	16.00-18.00	12.00-16.00	2.00-3.00		480	175	35	90
		SUS316L	0.03	2.00	1.00	0.03	0.04	16.00-18.00	12.00-16.00	2.00-3.00					
		SUS317	0.03	2.00	1.00	0.03	0.04	18.00-20.00	11.00-15.00	3.00-4.00		480	175	35	
		SUS317L	0.03	2.00	1.00	0.03	0.04	18.00-20.00	11.00-15.00	3.00-4.00					
		SUS310S	0.05	2.00	1.50	0.03	0.04	24.00-26.00	19.00-22.00			520	205	35	
		SUS347L	0.04-0.10	2.00	1.00	0.03	0.03	17.00-20.00	9.00-13.00		Nb:8xC-1.00	520	205	35	



Unit: mm

d	P	b			ds		k		s	
		L≤125	125<L≤200	200<L	max	min	max	min	max	min
M5	0.8	16	22	35	5.48	4.52	3.875	3.125	8	7.64
M6	1	18	24	37	6.48	5.52	4.375	3.625	10	9.64
M8	1.25	22	28	41	8.58	7.42	5.675	4.925	13	12.57
M10	1.5	26	32	45	10.58	9.42	6.85	5.95	16	15.57
M12	1.75	30	36	49	12.70	11.30	7.95	7.05	18	17.57
M14	2	34	40	53	14.70	13.30	9.25	8.35	21	20.16
M16	2	38	44	57	16.70	15.30	10.75	9.25	24	23.16
M18	2.5	42	48	61	18.70	17.30	12.40	10.60	27	26.16
M20	2.5	46	52	65	20.84	19.16	13.40	11.60	30	29.16
M22	2.5	50	56	69	22.84	21.16	14.90	13.10	34	33
M24	3	54	60	73	24.84	23.16	15.90	14.10	36	35
M27	3	60	66	79	27.84	26.16	17.90	16.10	41	40
M30	3.5	66	72	85	30.84	29.16	19.75	17.65	46	45
M33	3.5	/	78	91	34.00	32.00	22.05	19.95	50	49
M36	4	/	84	97	37.00	35.00	23.55	21.45	55	53.8
M39	4	/	90	103	40	38	26.05	23.95	60	58.8
M42	4.5	/	96	109	43.00	41.00	27.05	24.95	65	63.1
M45	4.5	/	102	115	46	44	29.05	26.95	70	68.1
M48	5	/	108	121	49.00	47.00	31.05	28.95	75	73.1
M52	5	/	116	129	53.2	50.8	34.25	31.75	80	78.1
M56	5.5	/	/	137	57.20	54.80	36.25	33.75	90	82.8
M60	5.5	/	/	145	61.2	58.8	38.25	36.75	90	87.8
M64	6	/	/	153	65.20	62.80	41.25	38.75	95	92.8

DIN EN ISO 4032-DIN934 Hex Nut



All measurements in millimeters (mm)

d	s	e	m
M1	2.5	2.72	0.8
M1.2	3	3.29	1
M1.4	3	3.29	1.2
M1.6	3.2	3.48	1.3
M1.7	3.5	3.82	1.4
M2	4	4.32	1.6
M2.3	4.5	4.95	1.8
M2.5	5	5.45	2
M2.6	5	5.51	2
M3	5.5	6.01	2.4
M3.5	6	6.01	2.8
M4	7	7.66	3.2
M5	8	8.76	4
M6	10	11.05	5
M7	11	12.12	5.5
M8	13	14.38	6.5
M10	17	18.9	8
M12	19	21.1	10
M14	22	24.49	11
M16	24	26.75	13
M18	27	29.56	15
M20	30	32.95	16
M22	32	35.03	18