
SPS
PRODUCTS FOR
• STEEL PIPE,
• FITTING, FLANGE
IMAX ENGINEERING
บจก.ไอแม็กซ์ เอ็นจิเนียริ่ง
โทร.02-0750910-4 / Line : @IMAX

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STEEL PIPES, FITTINGS, FLANGES



CARBON STEEL PIPE

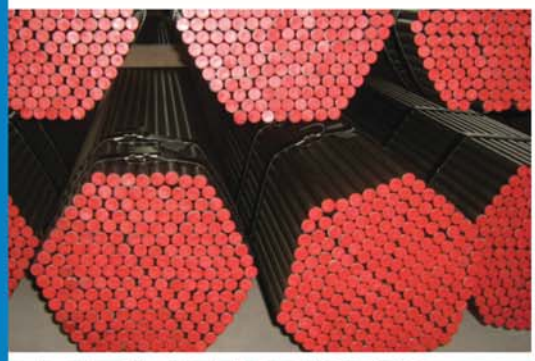
- ERW
- SMLS
- SAW
  - ASTM A53 GR.A/B
  - ASTM A106 GR.A/B
  - API5L GR.B
  - ASTM A333
  - ASTM A335
  - WALL THICKNESS SCH.10-SCH.160

STAINLESS STEEL PIPE

- WELDED
- SEAMLESS
  - ASTM A312 TP304 / 304L / 316 /316L
  - WALL THICKNESS SCH.5-SCH.160

GALVANIZED STEEL PIPE

- BS 1387-1985, TIS-277
  - BS-S - BS-M - BS-H








PIPES / CARBON STEEL PIPE, GALVANIZED STEEL, STAINLESS STEEL PIPE

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The leader standardize manufacture both in Thailand and from overseas



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SPS STEEL PIPES

- PIPES :
  CARBON STEEL PIPE,
  GALVANIZED STEEL,
  STAINLESS STEEL PIPE



IF YOU REQUIRE MORE DETAIL, WE ARE PROVIDE PRODUCTS .....

STEEL PIPES, FITTINGS, FLANGES

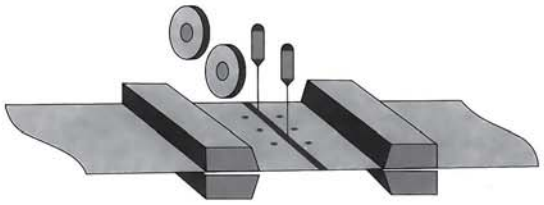
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PROCESS FLOW

Open volume

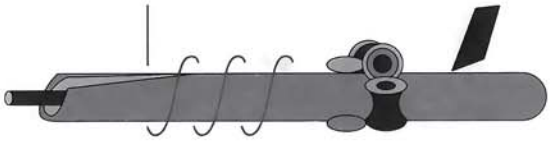


Correction The first cut Welded

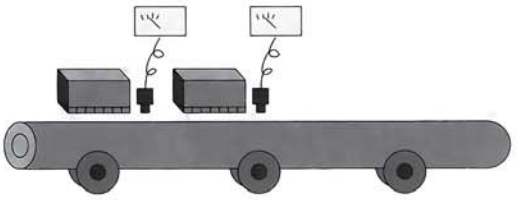




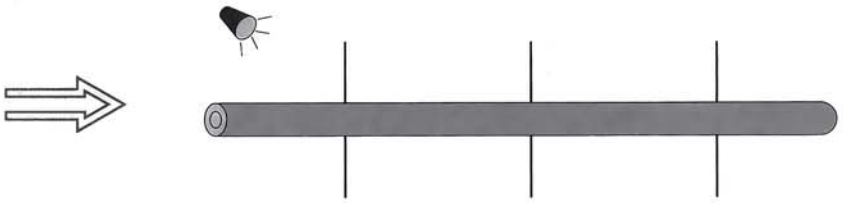
Welding Remove inside and outside burr

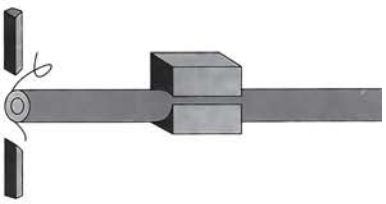


Welding seam heat treatment

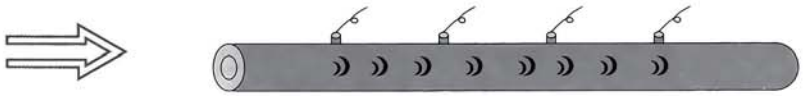


Exterior inspection Marking





Ultrasonic inspection

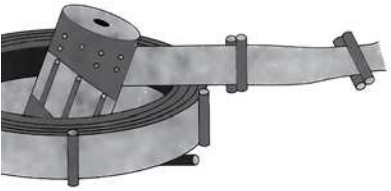


Pipe end ultrasonec inspection

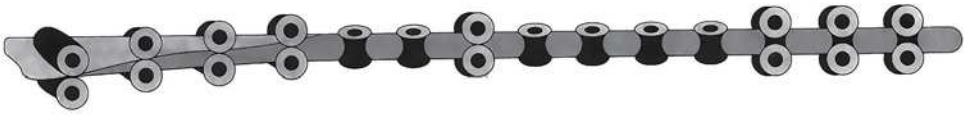


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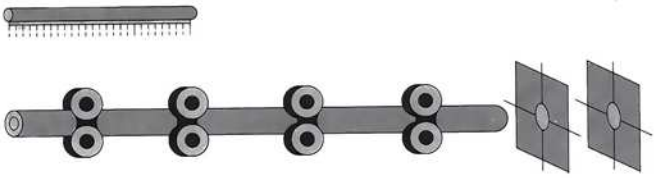
Loop storage



Figuration system



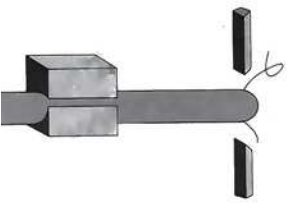
Air - cooled Water - cooled Established in diameter Correction



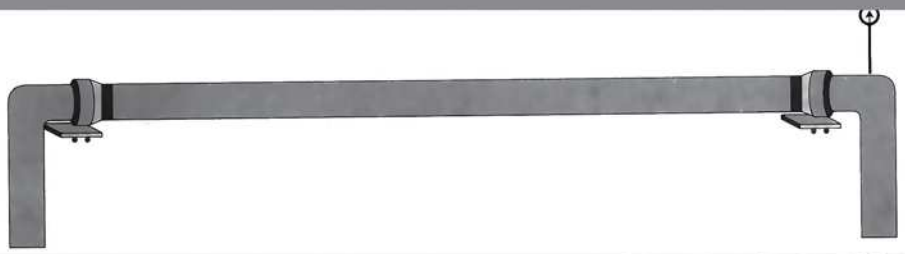
Flying saw cut



Plain end and bevel end



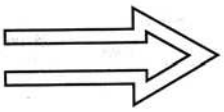
Hydraulic test



Weighting Record



Put in storage



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SPS PIPES

SPECIFICATIONS

Specification		ASTM A53		ASTM A500				ASTM A513									
Classification		A	B	A		B		MT 1010	MT 1015	MTX 1015	MT 1020	MTX 1020	1025	1026	1030	1035	4130	8630
Application		Ordinary piping		General structural purposes				Machine structural purposes										
Chemical composition (%	C(Max.)	0.25	0.3	Heat 0.26	Product 0.30	Heat 0.26	Product 0.30	0.05-0.15	0.10-0.20	0.10-0.20	0.15-0.25	0.15-0.25	0.22-0.28	0.22-0.28	0.27-0.34	0.31-0.38	0.28-0.33	0.28-0.33
	Si(Max.)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.15-0.35	0.15-0.35
	Mn(Max.)	0.95	1.2	-	-	-	-	0.30-0.60	0.30-0.60	0.60-0.90	0.30-0.60	0.70-1.00	0.30-0.60	0.60-0.90	0.60-0.90	0.60-0.90	0.40-0.60	0.70-0.90
	P(Max.)	0.05	0.05	0.035	0.045	0.035	0.045	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
	S(Max.)	0.045	0.045	0.035	0.045	0.035	0.045	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.040	0.040
	Other	-	-	Cu 0.20 (Min.)	Cu 0.18 (Min.)	Cu 0.20 (Min.)	Cu 0.18 (Min.)	-	-	-	-	-	-	-	-	-	-	-
Mechanical Properties	Tensile strengt (Min.) PSI	48000	60000	R 45000	S 45000	R 58000	S 58000	Type	Grade	Tensile strength Min. (PSI)		Yield point Min. (PSI)		Elongation Min (%)				
	MPa	330	415	310	310	400	400	AS-welded	1010 1015 1020 1025 1030 1035	45000 48000 52000 56000 62000 66000		32000 35000 38000 40000 45000 50000		15 15 12 12 10 10				
	kgf/mm^2	33.8	42.2	31.6	31.6	40.8	40.8	Normalized	1010 1015 1020 1025 1030 1035	40000 45000 50000 55000 60000 65000		25000 30000 35000 37000 40000 45000		30 30 25 25 25 20				
Yield point (Min.) PSI		30000	35000	33000	39000	42000	46000	Sink-drawn	1010 1015 1020 1025 1030 1035	50000 55000 60000 65000 70000 80000		40000 45000 50000 55000 62000 70000		8 8 8 7 7 7				
MPa		205	240	228	269	290	317	Mandrel-drawn	1010 1015 1020 1025 1030 1035	60000 65000 70000 75000 85000 90000		50000 55000 60000 65000 75000 80000		5 5 5 5 5 5				
kgf/mm^2		21.1	24.6	23.3	27.4	29.6	32.3	Mandrel-drawn stress-relieved	1010 1015 1020 1025 1030 1035	55000 60000 65000 70000 80000 85000		45000 50000 55000 60000 70000 75000		12 12 10 10 10 10				
Elongation (Min.)		e = 625.000 A^{02} / $U^{0.9}$		25 (56t+ 17.5)		23 (61t+ 12)												
Flattening test	H : Distance between Flattening H : Inside disance between flattening D : Outside diameter of the pipe (mm) D : Inside diameter of the pipe (mm) T : Wall thickness of the pipe (mm)	NPS2 over Weld H = 2/3D Base metal H = 1/3D Welded part is located at 90 degree		Weld H = 2/3D Base metal H = 1/3D Soundness Test H = Contact Welded part is located at 90 degree -				Welded part H = 2/3D Base metal H = 1/3D Welded part is located at 90 degree										
Bending test	Bending angel X Inside radius (D : Outside diameter of the pipe)	NPS2 below 90°x 12D close coiling 180°x 8D		-														
Hydrostatic test	P : Test pressure (PSI, MPa) D : Outside diameter diameter (mm) T : Thickness (mm)	$\frac{P-2St}{D}$		-				$\frac{P-2St}{D}$ S = allowable fiber stress of 14000PSI or 96 5MPA										
NDT (Non-Destructive Test)		Ultrasonic Test Or Eddy current test		-				Eddy - Current Test or Ultrasonic Test or Flux leakage Test										
Others		Weight of zinc coating Average : Min. 550 g/m^2 Individual : Min. 490 g/m^2		-				Flaring Test ID' = 1.15D' (60°tool) D' : Inside diameter ID' = Enlarged inside diameter										

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SPS PIPES

SPECIFICATIONS

Specification			ASTM A589				BS 1387	BS 3601			BS 3602		BS 1775			
Classification			TYPE1		TYPE2	TYPE3	TYPE4	(L) Light (M) Medium (H) Heavy	ERW 320	ERW 360	ERW430	ERW 360	ERW410	ERW411	ERW416	ERW20	ERW23
Application			Drive Pipe (Grade A)		Water-Well Reamed and Drited Pipe (Grade A)	DrivenWell Pipe (Grade A)	Water-Well Casing Pipe (Grade A)	Ordinary piping	Pressure services			High-pressure services		Machine structural purposes, General structrual purposes			
Chemical composition (%)	C(Max.)		-	-	-	-	-	0.20	0.16	0.17	0.21	0.17	0.21	-	-	-	-
	Si(Max.)		-	-	-	-	-	-	-					-	-	-	-
	Mn(Max.)		-	-	-	-	-	1.20	0.30-0.70	0.40-0.80	0.40-1.20	0.40-0.80	0.40-1.20	-	-	-	-
	P(Max.)		0.050	0.050	0.050	0.050	0.050	0.045	0.040	0.040	0.040	0.045	0.045	0.060	0.060	0.060	0.060
	S(Max.)		0.060	0.060	0.060	0.060	0.060	0.045	0.040	0.040	0.040	0.045	0.045	0.060	0.060	0.060	0.060
	Other		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mechanical Properties	Tensile strengt (Min.)	PSI	48000	60000	48000			-	-	-	-	-	-	-	-	-	-
		MPa	331	413	331			320-460	320-460	360-500	430-570	360-500	410-550	309	386	463	494
		kgf/mm^2	33.8	42.1	33.8			32.7-46.9	32.7-46.9	36.7-51.0	43.9-58.2	36.7-51.0	41.8-56.1	31.5	39.4	47.2	50.4
	Yield point (Min.)	PSI	30000	35000	30000			-	-	-	-	-	-	-	-	-	-
		MPa	207	241	207			195	195	235	275	215	245	170	247	309	355
		kgf/mm^2	21.1	24.6	21.1			19.9	19.9	24.0	28.1	21.9	25.0	17.3	25.2	31.5	36.2
	Elongation(Min.)		e = 625.000 (A02 / U0.9)					20	25	25	22	24	22	600/TS(700/TS) TS : Ton/In^2 Kgf/mm^2			
Flattening test	H : Distance between Flattening plates H : Inside disance between flattening plates D : Outside diameter of the pipe D : Inside diameter of the pipe (mm) T : Wall thickness of the pipe							DN Over 50 Welded part H = 0.75D Base metal H = 0.60D Welded part is located at 90 degree	H = (1+e)t / e+t/D Class: 320 / 360 / 460 Constant: Welded part 0.029 / 0.026 / 0.023; Base metal 0.10 / 0.09 / 0.08			H = (1+e)t / e+t/D e = 0.10 e = 0.08		H' = 3t or H' = 1/2D' whichever is the smaller	H' = 6t or H' = 3/4D' whichever is the smaller	H' = 8t or H' = 7/8D' whichever is the smaller	H' = 6t or H' = 3/4D' whichever is the smaller
Bending test	Bending angel X Inside radius (D : Outside diameter t : Wall thickness)							DN 50 below Black pipes 180 X 6D Galvanized pipes 90 X 8D				Outside diameter of bar is 4t					
Hydrostatic test	P : Test pressure S : Fiber stress, PSI (mPa) D : Outside diameter (mm) T : Thickness (mm)		Prescibed according to dimension and grade					51 (50 bar)	P = 20st / D (bar) S : 80% of the spedified minimum yield stregth			P = 20st / D (bar) S : 80% of the spedified minimum yield stregth Max 143Kgf/cm^2 (140 bar)					
NDT (Non-Destructive Test)								Eddy Current Test (substitute with hydrostatic test)	Eddy Current Test (Applied to pipes with Outside diameter of 180 mm or less as substitution for hydrostatic test)			Ultrasonic Test					
Others								Bore Test (hotdip zinccoated tubes)				The Charpy V-notch Impact test		Drift Expanding Test			
														1D = 1.125D'	1D = 1.125D'	1D = 1.125D'	1D = 1.125D'

SPS PIPES

CARBON STEEL PIPES FOR ORDINARY PIPING

ASTM A53

NPS Designator	Outside diameter		Wall thickness		Nominal weight						Weight class	Schedule No.	Test pressure							
					Plain end			threads & couplings					Plain end				threads & couplings			
													Grade A		Grade B		Grade A		Grade B	
in.	in.	mm	in.	mm	lb/ft	kg/ft	kg/m	lb/ft	kg/ft	kg/m			psi	kpa	psi	kpa	psi	kpa	psi	kpa
3/8	0.675	17.1	0.091	2.31	0.57	0.26	0.84	0.57	0.26	0.84	STD	40	700	4830	700	4830	700	4830	700	4830
			0.126	3.20	0.74	0.34	1.10	0.74	0.34	1.10	XS	80	850	5860	850	5860	850	5860	850	5860
1/2	0.840	21.3	0.109	2.77	0.85	0.39	1.27	0.85	0.39	1.27	STD	40	700	4830	700	4830	700	4830	700	4830
			0.147	3.73	1.09	0.49	1.62	1.09	0.49	1.62	XS	80	850	5860	850	5860	850	5860	850	5860
			0.188	4.78	1.31	0.59	1.95	-	-	-	-	160	900	6210	900	6210	-	-	-	-
3/4	1.500	26.7	0.113	2.87	1.13	0.52	1.69	1.13	0.52	1.69	STD	40	700	4830	7400	4830	700	4830	700	4830
			0.154	3.91	1.47	0.67	2.20	1.48	0.67	2.21	XS	80	850	5860	850	5860	850	5860	850	5860
			0.219	5.56	1.94	0.88	2.90	-	-	-	-	160	950	6550	950	6550	-	-	-	-
1	1.315	33.4	0.133	3.38	1.68	0.76	2.50	1.68	0.76	2.50	STD	40	700	4830	700	4830	700	4830	700	4830
			0.179	4.55	2.17	0.99	3.24	2.18	0.99	3.25	XS	80	850	5860	850	5860	850	5860	850	5860
			0.250	6.35	2.84	1.29	4.24	-	-	-	-	160	950	6550	950	6550	-	-	-	-
1 1/4	1.660	42.2	0.140	3.56	2.27	1.03	3.39	2.28	1.04	3.40	STD	40	1200	8270	1300	8960	1000	6890	1100	7580
			0.191	4.85	3.00	1.36	4.47	3.02	1.37	4.49	XS	80	1800	12410	1900	13100	1500	10340	1600	11030
			0.250	6.35	3.76	1.71	5.61	-	-	-	-	160	1900	13100	2000	13790	-	-	-	-
1 1/2	1.900	48.3	0.145	3.68	2.72	1.23	4.05	2.73	1.24	4.04	STD	40	1200	8270	1300	8960	1000	6890	1100	7580
			0.200	5.08	3.63	1.65	5.41	3.66	1.64	5.39	XS	80	1800	12410	1900	13100	1500	10340	1600	11030
			0.281	7.14	4.86	2.21	7.25	-	-	-	-	160	1950	13440	2050	14130	-	-	-	-
2	2.375	60.3	0.154	3.91	3.65	1.66	5.44	3.68	1.66	5.46	STD	40	2300	15860	2500	15860	2300	158/60	2500	17240
			0.218	5.54	5.02	2.28	7.48	5.07	2.30	7.55	XS	80	2500	17240	2500	17240	2500	17240	2500	17240
			0.344	8.74	7.46	3.39	11.11	-	-	-	-	160	2500	17240	2500	17240	-	-	-	-
2 1/2	2.875	73.0	0.203	8.16	5.79	2.63	8.63	5.82	2.64	8.67	STD	40	2500	17240	2500	17240	2500	17240	2500	17240
			0.276	7.01	7.66	3.48	11.41	7.73	3.51	11.52	XS	80	2500	17240	2500	17240	2500	17240	2500	17240
			0.375	9.52	10.01	4.54	14.90	-	-	-	-	160	2500	17240	2500	17240	-	-	-	-
3	3.500	88.9	0.125	3.18	4.51	2.05	6.72	-	-	-	-	-	1290	8890	1500	10340	-	-	-	-
			0.156	3.96	5.57	2.53	8.29	-	-	-	-	-	1600	11030	1870	12890	-	-	-	-
			0.188	4.78	6.65	3.02	9.92	-	-	-	-	-	1930	13310	2260	15580	-	-	-	-
			0.216	5.49	7.58	3.44	11.29	7.62	3.46	11.35	STD	40	2220	15310	2500	17240	2200	15170	2500	17240
			0.250	6.35	8.68	3.94	12.93	-	-	-	-	-	2500	17240	2500	17240	-	-	-	-
			0.281	7.14	9.66	4.39	14.40	-	-	-	-	-	2500	17240	2500	17240	-	-	-	-
			0.300	7.62	10.25	4.65	15.27	10.33	4.69	15.39	XS	80	2500	17240	2500	17240	2500	17240	2500	17240
			0.438	11.13	14.32	6.51	21.35	-	-	-	-	160	2500	17240	2500	17240	-	-	-	-
3 1/2	4.000	101.6	0.125	3.18	5.17	2.35	7.72	-	-	-	-	-	1120	7720	1310	9030	-	-	-	-
			0.156	3.96	6.40	2.90	9.53	-	-	-	-	-	1400	9650	1640	11310	-	-	-	-
			0.188	4.78	7.65	3.48	11.41	-	-	-	-	-	1690	11650	1970	13580	-	-	-	-
			0.226	5.74	9.11	4.14	13.57	9.20	4.18	13.71	STD	40	2030	14000	2370	16340	2000	13790	2400	16550
			0.250	6.35	10.01	4.55	14.92	-	-	-	-	-	2250	15510	2500	17240	-	-	-	-
			0.281	7.14	11.16	5.07	16.63	-	-	-	-	-	2500	17240	2500	17240	-	-	-	-
			0.318	8.08	12.51	5.68	18.63	12.63	5.74	18.82	XS	80	2800	19310	2800	19310	2800	19310	2800	19310
4	4.500	114.3	0.125	3.18	5.84	2.65	8.71	-	-	-	-	-	1000	6890	1170	8070	-	-	-	-
			0.156	3.96	7.24	3.29	10.78	-	-	-	-	-	1250	8620	1460	10070	-	-	-	-
			0.188	4.78	8.66	3.93	12.91	-	-	-	-	-	1500	10340	1750	12070	-	-	-	-
			0.219	5.56	10.01	4.54	14.91	-	-	-	-	-	1750	12070	2040	14070	-	-	-	-
			0.237	6.02	10.79	4.90	16.07	10.89	4.95	16.23	STD	40	1900	13100	2210	15240	1900	13100	2200	15170
			0.250	6.35	11.35	5.15	16.90	-	-	-	-	-	2000	13790	2330	16060	-	-	-	-
			0.281	7.14	12.66	5.75	18.87	-	-	-	-	-	2250	15110	2620	18060	-	-	-	-
			0.312	7.92	13.98	6.33	20.78	-	-	-	-	-	2500	17240	2800	19310	-	-	-	-
			0.337	8.56	14.98	6.80	22.32	15.17	6.89	22.60	XS	80	2700	18620	2800	19310	2700	18620	2800	19310
			0.438	11.13	19.00	8.63	28.32	-	-	-	-	120	2800	19310	2800	19310	-	-	-	-
			0.531	13.49	22.51	10.22	33.54	-	-	-	-	160	2800	19310	2800	19310	-	-	-	-

Dimension Tolerances:
Permissible Variation
Outside Diameter: 4 1/2" and under +/- 1/64" (0.4 mm.)
over 4 1/2" and over +/ - 1%
Wall Thickness: - 12.5% + Not Specified

IMAX ENGINEERING
บจก.ไอแมกซ์ เอ็นจิเนียริ่ง
โทร.02-0750910-4 / Line : @IMAX

SPS PIPES

ASTM A53

NPS Designator	Outside diameter		Wall thickness		Nominal weight						Weight class	Schedule No.	Test pressure							
					Plain end			threads & couplings					Plain end				threads & couplings			
													Grade A		Grade B		Grade A		Grade B	
in.	in.	mm	in.	mm	lb/ft	kg/ft	kg/m	lb/ft	kg/ft	kg/m			psi	kpa	psi	kpa	psi	kpa	psi	kpa
5	5.563	141.3	0.156	3.96	9.01	4.09	13.41	-	-	-	-	-	1010	6960	1180	8140	-	-	-	-
			0.188	4.78	10.79	4.90	16.09	-	-	-	-	-	1220	8410	1420	9790	-	-	-	-
			0.219	5.56	12.50	5.67	18.61	-	-	-	-	-	1420	9790	1650	11380	-	-	-	-
			0.258	6.55	14.62	6.64	21.77	14.81	6.73	22.07	STD	40	1670	11510	1950	13440	1700	11720	1900	13100
			0.281	7.14	15.85	7.20	23.62	-	-	-	-	-	1820	12550	2120	14620	-	-	-	-
			0.312	7.92	17.50	7.94	26.05	-	-	-	-	-	2020	13930	2360	16270	-	-	-	-
			0.344	8.74	19.17	8.71	28.57	-	-	-	-	-	2230	15380	2600	17930	-	-	-	-
			0.375	9.52	20.78	9.43	30.94	21.09	9.58	31.42	XS	80	2430	16750	2800	19310	2400	16550	2800	19310
			0.500	12.70	27.04	12.28	40.28	-	-	-	-	120	2800	19310	2800	19310	-	-	-	-
			0.625	15.88	32.96	14.97	49.11	-	-	-	-	160	2800	19310	2800	19310	-	-	-	-
6	6.250	168.3	0.188	4.78	12.92	5.87	19.27	-	-	-	-	-	1020	7030	1190	8200	-	-	-	-
			0.219	5.56	14.98	6.80	22.31	-	-	-	-	-	1190	8200	1390	9580	-	-	-	-
			0.25	6.35	17.03	7.73	25.36	-	-	-	-	-	1360	9380	1580	10890	-	-	-	-
			0.280	7.11	18.97	8.61	28.26	19.18	8.71	28.58	STD	40	1520	10480	1780	12270	1500	10340	1800	12410
			0.312	7.92	21.04	9.55	31.32	-	-	-	-	-	1700	11720	1980	13650	-	-	-	-
			0.344	8.74	23.08	10.48	34.39	-	-	-	-	-	1870	12890	2180	15030	-	-	-	-
			0.375	9.52	25.03	11.36	37.28	-	-	-	-	-	2040	14070	2380	16410	-	-	-	-
			0.432	10.97	28.57	12.97	42.56	28.89	13.12	43.05	XS	80	2350	16200	2740	18890	2300	15860	2700	18620
			0.562	14.27	36.39	16.52	54.20	-	-	-	-	120	2800	19310	2800	19310	-	-	-	-
			0.719	18.26	45.35	20.59	67.56	-	-	-	-	160	2800	19310	2800	19310	-	-	-	-
8	8.625	219.1	0.188	4.78	16.94	7.70	25.26	-	-	-	-	-	780	5380	920	6340	-	-	-	-
			0.203	5.16	18.26	8.30	27.22	-	-	-	-	-	850	5860	1000	6890	-	-	-	-
			0.219	5.56	19.66	8.92	29.28	-	-	-	-	-	910	6270	1070	7380	-	-	-	-
			0.250	6.35	22.36	10.15	33.31	-	-	-	-	20	1040	7170	1220	8410	-	-	-	-
			0.277	7.04	24.70	11.07	36.31	25.55	11.60	38.07	-	30	1160	7800	1350	9310	1200	8270	1300	8960
			0.312	7.92	27.70	12.57	41.24	-	-	-	-	-	1300	8960	1520	10480	-	-	-	-
			0.322	8.18	28.55	12.97	42.55	29.35	13.33	43.73	STD	40	1340	9240	1570	10820	1300	8960	1600	11030
			0.344	8.74	30.42	13.82	45.34	-	-	-	-	-	1440	9930	1680	11580	-	-	-	-
			0.375	9.52	33.04	15.00	49.20	-	-	-	-	-	1570	10820	1830	12620	-	-	-	-
			0.406	10.31	35.64	16.18	53.08	-	-	-	-	60	1700	11720	2000	13790	-	-	-	-
			0.438	11.13	38.30	17.40	57.08	-	-	-	-	-	1830	12620	2130	14690	-	-	-	-
			0.500	12.70	43.39	19.70	64.64	43.90	19.94	65.41	XS	80	2090	14410	2430	16750	2100	14480	2400	16550
			0.594	15.09	50.95	23.14	75.92	-	-	-	-	100	2500	17240	2800	19310	-	-	-	-
			0.719	18.26	60.71	27.57	90.44	-	-	-	-	120	2800	19310	2800	19310	-	-	-	-
			0.182	20.62	67.76	30.76	100.92	-	-	-	-	140	2800	19310	2800	19310	-	-	-	-
10	10.750	273.0	0.188	4.78	21.21	9.64	31.62	-	-	-	-	-	630	4340	730	5030	-	-	-	-
			0.203	5.16	22.87	10.39	34.08	-	-	-	-	-	680	4690	800	5520	-	-	-	-
			0.219	5.56	24.63	11.18	36.67	-	-	-	-	-	730	5030	860	5930	-	-	-	-
			0.250	6.35	28.04	12.73	41.75	-	-	-	-	20	840	5790	980	6760	-	-	-	-
			0.279	7.09	31.20	14.17	46.49	32.75	14.87	48.80	-	-	930	6410	1090	7520	950	6550	1100	7580
			0.307	7.80	34.24	15.55	51.01	35.75	16.24	53.27	-	30	1030	7100	1200	8270	1000	6890	1200	8270
			0.344	8.74	38.23	17.36	56.96	-	-	-	-	-	1150	9730	1340	9240	-	-	-	-
			0.365	9.27	40.48	18.38	60.29	41.85	19.31	63.36	STD	40	1220	8410	1430	9860	1200	8270	1400	9650
			0.438	11.13	48.19	21.91	71.27	-	-	-	-	-	1470	10140	1710	11790	-	-	-	-
			0.500	12.70	54.74	24.85	81.52	55.82	25.35	83.17	XS	60	1670	11510	1950	13440	1700	11720	2000	13790
			0.594	15.09	64.43	29.25	95.97	-	-	-	-	80	1990	13720	2320	16000	-	-	-	-
			0.719	18.26	77.03	34.96	114.70	-	-	-	-	100	2410	16620	2800	19310	-	-	-	-
			0.844	21.44	89.29	40.54	133.00	-	-	-	-	120	2800	19310	2800	19310	-	-	-	-

Dimension Tolerances:
Permissible Variation
Outside Diameter : 1.1/2" and under +/- 1/64" (0.4 mm.)
: 2" and over +/ - 1%
Wall Thickness : - 12.5% + Not Specified

SPS PIPES

ASTM A53

NPS Designator	Outside diameter		Wall thickness		Nominal weight: Plain end			Nominal weight: threads & couplings			Weight class	Schedule No.	Test pressure: Plain end Grade A		Plain end Grade B		threads & couplings Grade A		threads & couplings Grade B	
in.	in.	mm	in.	mm	lb/ft	kg/ft	kg/m	lb/ft	kg/ft	kg/m			psi	kpa	psi	kpa	psi	kpa	psi	kpa
12	12..750	323.8	0.203	5.16	27.20	12.36	40.55	-	-	-	-	-	570	3930	670	4620	-	-	-	-
			0.219	5.56	29.31	13.30	43.63	-	-	-	-	-	620		720	4960	-	-	-	-
			0.25	6.35	33.38	15.15	49.71	-	-	-	-	20	710	4270	820	5650	-	-	-	-
			0.281	7.14	37.42	16.99	55.75	-	-	-	-	-	790	4900	930	6410	-	-	-	-
			0.312	7.92	41.45	18.80	61.69	-	-	-	-	-	880	5450	1030	7100	-	-	-	-
			0.033	8.38	43.77	19.87	65.18	45.45	20.64	67.72	-	30	930	6070	1090	7520	950	6550	1100	7580
			0.344	8.74	45.58	20.70	67.90	-	-	-	-	-	970	6410	1130	7790	-	-	-	-
			0.375	9.52	49.56	22.49	73.78	51.15	23.23	76.21	STD	-	1060	6690	1240	8550	1100	7580	1200	8270
			0.060	10.31	53.52	24.29	79.70	-	-	-	-	40	1160	7310	1340	9240	-	-	-	-
			0.438	11.13	57.59	26.16	85.82	-	-	-	-	-	1240	7930	1440	9930	-	-	-	-
			0.500	12.70	65.43	29.70	97.43	66.71	30.30	99.40	XS	-	1410	8550	1650	11380	1400	9650	1600	11030
			0.562	14.27	73.15	33.25	108.92	-	-	-	-	60	1590	9720	1850	12760	-	-	-	-
			0.688	17.48	88.63	40.25	132.04	-	-	-	-	80	1940	10960	2270	15650	-	-	-	-
			0.644	21.44	107.32	48.73	159.86	-	-	-	-	100	2390	13380	2780	19170	-	-	-	-
14	14.000	355.6	0.210	5.33	30.93	14.03	46.04	-	-	-	-	-	540	16480	630	4340	-	-	-	-
			0.219	5.56	32.23	14.63	47.99	-	-	-	-	-	560	3720	660	4550	-	-	-	-
			0.250	6.35	36.71	16.67	54.69	-	-	-	-	10	640	3860	750	5170	-	-	-	-
			0.281	7.14	41.17	18.70	61.35	-	-	-	-	-	720	4410	840	5790	-	-	-	-
			0.312	7.92	45.61	20.70	67.90	-	-	-	-	20	800	4960	940	6480	-	-	-	-
			0.344	8.74	50.17	22.79	74.76	-	-	-	-	-	880	5520	1030	7100	-	-	-	-
			0.375	9.52	54.57	24.77	81.25	-	-	-	STD	30	960	6070	1120	7720	-	-	-	-
			0.438	11.13	63.44	28.82	94.55	-	-	-	-	40	1130	6620	1310	9030	-	-	-	-
			0.469	11.91	67.78	30.77	100.94	-	-	-	-	-	1210	7790	1410	9720	-	-	-	-
			0.500	12.07	72.09	32.73	107.39	-	-	-	XS	-	1290	8340	1500	10340	-	-	-	-
			0.594	15.09	85.05	38.62	126.71	-	-	-	-	60	1530	8890	1790	12340	-	-	-	-
			0.750	19.05	106.13	48.19	158.10	-	-	-	-	80	1930	10550	2250	15510	-	-	-	-
			0.938	23.83	130.85	59.42	194.96	-	-	-	-	100	2410	13310	2800	19310	-	-	-	-
			1.094	27.79	150.70	68.48	224.65	-	-	-	-	120	2800	16620	2800	19310	-	-	-	-
			1.250	31.75	170.22	77.29	253.56	-	-	-	-	140	2800	19310	2800	19310	-	-	-	-
			1.406	35.71	189.11	85.86	281.70	-	-	-	-	160	2800	19310	2800	19310	-	-	-	-
			2.000	50.80	256.32	116.38	381.83	-	-	-	-	-	2800	19310	2800	19310	-	-	-	-
			2.125	53.97	269.51	122.36	401.44	-	-	-	-	-	2800	19310	2800	19310	-	-	-	-
			2.200	55.88	277.26	125.89	413.01	-	-	-	-	-	2800	19310	2800	19310	-	-	-	-
			2.500	63.50	307.05	139.42	457.40	-	-	-	-	-	2800	19310	2800	19310	-	-	-	-
16	16.000	406.4	0.219	5.56	36.91	16.75	54.96	-	-	-	-	-	490	3930	570	3930	-	-	-	-
			0.250	6.35	42.05	19.09	62.64	-	-	-	-	10	560	4550	660	4550	-	-	-	-
			0.281	7.14	47.17	21.43	70.30	-	-	-	-	-	630	5100	740	5100	-	-	-	-
			0.312	7.92	52.27	23.72	77.83	-	-	-	-	20	700	5650	820	5650	-	-	-	-
			0.344	8.74	57.52	26.12	85.71	-	-	-	-	-	770	6210	900	6210	-	-	-	-
			0.375	9.52	62.58	28.40	93.17	-	-	-	STD	30	840	6760	980	6760	-	-	-	-
			0.438	11.13	72.80	33.07	108.49	-	-	-	-	-	990	7930	1150	7930	-	-	-	-
			0.469	11.91	77.79	35.31	115.86	-	-	-	-	-	1060	8480	1230	8480	-	-	-	-
			0.500	12.70	82.77	37.58	123.30	-	-	-	XS	40	1120	9030	1310	9030	-	-	-	-
			0.656	16.66	107.50	48.80	160.12	-	-	-	-	60	1480	11860	1720	11860	-	-	-	-
			0.844	21.44	136.62	62.04	203.53	-	-	-	-	80	1900	15310	2220	15310	-	-	-	-
			1.031	26.19	164.82	74.85	245.56	-	-	-	-	100	2320	18680	2710	18680	-	-	-	-
			1.219	30.96	192.43	87.37	286.64	-	-	-	-	120	2740	19310	2800	19310	-	-	-	-
			1.438	36.53	223.64	101.56	333.19	-	-	-	-	140	2800	19310	2800	19310	-	-	-	-
			1.594	40.49	245.25	111.36	365.35	-	-	-	-	160	2800	19310	2800	19310	-	-	-	-

Dimension Tolerances:
Permissible Variation
Outside Diameter : 1.1/2" and under +/- 1/64" (0.4 mm.)
2" and over +/ - 1%
Wall Thickness : 12.5% + Not Specified

IMAX ENGINEERING
บจก.ไอแม็กซ์ เอ็นจิเนียริ่ง
โทร.02-0750910-4 / Line : @IMAX

SPS PIPES

ASTM A53

NPS Designator	Outside diameter		Wall thickness		Nominal weight Plain end			Weight class	Schedule No.	Test pressure Plain end			
										Grade A		Grade B	
in.	in.	mm	in.	mm	lb/ft	kg/ft	kg/m			psi	kpa	psi	kpa
18	18.000	457.2	0.250	6.35	47.39	21.52	70.60	-	10	500	3450	580	4000
			0.281	7.14	53.18	24.15	79.24	-	-	560	3860	660	4550
			0.312	7.92	58.94	26.75	87.75	-	20	620	4270	730	5030
			0.344	8.74	64.87	29.46	96.66	-	-	690	4760	800	5520
			0.375	9.52	70.59	32.03	105.10	STD	-	750	5170	880	6070
			0.406	10.31	76.29	34.63	113.62	-	-	810	5580	950	6550
			0.438	11.13	82.15	37.32	122.43	-	30	880	6070	1020	7030
			0.469	11.91	87.81	39.86	130.78	-	-	940	6480	1090	7520
			0.500	12.70	93.45	42.43	139.20	XS	-	1000	6890	1170	8070
			0.562	14.27	104.67	47.51	155.87	-	40	1120	7720	1310	9030
			0.750	19.05	138.17	62.74	205.83	-	60	1500	10340	1750	12070
			0.938	23.83	170.92	77.62	254.67	-	80	1880	12960	2190	15100
			1.156	29.36	207.96	94.41	309.76	-	100	2310	15930	2700	18620
			1.375	34.92	244.14	110.84	363.64	-	120	2750	18960	2800	19310
			1.562	39.67	274.22	124.50	408.45	-	140	2800	19310	2800	19310
			1.781	45.24	308.50	140.08	459.59	-	160	2800	19310	2800	19310
20	20.000	508	0.250	6.35	52.73	23.94	78.55	-	10	450	3100	520	3590
			0.281	7.14	59.18	26.88	88.19	-	-	510	3520	590	4070
			0.312	7.92	65.60	29.77	97.67	-	-	560	3860	660	4550
			0.344	8.74	72.21	32.80	107.60	-	-	620	4270	720	4960
			0.375	9.52	78.60	35.67	117.02	STD	20	680	4690	790	5450
			0.406	10.31	84.96	38.57	126.53	-	-	730	5030	850	5860
			0.438	11.13	91.51	41.57	136.37	-	-	790	5450	920	6340
			0.469	11.91	97.83	44.41	145.70	-	-	850	5860	950	6550
			0.500	12.70	104.13	47.28	155.12	XS	30	900	6210	1050	7240
			0.594	15.09	123.11	55.91	183.42	-	40	1170	8070	1250	8620
			0.812	20.62	166.40	75.54	247.83	-	60	1460	10070	1710	11790
			1.031	26.19	208.87	94.84	311.17	-	80	1860	12820	2170	14960
			1.281	32.54	256.10	116.29	381.53	-	100	2310	15930	2690	18550
			1.500	38.10	296.37	134.57	441.49	-	120	2700	18620	2800	19310
			1.750	44.45	341.10	154.87	508.11	-	140	2800	19310	2800	19310
			1.969	50.01	379.10	172.15	564.81	-	160	2800	19310	2800	19310
24	24.000	609.6	0.250	6.35	63.41	28.79	94.46	-	10	380	2620	440	3030
			0.281	7.14	71.18/	32.33	106.08	-	-	420	2900	490	3380
			0.312	7.92	78.93	35.82	117.51	-	-	470	3240	550	3790
			0.344	8.74	86.91	39.47	129.50	-	-	520	3590	600	4140
			0.375	9.52	94.62	42.94	140.88	STD	20	560	3860	660	4550
			0.406	10.31	102.31	46.44	152.37	-	-	610	4210	710	4900
			0.438	11.13	110.22	50.07	164.26	-	-	660	4550	770	5310
			0.469	11.91	117.86	53.50	175.54	-	-	700	4830	820	5650
			0.500	12.70	125.49	56.98	186.94	XS	-	750	5170	880	6070
			0.562	14.27	140.68	63.86	209.50	-	30	840	5790	980	6760
			0.688	17.48	171.29	77.80	255.24	-	40	1030	7100	1200	8270
			0.938	23.83	231.03	104.92	344.23	-	-	1410	9720	1640	11310
			0.969	24.61	238.85	108.21	355.02	-	60	1450	10000	1700	11720
			1.219	30.96	296.58	134.65	441.78	-	80	1830	12620	2130	14690
			1.531	38.89	367.39	166.83	547.33	-	100	2300	15860	2680	18480
			1.812	46.02	429.39	194.94	639.58	-	120	2720	18750	2800	19310
			2.062	52.37	483.12	219.34	719.63	-	140	2800	19310	2800	19310
			2.344	59.54	542.14	246.17	807.63	-	160	2800	19310	2800	19310

Dimension Tolerances:
Permissible Variation
Outside Diameter : 1.1/2" and under +/- 1/64" (0.4 mm.)
: 2" and over +/ - 1%
Wall Thickness : - 12.5% + Not Specified

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โทร.02-0750910-4 / Line : @IMAX

SPS PIPES

ASTM A53

NPS Designator	Outside diameter		Wall thickness		Nominal weight Plain end			Weight class	Schedule No.	Test pressure Plain end			
										Grade A		Grade B	
in.	in.	mm	in.	mm	lb/ft	kg/ft	kg/m			psi	kpa	psi	kpa
26	26.000	660.4	0.250	6.35	68.75	31.21	102.4	-	-	350	2410	400	2760
			0.281	7.14	77.18	35.04	115	-	-	390	2690	450	3100
			0.312	7.92	85.60	38.86	127.4	-	10	430	2960	500	3450
			0.344	8.74	94.26	42.79	140.5	-	-	480	3310	560	3860
			0.375	9.52	102.6	46.59	152.8	STD	-	520	3590	610	4210
			0.406	10.31	111	50.38	165.3	-	-	560	3860	660	4550
			0.438	11.13	119.6	54.28	178.2	-	-	610	4210	710	4900
			0.469	11.91	127.9	58.06	190.5	-	-	650	4480	760	5240
			0.500	12.70	136.2	61.82	202.9	XS	20	680	4760	810	5580
			0.562	14.27	152.7	69.32	227.5	-	-	780	5380	910	6270
28	28.000	711.0	0.250	6.35	74.09	33.89	111.20	-	-	320	2200	370	2500
			0.281	7.14	83.19	37.56	123.2	-	-	360	2500	420	2900
			0.312	7.92	92.26	41.75	137	-	10	400	2800	470	3200
			0.344	8.74	101.6	45.92	150.7	-	-	440	-	520	-
			0.375	9.52	110.6	50.09	164.3	STD	-	480	3300	560	3900
			0.406	10.31	119.7	54.25	178	-	-	520	-	610	-
			0.438	11.13	128.9	58.39	191.6	-	-	560	3900	660	4500
			0.469	11.91	137.9	62.53	205.2	-	-	600	-	700	-
			0.500	12.70	146.9	66.66	218.60	XS	20	640	4400	750	5200
			0.562	14.27	164.7	74.68	245.7	-	-	720	5000	840	5800
			0.625	15.88	182.7	83.07	272.5	-	30	800	5500	940	6500
30	30.000	762.0	0.250	6.35	79.43	36.35	119.3	-	-	300	2100	350	2400
			0.281	7.14	89.19	40.29	132.2	-	-	340	2300	390	2700
			0.312	7.92	98.93	44.78	146.9	-	10	370	2500	440	3000
			0.344	8.74	109	49.26	161.6	-	-	410	-	480	-
			0.375	9.52	118.7	53.73	176.3	STD	-	450	3100	520	3600
			0.406	10.31	128.3	58.20	190.9	-	-	490	-	590	-
			0.438	11.13	138.3	62.65	205.5	-	-	530	3700	610	4200
			0.469	11.91	147.9	67.09	220.1	-	-	560	-	660	-
			0.500	12.70	157.5	71.53	234.7	XS	20	600	4100	700	4800
			0.562	14.27	176.7	80.37	263.7	-	-	670	4600	790	5400
			0.625	15.88	196.1	89.17	292.5	-	30	750	5200	880	6100

Dimension Tolerances:
Permissible Variation
Outside Diameter : 1.1/2" and under +/- 1/64" (0.4 mm.)
: 2" and over +/- 1%
Wall Thickness : 12.5% Not Specified

IMAX ENGINEERING
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SPS PIPES

STANDARD BS 1387 : 1985 LIGHT CLASS BLACK & GALVANIZED STEEL PIPE

Norminal size DN		Outside Diameter Max In.	Outside Diameter Max mm.	Outside Diameter Min In.	Outside Diameter Min mm.	Wall Thickness mm.	Calculated Weight Plain Ends lb./ft.	Calculated Weight Plain Ends (kg./m.)	Calculated Weight Threads & Coupling lb./ft.	Calculated Weight Threads & Coupling (kg./m.)
1/2	(15)	0.825	21.00	0.841	21.40	2.0	0.640	0.947	0.646	0.959
3/4	(20)	1.041	26.40	1.059	26.90	2.3	0.944	1.38	0.954	1.39
1	(25)	1.309	33.20	1.328	33.80	2.6	1.350	1.98	1.360	2.00
$1^{1/4}$	(32)	1.650	41.90	1.670	42.50	2.6	1.730	2.54	1.750	2.57
$1^{1/2}$	(40)	1.882	47.80	1.903	48.40	2.9	2.190	3.23	2.220	3.27
2	(50)	2.347	59.60	2.370	60.20	2.9	2.760	4.08	2.810	4.15
$2^{1/2}$	(65)	2.960	75.20	2.991	76.00	3.2	3.900	5.71	3.980	5.83
3	(80)	3.460	87.90	3.491	88.70	3.2	4.580	6.72	4.690	6.89
4	(100)	4.450	113.00	4.481	113.90	3.6	6.640	9.75	6.840	10.00

STANDARD BS 1387 : 1985 MEDIUM CLASS BLACK & GALVANIZED STEEL PIPE

Norminal size DN		Outside Diameter Max In.	Outside Diameter Max mm.	Outside Diameter Min In.	Outside Diameter Min mm.	Wall Thickness mm.	Calculated Weight Plain Ends lb./ft.	Calculated Weight Plain Ends (kg./m.)	Calculated Weight Threads & Coupling lb./ft.	Calculated Weight Threads & Coupling (kg./m.)
1/2	(15)	0.831	21.10	0.856	21.70	2.6	0.811	1.21	0.818	1.220
3/4	(20)	1.047	26.60	1.072	27.20	2.6	1.046	1.56	1.053	1.57
1	(25)	1.316	33.40	1.346	34.20	3.2	1.616	2.41	1.629	2.43
$1^{1/4}$	(32)	1.657	42.10	1.687	42.90	3.2	2.079	3.10	2.099	3.13
$1^{1/2}$	(40)	1.889	48.00	1.919	48.80	3.2	2.394	3.57	2.421	3.61
2	(50)	2.354	59.80	2.394	60.80	3.6	3.373	5.03	3.420	5.10
$2^{1/2}$	(65)	2.969	75.40	3.014	76.60	3.6	4.312	6.43	4.392	6.55
3	(80)	3.469	88.10	3.524	89.50	4.0	5.613	8.37	5.727	8.54
4	(100)	4.459	113.30	4.524	114.90	4.5	8.181	12.20	8.382	12.50
5	(125)	5.459	138.70	5.534	140.60	5.0	11.131	16.60	11.467	17.10
6	(150)	6.459	164.10	6.539	166.10	5.0	13.210	19.70	13.612	20.30

STANDARD BS 1387 : 1985 HEAVY CLASS BLACK & GALVANIZED STEEL PIPE

Norminal size DN		Outside Diameter Max In.	Outside Diameter Max mm.	Outside Diameter Min In.	Outside Diameter Min mm.	Wall Thickness mm.	Calculated Weight Plain Ends lb./ft.	Calculated Weight Plain Ends (kg./m.)	Calculated Weight Threads & Coupling lb./ft.	Calculated Weight Threads & Coupling (kg./m.)
1/2	(15)	0.831	21.10	0.856	21.70	3.2	0.966	1.44	0.972	1.45
3/4	(20)	1.047	26.60	1.071	27.20	3.2	1.254	1.87	1.261	1.88
1	(25)	1.316	33.40	1.346	34.20	4.0	1.971	2.94	1.985	2.96
$1^{1/4}$	(32)	1.657	42.10	1.685	42.90	4.0	2.548	3.80	2.568	3.83
$1^{1/2}$	(40)	1.889	48.00	1.917	48.80	4.0	2.937	4.38	2.964	4.42
2	(50)	2.354	59.80	2.394	60.80	4.5	4.151	6.19	4.198	6.26
$2^{1/2}$	(65)	2.969	75.40	3.016	76.60	4.5	5.318	7.93	5.398	8.05
3	(80)	3.469	88.10	3.523	89.50	5.0	6.907	10.30	7.041	10.50
4	(100)	4.459	113.30	4.523	114.90	5.4	9.723	14.50	9.924	14.80
5	(125)	5.459	138.70	5.535	140.60	5.4	12.003	17.90	12.338	18.40
6	(150)	6.459	164.10	6.539	166.10	5.4	14.283	21.30	14.685	21.90

TECHNICAL SPECIFICATIONS :

Chemical Composition (%)				Mechanical Properties			
C Max.	Mn Max.	P Max.	S Max.	Tensile Strength	Yield Strength	Elongation (%) Min.	Test (bar)
0.20	1.20	0.045	0.045	320-460 $N/mm.^2$	195 $N/mm.^2$	20	50

DIMENSION TOLERANCES :

Tolerance	Light Class	Medium Class	Heavy Class
Wall Thickness :	-8% + not specified	-10% + not specified	-10% + not specified
Length :	+ 50 mm., - 0 mm.		
Weight :	+10%, -8% per piece / ± 4% per bundle (over 500 ft.)		

SPS PIPES

JIS G 3452

CARBON STEEL PIPE FOR ORDINARY PIPING

Nominal Size		Outside Diameter		Wall Thickness		Weight (Plain End)		
(A)	(B)	mm	in.	mm	in.	lb/ft	kg/ft	kg/m
15	1/2	21.7	0.854	2.8	0.110	0.88	0.399	1.31
20	3/4	27.2	1.071	2.8	0.110	1.13	0.512	1.68
25	1	34.0	1.338	3.2	0.126	1.63	0.741	2.43
32	$1^{1/4}$	42.7	1.681	3.5	0.138	2.27	1.03	3.38
40	$1^{1/2}$	48.6	1.913	3.5	0.138	2.61	1.19	3.89
50	2	60.5	2.382	3.8	0.150	3.57	1.62	5.31
65	$2^{1/2}$	76.3	3.004	4.2	0.165	5.02	2.28	7.47
80	3	89.1	3.508	4.2	0.165	5.91	2.68	8.79
90	$3^{1/2}$	101.6	4.000	4.2	0.165	6.79	3.08	10.1
100	4	114.3	4.500	4.5	0.177	8.20	3.72	12.2
125	5	139.8	5.504	4.5	0.177	10.1	4.57	15.0
150	6	165.2	6.504	5.0	0.197	13.3	6.04	19.8
175	7	190.7	7.508	5.3	0.209	16.3	7.38	24.2
200	8	216.3	8.516	5.8	0.288	20.2	9.17	30.1
225	9	241.8	9.520	6.2	0.244	24.2	11.0	36.0
250	10	267.4	10.528	6.6	0.260	28.5	12.9	42.4
300	12	318.5	12.539	6.9	0.272	35.6	16.2	53.0
350	14	355.6	14.000	7.9	0.311	45.5	20.6	67.7
400	16	406.4	16.000	7.9	0.311	52.1	23.7	77.6
450	18	457.2	18.000	7.9	0.311	58.7	26.7	87.5
500	20	508.0	20.000	7.9	0.311	65.4	29.7	97.4

Dimension Tolerances:
Permissible Variation
Outside Diameter : 1.1/2" and under +/- 1/64" (0.4 mm.)
: 2" and over +/ - 1%
Wall Thickness : - 12.5% + Not Specified

Note : For the designation of diameter, (A) or (B) shall be used. When (A) or (B) is used, put an A or B mark, respectively, after each figure for the purpose of classification.

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SPS FITTINGS

- FITTINGS :
  CARBON STEEL FITTING /
  GALVANIZED FITTING /
  STAINLESS STEEL FITTING



IF YOU REQUIRE MORE DETAIL, WE ARE PROVIDE PRODUCTS .....

STEEL PIPES, FITTINGS, FLANGES

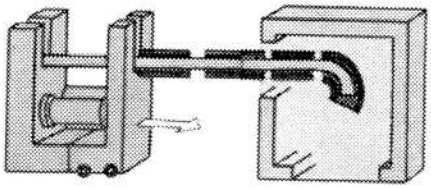
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MANUFACTURING PROCESS

Seamless Pipe

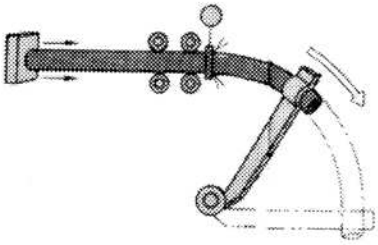
Welded Pipe

Elbows



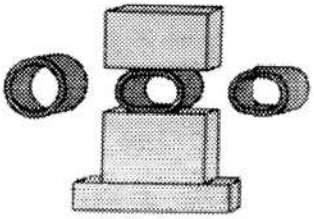
Forming (Mandrel Method)

Bends



Bending (Heating by High-Frequency)

Tees

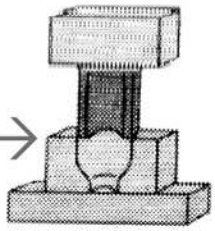


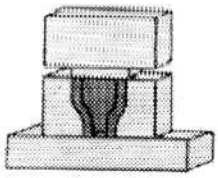
Pre-Forming to Ellipse



Drilling

Reducers





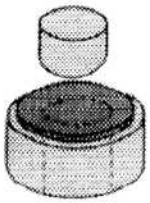
Press

Plate

Caps

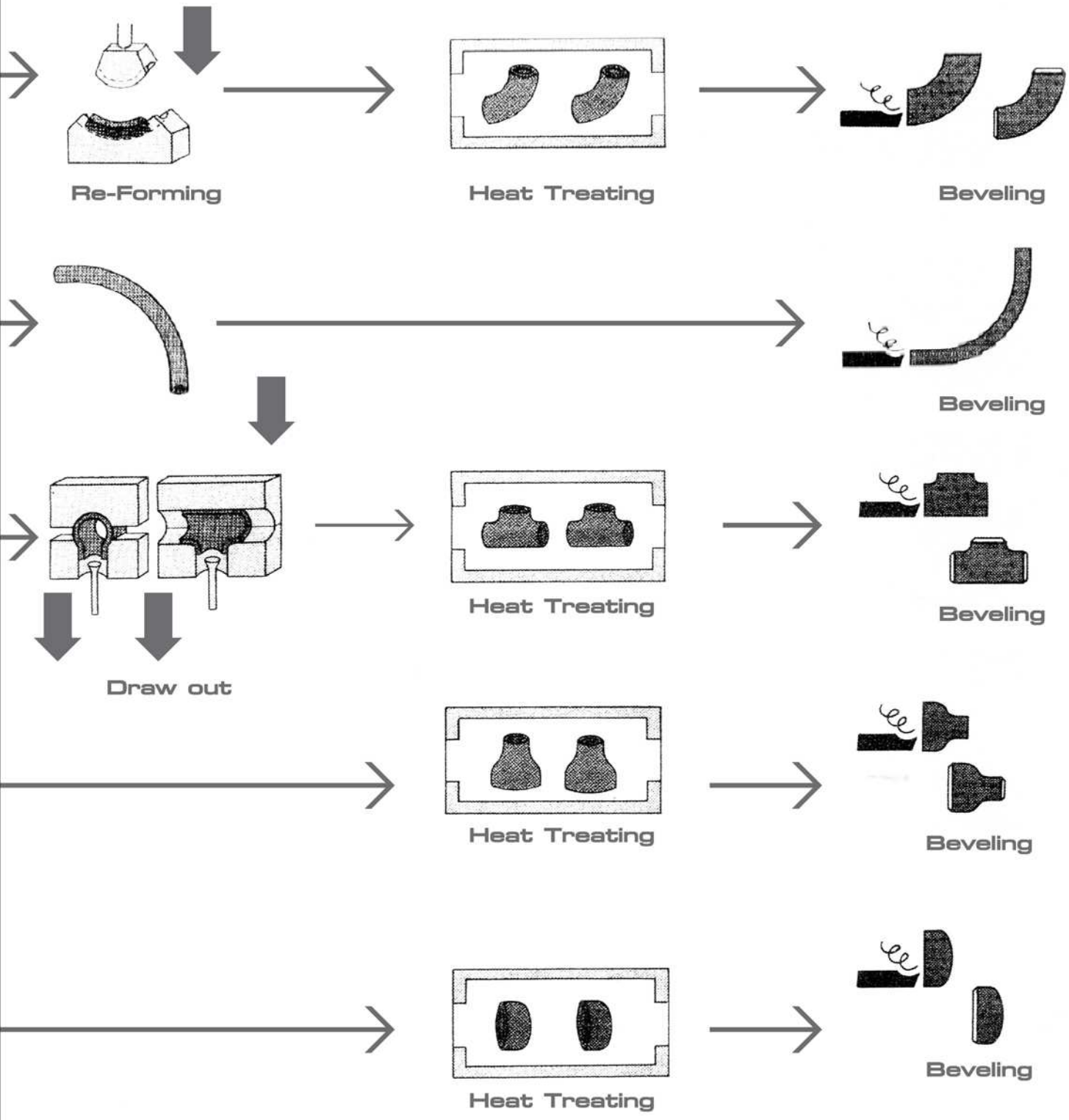


Plate Cutting



Press

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SPS FITTINGS

WAll THICKNESS SCHEDULES

Nominal Pipe Size		Outside Diameter		Nominal Wall Thickness								
A	B	JIS	ANSI	Sch 5S	Sch 10S	Sch 20S	GS	Sch 10	LG (7.9)	Sch 20	Sch 30	STD
8	1/4	13.8	13.7	1.2	1.65	2.0	2.3	-	-	-	-	(2.2)
10	3/8	17.3	17.1	1.2	1.65	2.0	2.3	-	-	-	-	(2.3)
15	1/2	21.7	21.3	1.65	2.1	2.5	2.8	-	-	-	-	(2.8)
20	3/4	27.2	26.7	1.65	2.1	2.5	2.8	-	-	-	-	(2.9)
25	1	34.0	33.4	1.65	2.8	3.0	3.2	-	-	-	-	(3.4)
32	1.1/4	42.7	42.2	1.65	2.8	3.0	3.5	-	-	-	-	(3.6)
40	1.1/2	48.6	48.3	1.65	2.8	3.0	3.5	-	-	-	-	(3.7)
50	2	60.5	60.3	1.65	2.8	3.5	3.8	-	-	-	-	(3.9)
65	2.1/2	76.3	73.0	2.1	3.0	3.5	4.2	-	-	-	-	(5.2)
80	3	89.1	88.9	2.1	3.0	4.0	4.2	-	-	-	-	(5.5)
90	3.1/2	101.6	101.6	2.1	3.0	4.0	4.2	-	-	-	-	(5.7)
100	4	114.3	114.3	2.1	3.0	4.0	4.5	-	-	-	-	(6.0)
125	5	139.8	141.3	2.8	3.4	5.0	4.5	-	-	-	-	(6.6)
150	6	165.2	168.3	2.8	3.4	5.0	5.0	-	5.0 * *	-	-	(7.1)
175	7	190.7	-	-	-	-	5.3	-	-	-	-	-
200	8	216.3	219.1	2.8	3.8	6.5	5.8	-	5.8 * *	6.4	7.0	(8.2)
225	9	241.8	-	-	-	-	6.2	-	-	-	-	-
250	10	267.4	273.1	3.4	4.2	6.5	6.6	-	6.6 * *	6.4	7.8	(9.3)
300	12	318.5	323.9	4.0	4.6	6.5	6.9	-	6.9 * *	6.4	8.4	9.5
350	14	355.6	355.6	4.0	4.8	7.9	7.9	6.4	7.9	7.9	9.5	9.5
400	16	406.4	406.4	4.2	4.8	7.9	7.9	6.4	7.9	7.9	9.5	9.5
450	18	457.2	457.2	4.2	4.8	7.9	7.9	6.4	7.9	7.9	11.1	9.5
500	20	508.0	508.0	4.8	5.5	7.9	7.9	6.4	7.9	9.5	12.7	9.5
550	22	558.8	558.8	4.8	5.5	-	-	6.4	7.9	9.5	12.7	9.5
600	24	609.6	609.6	5.5	6.4	-	-	6.4	7.9	9.5	14.3	9.5
650	26	660.4	660.4	-	-	-	-	7.9	7.9	12.7	-	9.5
700	28	711.2	711.2	-	-	-	-	7.9	7.9	12.7	15.9	9.5
750	30	762.0	762.0	6.4	7.9	-	-	7.9	7.9	12.7	15.9	9.5
800	32	812.8	812.8	-	-	-	-	7.9	7.9	12.7	15.9	9.5

Note : 1. * SPS's standard

2. * * Applied only small end side of the tee and reducers.

3. The numerical values in parenthesis are the same thickness as Sch. 40 or Sch. 80.

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(in mm)

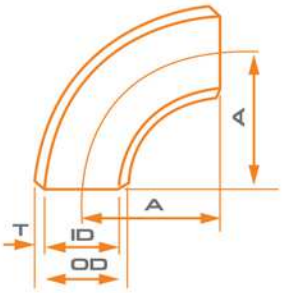
Nominal Wall Thickness									Outside Diameter		Nominal Pipe Size	
Sch 40	Sch 60	XS	Sch 80	Sch 100	Sch 120	Sch 140	Sch 160	XXS	JIS	ANSI	A	B
2.2	2.4	(3.0)	3.0	-	-	-	-	-	13.8	13.7	8	1/4
2.3	2.8	(3.2)	3.2	-	-	-	-	-	17.3	17.1	10	3/8
2.8	3.2	(3.7)	3.7	-	-	-	4.7	7.5	21.7	21.3	15	1/2
2.9	3.4	(3.9)	3.9	-	-	-	5.5	7.8	27.2	26.7	20	3/4
3.4	3.9	(4.5)	4.5	-	-	-	6.4	9.1	34.0	33.5	25	1
3.6	4.5	(4.9)	4.9	-	-	-	6.4	9.7	42.7	42.2	32	1.1/4
3.7	4.5	(5.1)	5.1	-	-	-	7.1	10.2	48.6	48.3	40	1.1/2
3.9	4.9	(5.5)	5.5	-	-	-	8.7	11.1	60.5	60.3	50	2
5.2	6.0	(7.0)	7.0	-	-	-	9.5	14.0	76.3	73.0	65	2.1/2
5.5	6.6	(7.6)	7.6	-	-	-	11.1	15.2	89.1	88.9	80	3
5.7	7.0	(8.1)	8.1	-	-	-	12.7	-	101.6	101.6	90	3.1/2
6.0	7.1	(8.6)	8.6	-	11.1	-	13.5	17.1	114.3	114.3	100	4
6.6	8.1	(9.5)	9.5	-	12.7	-	15.9	19.0	139.8	141.3	125	5
7.1	9.3	(11.0)	11.0	-	14.3	-	18.2	21.9	165.2	168.3	150	6
-	-	-	-	-	-	-	-	-	190.7	-	175	7
8.2	10.3	(12.7)	12.7	15.1	18.2	20.6	23.0	22.2	216.3	219.1	200	8
-	-	-	-	-	-	-	-	-	241.8	-	225	9
9.3	12.7	12.7	15.1	18.3	21.4	25.4	28.6	25.4	267.4	273.1	250	10
10.3	14.3	12.7	17.4	21.4	25.4	28.6	33.3	25.4	318.5	323.9	300	12
11.1	15.1	12.7	19.0	23.8	27.8	31.8	35.7	-	355.6	355.6	350	14
12.7	16.7	12.7	21.4	26.2	30.9	36.5	40.5	-	406.4	406.4	400	16
14.3	19.0	12.7	23.8	29.4	34.9	39.7	45.2	-	457.2	457.2	450	18
15.1	20.6	12.7	26.2	32.5	38.1	44.4	50.0	-	508.0	508.0	500	20
-	22.2	12.7	28.6	34.9	41.3	47.6	54.0	-	558.8	558.8	550	22
17.5	24.6	12.7	31.0	38.9	46.0	52.4	59.5	-	609.6	609.6	600	24
-	-	12.7	-	-	-	-	-	-	660.4	660.4	650	26
-	-	12.7	-	-	-	-	-	-	711.2	711.2	700	28
-	-	12.7	-	-	-	-	-	-	762.0	762.0	750	30
17.5	-	12.7	-	-	-	-	-	-	812.8	812.8	800	32

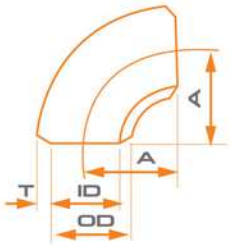
SPS FITTINGS

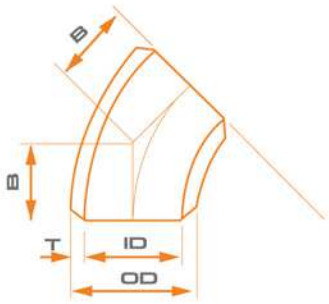
LONG RADIUS ELBOWS









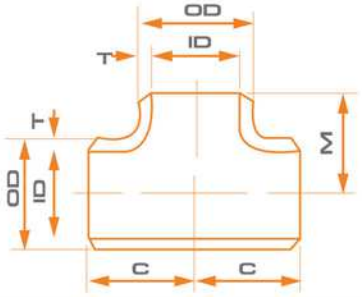


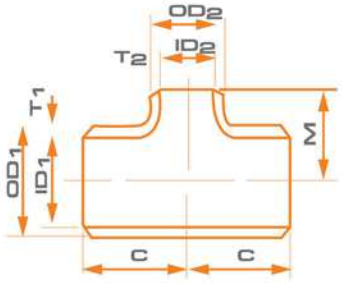
Nominal Pipe Size (NPS)	Outside Diameter at Bevel D	Center - to - End			
		Long Radius Elbow		Short Radius Elbow	
		90 Deg. A	45 Deg. B	90 Deg. A	45 Deg. B
1/2	21.3	38.1	15.7	-	-
3/4	26.7	28.4	11.2	-	-
1	33.4	38.1	22.4	25.4	-
1.1/4	42.2	47.8	25.4	31.8	-
1.1/2	48.3	57.2	28.4	38.1	-
2	60.3	76.2	35.1	50.8	-
2.1/2	73.0	95.2	44.4	63.5	-
3	88.9	114.3	50.8	76.2	31.6
3.1/2	101.6	133.4	57.2	88.9	36.8
4	114.3	152.4	63.5	101.6	42.1
5	141.3	190.5	79.2	-	-
6	168.3	228.6	95.2	-	-
8	219.1	304.8	127.0	-	-
10	273.1	381.0	158.8	-	-
12	323.9	457.2	190.5	-	-
14	355.6	533.4	222.2	-	-
16	406.4	609.6	254.0	-	-
18	457.2	685.8	285.8	-	-
20	508.0	762.0	317.5	-	-
22	558.8	838.2	342.9	-	-
24	609.6	914.4	381.0	-	-
26	660.4	990.6	406.4	-	-
28	711.2	1066.8	438.2	-	-
30	762.0	1143.0	469.9	-	-
32	812.8	1219.2	501.6	-	-

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STRAIGHT AND REDUCING TEES







MSS SP-75
ANSI B16.9
* TTU's standard (in mm)

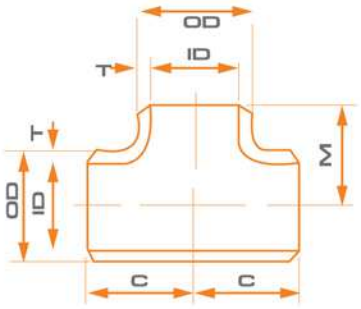
Nominal Pipe Size (NPS)	Outside Diameter at Bevel D		Center - to - End	
			Run	Outlet (1)
	Run	Outlet	C	M
1/2 x 1/2	21.3	21.3	25.4	25.4
3/8		17.1		25.4
1/4		13.7		25.4
3/4 x 3/4	26.7	26.7	28.4	28.4
1/2		21.3		28.4
3/8		17.1		28.4
1 x 1	33.4	33.4	38.1	38.1
3/4		26.7		38.1
1/2		21.3		38.1
1.1/4 x 1.1/4	42.2	42.2	47.8	47.8
1		33.4		47.8
3/4		26.7		47.8
1/2		21.3		47.8
1.1/2 x 1.1/2	48.3	48.3	57.2	57.2
1.1/4		42.2		57.2
1		33.4		57.2
3/4		26.7		57.2
1/2		21.3		57.2
2 x 2	60.3	60.3	63.5	63.5
1.1/2		48.3		60.5
1.1/4		42.2		57.2
1		33.4		50.8
3/4		26.7		44.4
1/2 *		21.3		
2.1/2 x 2.1/2	73.0	73.0	76.2	76.2
2		60.3		69.8
1.1/2		48.3		66.5
1.1/4		42.2		63.5
1		33.4		57.2
3 x 3	88.9	88.9	85.9	85.9
2.1/2		73.0		82.6
2		60.3		76.2
1.1/2		48.3		73.2
1.1/4		42.2		69.8
1 *		33.4		
3.1/2 x 3.1/2	101.6	101.6	95.2	95.2
3		88.9		91.9
2.1/2		73.0		88.9
2		60.3		82.6
1.1/2		48.3		79.2
4 x 4	114.3	114.3	104.6	104.6
3.1/2		101.6		101.6
3		88.9		98.6
2.1/2		73.0		95.2
2		60.3		88.9
1.1/2		48.3		85.9
1.1/4		42.2		
1 *		33.5		

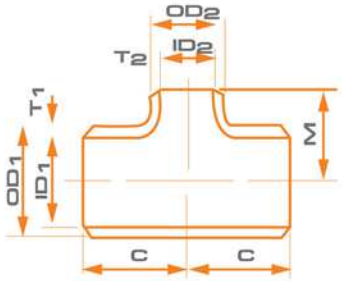
Nominal Pipe Size (NPS)	Outside Diameter at Bevel D		Center - to - End	
			Run	Outlet (1)
	Run	Outlet	C	M
5 x 5	141.3	141.3	124.0	124.0
4		114.3		117.3
3.1/2		101.6		114.3
3		88.9		111.3
2.1/2		73.0		108.0
2		60.3		104.6
1.1/2 *		48.3		
6 x 6	168.3	168.3	142.7	142.7
5		141.3		136.7
4		114.3		130.0
3.1/2		101.6		127.0
3		88.9		124.0
2.1/2		73.0		120.6
2 *		60.3		
8 x 8	219.1	219.1	177.8	177.8
6		168.3		168.1
5		141.3		162.1
4		114.3		155.4
3.1/2		101.6		152.4
3 *		88.9		
10 x 10	273.1	273.1	215.9	215.9
8		219.1		203.2
6		168.3		193.5
5		141.3		190.5
4		114.3		184.2
12 x 12	323.9	323.9	254.0	254.0
10		273.1		241.3
8		219.1		228.6
6		168.3		218.9
5		141.3		215.9
14 x 14	355.6	355.6	279.4	279.4
12		323.9		269.7
10		273.1		257.0
8		219.1		247.6
6		168.3		238.3
16 x 16	406.4	406.4	304.8	304.8
14		355.6		304.8
12		323.9		295.1
10		273.1		282.4
8		219.1		373.0
6		168.3		263.7
18 x 18	457.2	457.2	342.9	342.9
16		406.4		330.2
14		355.6		330.2
12		323.9		320.5
10		273.1		307.8
8		219.1		298.4

SPS FITTINGS

STRAIGHT AND REDUCING TEES







(in mm)

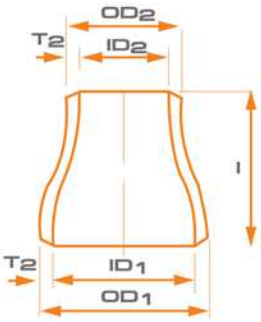
Nominal Pipe Size (NPS)	Outside Diameter at Bevel D		Center - to - End	
			Run	Outlet (1)
	Run	Outlet	C	M
20 x 20	508.0	508.0	381.0	381.0
18		457.2		369.3
16		406.4		355.6
14		355.6		355.6
12		323.9		345.9
10		273.1		333.2
8		219.1		323.8
22 x 22	558.8	558.8	419.1	419.1
20		508.0		406.4
18		457.2		393.7
16		406.4		381.0
14		355.6		381.0
12		323.9		371.3
10		273.1		358.6
24 x 24	609.6	609.6	431.8	431.8
22		558.8		431.8
20		508.0		431.8
18		457.2		419.1
16		406.4		406.4
14		355.6		406.4
12		323.9		396.7
10		273.1		384.0
26 x 26	660.4	660.4	495.3	495.3
24		609.6		482.6
22		558.8		469.9
20		508.0		457.2
18		457.2		444.5
16		406.4		431.8
14		355.6		431.8
12		323.1		422.1

Nominal Pipe Size (NPS)	Outside Diameter at Bevel D		Center - to - End	
			Run	Outlet (1)
	Run	Outlet	C	M
28 x 28	711.2	711.2	520.7	520.7
26		660.4		520.7
24		609.6		508.0
22		558.8		495.3
20		508.0		482.6
18		457.2		469.9
16		406.4		457.2
14		355.6		457.2
12		323.1		447.5
30 x 30	762.0	762.0	558.8	558.8
28		711.2		546.1
26		660.4		546.1
24		609.6		533.4
22		558.8		520.7
20		508.0		508.0
18		457.2		495.3
16		406.4		482.6
14		355.6		482.6
30 x 12	762.0	323.9	558.8	472.6
10		273.1		460.2
32 x 32	812.8	812.8	596.9	596.9
30		762.0		584.2
28		711.2		571.5
26		660.4		571.5
24		609.6		558.8
22		558.8		546.1
20		508.0		533.4
18		457.2		520.7
16		406.4		508.0
14		355.6		508.0

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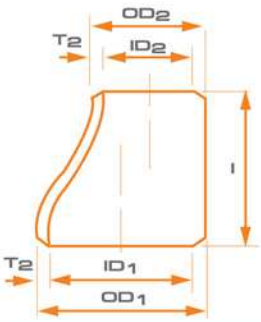
CONCENTRIC AND ECCENTRIC REDUCERS





Nominal Pipe Size (NPS)	Outside Diameter at Bevel		End - to - End
	Large End	Small End	
3/4 x 1/2	26.7	21.3	38.1
3/8		17.3	
1 x 3/4	33.4	26.7	50.8
1/2		21.3	
1.1/4 x 1	42.2	33.4	50.8
3/4		26.7	
1/2		21.3	
1.1/4 x 1.1/2	48.3	42.2	63.5
1		33.4	
3/4		26.7	
1/2		21.3	
2 x 1.1/2	60.3	48.3	76.2
1.1/4		42.2	
1		33.4	
3/4		26.7	
2.1/2 x 2	73.0	60.3	88.9
1.1/2		48.3	
1.1/4		42.2	
1		33.4	
3 x 2.1/2	88.9	73.0	88.9
1		60.3	
1.1/2		48.3	
1.1/4		42.2	
3.1/2 x 3	101.6	88.9	101.6
2.1/2		73.0	
2		60.3	
1.1/2		48.3	
1.1/4		42.2	
4 x 3.1/2	114.3	101.6	101.6
3		88.9	
2.1/2		73.0	
2		60.3	
1.1/2		48.3	
5 x 4	141.3	114.3	127.0
3.1/2		101.6	
3		88.9	
2.1/2		73.0	
2		60.3	
6 x 5	168.3	141.3	139.7
4		114.3	
3.1/2		101.6	
3		88.9	
2.1/2		73.0	
8 x 6	219.1	168.3	152.4
5		141.3	
4		114.3	
3.1/2		101.6	
		88.9	
		73	





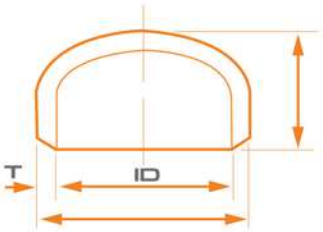
Nominal Pipe Size (NPS)	Outside Diameter at Bevel		End - to - End
	Large End	Small End	
10 x 8	273.1	29.1	177.8
6		168.3	
5		141.3	
4		114.3	
12 x 10	323.9	273.1	203.2
8		219.1	
6		168.3	
5		141.3	
14 x 12	355.6	323.9	330.2
10		273.1	
8		219.1	
6		168.3	
16 x 14	406.4	355.6	355.6
12		323.9	
10		273.1	
8		219.1	
18 x 16	457.2	406.4	381.0
14		355.6	
12		323.9	
10		273.1	
20 x 18	508.0	457.2	508.0
16		406.4	
14		355.6	
12		323.9	
22 x 20	558.8	508.0	508.0
18		457.2	
16		406.4	
14		355.6	
24 x 22	609.6	558.8	508.0
20		508.0	
18		457.2	
16		406.4	
26 x 24	660.4	609.4	609.6
22		558.8	
20		508.0	
18		457.2	
28 x 26	711.2	660.4	609.6
24		609.6	
20		508.0	
18		457.2	
30 x 28	762.0	711.2	609.6
26		660.4	
24		609.6	
20		508.0	
32 x 30	812.8	762.0	609.6
28		711.2	
26		660.4	
24		609.6	

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SPS FITTINGS

STRAIGHT AND REDUCING TEES





Nominal Pipe Size (NPS)	Outside Diameter at Bevel D	Length[2] E	Limiting Wall Thickness for Length E	Length[3] E_1
1/2	21.3	25.4	4.6	25.4
3/4	26.7	25.4	3.8	25.4
1	33.4	38.1	4.6	38.1
1.1/4	42.2	38.1	4.8	38.1
1.1/2	48.3	38.1	5.1	38.1
2	60.3	38.1	5.6	44.4
2.1/2	73.0	38.1	7.1	50.8
3	88.9	50.8	7.6	63.5
3.1/2	101.6	63.5	8.1	76.2
4	114.3	63.5	8.6	76.2
5	141.3	76.2	9.7	88.9
6	168.3	88.9	10.9	101.6
8	219.1	101.6	12.7	127.0
10	273.1	127.0	12.7	152.4
12	323.9	152.4	12.7	177.8
14	355.6	165.1	12.7	190.5
16	406.4	177.8	12.7	203.2
18	457.2	203.2	12.7	228.6
20	508.0	228.6	12.7	254.0
22	558.8	254.0	12.7	254.0
24	609.6	266.7	12.7	304.8

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