

WELDED STEEL PIPES A

BRITISH STANDARD WELDED STEEL PIPES - CLASS LIGHT

BS 1387:

NOMINAL SIZE		OUTSIDE DIAMETER				WALL THICKNESS			CALCULATED WEIGHT						NUMBER OF THREADS PER INCH	SOCKET				T PRE
		MAXIMUM		MINIMUM					PLAIN ENDS			THREADS AND COUPLING				OUTER DIAMETER		MIN LENGTH		
mm	in	mm	in	mm	in	mm	in	swg	kg/m	kg/ft	lb/ft	kg/m	kg/ft	lb/ft		mm	in	mm	in		kg/cm
15	1/2	21.4	0.841	21.0	0.825	2.0	0.080	14	0.952	0.290	0.640	0.961	0.293	0.646	14	27.8	1.094	38.1	1.500	50
20	3/4	26.9	1.059	26.4	1.041	2.35	0.092	13	1.41	0.428	0.944	1.42	0.433	0.954	14	34.1	1.343	41.3	1.626	50
25	1	33.8	1.328	33.2	1.309	2.65	0.104	12	2.01	0.612	1.35	2.03	0.617	1.36	11	42.1	1.657	47.6	1.874	50
32	1 1/4	42.5	1.670	41.9	1.650	2.65	0.104	12	2.58	0.785	1.73	2.61	0.794	1.75	11	51.6	2.031	54.0	2.126	50
40	1 1/2	48.4	1.903	47.8	1.882	2.9	0.116	11	3.25	0.993	2.19	3.29	1.01	2.22	11	57.9	2.280	57.2	2.252	50
50	2	60.2	2.370	59.6	2.347	2.9	0.116	11	4.11	1.25	2.76	4.18	1.27	2.81	11	70.6	2.780	63.5	2.500	50
65	2 1/2	76.0	2.991	75.2	2.960	3.25	0.128	10	5.80	1.77	3.90	5.92	1.81	3.98	11	87.3	3.437	69.9	2.752	50
80	3	88.7	3.491	87.9	3.460	3.25	0.128	10	6.81	2.08	4.58	6.98	2.13	4.69	11	101.6	4.000	76.2	3.000	50
100	4	113.9	4.481	113.0	4.450	3.65	0.144	9	9.89	3.01	6.64	10.2	3.10	6.84	11	128.6	5.063	88.9	3.500	50

WELDED STEEL PIPES B

BRITISH STANDARD WELDED STEEL PIPES - CLASS MEDIUM

BS 1387: 1967

NOMINAL SIZE		OUTSIDE DIAMETER				WALL THICKNESS			CALCULATED WEIGHT						NUMBER OF THREADS PER INCH	SOCKET				TEST PRESSURE	
		MAXIMUM		MINIMUM					PLAIN ENDS			THREADS AND COUPLING				OUTER DIAMETER		MIN LENGTH			
mm	in	mm	in	mm	in	mm	in	swg	kg/m	kg/ft	lb/ft	kg/m	kg/ft	lb/ft	mm	in	mm	in	kg/cm ²	psi	
15	1/2	21.7	0.856	21.1	0.831	2.65	0.104	12	1.22	0.373	0.822	1.23	0.376	0.828	14	27.8	1.094	38.1	1.500	50	700
20	3/4	27.2	1.072	26.6	1.047	2.65	0.104	12	1.58	0.481	1.06	1.59	0.485	1.07	14	34.1	1.343	41.3	1.626	50	700
25	1	34.2	1.346	33.4	1.316	3.25	0.128	10	2.44	0.744	1.64	2.46	0.748	1.65	11	42.1	1.657	47.6	1.874	50	700
32	1 1/4	42.9	1.687	42.1	1.657	3.25	0.128	10	3.14	0.957	2.11	3.17	0.966	2.13	11	51.6	2.031	54.0	2.126	50	700
40	1 1/2	48.8	1.919	48.0	1.889	3.25	0.128	10	3.61	1.10	2.43	3.65	1.12	2.46	11	57.9	2.280	57.2	2.252	50	700
50	2	60.8	2.394	59.8	2.354	3.65	0.144	9	5.10	1.55	3.42	5.17	1.57	3.47	11	70.6	2.780	63.5	2.500	50	700
65	2 1/2	76.6	3.014	75.4	2.969	3.65	0.144	9	6.51	1.99	4.38	6.63	2.02	4.46	11	87.3	3.437	69.9	2.752	50	700
80	3	89.5	3.524	88.1	3.469	4.05	0.160	8	8.47	2.58	5.69	8.64	2.63	5.80	11	101.6	4.000	76.2	3.000	50	700
100	4	114.9	4.524	113.3	4.459	4.5	0.176	7	12.1	3.69	8.14	12.4	3.78	8.34	11	128.6	5.063	88.9	3.500	50	700
125	5	140.6	5.534	138.7	5.459	4.85	0.192	6	16.2	4.94	10.9	16.7	5.08	11.2	11	155.6	6.126	95.3	3.752	50	700
150	6	166.1	6.539	164.1	6.459	4.85	0.192	6	19.2	5.85	12.9	19.8	6.03	13.3	11	184.2	7.252	95.3	3.752	50	700

API PIPES

Size						Weight			Hydrostatic Test Pressure											
Outside Diameter			Wall Thickness			lb/ft	kg/m	kg/ft	API 5L				API 5LX							
									A		B		X42	X46	X52	X56	X60	X65	X70	
Nominal Size	in	mm	Sch. No.	in	mm	Std.	Alt.	Std.	Alt.											
1/8	0.405	10.3	40(Std)	0.068	1.73	0.24	0.36	700	-	700	-	-	-	-	-	-	-			
			80(XS)	0.095	2.41	0.31	0.46	850	-	850	-	-	-	-	-	-	-	-		
1/4	0.540	13.7	40(Std)	0.088	2.24	0.42	0.63	700	-	700	-	-	-	-	-	-	-			
			80(XS)	0.119	3.02	0.54	0.80	850	-	850	-	-	-	-	-	-	-	-		
3/8	0.675	17.1	40(Std)	0.091	2.31	0.57	0.85	700	-	700	-	-	-	-	-	-	-			
			80(XS)	0.126	3.20	0.74	1.10	850	-	850	-	-	-	-	-	-	-	-		
1/2	0.840	21.3	40(Std)	0.109	2.77	0.85	1.27	700	-	700	-	-	-	-	-	-	-			
			80(XS)	0.147	3.73	1.09	1.62	850	-	850	-	-	-	-	-	-	-	-		
			160 (XXS)	0.294	7.47	1.71	2.55	1000	-	1000	-	-	-	-	-	-	-	-		
3/4	1.050	26.7	40(Std)	0.113	2.87	1.13	1.68	700	-	700	-	-	-	-	-	-	-			
			80(XS)	0.154	3.91	1.47	2.19	850	-	850	-	-	-	-	-	-	-	-		
			160 (XXS)	0.308	7.82	2.44	3.63	1000	-	1000	-	-	-	-	-	-	-	-		
1	1.315	33.4	40(Std)	0.133	3.38	1.68	2.50	0.76	700	-	700	-	-	-	-	-	-			
			80(XS)	0.179	4.55	2.17	3.23	0.99	850	-	850	-	-	-	-	-	-	-		
			160 (XXS)	0.250	6.35	2.84	4.23	1.29	1000	-	1000	-	-	-	-	-	-	-		
1 1/4	1.660	42.2	40(Std)	0.140	3.56	2.27	3.38	1.03	1200	-	1300	-	-	-	-	-	-			
			80(XS)	0.191	4.85	3.00	4.47	1.36	1800	-	1900	-	-	-	-	-	-	-		
			160 (XXS)	0.250	6.35	3.76	5.60	1.71	2200	-	2300	-	-	-	-	-	-	-		
1 1/2	1.900	48.3	40(Std)	0.145	3.68	2.72	4.05	1.23	1200	-	1300	-	-	-	-	-	-			
			80(XS)	0.200	5.08	3.63	5.41	1.65	1800	-	1900	-	-	-	-	-	-			
			160 (XXS)	0.281	7.14	4.86	7.24	2.21	2200	-	2300	-	-	-	-	-	-			
2	2 3/8	60.3	40(Std)	0.083	2.11	2.03	3.02	0.92	1260	-	1470	-	1760	1930	2180	2350	2520	2730	2940	
				0.109	2.77	2.64	3.93	1.20	-	-	-	2310	2530	2860	3000	3000	3000	3000	3000	
				0.125	3.18	3.00	4.47	1.36	-	-	-	2650	2910	3000	3000	3000	3000	3000	3000	
				0.141	3.58	3.36	5.00	1.53	-	-	-	2990	3000	3000	3000	3000	3000	3000	3000	
				0.154	3.91	3.65	5.44	1.66	2330	-	2500	3000	3000	3000	3000	3000	3000	3000	3000	
				0.172	4.37	4.05	6.03	1.84	2500	-	2500	3000	3000	3000	3000	3000	3000	3000	3000	
				0.188	4.78	4.39	6.54	1.99	2500	-	2500	3000	3000	3000	3000	3000	3000	3000	3000	
				0.218	5.54	5.02	7.48	2.28	2500	-	2500	3000	3000	3000	3000	3000	3000	3000	3000	
				0.250	6.35	5.67	8.45	2.57	2500	-	2500	3000	3000	3000	3000	3000	3000	3000	3000	
				0.281	7.14	6.28	9.35	2.85	2500	-	2500	3000	3000	3000	3000	3000	3000	3000	3000	
				0.344	8.74	7.46	11.11	3.39	-	-	-	-	3000	3000	3000	3000	3000	3000	3000	3000
				0.436	11.07	9.03	13.45	4.10	2500	-	2500	3000	3000	3000	3000	3000	3000	3000	3000	3000
2 1/2	2 7/8	73.0	40(Std)	0.083	2.11	2.47	3.68	1.12	1040	-	1040	-	1460	1590	1800	1940	2080	2250	2430	
				0.109	2.77	3.22	4.80	1.46	-	-	-	1910	2090	2370	2550	2730	2960	3000		
				0.125	3.18	3.67	5.47	1.67	-	-	-	2190	2400	2710	2920	3000	3000	3000		
				0.141	3.58	4.12	6.14	1.87	-	-	-	2470	2710	3000	3000	3000	3000	3000		
				0.156	3.96	4.53	6.75	2.06	1950	-	2280	3000	3000	3000	3000	3000	3000	3000		
				0.172	4.37	4.97	7.40	2.26	2150	-	2500	3000	3000	3000	3000	3000	3000	3000		
				0.188	4.78	5.40	8.04	2.45	2350	-	2500	3000	3000	3000	3000	3000	3000	3000		
				0.203	5.16	5.79	8.62	2.63	2500	-	2500	3000	3000	3000	3000	3000	3000	3000		
				0.216	5.49	6.13	9.13	2.78	2500	-	2500	3000	3000	3000	3000	3000	3000	3000		
				0.250	6.35	7.01	10.44	3.18	2500	-	2500	3000	3000	3000	3000	3000	3000	3000		
				0.276	7.01	7.66	11.41	3.48	2500	-	2500	3000	3000	3000	3000	3000	3000	3000		
				0.375	9.52	10.01	14.91	4.54	-	-	-	-	3000	3000	3000	3000	3000	3000		
0.552	14.02	13.69	20.39	6.22	2500	-	2500	3000	3000	3000	3000	3000	3000	3000						
3	3 1/2	88.9	40(Std)	0.083	2.11	3.03	4.51	1.38	850	-	1000	-	1200	1310	1480	1590	1710	1850	1990	
				0.109	2.77	3.95	5.88	1.79	-	-	-	1570	1720	1940	2090	2240	2430	2620		
				0.125	3.18	4.51	6.72	2.05	1290	-	1500	1800	1970	2230	2400	2570	2790	3000		
				0.141	3.58	5.06	7.54	2.30	-	-	-	2030	2220	2510	2710	2900	3000	3000		
				0.156	3.96	5.57	8.30	2.53	1600	-	1870	2250	2460	2780	3000	3000	3000	3000		
				0.172	4.37	6.11	9.10	2.77	1770	-	2060	2480	2710	3000	3000	3000	3000	3000		
				0.188	4.78	6.65	9.91	3.02	1930	-	2260	2710	2970	3000	3000	3000	3000	3000		
				0.216	5.49	7.58	11.29	3.44	2220	-	2500	3000	3000	3000	3000	3000	3000	3000		
				0.250	6.35	8.68	12.93	3.94	2500	-	2500	3000	3000	3000	3000	3000	3000	3000		
				0.281	7.14	9.66	14.39	4.39	2500	-	2500	3000	3000	3000	3000	3000	3000	3000		
				0.300	7.62	10.25	15.27	4.65	2500	-	2500	3000	3000	3000	3000	3000	3000	3000		
				0.438	11.13	14.32	21.33	6.50	-	-	-	-	3000	3000	3000	3000	3000	3000		
0.600	15.24	18.58	27.67	8.44	2500	-	2500	3000	3000	3000	3000	3000	3000	3000						
3 1/2	4	101.6	40(Std)	0.083	2.11	3.47	5.17	1.58	750	-	870	-	1050	1150	1290	1390	1490	1620	1740	
				0.109	2.77	4.53	6.75	2.06	980	-	1140	1370	1500	1700	1830	1960	2130	2290		
				0.125	3.18	5.17	7.70	2.35	1120	-	1310	1580	1720	1950	2100	2250	2440	2630		
				0.141	3.58	5.81	8.65	2.64	1270	-	1480	1780	1950	2200	2370	2540	2750	2960		
				0.156	3.96	6.40	9.53	2.91	1400	-	1640	1970	2150	2430	2620	2810	3000	3000		
				0.172	4.37	7.03	10.47	3.19	1550	-	1810	2170	2370	2680	2890	3000	3000	3000		
				0.188	4.78	7.65	11.39	3.47	1690	-	1970	2370	2590	2930	3000	3000	3000	3000		
				0.226	5.74	9.11	13.57	4.14	2030	-	2370	2850	3000	3000	3000	3000	3000	3000		
				0.250	6.35	10.01	14.91	4.54	2250	-	2620	3000	3000	3000	3000	3000	3000	3000		
				0.281	7.14	11.16	16.62	5.07	2530	-	2800	3000	3000	3000	3000	3000	3000	3000		
				0.318	8.08	12.50	18.62	5.68	2800	-	2800	3000	3000	3000	3000	3000	3000	3000		

API PIPES (Continued)

Size						Weight			Hydrostatic Test Pressure							
Outside Diameter			Wall Thickness			lb/ft	kg/m	kg/ft	API 5L				API 5LX			
Nominal Size	in	mm	Sch. No.	in	mm				A		B		X42	X46	X52	X56
									Std.	Alt.	Std.	Alt.				
10	10 3/4	273.0	20	0.156	3.96	17.65	26.29	8.01	520	650	610	760	1040	1130	1280	1380
				0.188	4.78	21.21	31.59	9.63	630	790	730	920	1250	1370	1550	1660
				0.203	5.16	22.87	34.06	10.38	.....	.....	.....	.....	1350	1480	1670	1800
				0.219	5.56	24.63	36.69	11.18	730	920	860	1070	1450	1590	1800	1940
				0.250	6.35	28.04	41.77	12.73	840	1050	980	1220	1660	1820	2060	2210
				0.279	7.09	31.20	46.47	14.16	930	1170	1090	1360	1850	2030	2290	2470
				0.307	7.80	34.24	51.00	15.54	1030	1290	1200	1500	2040	2230	2520	2720
				0.344	8.74	38.23	56.94	17.36	1150	1440	1340	1680	2280	2500	2830	3000
				0.365	9.27	40.48	60.29	18.38	1220	1530	1430	1780	2420	2660	3000	3000
				0.438	11.13	48.24	71.85	21.90	1470	1830	1710	2140	2910	3000	3000	3000
				0.500	12.70	54.74	81.54	24.85	1670	2090	1950	2440	3000	3000	3000	3000
				0.562	14.27	61.15	91.08	27.76	1880	2350	2200	2740	3000	3000	3000	3000
				0.594	15.09	64.43	95.97	29.25	.....	.....	.....	.....	.....	.....	.....	.....
				0.625	15.88	67.58	100.66	30.68	2090	2620	2440	2800	3000	3000	3000	3000
0.719	18.26	77.03	114.74	34.97	2410	2800	2800	2800	3000	3000	3000	3000				
0.812	20.62	86.18	128.37	39.13	2720	2800	2800	2800	.....	.....	.....	.....
0.844	21.44	89.29	133.00	40.54	.....	.....	.....	.....	.....	.....	.....	.....
1.000	25.40	104.13	155.10	47.28	.....	.....	.....	.....	.....	.....	.....	.....
12	12 3/4	323.8	20	0.172	4.37	23.11	34.42	10.49	490	610	570	710	960	1050	1190	1280
				0.188	4.78	25.22	37.57	11.45	530	660	620	770	1050	1150	1300	1400
				0.203	5.16	27.20	40.51	12.35	.....	.....	.....	.....	1140	1250	1410	1520
				0.219	5.56	29.31	43.66	13.31	620	770	720	900	1230	1340	1520	1640
				0.250	6.35	33.38	49.72	15.15	710	880	820	1030	1400	1530	1730	1870
				0.281	7.14	37.42	55.74	16.99	790	990	930	1160	1570	1720	1950	2100
				0.312	7.92	41.45	61.74	18.82	880	1100	1030	1280	1750	1910	2160	2330
				0.330	8.38	43.77	65.20	19.87	930	1160	1090	1360	1850	2020	2290	2460
				0.344	8.74	45.58	67.89	20.69	970	1210	1130	1420	1930	2110	2390	2570
				0.375	9.52	49.56	73.82	22.50	1060	1320	1240	1540	2100	2300	2600	2800
				0.406	10.31	53.52	79.72	24.30	.....	.....	.....	.....	2270	2490	2810	3000
				0.438	11.13	57.59	85.78	26.15	1240	1550	1440	1800	2450	2690	3000	3000
				0.500	12.70	65.42	97.44	29.70	1410	1760	1650	2060	2800	3000	3000	3000
				0.562	14.27	73.15	108.96	33.21	1590	1980	1850	2310	3000	3000	3000	3000
0.625	15.88	80.93	120.55	36.74	1760	2210	2060	2570	3000	3000	3000	3000				
0.688	17.48	88.63	132.01	40.24	1940	2430	2270	2800	3000	3000	3000	3000				
0.750	19.05	96.12	143.17	43.64	2120	2650	2470	2800	3000	3000	3000	3000				
0.812	20.62	103.53	154.21	47.00	2290	2800	2670	2800	3000	3000	3000	3000				
0.844	21.44	107.32	159.85	48.72	.....	.....	.....	.....	.....	.....	.....	.....
0.875	22.22	110.97	165.29	50.38	2470	2800	2800	2800	3000	3000	3000	3000				
1.000	25.40	125.49	186.92	56.97	.....	.....	.....	.....	.....	.....	.....	.....
14	14	355.6	10	0.188	4.78	27.73	41.30	12.59	480	600	560	700	960	1050	1190	1280
				0.203	5.16	29.91	44.55	13.58	520	650	610	760	.....	.....	.....	.....
				0.210	5.33	30.93	46.07	14.04	.....	.....	.....	.....	1070	1170	1330	1430
				0.219	5.56	32.23	48.01	14.63	.....	.....	.....	.....	1120	1220	1380	1490
				0.250	6.35	36.71	54.68	16.67	640	800	750	940	1280	1400	1580	1700
				0.281	7.14	41.17	61.32	18.69	720	900	840	1050	1430	1570	1770	1910
				0.312	7.92	45.61	67.94	20.71	800	1000	940	1170	1590	1740	1970	2120
				0.344	8.74	50.17	74.73	22.78	880	1110	1030	1290	1750	1920	2170	2340
				0.375	9.52	54.57	81.28	24.77	960	1210	1120	1410	1910	2090	2370	2550
				0.406	10.31	58.94	87.79	26.76	.....	.....	.....	.....	2070	2270	2560	2760
				0.438	11.13	63.44	94.49	28.80	1130	1410	1310	1640	2230	2450	2770	2980
				0.469	11.91	67.78	100.96	30.77	.....	.....	.....	.....	2390	2620	2960	3000
				0.500	12.70	72.09	107.38	32.73	1290	1610	1500	1880	2550	2790	3000	3000
				0.562	14.27	80.66	120.14	36.62	1450	1810	1690	2110	2870	3000	3000	3000
0.594	15.09	85.05	126.68	38.61	.....	.....	.....	.....	.....	.....	.....	.....
0.625	15.88	89.28	132.98	40.53	1610	2010	1880	2340	3000	3000	3000	3000				
0.688	17.48	97.81	145.69	44.41	1770	2210	2060	2580	3000	3000	3000	3000				
0.750	19.05	106.13	158.08	48.18	1930	2410	2250	2800	3000	3000	3000	3000				
0.812	20.62	114.37	170.35	51.92	2090	2610	2440	2800	3000	3000	3000	3000				
0.875	22.22	122.65	182.69	55.68	2250	2800	2620	2800	3000	3000	3000	3000				
0.938	23.83	130.85	194.90	59.41	2410	2800	2800	2800	3000	3000	3000	3000				
1.000	25.40	138.84	206.80	63.03	.....	.....	.....	.....	.....	.....	.....	.....
16	16	406.4	10	0.188	4.78	31.75	47.29	14.40	420	530	490	620	840	920	1040	1120
				0.203	5.16	34.25	51.02	15.54	460	570	530	670	910	990	1120	1210
				0.219	5.56	36.91	54.98	16.74	490	620	570	720	980	1070	1210	1300
				0.250	6.35	42.05	62.63	19.07	560	700	660	820	1120	1220	1380	1490
				0.281	7.14	47.17	70.26	21.40	630	790	740	920	1250	1370	1550	1670
				0.312	7.92	52.27	77.86	23.71	700	880	820	1020	1390	1520	1720	1860
				0.344	8.74	57.52	85.68	26.09	770	970	900	1130	1540	1680	1900	2050
				0.375	9.52	62.58	93.21	28.39	840	1050	980	1230	1670	1830	2070	2230
				0.406	10.31	67.62	100.72	30.67	.....	.....	.....	.....	1810	1980	2240	2420

API PIPES (Continued)

Size						Weight			Hydrostatic Test Pressure										
Outside Diameter			Wall Thickness			lb/ft	kg/m	kg/ft	API 5L				API 5LX						
Nominal Size	in	mm	Sch. No.	in	mm				A		B		X42	X46	X52	X56			
									Std.	Alt.	Std.	Alt.							
16	16	406.4	40(XS)	0.438	11.13	72.80	108.44	33.02	990	1230	1150	1440	1950	2140	2420	2610			
				0.469	11.91	77.79	115.87	35.29	.....	.....	.....	.....	2090	2290	2590	2790
				0.500	12.70	82.77	123.29	37.54	1120	1410	1310	1640	2230	2440	2760	2980			
				0.562	14.27	92.66	138.02	42.03	1260	1580	1480	1840	2510	2750	3000	3000			
				0.625	15.88	102.63	152.87	46.55	1410	1760	1540	2050	2790	3000	3000	3000			
				0.656	16.66	107.50	160.12	48.80	.....	.....	.....	.....	.....	.....	.....	.....
			60	60	60	60	0.688	17.48	112.51	167.58	51.03	1550	1940	1810	2260	3000	3000	3000	3000
							0.750	19.05	122.15	181.94	55.41	1690	2110	1970	2460	3000	3000	3000	3000
							0.812	20.62	131.71	196.18	59.74	1830	2280	2130	2660	3000	3000	3000	3000
							0.844	21.44	136.61	203.48	62.02
							0.875	22.22	141.34	210.53	64.11	1970	2460	2300	2800	3000	3000	3000	3000
							0.938	23.83	150.89	224.75	68.44	2110	2640	2460	2800	3000	3000	3000	3000
							1.000	25.40	160.20	238.62	72.67	2250	2800	2620	2800	3000	3000	3000	3000
							1.062	26.97	169.43	252.37	76.85	2390	2800	2790	2800	3000	3000	3000	3000
							1.125	28.58	178.72	266.20	81.07	2530	2800	2800	2800	3000	3000	3000	3000
18	18	457.2	10	0.188	4.78	35.76	53.26	16.22	380	470	440	550	750	820	920	990			
				0.219	5.56	41.59	61.95	18.87	440	550	510	640	870	950	1080	1160			
				0.250	6.35	47.39	70.59	21.50	500	620	580	730	990	1090	1230	1320			
				0.281	7.14	53.18	79.21	24.12	560	700	660	820	1110	1220	1380	1490			
				0.312	7.92	58.94	87.79	26.74	620	780	730	910	1240	1360	1530	1650			
				0.344	8.74	64.87	96.62	29.43	690	860	800	1000	1360	1490	1690	1820			
			20	20	20	20	0.375	9.52	70.59	105.14	32.02	750	940	880	1090	1490	1630	1840	1980
							0.406	10.31	76.29	113.63	34.61	1610	1760	1990	2150
							0.438	11.13	82.15	122.36	37.26	880	1100	1020	1280	1740	1900	2150	2320
							0.469	11.91	87.81	130.79	39.83	1860	2040	2300	2480
							0.500	12.70	93.45	139.19	42.39	1000	1250	1170	1460	1980	2170	2460	2640
							0.562	14.27	104.67	155.91	47.48	1120	1400	1310	1640	2230	2440	2760	2970
							0.625	15.88	115.98	172.75	52.61	1250	1560	1460	1820	2480	2720	3000	3000
							0.688	17.48	127.21	189.48	57.70	1380	1720	1610	2010	2730	2990	3000	3000
							0.750	19.05	138.17	205.80	62.67	1500	1880	1750	2190	2980	3000	3000	3000
			80	80	80	80	0.812	20.62	149.06	222.02	67.61	1620	2030	1890	2370	3000	3000	3000	3000
							0.875	22.22	160.03	238.36	72.59	1750	2190	2040	2550	3000	3000	3000	3000
							0.938	23.83	170.92	254.59	77.53	1880	2340	2190	2740	3000	3000	3000	3000
							1.000	25.40	181.56	270.43	82.36	2000	2500	2330	2800	3000	3000	3000	3000
							1.062	26.97	192.11	286.15	87.14	2120	2660	2480	2800	3000	3000	3000	3000
							1.125	28.58	202.75	302.00	91.97	2250	2800	2620	2800	3000	3000	3000	3000
20	20	20	20	1.187	30.15	213.14	317.47	96.68	2370	2800	2770	2800	.....	.....	.....	.....
				1.188	30.18	213.31	317.73	96.76	.....	.....	.....	.....	3000	3000	3000	3000
				1.250	31.75	223.61	333.07	101.43	2500	2800	2800	2800	3000	3000	3000	3000			
				0.219	5.56	46.27	68.92	20.99	390	490	460	570	830	910	1020	1100			
				0.250	6.35	52.73	78.54	23.92	450	560	520	660	940	1040	1170	1260			
20	20	508.0	10	0.281	7.14	59.18	88.15	26.84	510	630	590	740	1060	1160	1320	1420			
				0.312	7.92	65.60	97.71	29.76	560	700	660	820	1180	1290	1460	1570			
				0.344	8.74	72.21	107.56	32.75	620	770	720	900	1300	1420	1610	1730			
				0.375	9.52	78.60	117.07	35.65	680	840	790	980	1420	1550	1760	1890			
				0.406	10.31	84.96	126.55	38.54	.....	.....	.....	.....	1530	1680	1900	2050
				0.438	11.13	91.51	136.30	41.51	790	990	920	1150	1660	1810	2050	2210			
			20	20	20	20	0.469	11.91	97.83	145.72	44.38	1770	1940	2190	2360
							0.500	12.70	104.13	151.10	47.23	900	1120	1050	1310	1890	2070	2340	2520
							0.562	14.27	116.67	173.78	52.92	1010	1260	1180	1480	2120	2330	2630	2750
							0.625	15.88	129.33	192.64	58.66	1120	1410	1310	1640	2360	2590	2750	2750
							0.688	17.48	141.90	211.36	64.37	1240	1550	1440	1810	2600	2750	2750	2750
							0.750	19.05	154.19	229.67	69.94	1350	1690	1580	1970	2750	2750	2750	2750
							0.812	20.62	166.40	247.85	75.48	1460	1830	1710	2130	2750	2750	2750	2750
							0.875	22.22	178.72	266.20	81.07	1580	1970	1840	2300	2750	2750	2750	2750
							0.938	23.83	190.96	284.43	86.62	1690	2110	1970	2460	2750	2750	2750	2750
20	20	20	20	1.000	25.40	202.92	302.25	92.04	1800	2250	2100	2620	2750	2750	2750	2750			
				1.062	26.97	214.80	319.94	97.43	1910	2390	2230	2750	2750	2750	2750	2750			
				1.125	28.58	226.78	337.79	102.87	2020	2530	2360	2750	2750	2750	2750	2750			
				1.187	30.15	238.50	355.25	108.18	2140	2670	2490	2750	.....	.....	.....	.....
				1.188	30.15	238.68	.....	.....	.....	.....	.....	.....	2750	2750	2750	2750
				1.250	31.75	250.31	372.84	113.54	2250	2750	2620	2750	2750	2750	2750	2750			
22	22	558.8	10	1.312	33.32	261.86	390.04	118.78	2360	2750	2750	2750	2750	2750	2750				
				1.375	34.92	273.51	407.39	124.06	2480	2750	2750	2750	2750	2750	2750	2750			
				0.219	5.56	50.94	75.88	23.11	360	450	420	520	750	820	930	1000			
20	20	20	20	0.250	6.35	58.07	86.50	26.34	410	510	480	600	860	940	1060	1150			
				0.281	7.14	65.18	97.09	29.57	460	570	540	670	970	1060	1200	1290			
				0.312	7.92	72.27	107.65	32.78	510	640	600	740	1070	1170	1330	1430			
				0.344	8.74	79.56	118.50	36.09	560	700	660	820	1180	1290	1460	1580			
				0.375	9.52	86.61	129.01	39.29	610	770	720	890	1290	1410	1600	1720			