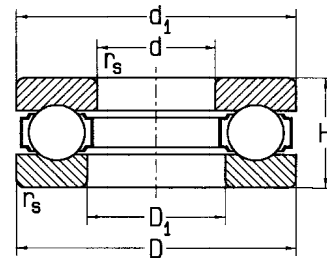


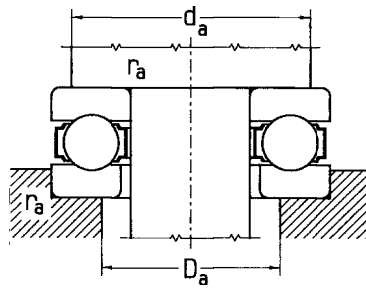
Single Direction Thrust Ball Bearings

Sizes 10 mm – 35 mm



Dimensions						Basic Load Rating		Limiting Speed for Lubricating by		Bearing Designation
d	D	d ₁	D ₁	H	r _s min	Dynamic C _a	Static C _{0a}	Grease	Oil	
mm						kN <i>lbf</i>		min ⁻¹		
10	24	24	11	9	3.3	10.0 <i>2,240</i>	9.1 <i>2,030</i>	7,900	10,600	51100A
	26	26	12	11	0.6	12.6 <i>2,820</i>	10.4 <i>2,330</i>	7,100	9,400	51200A
12	26	26	13	9	0.3	10.4 <i>2,330</i>	10.4 <i>2,330</i>	7,500	10,000	51101A
	28	28	14	11	0.6	13.1 <i>2,930</i>	12.3 <i>2,710</i>	6,700	8,900	51201A
15	28	28	16	9	0.3	10.6 <i>2,370</i>	11.9 <i>2,660</i>	7,100	9,400	51102A
	32	32	17	12	0.6	15.8 <i>3,550</i>	16.5 <i>3,690</i>	6,000	7,900	51202A
17	30	30	18	9	0.3	11.4 <i>2,560</i>	14.4 <i>3,220</i>	7,100	9,400	51103A
	35	35	19	12	0.6	16.2 <i>3,620</i>	18.8 <i>4,220</i>	5,600	7,500	51203A
20	35	35	21	10	0.3	15.0 <i>3,350</i>	19.6 <i>4,380</i>	6,300	8,400	51104A
	40	40	22	14	0.6	22.4 <i>5,010</i>	26.1 <i>5,840</i>	5,000	6,700	51204A
25	42	42	26	11	0.6	18.1 <i>4,060</i>	27.1 <i>6,070</i>	5,300	7,100	51105A
	47	47	27	15	0.6	27.6 <i>6,190</i>	36.2 <i>8,100</i>	4,500	6,000	51205A
	52	52	27	18	1.0	35.5 <i>7,940</i>	42.2 <i>9,440</i>	3,800	5,000	51305A
	60	60	27	24	1.0	55.2 <i>12,300</i>	55.2 <i>12,300</i>	3,200	4,200	51405A
30	47	47	32	11	0.6	18.8 <i>4,220</i>	31.6 <i>7,080</i>	5,000	6,700	51106A
	52	52	32	16	0.6	29.3 <i>6,560</i>	43.8 <i>9,810</i>	4,000	5,300	51206A
	60	60	32	21	1.0	43.0 <i>9,620</i>	55.2 <i>12,300</i>	3,300	4,500	51306A
	70	70	32	28	1.0	72.2 <i>16,200</i>	81.0 <i>18,100</i>	2,700	3,500	51406A
35	52	52	37	12	0.6	20.0 <i>4,470</i>	38.3 <i>8,580</i>	4,700	6,300	51107A
	62	62	37	18	1.0	39.1 <i>8,740</i>	58.4 <i>13,100</i>	3,500	4,700	51207A
	68	68	37	24	1.0	55.2 <i>12,300</i>	73.6 <i>16,500</i>	2,800	3,800	51307A
	80	80	37	32	1.1	87.4 <i>19,600</i>	100.0 <i>22,400</i>	2,200	3,000	51407A

Bearing designations printed in bold face type are currently in our manufacturing schedule. Those shown in normal face type are made to order.

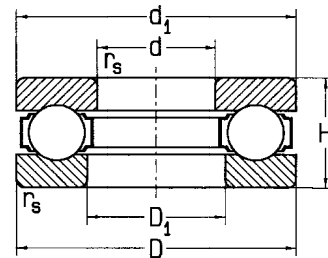


Abutment and Fillet Dimensions				Weight ~	Minimum Axial Load Factor M
d	d _a min	D _a max	r _a max		
mm				kg lbs	
10	19	15	0.3	0.020 0.044	0.001
	20	16	0.6	0.030 0.066	0.002
12	21	17	0.3	0.020 0.044	0.002
	22	18	0.6	0.030 0.066	0.002
15	23	20	0.3	0.020 0.044	0.002
	25	22	0.6	0.050 0.110	0.004
17	25	22	0.3	0.030 0.066	0.003
	28	24	0.6	0.050 0.110	0.004
20	29	26	0.3	0.040 0.088	0.004
	32	28	0.6	0.080 0.176	0.008
25	35	32	0.6	0.060 0.132	0.006
	38	34	0.6	0.120 0.264	0.015
	41	36	1	0.180 0.396	0.020
	46	39	1	0.340 0.749	0.035
30	40	37	0.6	0.070 0.134	0.008
	43	39	0.6	0.140 0.308	0.018
	48	42	1	0.270 0.595	0.030
	54	46	1	0.530 1.167	0.085
35	45	42	0.6	0.080 0.176	0.012
	51	46	1	0.220 0.484	0.032
	55	48	1	0.390 0.858	0.050
	62	53	1	0.790 1.740	0.12

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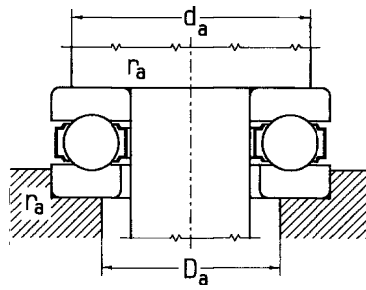
Single Direction Thrust Ball Bearings

Sizes 40 mm – 65 mm



Dimensions						Basic Load Rating		Limiting Speed for Lubricating by		Bearing Designation
d	D	d ₁	D ₁	H	r _s min	Dynamic C _a	Static C _{0a}	Grease	Oil	
mm						kN lbf		min ⁻¹		
40	60	60	42	13	0.6	27.1 6,070	51.1 11,400	4,200	5,600	51108A
	68	68	42	19	1.0	43.8 9,810	70.8 15,800	3,200	4,200	51208A
	78	78	42	26	1.0	69.4 15,500	94.4 21,100	2,700	3,500	51308A
	90	90	42	36	1.1	112.0 25,100	133.0 29,900	2,000	2,700	51408A
45	65	65	47	14	0.6	27.6 6,190	57.3 12,800	4,000	5,300	51109A
	73	73	47	20	1.0	46.4 10,400	81.0 18,100	3,000	4,000	51209A
	85	85	47	28	1.0	79.4 17,800	117.0 26,100	2,400	3,200	51309A
	100	100	47	39	1.1	131.0 29,300	158.0 35,500	1,900	2,500	51409A
50	70	70	52	14	0.6	28.7 6,430	63.1 14,100	3,800	5,000	51110A
	78	78	52	22	1.0	47.3 10,600	87.4 19,600	2,800	3,800	51210A
	95	95	52	31	1.1	96.2 21,500	144.0 32,200	2,100	2,800	51310A
	110	110	52	43	1.5	158.0 35,500	200.0 44,700	1,700	2,200	51410A
55	78	78	57	16	0.6	34.8 7,790	79.9 17,400	3,300	4,500	51111A
	90	90	57	25	1.0	69.4 15,500	123.0 27,600	2,500	3,300	51211A
	105	105	57	35	1.1	119.0 26,600	174.0 39,100	1,900	2,500	51311A
	120	120	57	48	1.5	207.0 46,400	251.0 56,200	1,600	2,100	51411A
60	85	85	62	17	1.0	41.4 9,260	94.4 21,100	3,200	4,200	51112A
	95	95	62	26	1.0	73.6 16,500	141.0 31,600	2,400	3,200	51212A
	110	110	62	35	1.1	123.0 27,600	192.0 43,000	1,900	2,500	51312A
	130	130	62	51	1.5	224.0 50,100	287.0 64,200	1,400	1,900	51412A
65	90	90	67	18	1.0	42.2 9,440	100.0 22,400	2,800	3,800	51113A
	100	100	67	27	1.0	75.0 16,800	150.0 33,500	2,400	3,200	51213A
	115	115	67	36	1.1	128.0 28,700	211.0 47,300	1,800	2,400	51313A
	140	110	68	56	2.0	233.0 52,100	329.0 73,600	1,300	1,800	51413A

Bearing designations printed in bold face type are currently in our manufacturing schedule. Those shown in normal face type are made to order.

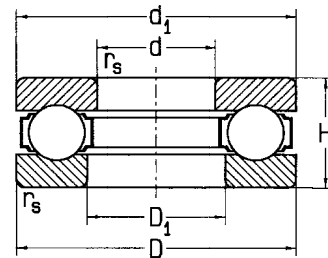


Abutment and Fillet Dimensions				Weight ~	Minimum Axial Load Factor M
d	d _a min	D _a max	r _a max		
mm				kg lbs	
40	52	48	0.6	0.120 0.264	0.018
	57	51	1	0.270 0.595	0.047
	63	55	1	0.550 1.211	0.095
	70	60	1	1.140 2.510	0.190
45	57	53	0.6	0.150 0.330	0.025
	62	56	1	0.320 0.705	0.060
	69	61	1	0.690 1.519	0.130
	78	67	1	1.470 3.240	0.350
50	62	58	0.6	0.160 0.352	0.035
	67	61	1	0.390 0.859	0.082
	77	68	1	1.000 2.200	0.19
	86	74	1.5	1.990 4.380	0.45
55	69	64	0.6	0.240 0.528	0.040
	76	69	1	0.610 1.343	0.11
	85	75	1	1.340 2.950	0.27
	94	81	1.5	2.640 5.810	0.65
60	75	70	1	0.290 0.638	0.066
	81	74	1	0.690 1.519	0.13
	90	80	1	1.430 3.150	0.35
	102	88	1.5	3.510 7.730	0.90
65	80	75	1	0.340 0.749	0.086
	86	79	1	0.770 1.696	0.17
	95	85	1	1.570 3.460	0.45
	110	95	2	4.470 9.840	1.3



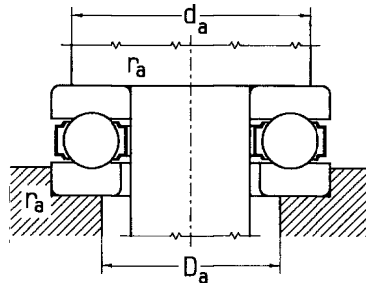
Single Direction Thrust Ball Bearings

Sizes 70 mm – 100 mm



Dimensions						Basic Load Rating		Limiting Speed for Lubricating by		Bearing Designation
d	D	d ₁	D ₁	H	r _s min	Dynamic C _a	Static C _{0a}	Grease	Oil	
mm						kN <i>lbf</i>		min ⁻¹		
70	95	95	72	18	1.0	43.0 <i>9,620</i>	110.0 <i>24,600</i>	2,800	3,800	51114A
	105	105	72	27	1.0	76.4 <i>17,100</i>	162.0 <i>36,200</i>	2,200	3,000	51214A
	125	125	72	40	1.1	147.0 <i>32,900</i>	251.0 <i>56,200</i>	1,700	2,200	51314A
	150	150	73	60	2.0	251.0 <i>56,200</i>	369.0 <i>82,500</i>	1,200	1,600	51414A
75	100	100	77	19	1.0	43.8 <i>9,810</i>	119.0 <i>26,600</i>	2,700	3,500	51115A
	110	110	77	27	1.0	77.9 <i>17,400</i>	171.0 <i>38,300</i>	2,200	3,000	51215A
	135	135	77	44	1.5	185.0 <i>41,200</i>	310.0 <i>69,400</i>	1,600	2,100	51315A
	160	160	78	65	2.0	299.0 <i>66,800</i>	438.0 <i>98,100</i>	1,000	1,300	51415A
80	105	105	82	19	1.0	44.7 <i>10,000</i>	123.0 <i>27,600</i>	2,700	3,500	51116A
	115	115	82	28	1.0	79.4 <i>17,800</i>	181.0 <i>50,100</i>	2,000	2,700	51216A
	140	140	82	44	1.5	181.0 <i>40,500</i>	316.0 <i>70,800</i>	1,500	2,000	51316A
	170	170	83	68	2.1	316.0 <i>70,800</i>	482.0 <i>108,000</i>	890	1,200	51416
85	110	110	87	19	1.0	45.5 <i>10,200</i>	133.0 <i>29,900</i>	2,700	3,500	51117A
	125	125	88	31	1.0	96.2 <i>21,500</i>	215.0 <i>48,200</i>	1,900	2,700	51217A
	150	150	88	49	1.5	224.0 <i>50,100</i>	376.0 <i>84,100</i>	1,300	1,800	51317A
	180	177	88	72	2.1	335.0 <i>75,000</i>	531.0 <i>119,000</i>	890	1,200	51417
90	120	120	92	22	1.0	59.6 <i>13,300</i>	165.0 <i>36,900</i>	2,200	3,000	51118A
	135	135	93	35	1.1	133.0 <i>29,900</i>	282.0 <i>63,100</i>	1,700	2,200	51218A
	155	155	93	50	1.5	233.0 <i>52,100</i>	406.0 <i>90,900</i>	1,100	1,500	51318
	190	187	93	77	2.1	383.0 <i>85,800</i>	619.0 <i>139,000</i>	790	1,060	51418
100	135	135	102	25	1.0	85.8 <i>19,200</i>	228.0 <i>51,100</i>	2,000	2,700	51120A
	150	150	103	38	1.1	162.0 <i>36,200</i>	348.0 <i>77,900</i>	1,600	2,100	51220A
	170	170	103	55	1.5	251.0 <i>56,200</i>	464.0 <i>104,000</i>	1,060	1,400	51320
	210	205	103	85	3.0	447.0 <i>100,000</i>	779.0 <i>174,000</i>	750	1,000	51420

Bearing designations printed in bold face type are currently in our manufacturing schedule. Those shown in normal face type are made to order.

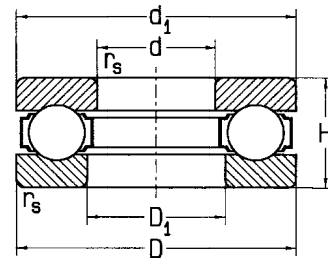


Abutment and Fillet Dimensions				Weight ~	Minimum Axial Load Factor M
d	d _a min	D _a max	r _a max		
mm				kg lbs	
70	85	80	1	0.360 0.793	0.11
	91	84	1	0.810 1.784	0.21
	103	92	1	2.060 4.540	0.54
	118	102	2	5.480 12.070	1.6
75	90	85	1	0.420 0.925	0.12
	96	89	1	0.860 1.894	0.27
	111	99	1.5	2.680 5.900	0.76
	125	110	2	6.750 14.860	2.1
80	95	90	1	0.430 0.974	0.15
	101	94	1	0.950 2.092	0.35
	116	104	1.5	2.820 6.210	0.85
	133	117	2	7.970 17.550	2.7
85	100	95	1	0.460 1.013	0.18
	109	101	1	1.290 2.840	0.43
	123	111	1.5	3.660 8.060	1.2
	141	124	2	9.450 20.810	3.3
90	108	102	1	0.680 1.497	0.26
	117	108	1	1.770 3.900	0.53
	129	116	1.5	3.880 8.540	1.5
	149	131	2	11.200 24.700	4.1
100	121	114	1	1.080 2.381	0.34
	130	120	1	2.360 5.197	0.77
	142	128	1.5	5.110 11.250	2.0
	165	145	2.5	15.000 33.000	6.2



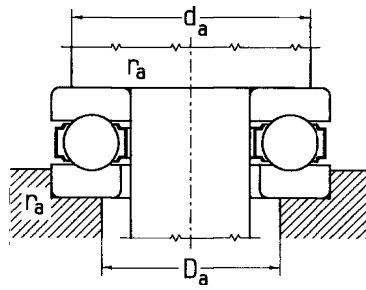
Single Direction Thrust Ball Bearings

Sizes 110 mm – 170 mm



Dimensions						Basic Load Rating		Limiting Speed for Lubricating by		Bearing Designation
d	D	d ₁	D ₁	H	r _s min	Dynamic C _a	Static C _{0a}	Grease	Oil	
mm						kN lbf		min ⁻¹		
110	145	145	112	25	1.0	87.4 <i>19,600</i>	251.0 <i>56,200</i>	1,900	2,500	51122A
	160	160	113	38	1.1	171.0 <i>38,300</i>	391.0 <i>87,400</i>	1,300	1,800	51222
	190	187	113	63	2.0	304.0 <i>68,100</i>	584.0 <i>131,000</i>	890	1,200	51322
	230	225	113	95	3.0	492.0 <i>110,000</i>	909.0 <i>203,000</i>	670	890	51422
120	155	155	122	25	1.0	89.1 <i>20,000</i>	271.0 <i>60,700</i>	1,600	2,100	51124
	170	170	123	39	1.1	174.0 <i>39,100</i>	422.0 <i>94,400</i>	1,200	1,600	51224
	210	205	123	70	2.1	348.0 <i>77,900</i>	708.0 <i>158,000</i>	790	1,060	51324
	250	245	123	102	4.0	531.0 <i>119,000</i>	1,040.0 <i>233,000</i>	630	840	51424
130	170	170	132	30	1.0	119.0 <i>26,600</i>	355.0 <i>79,400</i>	1,400	1,900	51126
	190	187	133	45	1.5	237.0 <i>53,100</i>	562.0 <i>126,000</i>	1,100	1,500	51226
	225	220	134	75	2.1	369.0 <i>82,500</i>	779.0 <i>174,000</i>	750	1,000	51326
	270	265	134	110	4.0	631.0 <i>141,000</i>	1,280.0 <i>287,000</i>	560	750	51426
140	180	178	142	31	1.0	121.0 <i>27,100</i>	369.0 <i>82,500</i>	1,300	1,800	51128
	200	197	143	46	1.5	242.0 <i>54,100</i>	596.0 <i>133,000</i>	1,060	1,400	51228
	240	235	144	80	2.1	414.0 <i>92,600</i>	962.0 <i>215,000</i>	710	940	51328
	280	275	144	112	4.0	631.0 <i>141,000</i>	1,310.0 <i>293,000</i>	670	890	51428
150	190	188	152	31	1.0	123.0 <i>27,600</i>	398.0 <i>89,100</i>	1,300	1,800	51130
	215	212	153	50	1.5	271.0 <i>60,700</i>	681.0 <i>153,000</i>	1,000	1,300	51230
	250	245	154	80	2.1	430.0 <i>96,200</i>	1,020.0 <i>228,000</i>	710	940	51330
	300	295	154	120	4.0	668.0 <i>150,000</i>	1,470.0 <i>329,000</i>	500	670	51430
160	200	198	162	31	1.0	126.0 <i>28,200</i>	422.0 <i>94,400</i>	1,300	1,800	51132
	225	222	163	51	1.5	276.0 <i>61,900</i>	722.0 <i>162,000</i>	890	1,200	51232
170	215	213	172	34	1.1	158.0 <i>35,500</i>	511.0 <i>114,000</i>	1,200	1,600	51134
	240	237	173	55	1.5	282.0 <i>63,100</i>	750.0 <i>168,000</i>	840	1,100	51234

Bearing designations printed in bold face type are currently in our manufacturing schedule. Those shown in normal face type are made to order.

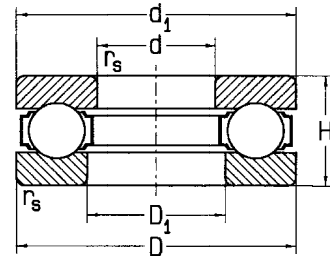


Abutment and Fillet Dimensions				Weight ~	Minimum Axial Load Factor M
d	d _a min	D _a max	r _a max		
mm				kg lbs	
110	131	124	1	1.080 2.380	0.42
	140	130	1	2.570 5.660	1.1
	158	142	2	7.870 17.330	2.8
	181	159	2.5	20.200 44.400	9.0
120	141	134	1	1.160 2.550	0.53
	150	140	1	2.860 6.300	1.4
	173	157	2	10.900 24.000	4.1
	197	173	3	25.500 56.200	13.0
130	154	146	1	1.870 4.120	0.65
	166	154	1.5	4.190 9.230	1.7
	186	169	2	13.300 29.270	6.2
	213	187	3	32.000 70.500	18.0
140	164	156	1	2.070 4.560	0.8
	176	164	1.5	4.880 10.750	2.0
	199	181	2	15.900 35.000	8.0
	223	197	3	34.500 76.000	19.0
150	174	166	1	2.200 4.840	0.95
	189	176	1.5	6.190 13.630	2.8
	209	191	2	16.700 36.800	10.0
	239	211	3	42.300 93.100	28.0
160	184	176	1	2.330 5.130	1.2
	199	186	1.5	6.670 14.690	3.2
170	197	188	1	3.310 7.290	1.5
	212	198	1.5	8.280 18.230	4.6



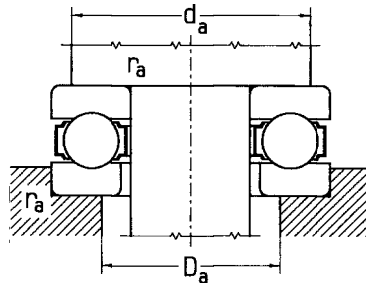
Single Direction Thrust Ball Bearings

Sizes 180 mm – 1000 mm



Dimensions						Basic Load Rating		Limiting Speed for Lubricating by		Bearing Designation
d	D	d ₁	D ₁	H	r _s min	Dynamic C _a	Static C _{0a}	Grease	Oil	
mm						kN <i>lbf</i>		min ⁻¹		
180	225	222	185	34	1.1	165.0 <i>36,900</i>	562.0 <i>126,000</i>	1,100	1,500	51136
		250	183	56	1.5	304.0 <i>68,100</i>	858.0 <i>192,000</i>	840	1,100	51236
190	240	237	193	37	1.1	185.0 <i>41,400</i>	631.0 <i>141,000</i>	1,060	1,400	51138
		270	194	62	2.0	355.0 <i>79,400</i>	1,020.0 <i>228,000</i>	750	1,000	51238
200	250	247	203	37	1.1	188.0 <i>42,200</i>	656.0 <i>147,000</i>	1,060	1,400	51140
		280	204	62	2.0	355.0 <i>79,400</i>	1,020.0 <i>228,000</i>	750	1,000	51240
220	270	267	223	37	1.1	192.0 <i>43,000</i>	722.0 <i>162,000</i>	1,000	1,300	51144
		300	224	63	2.0	369.0 <i>82,500</i>	1,140.0 <i>256,000</i>	710	940	51244
240	300	297	243	45	1.5	261.0 <i>58,400</i>	926.0 <i>207,000</i>	840	1,100	51148
		340	244	78	2.1	482.0 <i>108,000</i>	1,580.0 <i>355,000</i>	600	790	51248
260	320	317	263	45	1.5	266.0 <i>59,600</i>	1,000.0 <i>227,000</i>	840	1,100	51152
280	350	347	283	53	1.5	335.0 <i>75,000</i>	1,280.0 <i>287,000</i>	750	1,000	51156
300	420	415	304	95	3.0	584.0 <i>131,000</i>	2,240.0 <i>501,000</i>	500	670	51260
320	400	396	324	63	2.0	414.0 <i>92,600</i>	1,650.0 <i>369,000</i>	630	840	51164
		440	325	95	3.0	619.0 <i>139,000</i>	2,460.0 <i>522,000</i>	470	630	51264
340	420	416	344	64	2.0	406.0 <i>90,900</i>	1,780.0 <i>398,000</i>	600	790	51168
360	440	436	364	65	2.0	414.0 <i>92,600</i>	1,880.0 <i>422,000</i>	560	750	51172
400	480	476	404	65	2.0	438.0 <i>98,100</i>	2,150.0 <i>482,000</i>	530	710	51180
420	500	496	424	65	2.0	530.0 <i>100,000</i>	2,240.0 <i>501,000</i>	530	710	51184
1000	1,180	1,175	1,005	140	5.0	1,330.0 <i>299,000</i>	11,700.0 <i>2,610,000</i>	210	280	511/1000

Bearing designations printed in bold face type are currently in our manufacturing schedule. Those shown in normal face type are made to order.



Abutment and Fillet Dimensions				Weight ~	Minimum Axial Load Factor M
d	d _a min	D _a max	r _a max		
mm				kg lbs	
180	207	198	1	3.480 7.660	1.9
	222	208	1.5	8.850 19.490	5.5
190	220	210	1	4.060 8.940	2.4
	238	222	2	11.900 26.200	7.5
200	230	220	1	4.240 9.340	3.1
	248	232	2	12.400 27.300	9.5
220	250	240	1	4.620 10.170	4.6
	268	252	2	13.700 30.100	14.0
240	276	264	1.5	7.550 16.610	6.5
	300	280	2	23.600 52.000	19.0
260	296	284	1.5	8.110 17.860	8.6
280	322	308	1.5	12.200 26.900	11.0
300	372	348	2.5	43.100 94.900	40.0
320	368	352	2	18.900 41.600	16.0
	392	368	2.5	45.500 100.200	48.0
340	388	372	2	20.300 44.700	19.0
360	408	392	2	21.800 48.000	22.0
400	450	430	2	24.600 54.200	28.0
420	470	450	2	25.100 55.300	30.0
1000	1,110	1,070	4	270.000 595.000	720.0

