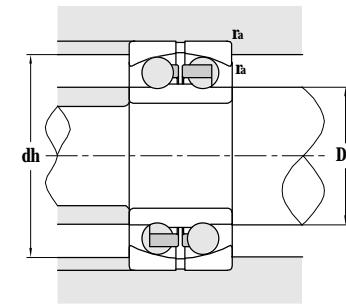
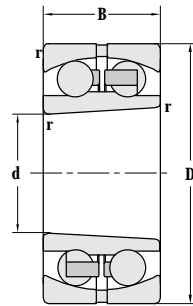
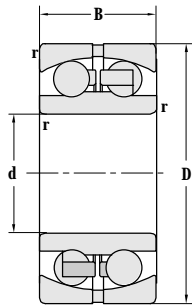


# Self-aligning Ball Bearing

d 25-45 mm

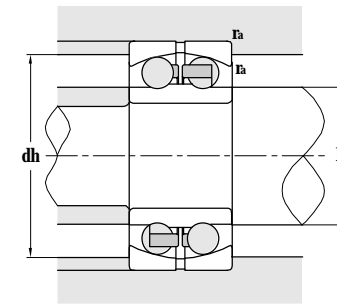
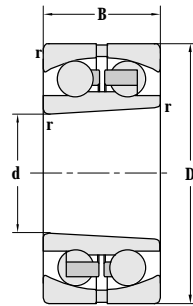
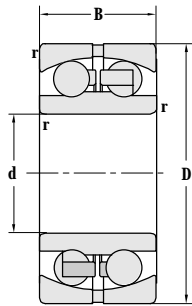


Principal dimensions				Basic load ratings		Limit speed ratings		Designations		
d	D	B	r <sub>min</sub>	C <sub>r</sub>	C <sub>or</sub>	Grease	Oil	Cylindrical bore	Tapered bore	
mm				kN		r/min				
<b>25</b>	52	15	1	13.9	3.88	13000	16000	<b>1205TN1</b>		
	62	17	1.1	18.4	5.24	9500	12000	<b>1305TN1</b>		
<b>30</b>	62	16	1	15.6	4.70	10000	13000	<b>1206</b>	<b>1206K</b>	
	62	20	1	23.0	6.50	9500	12000	<b>2206</b>	<b>2206K</b>	
	62	20	1	23.0		9500	12000	<b>2206TN1</b>		
	72	27	1.1	31.0	8.70	8500	10000	<b>2306</b>	<b>2306K</b>	
	72	27	1.1	31.0		8500	10000	<b>2306TN1</b>		
<b>35</b>	72	17	1.1	18.4	5.82	9000	11000	<b>1207</b>	<b>1207K</b>	
	72	17	1.1	18.4	5.82	9000	11000	<b>1207TN1</b>	<b>1207KTN1</b>	
	72	23	1.1	29.8	8.54	8500	10000	<b>2207</b>	<b>2207K</b>	
	72	23	1.1	29.8	8.54	8500	10000	<b>2207TN1</b>		
	80	21	1.5	25.7	8.25	7500	9000	<b>1307</b>	<b>1307K</b>	
	80	21	1.5	25.7	8.25	7500	9000	<b>1307TN1</b>	<b>1307KTN1</b>	
	80	31	1.5	39.0	11.1	7000	8500	<b>2307</b>	<b>2307K</b>	
	80	31	1.5	39.0	11.1	7000	8500	<b>2307TN1</b>		
	<b>40</b>	80	18	1.1	19.3	6.74	8500	10000	<b>1208</b>	<b>1208K</b>
		80	18	1.1	19.3	6.74	8500	10000	<b>1208TN1</b>	<b>1208KTN1</b>
80		23	1.1	30.9	9.70	7500	9000	<b>2208</b>	<b>2208K</b>	
80		23	1.1	30.9	9.70	7500	9000	<b>2208TN1</b>	<b>2208KTN1</b>	
90		23	1.5	32.8	10.9	6700	8000	<b>1308</b>	<b>1308K</b>	
90		23	1.5	32.8	10.9	6700	8000	<b>1308TN1</b>	<b>1308KTN1</b>	
90		33	1.5	52.4	15.5	6300	7500	<b>2308</b>	<b>2308K</b>	
90		33	1.5	52.4	15.5	6300	7500	<b>2308TN1</b>	<b>2308KTN1</b>	
<b>45</b>		85	19	1.1	22.2	7.57	7500	9000	<b>1209</b>	<b>1209K</b>
		85	19	1.1	22.2	7.57	7500	9000	<b>1209TN1</b>	<b>1209KTN1</b>
	85	23	1.1	31.5	10.3	7000	8500	<b>2209</b>	<b>2209K</b>	
	85	23	1.1	31.5	10.3	7000	8500	<b>2209TN1</b>	<b>2209KTN1</b>	
	100	25	1.5	38.5	13.0	6300	7500	<b>1309</b>	<b>1309K</b>	
	100	25	1.5	38.5	13.0	6300	7500	<b>1309TN1</b>	<b>1309KTN1</b>	
	100	36	1.5	61.8	18.7	5600	6700	<b>2309</b>	<b>2309K</b>	
	100	36	1.5	61.8	18.7	5600	6700	<b>2309M</b>		

Abutment and fillet dimensions			Axle load coefficient				Weight	
D <sub>smin</sub>	dh <sub>max</sub>	r <sub>amax</sub>	e	Y1	Y2	Y0	Cylindrical bore	Tapered bore
mm	mm	mm					kg	
30	47	1	0.28	2.2	3.5	2.5	0.137	
31.5	55.5	1	0.28	2.2	3.5	2.5	0.249	
35	57	1	0.25	2.5	3.87	2.62	0.228	0.221
35	57	1	0.39	1.63	2.53	1.71	0.260	0.248
35	57	1	0.39	1.63	2.53	1.71	0.242	
36.5	65.5	1	0.44	1.43	2.22	1.5	0.515	0.495
36.5	65.5	1	0.44	1.43	2.22	1.5	0.494	
41.5	65.5	1	0.23	2.74	4.24	2.87	0.318	0.308
41.5	65.5	1	0.23	2.74	4.24	2.87	0.309	0.300
41.5	65.5	1	0.37	1.69	2.61	1.77	0.604	0.585
41.5	65.5	1	0.37	1.69	2.61	1.77	0.587	
43	72	1.5	0.25	2.56	3.97	2.69	0.507	0.492
43	72	1.5	0.25	2.56	3.97	2.69	0.486	0.471
43	72	1.5	0.46	1.36	2.11	1.43	0.675	0.645
43	72	1.5	0.46	1.36	2.11	1.43	0.659	
46.5	73.5	1	0.22	2.87	4.45	3.01	0.410	0.400
46.5	73.5	1	0.22	2.87	4.45	3.01	0.402	0.392
46.5	73.5	1	0.33	1.9	2.94	1.99	0.520	0.500
46.5	73.5	1	0.33	1.9	2.94	1.99	0.476	0.456
48	82	1.5	0.24	2.62	4.05	2.74	0.714	0.694
48	82	1.5	0.24	2.62	4.05	2.74	0.688	0.668
48	82	1.5	0.43	1.45	2.25	1.52	0.959	0.919
48	82	1.5	0.43	1.45	2.25	1.52	0.901	0.861
51.5	78.5	1	0.21	2.94	4.55	3.08	0.469	0.455
51.5	78.5	1	0.21	2.94	4.55	3.08	0.458	0.444
51.5	78.5	1	0.31	2.04	3.15	2.13	0.553	0.533
51.5	78.5	1	0.31	2.04	3.15	2.13	0.503	0.483
53	92	1.5	0.25	2.53	3.92	2.66	0.951	0.926
53	92	1.5	0.25	2.53	3.92	2.66	0.920	0.895
53	92	1.5	0.42	1.51	2.33	1.58	1.24	1.19
53	92	1.5	0.42	1.51	2.33	1.58	1.36	

# Self-aligning Ball Bearing

d 50-70 mm

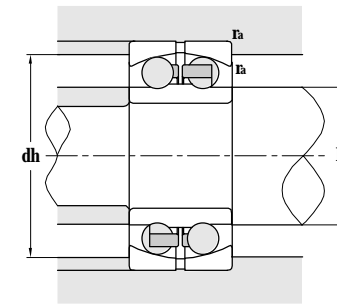
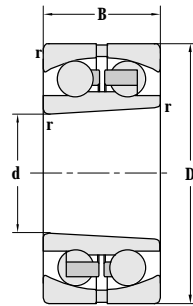
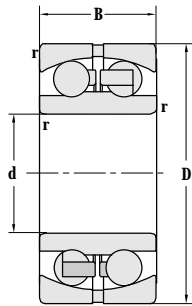


Principal dimensions				Basic load ratings		Limit speed ratings		Designations		
d	D	B	r <sub>min</sub>	C <sub>r</sub>	C <sub>or</sub>	Grease	Oil	Cylindrical bore	Tapered bore	
mm				kN		r/min				
<b>50</b>	90	20	1.1	25.7	8.88	7000	8500	<b>1210</b>	<b>1210K</b>	
	90	20	1.1	25.7	8.88	7000	8500	<b>1210TN1</b>	<b>1210KTN1</b>	
	90	23	1.1	32.8	10.9	6300	7500	<b>2210</b>	<b>2210K</b>	
	90	23	1.1	32.8	10.9	6300	7500	<b>2210TN1</b>	<b>2210KTN1</b>	
	110	27	2	43.5	14.0	5600	6700	<b>1310</b>	<b>1310K</b>	
	110	40	2	63.5	20.0	5300	6300	<b>2310</b>	<b>2310K</b>	
<b>55</b>	100	21	1.5	27.0	10.6	6300	7500	<b>1211</b>	<b>1211K</b>	
	100	21	1.5	27.0	10.6	6300	7500	<b>1211TN1</b>	<b>1211KTN1</b>	
	100	25	1.5	37.8	13.0	6000	7000	<b>2211</b>	<b>2211K</b>	
	120	29	2	51.5	18.0	5000	6000	<b>1311</b>	<b>1311K</b>	
	120	29	2	51.5	18.0	5000	6000	<b>1311TN1</b>	<b>1311KTN1</b>	
	120	43	2	75.0	23.5	4300	5000	<b>2311</b>	<b>2311K</b>	
<b>60</b>	110	22	1.5	31.0	11.8	5600	6700	<b>1212</b>	<b>1212K</b>	
	110	22	1.5	31.0	11.8	5600	6700	<b>1212TN1</b>	<b>1212KTN1</b>	
	110	28	1.5	47.5	16.5	5300	6300	<b>2212</b>	<b>2212K</b>	
	110	28	1.5	47.5	16.5	5300	6300	<b>2212TN1</b>	<b>2212KTN1</b>	
	130	31	2.1	58.5	21.3	4500	5300	<b>1312</b>	<b>1312K</b>	
	130	31	2.1	58.5	21.3	4500	5300	<b>1312TN1</b>	<b>1312KTN1</b>	
	130	46	2.1	86.5	27.7	4500	5300	<b>2312</b>	<b>2312K</b>	
	130	46	2.1	86.5	27.7	4500	5300	<b>2312M</b>		
	150	35	2.1	76.5	28.4	3800	4500	<b>1412</b>		
	150	35	2.1	73.5	26.7	3800	4500	<b>1412M</b>		
	<b>65</b>	120	23	1.5	34.0	13.6	5300	6300	<b>1213</b>	<b>1213K</b>
		120	23	1.5	34.0	13.6	5300	6300	<b>1213TN1</b>	<b>1213KTN1</b>
120		31	1.5	55.5	19.4	5000	6000	<b>2213</b>	<b>2213K</b>	
140		33	2.1	63.0	24.7	4300	5000	<b>1313</b>	<b>1313K</b>	
140		48	2.1	95.5	32.5	4000	4800	<b>2313</b>	<b>2313K</b>	
<b>70</b>	125	24	1.5	34.5	14.2	5000	6000	<b>1214</b>	<b>1214K</b>	
	125	31	1.5	44.0	17.0	4800	5600	<b>2214</b>	<b>2214K</b>	
	150	35	2.1	74.5	27.8	4000	4800	<b>1314</b>	<b>1314K</b>	
	150	51	2.1	109	37.5	3800	4500	<b>2314</b>		

Abutment and fillet dimensions			Axle load coefficient				Weight	
D <sub>smin</sub>	d <sub>hmax</sub>	r <sub>amax</sub>	e	Y1	Y2	Y0	Cylindrical bore	Tapered bore
mm			mm				kg	
56.5	83.5	1	0.2	3.13	4.85	3.28	0.547	0.527
56.5	83.5	1	0.2	3.13	4.85	3.28	0.535	0.515
56.5	83.5	1	0.29	2.2	3.41	2.31	0.618	0.598
56.5	83.5	1	0.29	2.2	3.41	2.31	0.567	0.547
59	101	2	0.24	2.68	4.14	2.8	1.21	1.18
59	101	2	0.42	1.49	2.3	1.56	1.66	1.58
63	95	1.5	0.2	3.23	4.99	3.38	0.708	0.683
63	95	1.5	0.2	3.23	4.99	3.38	0.681	0.656
63	95	1.5	0.28	2.26	3.5	2.37	0.824	0.794
64	111	2	0.23	2.7	4.18	2.83	1.57	1.53
64	111	2	0.23	2.7	118	2.83	1.51	1.47
64	111	2	0.41	1.53	2.36	1.6	2.10	2.00
68	102	1.5	0.19	3.39	5.25	3.56	0.892	0.872
68	102	1.5	0.19	3.39	5.25	3.56	0.870	0.850
68	102	1.5	0.28	2.27	3.51	2.38	1.16	1.12
68	102	1.5	0.28	2.27	3.51	2.38	1.09	1.05
71	119	2	0.23	2.8	4.33	2.93	1.98	1.93
71	119	2	0.23	2.8	4.33	2.93	1.92	1.87
71	119	2	0.4	1.56	2.41	1.63	2.61	2.41
71	119	2	0.4	1.56	2.41	1.63	2.68	
71	139	2	0.22	2.81	4.35	2.95	3.26	
71	139	2	0.22	2.81	4.35	2.95	3.31	
73	112	1.5	0.17	3.71	5.73	3.88	0.915	0.885
73	112	1.5	0.17	3.71	5.73	3.88	0.865	0.835
73	112	1.5	0.28	2.25	3.48	2.35	1.50	1.44
76	129	2	0.23	2.78	4.31	2.92	2.38	2.31
76	129	2	0.38	1.65	2.55	1.72	3.22	3.07
78	117	1.5	0.18	3.51	5.44	3.68	1.29	1.25
78	117	1.5	0.27	2.36	3.66	2.48	1.63	1.57
81	139	2	0.22	2.81	4.35	2.95	2.98	2.90
81	139	2	0.39	1.62	2.5	1.69	3.92	

# Self-aligning Ball Bearing

d 75-100 mm

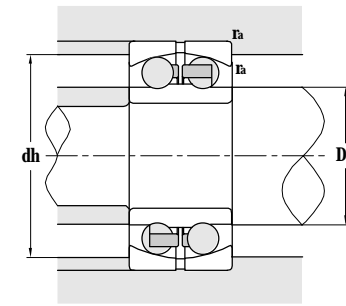
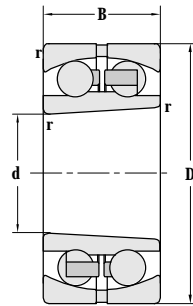
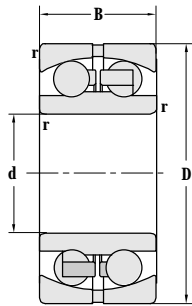


Principal dimensions				Basic load ratings		Limit speed ratings		Designations	
d	D	B	r <sub>min</sub>	C <sub>r</sub>	C <sub>or</sub>	Grease	Oil	Cylindrical bore	Tapered bore
mm				kN		r/min			
<b>75</b>	130	25	1.5	39.0	15.5	4800	5600	<b>1215</b>	<b>1215K</b>
	130	31	1.5	55.5	21.3	4500	5300	<b>2215</b>	<b>2215K</b>
	160	37	2.1	79.5	29.9	3800	4500	<b>1315</b>	<b>1315K</b>
	160	55	2.1	123	43.0	3400	4000	<b>2315</b>	<b>2315K</b>
	160	55	2.1	123	43.0	3400	4000	<b>2315TN1</b>	
<b>80</b>	140	26	2	40.0	16.9	4500	5300	<b>1216</b>	<b>1216K</b>
	140	26	2	40.0	16.9	4500	5300	<b>1216TN1</b>	<b>1216KTN1</b>
	140	33	2	63.0	24.7	4000	4800	<b>2216</b>	<b>2216K</b>
	170	39	2.1	89.0	33.5	3600	4300	<b>1316</b>	<b>1316K</b>
	170	58	2.1	131	47.5	3200	3800	<b>2316</b>	<b>2316K</b>
	170	58	2.1	131	47.5	3200	3800	<b>2316TN1</b>	
	170	58	2.1	131	47.5	3200	3800	<b>2316M</b>	
<b>85</b>	150	28	2	49.0	20.5	4000	4800	<b>1217</b>	<b>1217K</b>
	150	36	2	58.5	23.6	3800	4500	<b>2217</b>	<b>2217K</b>
	180	41	3	98.5	38.0	3400	4000	<b>1317</b>	<b>1317K</b>
	180	60	3	139	51.5	3000	3600	<b>2317</b>	<b>2317K</b>
<b>90</b>	160	30	2	57.0	23.4	3800	4500	<b>1218</b>	<b>1218K</b>
	160	40	2	70.0	28.5	3400	4300	<b>2218</b>	<b>2218k</b>
	190	43	3	117	45.0	3200	3800	<b>1318</b>	<b>1318K</b>
	190	43	3	118	45.1	3200	3800	<b>1318M</b>	
	190	64	3	151	57.0	2800	3400	<b>2318</b>	<b>2318k</b>
	190	64	3	152	57.1	2800	3400	<b>2318M</b>	<b>2318KM</b>
<b>95</b>	170	32	2.1	64.0	27.0	3600	4300	<b>1219</b>	<b>1219K</b>
	170	43	2.1	83.5	34.0	3400	4000	<b>2219</b>	<b>2219K</b>
	200	45	3	132	51.0	3000	3600	<b>1319</b>	<b>1319k</b>
	200	67	3	164	64.5	2600	3200	<b>2319</b>	<b>2319K</b>
<b>100</b>	180	34	2.1	69.0	29.5	3400	4000	<b>1220</b>	<b>1220K</b>
	180	34	2.1	69.1	29.5	3400	4000	<b>1220M</b>	<b>1220KM</b>
	180	46	2.1	97.5	40.5	3200	3800	<b>2220</b>	<b>2220K</b>
	180	46	2.1	97.6	40.6	3200	3800	<b>2220M</b>	<b>2220KM</b>
	215	47	3	143	58.0	2800	3400	<b>1320J</b>	<b>1320KJ</b>

Abutment and fillet dimensions			Axle load coefficient			Weight		
D <sub>smin</sub>	dh <sub>max</sub>	r <sub>amax</sub>	e	Y1	Y2	Y0	Cylindrical bore	Tapered bore
mm			mm			kg		
83	122	1.5	0.17	3.6	5.58	3.77	1.35	1.31
83	122	1.5	0.25	2.49	3.86	2.61	1.71	1.64
86	149	2	0.22	2.84	4.39	2.97	3.55	3.45
86	149	2	0.38	1.66	2.56	1.73	4.71	4.51
86	149	2	0.38	1.66	2.56	1.73	4.71	4.51
89	131	2	0.16	3.94	6.1	4.13	1.65	1.60
89	131	2	0.16	3.94	6.1	4.13	1.59	1.54
89	131	2	0.25	2.49	3.86	2.61	2.19	2.11
91	159	2	0.22	2.92	4.52	3.06	4.19	4.09
91	159	2	0.39	1.63	2.53	1.71	5.70	5.50
91	159	2	0.39	1.63	2.53	1.71	5.62	5.41
91	159	2	0.39	1.63	2.53	1.71	5.93	5.72
94	141	2	0.17	3.69	5.7	3.86	2.10	2.04
94	141	2	0.25	2.48	3.84	2.6	2.53	2.43
98	167	2.5	0.22	2.9	4.49	3.04	4.95	4.81
98	167	2.5	0.38	1.67	2.59	1.75	6.73	6.43
99	151	2	0.17	3.76	5.81	3.94	2.44	2.36
99	151	2	0.27	2.36	3.65	2.47	3.22	3.08
103	177	2.5	0.22	2.81	4.35	2.94	5.99	5.82
103	177	2.5	0.22	2.81	4.35	2.94	6.70	6.49
103	177	2.5	0.38	1.67	2.58	1.74	8.27	7.97
103	177	2.5	0.38	1.67	2.58	1.74	8.45	8.15
106	159	2	0.17	3.68	5.69	3.85	3.06	2.96
106	159	2	0.26	2.38	3.69	2.5	5.38	5.20
108	187	2.5	0.23	2.77	4.29	2.9	6.98	6.80
108	187	2.5	0.38	1.68	2.59	1.76	9.20	8.80
111	169	2	0.17	3.64	5.63	3.81	3.68	3.58
111	169	2	0.17	3.64	5.63	3.81	3.78	3.68
111	169	2	0.27	2.34	3.62	2.45	4.95	4.74
111	169	2	0.27	2.34	3.62	2.45	5.15	4.95
113	202	2.5	0.24	2.67	4.13	2.8	9.14	8.94

# Self-aligning Ball Bearing

d 100~1100 mm



Principal dimensions				Basic load ratings		Limit speed ratings		Designations	
d	D	B	r <sub>min</sub>	C <sub>r</sub>	C <sub>or</sub>	Grease	Oil	Cylindrical bore	Tapered bore
mm				kN		r/min			
<b>100</b>	215	73	3	191	78.5	2400	3000	<b>2320J</b>	<b>2320KJ</b>
	215	73	3	191	78.5	2400	3000	<b>2320TN1</b>	
<b>105</b>	190	36	2.1	75.0	32.0	3200	3800	<b>1221</b>	
	225	77	3	194	79.5	3200	2800	<b>2321</b>	
<b>110</b>	200	38	2.1	115	51.5	3000	3600	<b>1222</b>	<b>1222K</b>
	200	38	2.1	116	51.6	3000	3600	<b>1222M</b>	<b>1222KM</b>
	200	53	2.1	124	52.0	2800	3400	<b>2222</b>	<b>2222K</b>
	200	53	2.1	125	52.1	2800	3400	<b>2222M</b>	<b>2222KM</b>
	240	50	3	163.5	72.0	2400	3000	<b>1322J</b>	<b>1322KJ</b>
	240	80	3	215.5	94.0	2200	2800	<b>2322J</b>	<b>2322KJ</b>
	240	80	3	215.5	94.0	2200	2800	<b>2322TN1</b>	
<b>120</b>	215	42	2.1	119.5	52.5	2000	2600	<b>1224</b>	<b>1224K</b>
	215	42	2.1	115	50.0	2000	2600	<b>1224J</b>	<b>1224KJ</b>
<b>130</b>	230	46	3	125	56.5	3600	5600	<b>1226</b>	
<b>140</b>	250	50	3	155	72.0	1900	2500	<b>1228</b>	<b>1228K</b>
	250	50	3	155	72.0	1900	2500	<b>1228-NTW</b>	
<b>150</b>	235	36	3	104	53.0	2000	2600	<b>1730</b>	
<b>500</b>	720	300	6	338	301	350	400	<b>150/500D1L</b>	
<b>680</b>	900	300	6	360	370	300	350	<b>150/680D1L</b>	
<b>1100</b>	1300	300	6	328	440	130	160	<b>150/1100D1L</b>	

Abutment and fillet dimensions			Axle load coefficient				Weight	
D <sub>smin</sub>	dh <sub>max</sub>	r <sub>amax</sub>	e	Y1	Y2	Y0	Cylindrical bore	Tapered bore
mm			mm				kg	
113	202	2.5	0.37	1.69	2.62	1.77	12.4	11.8
113	202	2.5	0.37	1.69	2.62	1.77	12.1	
116	179	2	0.18	3.55	5.5	3.72	4.71	
118	212	2.5	0.39	1.64	2.53	1.71	14.4	
121	189	2	0.17	3.64	5.64	3.82	5.20	5.04
121	189	2	0.17	3.64	5.64	3.82	5.56	5.40
121	189	2	0.28	2.25	3.49	2.36	7.16	6.86
121	189	2	0.28	2.25	3.49	2.36	7.36	7.06
123	227	2.5	0.22	2.83	4.39	2.97	11.9	11.7
123	227	2.5	0.38	1.67	2.59	1.75	17.6	16.9
123	227	2.5	0.38	1.67	2.59	1.75	15.9	
131	204	2	0.2	3.21	4.97	3.36	7.04	6.84
131	204	2	0.2	3.21	4.97	3.36	7.04	6.84
144	216	2.5	0.2	3.3	5.1	3.6	8.64	
153	237	2	0.2	3.12	4.83	3.27	11.3	11.0
153	237	2	0.2	3.12	4.83	3.27	10.7	
163	222	2	0.15	4.18	6.46	4.38	6.25	
523	697	5.5	0.32	1.98	3.06	2.07	342	
703	877	5.5	0.26	2.38	3.69	2.5	447	
1123	1277	5.5	0.21	2.99	4.62	3.13	614	