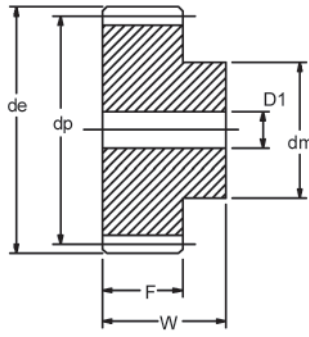
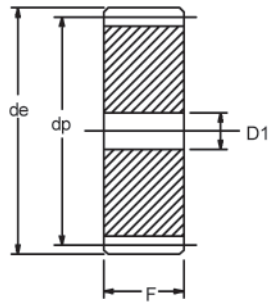


# Metric Steel Gears



**Type B**  
Above Bold Horizontal Line



**Type A**

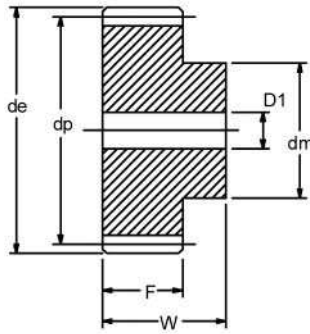
(Below Bold Horizontal Line)

- Full Width "W"**
- Module 1 = 25 mm
  - Module 1.5 = 30 mm
  - Module 2 = 35 mm
  - Module 2.5 = 45 (40) mm
  - Module 3 = 50 mm
  - Module 4 = 60 mm
  - Module 5 = 75 mm
  - Module 6 = 80 (75) mm
  - Module 8 = 95 mm
- Tooth Face Width "F"**
- Module 1 = 15 mm
  - Module 1.5 = 17 mm
  - Module 2 = 20 mm
  - Module 2.5 = 25 mm
  - Module 3 = 30 mm
  - Module 4 = 40 mm
  - Module 5 = 50 mm
  - Module 6 = 60 (50) mm
  - Module 8 = 64 mm
- Circular Pitch**
- Module 1 = 3.142 mm
  - Module 1.5 = 4.712 mm
  - Module 2 = 6.283 mm
  - Module 2.5 = 7.854 mm
  - Module 3 = 9.425 mm
  - Module 4 = 12.566 mm
  - Module 5 = 15.708 mm
  - Module 6 = 18.850 mm
  - Module 8 = 25.13
- Material: AISI C1040  
20° pressure angle  
D1 = ±1 mm

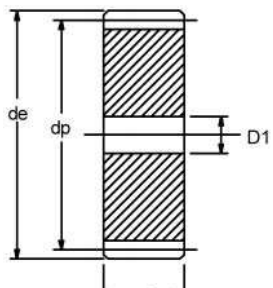
Teeth Z	Module 1					Module 1.5					Module 2				
	de	dp	dm	D1 ±1	kg	de	dp	dm	D1 ±1	kg	de	dp	dm	D1 ±1	kg
12	14	12	9	6	0.012	21.0	18.0	14	8	0.030	28	24	18	10	0.68
13	15	13	10	6	0.013	22.5	19.5	14-15	8	0.038	30	26	19-20	10	0.084
14	16	14	10-11	6	0.015	24.0	21.0	17-18	8	0.046	32	28	20-22	10	0.100
15	17	15	12	6	0.016	25.5	22.5	18	8	0.057	34	30	22-24	10	0.118
16	18	16	13	6	0.017	27.0	24.0	20	8	0.060	36	32	24-25	10	0.134
17	19	17	14	6-8	0.022	28.5	25.5	20	8	0.068	38	34	25	10-12	0.160
18	20	18	15	8	0.024	30.0	27.0	20	8-10	0.073	40	36	25	10-12	0.166
19	21	19	15	8	0.026	31.5	28.5	20	8-10	0.082	42	38	25	10-12	0.180
20	22	20	16	8	0.027	33.0	30.0	25	8-10	0.097	44	40	30	10-12	0.195
21	23	21	16	8	0.036	34.5	31.5	25	10	0.110	46	42	30	12-14	0.218
22	24	22	16-18	8	0.038	36.0	33.0	25	10	0.118	48	44	30	12-14	0.238
23	25	23	18	8	0.042	37.5	34.5	25	10	0.126	50	46	30	12-14	0.255
24	26	24	20	8-10	0.044	39.0	36.0	25	10-12	0.135	52	48	35	12-14	0.272
25	27	25	20	8-10	0.045	40.5	37.5	25	10-12	0.142	54	50	35	12-14	0.285
26	28	26	20	8-10		42.0	39.0	30	12		56	52	40	12-14	
27	29	27	20	8-10		43.5	40.5	30	12		58	54	40	12-14	
28	30	28	20	8-10	0.054	45.0	42.0	30	12	0.178	60	56	40	12-14	0.406
29	31	29	20	8-10		46.5	43.5	30	12		62	58	40	14	
30	32	30	20	8-10	0.059	48.0	45.0	30	12	0.195	64	60	40	14	0.448
31	33	31	25	8-10		49.5	46.5	35	12		66	62	45	14	
32	34	32	25	10		51.0	48.0	35	12		68	64	45	14	
33	35	33	25	10		52.5	49.5	35	12		70	66	45	14	
34	36	34	25	10		54.0	51.0	35	12		72	68	45	14	
35	37	35	25	10		55.5	52.5	35	12		74	70	45	14	
36	38	36	25	10	0.094	57.0	54.0	35	12	0.315	76	72	45	14	0.670
37	39	37	25	10		58.5	55.5	40	12-14		78	74	50	14-16	
38	40	38	25	10	0.098	60.0	57.0	40	12-14	0.348	80	76	50	14-16	0.710
39	41	39	25	10		61.5	58.5	40	12-14		82	78	50	14-16	
40	42	40	25	10	0.108	63.0	60.0	40	12-14	0.355	84	80	50	14-16	0.760
41	43	41	30	10		64.5	61.5	40-50	12-15		86	82	55-60	16	
42	44	42	30	10		66.0	63.0	50	12-15		88	84	55-60	16	
43	45	43	30	10		67.5	64.5	50	12-15		90	86	55-60	16	
44	46	44	30	10		69.0	66.0	50	12-15		92	88	60	16	
45	47	45	30	10	0.145	70.5	67.5	50	12-15	0.445	94	90	60	16	1.072
46	48	46	30	10		72.0	69.0	50	14-15		96	92	60	16	
47	49	47	30	10		73.5	70.5	50	14-15		98	94	60-70	16	
48	50	48	30	10	0.160	75.0	72.0	50	14-15	0.525	100	96	70	16	1.181
49	51	49	30	10		76.5	73.5	50	14-15		102	98	70	16	
50	52	50	30	12	0.185	78.0	75.0	50	14-15	0.560	104	100	70	16	1.351
51	53	51	40	12		79.5	76.5	60	14-15		106	102	70	16-20	
52	54	52	40	12	0.190	81.0	78.0	60	14-15	0.590	108	104	70	16-20	1.433
53	55	53	40	12		82.5	79.5	60	14-15		110	106	70	16-20	
54	56	54	40	12		84.0	81.0	60	14-15		112	108	70	16-20	
55	57	55	40	12		85.5	82.5	60	14-15		114	110	70	16-20	
56	58	56	40	12	0.210	87.0	84.0	60	15-16	0.660	116	112	70	16-20	1.606
57	59	57	40	12		88.5	85.5	60	15-16		118	114	70	16-20	
58	60	58	40	12		90.0	87.0	60	15-16		120	116	70	16-20	
59	61	59	40	12		91.5	88.5	60	15-16		122	118	70	16-20	
60	62	60	40	12	0.260	93.0	90.0	60	15-16	0.815	124	120	70	16-20	1.910
61	63	61	50	12		94.5	91.5	70	16-20		126	122	80	16-20	
62	64	62	50	12		96.0	93.0	70	16-20		128	124	80	16-20	
63	65	63	50	12		97.5	94.5	70	16-20		130	126	80	16-20	
64	66	64	50	12		99.0	96.0	70	16-20		132	128	80	16-20	
65	67	65	50	12		100.5	97.5	70	16-20		134	130	80	16-20	
66	68	66	50	12		102.0	99.0	70	16-20		136	132	80	16-20	
67	69	67	50	12		103.5	100.5	70	16-20		138	134	80	16-20	
68	70	68	50	12		105.0	102.0	70	16-20		140	136	80	16-20	
69	71	69	50	12		106.5	103.5	70	16-20		142	138	80	16-20	
70	72	70	50	12		108.0	105.0	70	16-20		144	140	80	16-20	
72	<b>74</b>	<b>72</b>	<b>12</b>			<b>111.0</b>	<b>108.0</b>	<b>16-20</b>			<b>148</b>	<b>144</b>	<b>16-20</b>		
75	<b>77</b>	<b>75</b>	<b>12</b>			<b>115.5</b>	<b>112.5</b>	<b>16-20</b>			<b>154</b>	<b>150</b>	<b>20</b>		
76	<b>78</b>	<b>76</b>	<b>12</b>	<b>0.274</b>		<b>117.0</b>	<b>114.0</b>	<b>16-20</b>	<b>0.895</b>		<b>156</b>	<b>152</b>	<b>20</b>	<b>2.240</b>	
80	<b>82</b>	<b>80</b>	<b>12</b>	<b>0.298</b>		<b>123.0</b>	<b>120.0</b>	<b>16-20</b>	<b>1.031</b>		<b>164</b>	<b>160</b>	<b>20</b>	<b>2.474</b>	
85	<b>87</b>	<b>85</b>	<b>12</b>			<b>130.5</b>	<b>127.5</b>	<b>16-20</b>			<b>174</b>	<b>170</b>	<b>20</b>		
90	<b>92</b>	<b>90</b>	<b>12</b>			<b>138.0</b>	<b>135.0</b>	<b>16-20</b>			<b>184</b>	<b>180</b>	<b>20</b>		
95	<b>97</b>	<b>95</b>	<b>12</b>	<b>0.430</b>		<b>145.5</b>	<b>142.5</b>	<b>16-20</b>	<b>1.450</b>		<b>194</b>	<b>190</b>	<b>20</b>	<b>3.520</b>	
100	<b>102</b>	<b>100</b>	<b>12</b>			<b>153.0</b>	<b>150.0</b>	<b>16-20</b>			<b>204</b>	<b>200</b>	<b>20</b>		
110	<b>112</b>	<b>110</b>	<b>12</b>			<b>168.0</b>	<b>165.0</b>	<b>16-20</b>			<b>224</b>	<b>220</b>	<b>20</b>		
114	<b>116</b>	<b>114</b>	<b>12</b>			<b>174.0</b>	<b>171.0</b>	<b>16-20</b>			<b>232</b>	<b>228</b>	<b>20</b>		
120	<b>122</b>	<b>120</b>	<b>12</b>	<b>0.675</b>		<b>183.0</b>	<b>180.0</b>	<b>16-20</b>	<b>2.336</b>		<b>244</b>	<b>240</b>	<b>20</b>	<b>5.587</b>	
127	<b>129</b>	<b>127</b>	<b>12</b>			<b>193.5</b>	<b>190.5</b>	<b>16-20</b>			<b>258</b>	<b>254</b>	<b>20</b>		

Note: dimensions with brackets are earlier designs

# Metric Steel Gears



**Type B**  
(Above Bold Horizontal Line)



**Type A**

(Below Bold Horizontal Line)

**Full Width "W"**

Module 1	= 25 mm
Module 1.5	= 30 mm
Module 2	= 35 mm
Module 2.5	= 45 mm
Module 3	= 50 mm
Module 4	= 60 mm
Module 5	= 75 mm
Module 6	= 75 mm
Module 8	= 95 mm

**Tooth Face Width "F"**

Module 1	= 15 mm
Module 1.5	= 17 mm
Module 2	= 20 mm
Module 2.5	= 25 mm
Module 3	= 30 mm
Module 4	= 40 mm
Module 5	= 50 mm
Module 6	= 50 mm
Module 8	= 64 mm

**Circular Pitch**

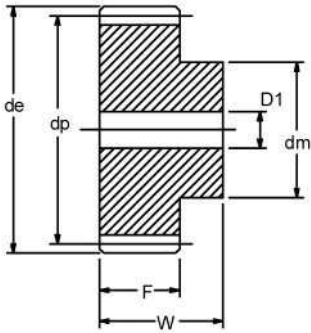
Module 1	= 3.142 mm
Module 1.5	= 4.712 mm
Module 2	= 6.283 mm
Module 2.5	= 7.854 mm
Module 3	= 9.425 mm
Module 4	= 12.566 mm
Module 5	= 15.708 mm
Module 6	= 18.850 mm
Module 8	= 25.13 mm

**Material: AISI C1040**  
**20° pressure angle**  
**D1 = ±1 mm**

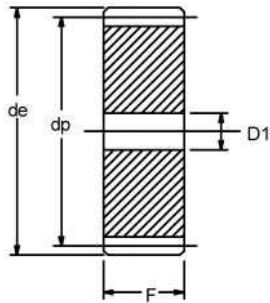
Teeth Z	Module 2.5					Module 3					Module 4				
	de	dp	dm	D1 ±1	kg	de	dp	dm	D1 ±1	kg	de	dp	dm	D1 ±1	kg
12	35.0	30.0	22	10	0.130	42	36	25-27	12	0.217	56	48	35	14-15	0.500
13	37.5	32.5	25	10	0.155	45	39	25-30	12	0.270	60	52	40	14-15	0.605
14	40.0	35.0	28	10	0.190	48	42	25-33	12	0.325	64	56	45	14-15	0.735
15	42.5	37.5	30	10	0.200	51	45	35	12-15	0.375	68	60	45	14-15	0.796
16	45.0	40.0	32	12	0.225	54	48	38	14-15	0.388	72	64	50	15-16	0.992
17	47.5	42.5	35	12	0.280	57	51	42	14-15	0.480	76	68	50	16-20	1.083
18	50.0	45.0	35	12	0.286	60	54	45	14-15	0.500	80	72	50	16-20	1.150
19	52.5	47.5	35	12	0.305	63	57	45	14-15	0.550	84	76	60	16-20	1.263
20	55.0	50.0	40	12-14	0.340	66	60	45	14-15	0.600	88	80	60	16-20	1.383
21	57.5	52.5	40	14	0.432	69	63	45	15-16	0.720	92	84	70	16-20	1.632
22	60.0	55.0	45	14	0.467	72	66	50	15-16	0.775	96	88	70	16-20	1.770
23	62.5	57.5	45	14	0.490	75	69	50	15-16	0.845	100	92	75	20	1.909
24	65.0	60.0	45	14	0.515	78	72	50	16	0.860	104	96	75	20	2.060
25	67.5	62.5	50	14	0.550	81	75	60	16	0.955	108	100	75	20	2.220
26	70.0	65.0	50	14-16		84	78	60	16		112	104	75	20	
27	72.5	67.5	50	14-16		87	81	60	16		116	108	75	20	
28	75.0	70.0	50	14-16	0.735	90	84	60	16	1.344	120	112	75	20	3.000
29	77.5	72.5	50	14-16		93	87	60	16		124	116	75	20	
30	80.0	75.0	55	14-16	0.860	96	90	60	16	1.450	128	120	75	20	3.290
31	82.5	77.5	55	16		99	93	60-70	16-20		132	124	80	20	
32	85.0	80.0	55	16		102	96	70	16-20		136	128	80	20	
33	87.5	82.5	55	16		105	99	70	16-20		140	132	80	20	
34	90.0	85.0	55	16		108	102	70	16-20		144	136	80	20	
35	92.5	87.5	60	16		111	105	70	16-20		148	140	80	20	
36	95.0	90.0	60	16	1.230	114	108	70	20	2.150	152	144	80	25	3.910
37	97.5	92.5	60	16		117	111	70-80	20						
38	100.0	95.0	60	16		120	114	80	20	2.329					
39	102.5	97.5	60	16		123	117	80	20		<b>160</b>	<b>152</b>		<b>25</b>	<b>4.400</b>
40	105.0	100.0	70	16-20	1.378	126	120	80	20	2.680	<b>168</b>	<b>160</b>		<b>25</b>	<b>4.920</b>
41	107.5	102.5	70	16-20		129	123	80-90	20						
42	110.0	105.0	70	16-20		132	126	80-90	20						
43	112.5	107.5	70	16-20		135	129	80-90	20						
44	115.0	110.0	70	16-20		138	132	90	20						
45	117.5	112.5	70	16-20	1.950	141	135	90	20	2.700	<b>188</b>	<b>180</b>		<b>25</b>	<b>6.230</b>
46	120.0	115.0	70	20		144	138	90	20						
47	122.5	117.5	80	20		147	141	90-100	20						
48	125.0	120.0	80	20	2.160	150	144	100	20	3.100	<b>200</b>	<b>192</b>		<b>25</b>	<b>7.050</b>
49	127.5	122.5	80	20											
50	130.0	125.0	80	20	2.400	<b>156</b>	<b>150</b>	<b>20-25</b>	<b>3.364</b>		<b>208</b>	<b>200</b>		<b>25</b>	<b>7.700</b>
51	132.5	127.5	80	20											
52	135.0	130.0	90	20	2.560	<b>162</b>	<b>156</b>	<b>20-25</b>	<b>3.510</b>		<b>216</b>	<b>208</b>		<b>25</b>	<b>8.270</b>
53	137.5	132.5	90	20											
54	140.0	135.0	90	20											
55	142.5	137.5	90	20		<b>171</b>	<b>165</b>	<b>20-25</b>			<b>228</b>	<b>220</b>		<b>25</b>	
56	145.0	140.0	100	20											
57	147.5	142.5	100	20		<b>177</b>	<b>171</b>	<b>20-25</b>			<b>236</b>	<b>228</b>		<b>25</b>	
58	150.0	145.0	100	20											
59	152.5	147.5	100	20											
60	155.0	150.0	100	20	2.900	<b>186</b>	<b>180</b>	<b>20-25</b>	<b>4.840</b>		<b>248</b>	<b>240</b>		<b>25</b>	<b>11.060</b>
61															
62															
63	162.5	157.5	100	20	3.045										
64															
65	<b>167.5</b>	<b>162.5</b>	<b>20</b>			<b>201</b>	<b>195</b>	<b>20-25</b>			<b>268</b>	<b>260</b>		<b>25</b>	
66															
67															
68															
69															
70	<b>180.0</b>	<b>175.0</b>	<b>20</b>			<b>216</b>	<b>210</b>	<b>25</b>			<b>288</b>	<b>280</b>		<b>25</b>	
72	<b>185.0</b>	<b>180.0</b>	<b>20</b>			<b>222</b>	<b>216</b>	<b>25</b>							
75	<b>192.5</b>	<b>187.5</b>	<b>20</b>			<b>231</b>	<b>225</b>	<b>25</b>			<b>308</b>	<b>300</b>		<b>25</b>	
76	<b>195.0</b>	<b>190.0</b>	<b>20</b>	<b>4.363</b>		<b>234</b>	<b>228</b>	<b>25</b>	<b>7.813</b>		<b>312</b>	<b>304</b>		<b>25-30</b>	<b>17.800</b>
80	<b>205.0</b>	<b>200.0</b>	<b>25</b>	<b>4.839</b>		<b>246</b>	<b>240</b>	<b>25</b>	<b>8.600</b>		<b>328</b>	<b>320</b>		<b>25-30</b>	<b>19.800</b>
85	<b>217.5</b>	<b>212.5</b>	<b>25</b>			<b>261</b>	<b>255</b>	<b>25</b>			<b>348</b>	<b>340</b>		<b>25-30</b>	
90	<b>230.0</b>	<b>225.0</b>	<b>25</b>			<b>276</b>	<b>270</b>	<b>25</b>			<b>368</b>	<b>360</b>		<b>25-30</b>	
95	<b>242.5</b>	<b>237.5</b>	<b>25</b>	<b>6.852</b>		<b>291</b>	<b>285</b>	<b>25</b>	<b>12.290</b>		<b>388</b>	<b>380</b>		<b>25-30</b>	<b>28.100</b>
100	<b>255.0</b>	<b>250.0</b>	<b>25</b>			<b>306</b>	<b>300</b>	<b>25</b>			<b>408</b>	<b>400</b>		<b>25-30</b>	
110	<b>280.0</b>	<b>275.0</b>	<b>25</b>			<b>336</b>	<b>330</b>	<b>25</b>			<b>448</b>	<b>440</b>		<b>25-30</b>	
114	<b>290.0</b>	<b>285.0</b>	<b>25</b>			<b>348</b>	<b>342</b>	<b>25-30</b>			<b>464</b>	<b>456</b>		<b>25-30</b>	
120	<b>305.0</b>	<b>300.0</b>	<b>25</b>			<b>366</b>	<b>360</b>	<b>25-30</b>							
127	<b>322.5</b>	<b>317.5</b>	<b>25</b>			<b>387</b>	<b>381</b>	<b>25-30</b>							



# Metric Steel Gears



Type B  
(Above Bold Horizontal Line)



Type A

(Below Bold Horizontal Line)

### Full Width "W"

Module 1	= 25 mm
Module 1.5	= 30 mm
Module 2	= 35 mm
Module 2.5	= 45 mm
Module 3	= 50 mm
Module 4	= 60 mm
Module 5	= 75 mm
Module 6	= 75 mm
Module 8	= 95 mm

### Tooth Face Width "F"

Module 1	= 15 mm
Module 1.5	= 17 mm
Module 2	= 20 mm
Module 2.5	= 25 mm
Module 3	= 30 mm
Module 4	= 40 mm
Module 5	= 50 mm
Module 6	= 50 mm
Module 8	= 64 mm

### Circular Pitch

Module 1	= 3.142 mm
Module 1.5	= 4.712 mm
Module 2	= 6.283 mm
Module 2.5	= 7.854 mm
Module 3	= 9.425 mm
Module 4	= 12.566 mm
Module 5	= 15.708 mm
Module 6	= 18.850 mm
Module 8	= 25.13

Material: AISI C1040  
20° pressure angle  
D1 = ±1 mm

Teeth Z	Module 5					Module 6					Module 8				
	de	dp	dm	D1 ±1	kg	de	dp	dm	D1 ±1	kg	de	dp	dm	D1 ±1	kg
12	70	60	45	16-20	0.99	84	72	54	20	1.70					
13	75	65	50	16-20	1.22	90	78	60	20	2.03					
14	80	70	55	20	1.45										
15	85	75	60	20	1.50	102	90	70	20	2.56	136.0	120.0	80	25	7.24
16	90	80	65	20	1.69	108	96	75	20	3.16					
17	95	85	70	20	2.08										
18	100	90	70	20	2.15	120	108	80	20	3.79					
19	105	95	70	20	2.50										
20	110	100	80	20	2.61	132	120	90	20	4.60	176.0	160.0	100	30	12.80
21	115	105	80	20	3.11										
22	120	110	80	20-25	3.40										
23	125	115	90	20-25	3.74										
24	130	120	90	20-25	3.85	156	144	110	25	6.53					
25	135	125	90	20-25	4.30	162	150	110	25	7.02	216.0	200.0	125	30	21.50
26	140	130	100	20-25	4.40										
27	145	135	100	20-25	4.50										
28	150	140	100	25	4.60	<b>180</b>	<b>168</b>		<b>25</b>	<b>8.00</b>					
29	155	145	100-110	25	4.90										
30	160	150	100-110	25	5.25	<b>192</b>	<b>180</b>		<b>25</b>	<b>9.23</b>	<b>256.0</b>	<b>240</b>		<b>30</b>	<b>39.00</b>
31															
32	<b>170</b>	<b>160</b>		<b>25</b>		<b>204</b>	<b>192</b>		<b>25</b>	<b>12.23</b>					
33															
34															
35	<b>185</b>	<b>175</b>		<b>25</b>		<b>222</b>	<b>210</b>		<b>25</b>	<b>16.61</b>					
36															
37															
38	<b>200</b>	<b>190</b>		<b>25-30</b>	<b>8.50</b>	<b>240</b>	<b>228</b>		<b>25</b>	<b>14.80</b>					
39															
40	<b>210</b>	<b>200</b>		<b>25-30</b>	<b>9.58</b>	<b>252</b>	<b>240</b>		<b>25</b>	<b>16.61</b>	<b>336</b>	<b>320</b>		<b>40</b>	<b>52.50</b>
41															
42															
43															
44															
45	<b>235</b>	<b>225</b>		<b>25-30</b>	<b>12.10</b>										
46															
47															
48	<b>250</b>	<b>240</b>		<b>25-30</b>	<b>13.60</b>										
49															
50	<b>260</b>	<b>250</b>		<b>30</b>	<b>15.00</b>										
51															
52	<b>270</b>	<b>260</b>		<b>30</b>	<b>16.40</b>										
53															
54															
55	<b>285</b>	<b>275</b>		<b>30</b>											
56															
57	<b>295</b>	<b>285</b>		<b>30</b>											
58															
59															
60	<b>310</b>	<b>300</b>		<b>30</b>	<b>21.60</b>						<b>496</b>	<b>480</b>		<b>50</b>	<b>72.50</b>
61															
62															
63															
64															
65	<b>335</b>	<b>325</b>		<b>30</b>											
66															
67															
68															
69															
70	<b>360</b>	<b>350</b>		<b>30</b>											
71															
72															
75	<b>385</b>	<b>375</b>		<b>30</b>											
76	<b>390</b>	<b>380</b>		<b>30</b>											
80	<b>410</b>	<b>400</b>		<b>30</b>	<b>39.00</b>										
85	<b>435</b>	<b>425</b>		<b>30</b>											
90	<b>460</b>	<b>450</b>		<b>30</b>											
95	<b>485</b>	<b>475</b>		<b>30</b>	<b>55.00</b>										
100	<b>510</b>	<b>500</b>		<b>30</b>											
110	<b>560</b>	<b>550</b>		<b>30</b>											
114	<b>580</b>	<b>570</b>		<b>30</b>											
120															
127															