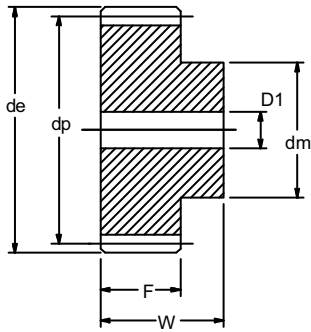




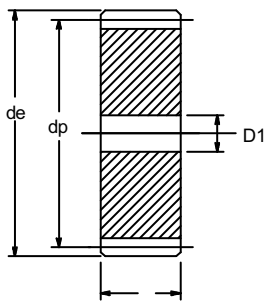


# Metric Steel Gears



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

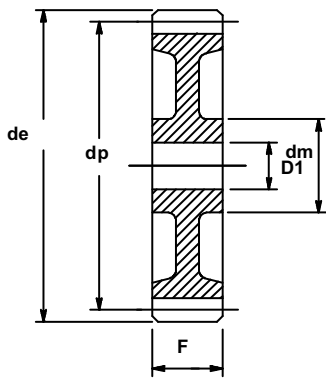
Material: AISI C1040  
20° pressure angle  
D1 = ±1 mm

Teeth Z	Module 5					Module 6					Module 8				
	de	dp	dm	D1	kg	de	dp	dm	D1	kg	de	dp	dm	D1	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															

## Formulas

**OD = (no. teeth + 2 X Mod)**

**Mod = (no. teeth + 2) / OD**



# Metric Cast Iron Gears

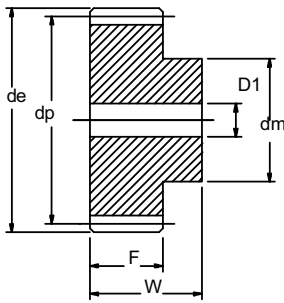
## 20° Pressure Angle

### DIN 782

#### Material: Cast Iron GG22 (ASTM A159)

Part No.	Module	Teeth	Tooth Face F	Outside Ø de	Pitch Ø dp	Approx. Hub Ø dm	Approx. Bore Ø D1 ±1 mm
CM2A50	2	50	20	104	100	40	15
CM2A60	2	60	20	124	120	40	15
CM2A76	2	76	20	156	152	-	20
CM2A80	2	80	20	164	160	70	20
CM2A95	2	95	20	194	190	80	20
CM2A100	2	100	20	204	200	80	20
CM2A114	2	114	20	232	228	90	20
CM2.5A45	2.5	45	25	117.5	112.5	50	18
CM2.5A50	2.5	50	25	130.0	125.0	50	18
CM3A45	3	45	30	141	135	50	20
CM3A50	3	50	30	156	150	80	20
CM3A60	3	60	30	186	180	80	25
CM3A76	3	76	30	234	228	90	25
CM3A95	3	95	30	291	285	100	25
CM3A100	3	100	30	306	300	100	25
CM3A114	3	114	30	348	342	100	25
CM3.5A35	3.5	35	35	129.5	122.5	60	20
CM3.5A40	3.5	40	35	147.0	140.0	60	20
CM3.5A45	3.5	45	35	163.5	157.5	60	20
CM3.5A50	3.5	50	35	182	175.0	60	20
CM4A30	4	30	40	128	120	70	25
CM4A35	4	35	40	148	140	70	25
CM4A38	4	38	40	160	152	80	25
CM4A40	4	40	40	168	160	80	25
CM4A45	4	45	40	188	180	70	25
CM4A50	4	50	40	208	200	90	25
CM4A60	4	60	40	248	240	90	25
CM4A76	4	76	40	312	304	100	25
CM4A80	4	80	40	328	320	100	25
CM4A95	4	95	40	388	320	100	25
CM4A100	4	100	40	408	400	100	25
CM4A114	4	114	40	464	456	110	25
CM4.5A30	4.5	30	45	144.0	135.0	70	25
CM4.5A35	4.5	35	45	166.5	157.5	70	25
CM4.5A40	4.5	40	45	189.0	180.0	70	25
CM4.5A45	4.5	45	45	211.5	202.5	70	25
CM4.5A50	4.5	50	45	234.0	225.0	70	25
CM5A30	5	30	50	160	150	80	30
CM5A35	5	35	50	185	175	80	30
CM5A38	5	38	50	200	190	100	25
CM5A40	5	40	50	210	200	100	25
CM5A50	5	50	50	260	250	100	30
CM5A60	5	60	50	310	300	110	30
CM5A80	5	80	50	410	400	130	30
CM5A95	5	95	50	485	475	130	30

Note: "A" type gears without hub



# Metric Induction Hardened Gears

20° Pressure Angle

DIN 782

Material: Steel 1.0503 (C45) AISI 1045

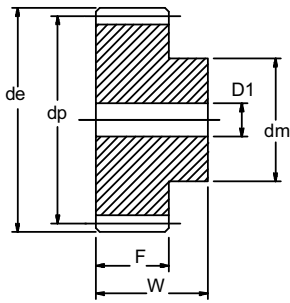
Standard Wide Face

**Induction Hardened Teeth HRC 40-50**

## Spur Gears

Part No.	Module	Teeth	Tooth Face F	Width W	Outside Ø de	Pitch Ø dp	Hub Ø dm	Bore Ø D1 ±1 mm	Weight kg
HTM1B15	1	15	15	25	17.0	15.0	12	5	0.016
HTM1B20	1	20	15	25	22.0	20.0	16	6	0.027
HTM1B25	1	25	15	25	27.0	25.0	20	6	0.045
HTM1B30	1	30	15	25	32.0	30.0	20	8	0.059
HTM1B40	1	40	15	25	42.0	40.0	25	8	0.108
HTM1B60	1	60	15	25	62.0	60.0	40	10	0.260
HTM1.5B15	1.5	15	17	30	25.5	22.5	18	6	0.057
HTM1.5B20	1.5	20	17	30	33.0	30.0	25	8	0.097
HTM1.5B25	1.5	25	17	30	40.5	37.5	25	8	0.142
HTM1.5B30	1.5	30	17	30	48.0	45.0	30	10	0.195
HTM1.5B40	1.5	40	17	30	63.0	60.0	40	10	0.355
HTM1.5B60	1.5	60	17	30	93.0	90.0	60	12	0.815
HTM2B15	2	15	20	35	34.0	30.0	24	8	0.118
HTM2B20	2	20	20	35	44.0	40.0	30	10	0.195
HTM2B25	2	25	20	35	54.0	50.0	35	10	0.285
HTM2B30	2	30	20	35	64.0	60.0	40	12	0.448
HTM2B40	2	40	20	35	84.0	80.0	50	12	0.760
HTM2B60	2	60	20	35	124.0	120.0	70	15	1.910
HTM2.5B15	2.5	15	25	45	42.5	37.5	30	10	0.200
HTM2.5B20	2.5	20	25	45	55.0	50.0	40	12	0.340
HTM2.5B25	2.5	25	25	45	67.5	62.5	50	12	0.550
HTM2.5B30	2.5	30	25	45	80.0	75.0	55	15	0.860
HTM2.5B40	2.5	40	25	45	105.0	100.0	70	15	1.500
HTM2.5B60	2.5	60	25	45	155.0	150.0	100	20	3.410
HTM3B15	3	15	30	50	51.0	45.0	35	12	0.375
HTM3B20	3	20	30	50	66.0	60.0	45	15	0.600
HTM3B25	3	25	30	50	81.0	75.0	60	15	0.955
HTM3B30	3	30	30	50	96.0	90.0	60	20	1.450
HTM3B40	3	40	30	50	126.0	120.0	80	20	2.680
HTM3A60	3	60	30	-	186.0	180.0	-	25	4.840
HTM4B15	4	15	40	60	68.0	60.0	45	15	0.796
HTM4B20	4	20	40	60	88.0	80.0	60	20	1.383
HTM4B25	4	25	40	60	108.0	100.0	75	20	2.220
HTM4B30	4	30	40	60	128.0	120.0	75	25	3.290
HTM4A40	4	40	40	-	168.0	160.0	-	25	4.920
HTM4A60	4	60	40	-	248.0	240.0	-	30	11.060
HTM5B15	5	15	50	75	85.0	75.0	60	20	1.50
HTM5B20	5	20	50	75	110.0	100.0	80	25	2.61
HTM5B25	5	25	50	75	135.0	125.0	90	25	4.30
HTM5A30	5	30	50	-	160.0	150.0	-	30	5.25
HTM5A40	5	40	50	-	210.0	200.0	-	30	9.58
HTM5A60	5	60	50	-	310.0	300.0	-	40	21.60
						90.0	-	25	2.56
HTM6B15	6	15	50	75	102.0	-	-	-	-
HTM6B20	6	20	50	75	132.0	120.0	70	25	4.60
HTM6B25	6	25	50	75	162.0	150.0	90	30	7.02
HTM6A30	6	30	50	-	192.0	180.0	-	30	9.23
HTM6A40	6	40	50	-	252.0	240.0	-	30	16.61
HTM6A60	6	60	50	-	372.0	360.0	-	40	37.70
HTM8B15	8	15	64	95	136.0	120.0	80	25	7.24
HTM8B20	8	20	64	95	176.0	160.0	100	30	12.80
HTM8B25	8	25	64	95	216.0	200.0	125	30	21.50
HTM8A30	8	30	64	-	256.0	240.0	-	30	39.00
HTM8A40	8	40	64	-	336.0	320.0	-	40	52.50
HTM8A60	8	60	64	-	496.0	480.0	-	50	72.50

Note: "A" type gears with out hub



# Metric Induction Hardened Gears

20° Pressure Angle

DIN 782

Material: Steel 1.0503 (C45) AISI 1045

Special Narrow Face

Induction Hardened Teeth HRC 40-50

## Spur Gears

Part No.	Module	Teeth	Tooth Face F	Width W	Outside Ø de	Pitch Ø dp	Hub Ø dm	Bore Ø D1 ±1 mm	Weight kg
HTM1B15F8	1	15	8	18	17.0	15.0	12	5	0.016
HTM1B20F8	1	20	8	18	22.0	20.0	15	6	0.027
HTM1B25F8	1	25	8	18	27.0	25.0	18	6	0.045
HTM1B30F8	1	30	8	18	32.0	30.0	20	8	0.059
HTM1B40F8	1	40	8	18	42.0	40.0	25	8	0.108
HTM1B60F8	1	60	8	18	62.0	60.0	40	10	0.260
HTM1.5B15F12	1.5	15	12	25	25.5	22.5	18	6	0.057
HTM1.5B20F12	1.5	20	12	25	33.0	30.0	20	8	0.097
HTM1.5B25F12	1.5	25	12	25	40.5	37.5	25	8	0.142
HTM1.5B30F12	1.5	30	12	25	48.0	45.0	30	10	0.195
HTM1.5B40F12	1.5	40	12	25	63.0	60.0	40	10	0.355
HTM1.5B60F12	1.5	60	12	25	93.0	90.0	60	12	0.815
HTM2B15F16	2	15	16	30	34.0	30.0	24	8	0.118
HTM2B20F16	2	20	16	30	44.0	40.0	28	10	0.195
HTM2B25F16	2	25	16	30	54.0	50.0	30	10	0.285
HTM2B30F16	2	30	16	30	64.0	60.0	40	12	0.448
HTM2B40F16	2	40	16	30	84.0	80.0	50	12	0.760
HTM2B60F16	2	60	16	30	124.0	120.0	80	15	1.910
HTM2.5B15F20	2.5	15	20	35	42.5	37.5	25	10	0.200
HTM2.5B20F20	2.5	20	20	35	55.0	50.0	30	12	0.340
HTM2.5B25F20	2.5	25	20	35	67.5	62.5	40	12	0.550
HTM2.5B30F20	2.5	30	20	35	80.0	75.0	50	15	0.860
HTM2.5B40F20	2.5	40	20	35	105.0	100.0	60	15	1.500
HTM2.5B60F20	2.5	60	20	35	155.0	150.0	90	20	3.410
HTM3B15F25	3	15	25	40	51.0	45.0	30	12	0.375
HTM3B20F25	3	20	25	40	66.0	60.0	40	15	0.600
HTM3B25F25	3	25	25	40	81.0	75.0	50	15	0.955
HTM3B30F25	3	30	25	40	96.0	90.0	60	20	1.450
HTM3B40F25	3	40	25	40	126.0	120.0	80	20	2.680
HTM3A60F25	3	60	25	-	186.0	180.0	-	25	4.840
HTM4B15F32	4	15	32	50	68.0	60.0	45	15	0.796
HTM4B20F32	4	20	32	50	88.0	80.0	50	20	1.383
HTM4B25F32	4	25	32	50	108.0	100.0	60	20	2.220
HTM4B30F32	4	30	32	50	128.0	120.0	80	25	3.290
HTM4A40F32	4	40	32	-	168.0	160.0	-	25	4.920
HTM4A60F32	4	60	32	-	248.0	240.0	-	30	11.060
HTM5B15F40	5	15	40	60	85.0	75.0	50	20	1.50
HTM5B20F40	5	20	40	60	110.0	100.0	70	25	2.61
HTM5B25F40	5	25	40	60	135.0	125.0	80	25	4.30
HTM5A30F40	5	30	40	-	160.0	150.0	-	30	5.25
HTM5A40F40	5	40	40	-	210.0	200.0	-	30	9.58
HTM5A60F40	5	60	40	-	310.0	300.0	-	40	21.60
HTM6B15F48	6	15	48	70	102.0	90.0	60	25	2.56
HTM6B20F48	6	20	48	70	132.0	120.0	70	25	4.60
HTM6B25F48	6	25	48	70	162.0	150.0	80	30	7.02
HTM6A30F48	6	30	48	-	192.0	180.0	-	30	9.23
HTM6A40F48	6	40	48	-	252.0	240.0	-	30	16.61
HTM6A60F48	6	60	48	-	372.0	360.0	-	40	37.70
HTM8B15F64	8	15	64	95	136.0	120.0	80	25	7.24
HTM8B20F64	8	20	64	95	176.0	160.0	100	30	12.80
HTM8B25F64	8	25	64	95	216.0	200.0	125	30	21.50
HTM8A30F64	8	30	64	-	256.0	240.0	-	30	39.00
HTM8A40F64	8	40	64	-	336.0	320.0	-	40	52.50
HTM8A60F64	8	60	64	-	496.0	480.0	-	50	72.50

Note: "A" type gears with out hub Part No. Example: HTM3B15F25

HT = Hardened Teeth 15 = Teeth  
M3 = 3 Module F25 = 25mm Tooth Face  
B = with HVB

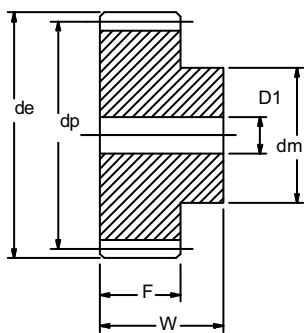


# Metric Nylon Gears

20° Pressure Angle

DIN 782

Material: Nylon P 6.6



## Spur Gears

Part No.	Module	Teeth	Tooth Face F	Width W	Outside Ø de	Pitch Ø dp	Hub Ø dm	Bore Ø D1 ±1 mm	Weight kg
NM1B15	1	15	8	18	17.0	15.0	12	5	0.002
NM1B16	1	16	8	18	18.0	16.0	12	5	0.002
NM1B18	1	18	8	18	20.0	18.0	15	6	0.003
NM1B20	1	20	8	18	22.0	20.0	15	6	0.004
NM1B24	1	24	8	18	26.0	24.0	18	6	0.006
NM1B25	1	25	8	18	27.0	25.0	18	6	0.006
NM1.5B15	1.5	15	12	25	25.5	22.5	18	6	0.057
NM1.5B16	1.5	16	12	25	27.0	24.0	18	6	0.060
NM1.5B18	1.5	18	12	25	30.0	27.0	20	8	0.073
NM1.5B20	1.5	20	12	25	33.0	30.0	20	8	0.097
NM1.5B24	1.5	24	12	25	39.0	36.0	25	8	0.135
NM1.5B25	1.5	25	12	25	40.5	37.5	25	8	0.142
NM2B15	2	15	16	30	34.0	30.0	24	8	0.118
NM2B16	2	16	16	30	36.0	32.0	25	8	0.134
NM2B18	2	18	16	30	40.0	36.0	28	10	0.166
NM2B20	2	20	16	30	44.0	40.0	28	10	0.195
NM2B24	2	24	16	30	52.0	48.0	30	10	0.272
NM2B25	2	25	16	30	54.0	50.0	30	10	0.285
NM2.5B15	2.5	15	20	35	42.5	37.5	25	10	0.200
NM2.5B16	2.5	16	20	35	45.0	40.0	25	10	0.225
NM2.5B18	2.5	18	20	35	50.0	45.0	30	12	0.286
NM2.5B20	2.5	20	20	35	55.0	50.0	30	12	0.340
NM2.5B24	2.5	24	20	35	65.0	60.0	40	12	0.515
NM2.5B25	2.5	25	20	35	67.5	62.5	40	12	0.550

