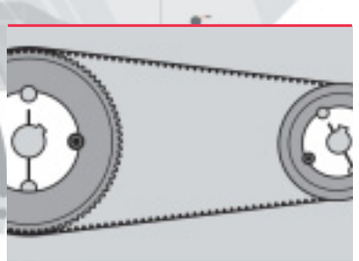
Timing Belts Index



Catalogue Selection INDEX

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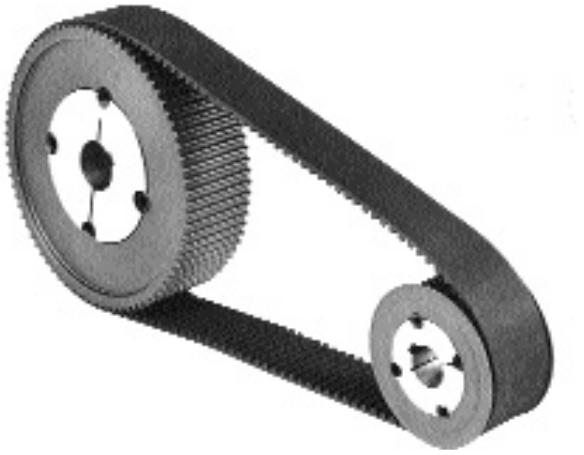
CROSS+MORSE

Power Transmission Solutions

Timing Belt Drives

Cross+Morse Timing Belt Drives take their place in industry as a highly efficient, job proven medium for mechanical power transmission. Because these drives combine many important exclusive characteristics, they present an entirely different concept in the transmission of power. They are highly versatile in application and speed range.
Timing belt drives are positive and offer accurate synchronisation of speed, and often make possible worthwhile economies in the design of a machine, because they require less space, reduce bearing specification, eliminate tension devices, yet assure an unusually high degree of efficiency.
Virtually every industry has tested and approved timing belt drives. They have been adopted as standard equipment by a wide variety of machine builders and equipment manufacturers. Millions of successful drives in operation without belt replacement for more than five years bear testimony to these drives. Cross+Morse offer three types of timing belt drive to cover the full spectrum of industrial requirements.



The Classical Timing Belt Drives

These are the original tooth belt drives, introduced for the transmission of low torque instrumentation drives more than forty years ago, and since developed and adopted for millions of drive applications. Eight different pitch configurations were produced, but later belt designs have eliminated the demand for all but three sizes. Cross+Morse offer complete drives to 1/5″ (XL), 3/8″ (L), and 1/2″ (H) pitch sizes with both pilot bored and taper bored pulleys. Drives to other configurations can be supplied to order.
The Classical Timing Belt is the ideal low cost drive for powers up to 25 KW with a wide range of both belts and pulleys available from stock. Double sided belts and open ended belts can also be supplied.

The Metric Series Belt Drives

Demands for ever increasing powers and speeds led to the introduction of a Metric Series of High Torque Drive Belts, using a parabolic tooth profile to enable increased tooth contact between belt and pulley. The new tooth profile has improved shear stress resistance, increased power capacity, and reduced noise levels. Pirelli introduced the RPP belt with an indentation at the top of the teeth, to allow local elastic deformation during meshing with pulley, and easier air discharge to further reduce noise levels. Cross+Morse combine RPP belts with std. Metric pulleys to provide off-shelf drives in 4 pitches; 3mm (3M), 5mm (5M), 8mm (8M), and 14mm (14M). Further development created RPP Plus Belts in 8mm (8H) and 14mm (14H) pitch with double power capacity; and RPP Gold Belts in 8mm (8P) and 14mm (14P) pitch with treble capacity; both still operating on standard metric pulleys allowing full interchangeability with existing drives. Drives up to 600 KW can now be transmitted.

Polyurethane Timing Belts

These belts use steel tension cord encased in a polyurethane jacket with integral teeth. The method of manufacture ensures tight control of pitch length for applications where accurate positioning is required. Polyurethane is a non-crumbling, non-marking material with excellent resistance to mineral oils, greases and light acidic solutions making it an ideal material for food applications, on cigarette manufacturing machines and paper transporting systems. Polyurethane belt drives are available in 3 pitch sizes, 2.5mm (T2.5), 5mm (T5) and 10mm (T10), with a selection of pilot bore pulleys.
Double sided belts and long open end belt lengths are also available. For reciprocating drives clamping plates are available to retain the belts.
A new range of PU belts to operate on standard Metric pulleys is available in 5mm, 8mm and 14mm pitch in open end construction for high load reciprocating drives (ref. pp 24-26).

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Timing Belt Drive Selection

In order to select a Timing Belt Drive it is first necessary to compile together all the relevant design parameters, to include:-

a. Type of driver, shaft speed, and power to be transmitted.
b. Type of driven machinery, shaft speed or drive ratio.
c. Approximate shaft centre distance required.
d. Number of hours daily, drive will be used, and any special operating conditions (temperature, abrasive dust, etc.).
e. Shaft diameters and any space restrictions affecting pulley diameters or widths.

With this information a suitable drive can be selected by the selection procedure in conjunction with the following guidelines:

a. Power transmission capabilities are always related to the smallest pulley in the system, regardless of whether it is the driving or driven pulley.
b. Where there is a choice of pulley combination for a given drive consideration should be given to the following:-
   1. Larger pulleys reduce amount of belt flexing and therefore improve belt life.
   2. Larger pulleys often enable use of narrower belts.
   3. Large pulleys can be more expensive.
c. There must be at least one flanged pulley in the drive, and where centre distance is more than 8 times the diameter of the smaller pulley, both pulleys should be flanged.
d. If shaft centre adjustment is inadequate to correctly tension the belt, an idler pulley will be required. It is preferred to run idlers on the back of the belt, when a ground back belt should be used.
e. Cast Iron pulleys must not be used on drives where belt speeds exceed 30 metres per second.

Selection Procedure

1. Drive Ratio

Where not known this can be obtained by dividing the speed of the faster shaft by the speed of the slower shaft. Note if the driven shaft is faster this is a Speed Increasing Drive.

2. Calculate the Design Power

The design Power Pd is determined by multiplying the transmitted motor power P by the application factors f_1, f_2, f_3 and f_4 as applicable.

$Pd = P(f_1 + f_3 - f_4) f_2$

Application Factor f_1 - *Service Factor*- relates the type of driver and driven equipment to the daily useage, refer Table 1.

Application Factor f_2 - *Speed Increasing Drives* - refer Table 2 for factor relevant to respective speed increase ratio.

Application Factor f_3 - If an idler is used add 0.2.

Application Factor f_4 - If machinery only used intermittently or seasonally deduct 0.2 from service factor.

3. Select Belt Pitch

Applying the calculated Design Power and the speed of the smallest pulley to the graphs on pages 5-6 to select suitable belt pitch for the application. Using this pitch of belt should provide a well proportioned drive, but where space limitations apply, another pitch of belt may be required. Both Metric (HTD) and Classical Belt Drives are available for selection. Generally HTD Belts provide a more compact, quieter drive, and are preferred for new applications, however classical belts offer a wider selection of drive ratios with std. pulleys, and for one-off drives often a lower cost.

4. Pulley Selection

Refer to Standard Drive Ratios - Table 3 and select a suitable combination of pulleys to provide the correct drive ratio. For economic and availability reasons it is preferable to use pulleys of maximum 80 teeth, and to minimise belt fatigue a minimum of 20 Teeth (28 Teeth 14M drives).
From the appropriate pulley dimension tables confirm that pulley sizes selected are available and will accommodate shaft diameters and not exceed space limitations.

5. Determine Belt Length and Centre Distance

Having selected belt size (pitch), numbers of teeth in pulleys, and knowing approximate shaft centres one can select belt length and calculate actual centre distance.

a. *Determine Belt Length*
For drives with pulleys of equal numbers of teeth.
Calculate Number Teeth in Belt $Nc = 2.\frac{Ao}{P} + Z1$

For drives with pulleys of dissimilar numbers of teeth.
Calculate Number Teeth in Belt

$$Nc = \frac{2.Ao}{P} + \frac{(Z_1 + Z_2)}{2} + \frac{2.533p\,(Z2 - Z1)^2}{100Ao}$$

Where Ao = Approximate Centre Distance mm
p = Belt Pitch mm
Z_1 = Number Teeth Small Pulley
Z_2 = Number Teeth Large Pulley

Note: Nc must always be greater than 0.9 ($Z_1 + Z_2$)
Refer to standard Belt Tables (pages 12/13 Metric Drives, page 28-29 Classical) and select nearest belt length to numbers of teeth calculated.

b. Determine Actual Shaft Centres
The actual centre distance A can then be determined from the following formula where N_A is number of teeth in belt selected.

$$A = p/4\left(N_A - \frac{Z_1 + Z_2}{2} + \sqrt{\left(N_A - \frac{Z_1 + Z_2}{2}\right)^2 - \frac{2.027\,(Z_2 - Z_i)^2}{10}}\right)$$

This will provide a reasonably accurate result but for fixed centre drives please contact Cross+Morse Engineering.

6. Factors to correct for Teeth in Mesh and Belt Length

a. *Teeth in mesh factor* f_5

Applicable only on drives with pulleys less than 18 teeth or drive ratio greater than 3: 1. For a belt to transmit full power a minimum of 6 teeth must be in mesh on each pulley. The number of teeth in mesh can determined from the following formula:

$$\text{Number Teeth in Mesh (TIM)} = Z_1\left[\frac{0.5 - (Z_2 - Z_1)p}{18.85A}\right]$$

The Design Power Pd must be multiplied by factor f_5 taken from table 2a.

b. *Belt Length Correction factor* - f_6
To allow for variation in rates of loading a belt length factor f_6 is applied to the Design Power Pd for final selection power Ps. The factors, provided in table 4, only apply to HTD drives, for Classical timing belt drives $f_6 = 1$. Thus:-

Selection Power $Ps = Pd \,.\, f_5 \,.\, f_6$

7. Belt Width Selection

Having determined Selection Power Ps, and knowing the size of small pulley and relative shaft speed use the Rating Tables on pages 7-9 to determine Rated Power Pr. which is where appropriate columns for pulley size and shaft speed intersect in table for selected belt size. If a column for the actual shaft speed is not available use the next lower speed available, and if shaft speed is below 100r.p.m. use column for 100 r.p.m., but multiply power read off by actual shaft speed divided by 100. A belt width factor Wf can then be determined by dividing the Selection Power Ps by the Rated Power Pr.

$$Wf = \frac{Ps}{Pr}$$

From the table immediately above the relevant Power Rating Table select the belt width which has a width factor equal or greater than the value calculated for Wf.

8. Confirmation of Drive

Refer to pulley tables 15-22 (HTD Drives) or 30-34 (Classical Belts) to confirm that pulley sizes (numbers of teeth and width) are available, and capable of accommodating shaft sizes, and that at least one pulley is of flanged construction. If belt speed exceeds 30m/s ensure no cast iron pulleys used; also pulleys should be balanced.
Ensure that calculated centre A can be accommodated with adjustment to correctly tension belt on assembly, and to enable belt to be fitted over pulley flanges if applicable, refer to page 10.

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Timing Belt Drives Selection

Table 1 - Service Factors - f1

DRIVEN MACHINE (LOAD)		TYPES OF DRIVER					
		'SOFT STARTS'			'HEAVY STARTS'		
The machines listed below are representative examples only. Select the class whose load characteristics most closely approximate those of the machine being used. For drives with heavy pulsating or high shock loads, consult Cross+Morse.		Electric Motor AC - Star Delta start DC - Shunt Wound Internal Combustion Engines and other prime moves fitted with Centrifugal Clutches. Dry or Fluid Couplings or Electronic Soft Start Start Devices.			Electric Motor AC - Direct-on-Line start DC - Series and Compound Wound Hydraulic Motors Internal Combustion Engines with Mechanical Drive Prime movers not fitted with soft start devices		
Load Type	Typical Machinery	Operating Hours per Day			Operating Hours per Day		
		under 10	10-16	Over 16	under 10	10-16	Over 16
Smooth	Business Equipment. Light Domestic Machinery, Tachometers, Camera and Radar Equipment	1.0	1.2	1.4	1.2	1.6	1.8
Light Shock	Liquid Agitators, Centrifugal Pumps and Compressors, Uniformly Loaded Belt Conveyors, Fans up to 7½ kW, Calenders. Rotary Screens, Dryers, Exhausters, Woodworking Machinery.	1.3	1.4	1.6	1.6	1.8	2.0
Medium Shock	Mixers, Belt Conveyors. Fans over 7½ kW, Generators, Vibrating Screens, Augers, Granulators, Laundry and Printing Machinery, Machine Tools.	1.5	1.7	1.9	1.9	2.0	2.2
High Shock	Bucket, Pan and Screw Conveyors, Reciprocating Pumps and Compressors, Exciters, Paper and Textile Machinery.	1.7	1.9	2.0	2.0	2.2	2.3
Heavy Shock	Mills, Crushers, Hoists, Dredge Pumps, Brickwork and Rubber Machinery, Oil Field Equipment.	1.9	2.0	2.1	2.2	2.3	2.4

Table 2 - Speed Increase Factor - f2

Speed Increase Drive Ratio	1.00 to 1.24	1.25 to 1.74	1.75 to 2.49	2.50 to 3.49	3.50 and above
Factor f2	1.00	1.06	1.12	1.18	1.25

Table 2a - Teeth in mesh Factor - f5

TIM	6+	5 - 6	4 - 5	3 - 4	below 3
f5	1.00	1.25	1.65	2.5	5.0

Table 3 - Drive Ratios with Standard Pulleys

NO. Teeth on Large - Driven Pulley	Number Teeth on Small Driver Pulley																				
	10	12	13*	14	15	16	17*	18	19	20	21	22	24	26	28	30	32	34	36	38	40
12	1.20	1.00																			
13*	1.30	1.08	1.00																		
14	1.40	1.17	1.08	1.00																	
15	1.50	1.25	1.15	1.07	1.00																
16	1.60	1.33	1.23	1.14	1.07	1.00															
17*	1.70	1.42	1.31	1.21	1.13	1.06	1.00										*13 & 17 Tooth Pulleys available				
18	1.80	1.50	1.38	1.29	1.20	1.13	1.06	1.00									'L' Series Pulleys only				
19	1.90	1.58	1.46	1.36	1.27	1.19	1.12	1.06	1.00												
20	2.00	1.67	1.54	1.43	1.33	1.25	1.18	1.11	1.05	1.00											
21	2.10	1.75	1.61	1.50	1.40	1.31	1.23	1.17	1.10	1.05	1.00										
22	2.20	1.83	1.69	1.57	1.47	1.38	1.29	1.22	1.16	1.10	1.05	1.00									
24	2.40	2.00	1.85	1.71	1.60	1.50	1.41	1.33	1.26	1.20	1.14	1.09	1.00								
26	2.60	2.17	2.00	1.86	1.73	1.63	1.53	1.44	1.37	1.30	1.24	1.18	1.08	1.00							
28	2.80	2.33	2.15	2.00	1.87	1.75	1.65	1.56	1.48	1.40	1.33	1.27	1.16	1.08	1.00						
30	3.00	2.50	2.31	2.14	2.00	1.88	1.76	1.67	1.58	1.50	1.43	1.36	1.25	1.15	1.07	1.00					
32	3.20	2.67	2.46	2.29	2.13	2.00	1.88	1.77	1.68	1.60	1.52	1.45	1.33	1.23	1.14	1.07	1.00				
34	–	–	–	–	–	–	–	–	–	–	–	1.55	1.42	1.31	1.21	1.13	1.06	1.00			
36	3.60	3.00	2.77	2.57	2.40	2.25	2.12	2.00	1.89	1.80	1.71	1.64	1.50	1.38	1.29	1.20	1.12	1.06	1.00		
38	–	–	–	–	–	–	–	–	–	–	–	1.73	1.58	1.46	1.36	1.27	1.19	1.12	1.06	1.00	
40	4.00	3.33	3.08	2.86	2.67	2.50	2.35	2.22	2.11	2.00	1.90	1.82	1.67	1.54	1.43	1.33	1.25	1.18	1.11	1.05	1.00
44	4.40	3.67	3.38	3.14	2.93	2.75	2.59	2.44	2.32	2.20	2.10	2.00	1.83	1.69	1.57	1.47	1.37	1.29	1.22	1.16	1.10
48	4.80	4.00	3.69	3.43	3.20	3.00	2.82	2.67	2.53	2.40	2.29	2.18	2.00	1.85	1.71	1.60	1.50	1.41	1.33	1.26	1.20
56	–	–	–	–	–	–	–	–	–	–	–	2.55	2.33	2.15	2.00	1.87	1.75	1.65	1.56	1.47	1.40
60	6.00	5.00	4.61	4.29	4.00	3.75	3.53	3.33	3.16	3.00	2.86	2.73	2.50	2.31	2.14	2.00	1.87	–	1.67	1.58	1.50
64	–	–	–	–	–	–	–	–	–	–	–	2.91	2.67	2.46	2.29	2.13	2.00	1.88	1.78	1.68	1.60
72	7.20	6.00	5.54	5.14	4.80	4.50	4.24	4.00	3.79	3.60	3.43	3.27	3.00	2.77	2.57	2.40	2.25	2.12	2.00	1.89	1.80
80	–	–	–	–	–	–	–	–	–	–	–	3.64	3.33	3.08	2.86	2.67	2.50	2.35	2.22	2.11	2.00
84	8.40	7.00	6.46	6.00	5.60	5.25	4.94	4.67	4.42	4.20	4.00	3.82	3.50	3.23	3.00	2.80	2.62	–	2.33	–	2.10
90	–	–	–	–	–	–	–	–	–	–	–	4.09	3.75	3.46	3.21	3.00	2.81	2.65	2.50	2.37	2.25
96	9.60	8.00	–	6.86	6.40	6.00	–	5.33	5.05	4.80	4.57	4.36	4.00	3.69	3.43	3.20	3.00	–	2.67	–	2.40
112	–	–	–	–	–	–	–	–	–	–	–	5.09	4.67	4.31	4.00	3.73	3.50	3.29	3.11	2.95	2.80
144	–	–	–	–	–	–	–	–	–	–	–	6.55	6.00	5.54	5.14	4.80	4.50	4.23	4.00	3.79	3.60
168	–	–	–	–	–	–	–	–	–	–	–	7.64	7.00	6.46	6.00	5.60	5.25	4.94	4.67	4.42	4.20
192	–	–	–	–	–	–	–	–	–	–	–	8.73	8.00	7.38	6.86	6.40	6.00	5.65	5.33	5.05	4.80

Table 4 - Belt Length Factor - f6 - HTD Drives

Belt Size Pitch	Belt Length mm						
3M 5M 8M 14M	up to 190 up to 440 up to 630 up to 1350	191- 260 441- 550 631- 900 1351- 1770	1771-2050	261- 400 551- 800 901- 1270 2051- 2500	2501-3400	401- 600 801- 1100 1271- 1790 3401+	601+ 1101+ 1791+
Factor f6	1.25	1.11	1.05	1.0	0.95	0.90	0.85

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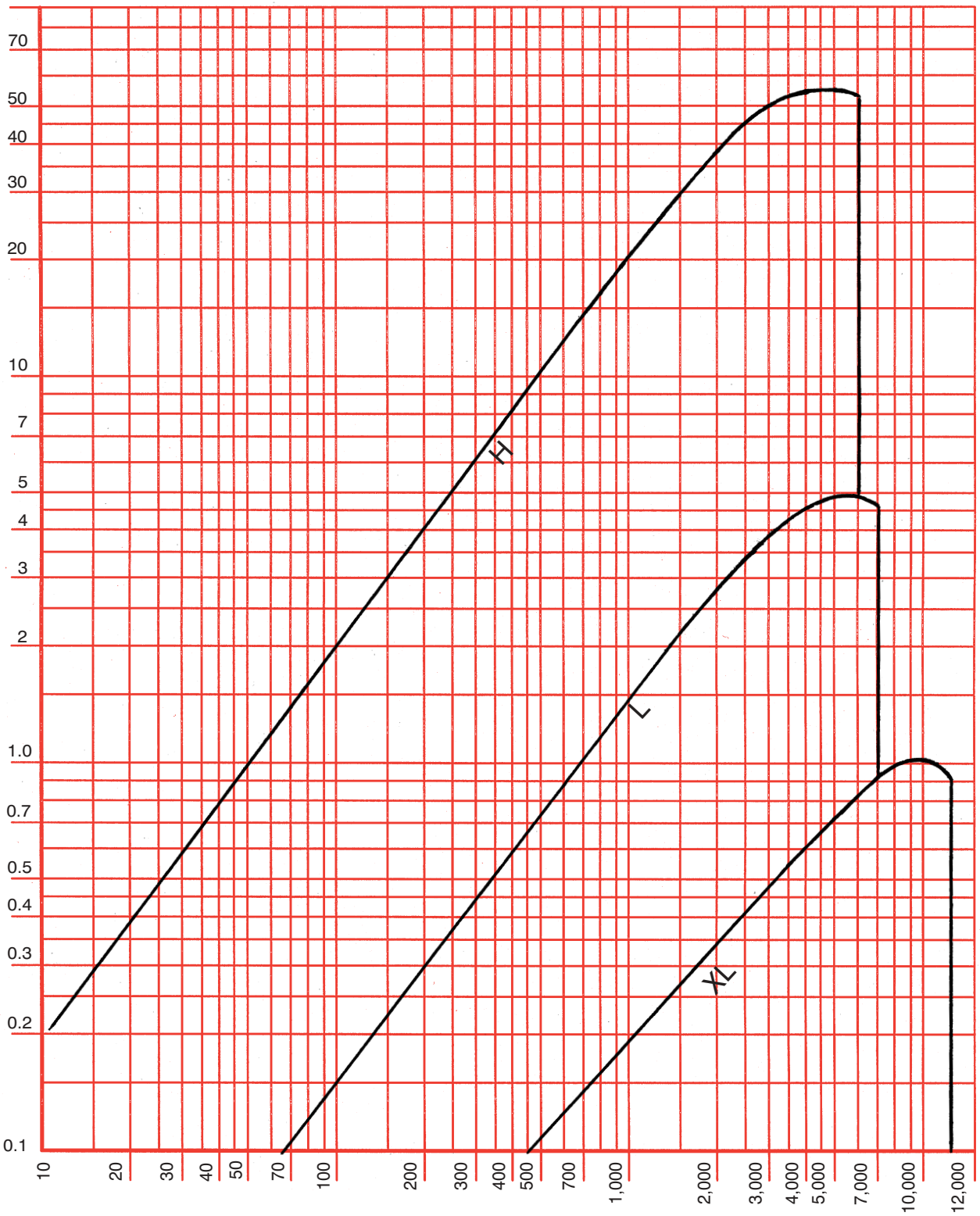
Belt Selection Graph for Classical Series Belts



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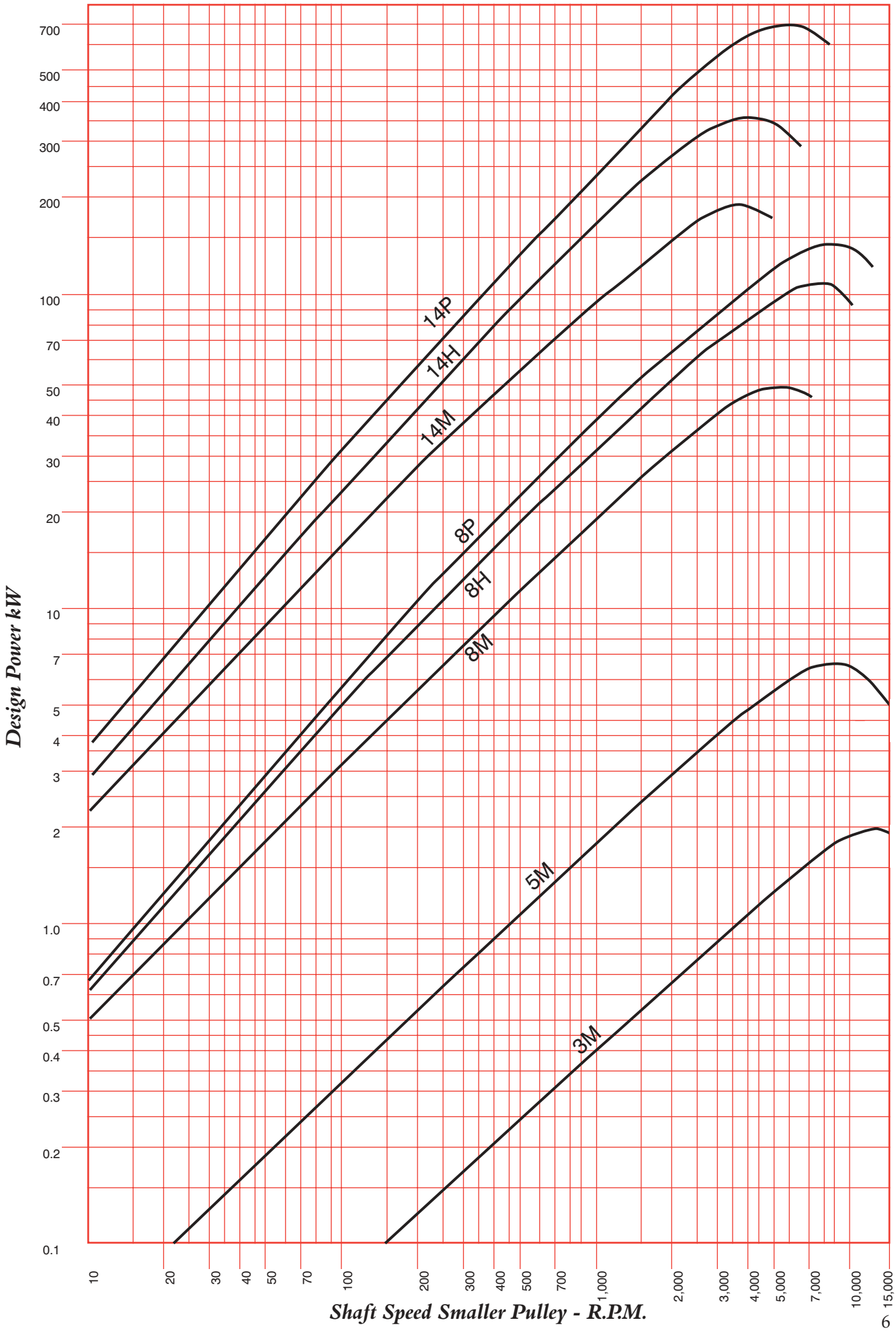
Belt Selection Graph for Metric Series Belts



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Power Rating Tables - Standard Metric Timing Belts

Power Ratings (kW) for 9mm wide 3M Belt

Belt Width mm 3M Belt	6	9	15
Width Factor	0.60	1.00	1.89

RPM of Small Pulley	Number of Teeth on Small Pulley																		
	10	12	14	15	16	18	20	21	22	24	26	28	30	32	36	40	44	48	60
100	.007	.008	.009	.009	.011	.013	.014	.014	.016	.018	.019	.021	.023	.026	.029	.034	.039	.046	.058
200	.013	.016	.018	.019	.021	.024	.028	.029	.031	.036	.039	.044	.048	.053	.061	.071	.081	.091	.116
300	.018	.021	.026	.028	.029	.034	.039	.041	.044	.049	.054	.059	.064	.071	.083	.096	.109	.122	.154
500	.026	.031	.038	.041	.044	.051	.058	.061	.064	.073	.079	.087	.094	.109	.119	.137	.156	.175	.222
600	.029	.036	.044	.048	.051	.058	.066	.069	.074	.083	.091	.099	.107	.117	.137	.157	.177	.199	.252
800	.038	.046	.054	.059	.064	.073	.083	.087	.092	.102	.109	.124	.134	.146	.169	.194	.219	.245	.308
1000	.044	.054	.064	.068	.076	.086	.097	.102	.109	.121	.132	.146	.159	.172	.199	.227	.257	.287	.361
1200	.051	.063	.074	.079	.086	.099	.112	.119	.126	.139	.152	.167	.182	.197	.227	.258	.292	.327	.411
1450	.059	.073	.086	.092	.101	.114	.129	.136	.144	.161	.175	.192	.209	.227	.262	.297	.335	.373	.469
1750	.069	.084	.099	.107	.116	.132	.149	.157	.167	.185	.204	.222	.240	.260	.300	.340	.381	.424	.534
2000	.076	.092	.111	.119	.127	.147	.166	.174	.184	.204	.224	.245	.265	.287	.330	.375	.419	.466	.587
2400	.087	.107	.127	.136	.147	.169	.190	.200	.212	.234	.257	.280	.303	.327	.376	.426	.478	.529	.665
2800	.099	.121	.142	.154	.166	.189	.214	.225	.237	.262	.287	.313	.340	.366	.421	.476	.532	.589	.738
3200	.109	.134	.159	.170	.184	.209	.235	.249	.262	.290	.318	.346	.375	.403	.463	.522	.584	.645	.806
4000	.131	.159	.187	.202	.217	.249	.278	.293	.310	.341	.373	.406	.439	.473	.541	.610	.678	.748	.931
5000	.156	.189	.222	.239	.257	.293	.328	.346	.365	.403	.439	.478	.516	.554	.630	.708	.786	.864	1.062
6000	.179	.217	.255	.275	.295	.335	.376	.396	.418	.459	.501	.542	.584	.627	.712	.798	.881	.964	1.170
8000	.222	.270	.317	.341	.366	.415	.463	.488	.512	.562	.610	.660	.708	.756	.849	.944	1.030	1.117	1.303
10000	.263	.318	.375	.401	.429	.486	.541	.567	.595	.652	.705	.758	.810	.861	.954	1.047	1.123	1.201	1.314
12000	.302	.365	.426	.458	.489	.551	.610	.639	.668	.727	.781	.838	.888	.939	1.022	1.105	1.157	1.210	1.186
14000	.338	.406	.474	.507	.542	.607	.670	.700	.730	.790	.843	.898	.942	.989	1.050	1.112	1.122	1.133	

Power Ratings (kW) for 9mm wide 5M Belt

Belt Width mm 5M Belt	9	15	25
Width Factor	1.00	1.93	3.48

RPM of Small Pulley	Number of Teeth on Small Pulley																		
	12	14	15	16	18	20	21	22	24	26	28	30	32	36	40	44	48	60	72
100	.023	.027	.029	.032	.037	.042	.045	.047	.052	.057	.063	.068	.074	.085	.096	.108	.120	.156	.195
200	.039	.046	.049	.054	.062	.071	.075	.079	.088	.097	.106	.115	.124	.143	.162	.182	.202	.264	.328
300	.053	.062	.066	.073	.084	.096	.100	.107	.119	.131	.143	.155	.168	.194	.220	.246	.273	.357	.445
500	.078	.091	.098	.107	.124	.140	.148	.157	.175	.192	.210	.228	.247	.284	.322	.361	.401	.524	.652
600	.090	.105	.113	.123	.142	.161	.170	.180	.200	.220	.241	.262	.283	.325	.369	.414	.459	.599	.747
800	.111	.130	.141	.153	.176	.200	.212	.224	.248	.273	.299	.325	.351	.404	.458	.513	.570	.742	.925
1000	.132	.154	.167	.180	.208	.236	.250	.264	.293	.323	.353	.383	.414	.477	.541	.606	.673	.877	1.090
1200	.151	.176	.192	.207	.238	.270	.286	.302	.336	.370	.404	.439	.474	.546	.619	.694	.770	1.003	1.246
1500	.178	.208	.226	.244	.281	.319	.338	.358	.397	.437	.477	.518	.560	.644	.713	.818	.907	1.180	1.463
1800	.204	.239	.260	.280	.322	.366	.383	.410	.455	.501	.547	.594	.641	.737	.835	.935	1.036	1.344	1.663
2000	.221	.258	.280	.303	.349	.396	.419	.443	.492	.541	.591	.641	.692	.796	.902	1.009	1.117	1.447	1.787
2400	.253	.296	.321	.347	.399	.453	.480	.508	.563	.619	.675	.733	.791	.909	1.028	1.149	1.271	1.640	2.016
2800	.285	.332	.360	.389	.448	.507	.538	.568	.630	.692	.755	.819	.884	1.014	1.146	1.279	1.413	1.814	2.216
3200	.314	.366	.398	.429	.494	.559	.592	.626	.694	.762	.831	.901	.971	1.113	1.256	1.400	1.543	1.970	2.387
4000	.370	.432	.470	.505	.581	.657	.696	.735	.813	.892	.972	1.052	1.132	1.293	1.453	1.613	1.770	2.222	2.638
5000	.435	.508	.555	.594	.681	.769	.813	.858	.948	1.038	1.128	1.216	1.307	1.484	1.657	1.825	1.886	2.416	2.760
6000	.495	.578	.627	.675	.773	.871	.920	.969	1.068	1.165	1.262	1.355	1.452	1.635	1.809	1.971	2.120	2.460	2.635
8000	.603	.704	.762	.818	.931	1.043	1.096	1.150	1.259	1.360	1.462	1.552	1.646	1.806	1.939	2.040	2.105	2.040	
10000	.695	.811	.873	.935	1.056	1.171	1.223	1.276	1.382	1.470	1.559	1.620	1.693	1.776	1.800	1.756	1.637		
12000		.899	.965	1.026	1.144	1.252	1.295	1.339	1.427	1.482	1.538	1.554	1.570	1.507					
14000		.966	1.026	1.087	1.193	1.280	1.306	1.333	1.386	1.390	1.382	1.330	1.248						

Power Ratings (kW) for 20mm wide 8M Belt

Belt Width mm 8M Belt	20	30	50	85
Width Factor	1.00	1.58	2.74	4.77

RPM of Small Pulley	Number of Teeth on Small Pulley														
	22	24	26	28	30	32	34	36	38	40	44	48	56	64	72	80
100	.35	.39	.43	.47	.51	.55	.59	.63	.68	.72	.81	.90	1.08	1.27	1.46	1.65
200	.59	.66	.72	.79	.86	.93	1.00	1.07	1.14	1.21	1.36	1.51	1.81	2.13	2.45	2.78
300	.80	.89	.98	1.07	1.16	1.26	1.35	1.45	1.54	1.64	1.84	2.04	2.46	2.88	3.32	3.77
400	.99	1.10	1.21	1.33	1.44	1.56	1.67	1.79	1.91	2.03	2.28	2.53	3.05	3.57	4.12	4.67
500	1.17	1.30	1.43	1.57	1.70	1.84	1.98	2.12	2.26	2.40	2.70	2.99	3.60	4.22	4.86	5.51
600	1.35	1.49	1.64	1.80	1.95	2.11	2.27	2.43	2.59	2.76	3.09	3.43	4.12	4.83	5.56	6.31
800	1.67	1.85	2.04	2.23	2.42	2.62	2.81	3.01	3.21	3.42	3.83	4.25	5.10	5.98	6.88	7.79
1000	1.97	2.19	2.41	2.63	2.86	3.09	3.32	3.55	3.79	4.03	4.52	5.01	6.01	7.04	8.09	9.16
1200	2.26	2.51	2.76	3.01	3.27	3.54	3.80	4.07	4.34	4.61	5.16	5.72	6.87	8.03	9.22	10.42
1500	2.67	2.96	3.26	3.56	3.86	4.17	4.48	4.79	5.11	5.43	6.07	6.73	8.05	9.40	10.76	12.13
1800	3.05	3.39	3.72	4.07	4.41	4.76	5.11	5.47	5.83	6.19	6.92	7.65	9.14	10.64	12.14	13.64
2000	3.30	3.66	4.02	4.39	4.76	5.14	5.52	5.90	6.28	6.67	7.45	8.23	9.81	11.39	12.97	14.52
2400	3.77	4.18	4.59	5.00	5.42	5.85	6.27	6.70	7.13	7.56	8.43	9.30	11.03	12.73	14.39	16.00
2800	4.21	4.66	5.12	5.58	6.04	6.51	6.97	7.44	7.91	8.38	9.31	10.24	12.07	13.83	15.50	17.06
3000	4.42	4.90	5.37	5.85	6.33	6.82	7.30	7.79	8.27	8.76	9.72	10.67	12.52	14.29	15.93	
3500	4.93	5.45	5.97	6.49	7.02	7.54	8.06	8.58	9.10	9.61	1.062	11.60	13.46	15.14		
4000					7.64	8.19	8.73	9.28	9.81	10.33	11.35	12.32	14.08			
4500						8.75	9.31	9.86	10.40	10.92	11.91	12.82				

Power Ratings (kW) for 40mm wide 14M Belt

Belt Width mm 14M Belt	40	55	85	115	170
Width Factor	1.00	1.44	2.32	3.21	4.82

RPM of Small Pulley	Number of Teeth on Small Pulley																
	28	29	30	32	34	36	38	40	44	48	52	56	60	64	68	72	80
100	2.42	2.53	2.63	2.85	3.06	3.28	3.50	3.72	4.17	4.63	5.10	5.57	6.05	6.54	7.03	7.53	8.54
200	4.08	4.25	4.43	4.79	5.15	5.51	5.88	6.25	7.01	7.78	8.57	9.36	10.17	10.99	11.81	12.65	14.35
300	5.52	5.76	6.00	6.48	6.97	7.47	7.97	8.47	9.50	10.54	11.60	12.67	13.76	14.87	15.98	17.11	19.41
400	6.85	7.14	7.44	8.04	8.64	9.26	9.87	10.50	11.77	13.06	14.37	15.69	17.04	18.40	19.78	21.17	23.99
500	8.09	8.44	8.79	9.49	10.21	10.93	11.66	12.39	13.89	15.40	16.94	18.50	20.08	21.68	23.30	24.92	28.22
600	9.27	9.67	10.07	10.87	11.69	12.51	13.34	14.19	15.89	17.62	19.37	21.15	22.94	24.75	26.58	28.42	32.15
700	10.39	10.84	11.28	12.19	13.10	14.02	14.95	15.89	17.79	19.71	21.67	23.64	25.63	27.64	29.66	31.70	35.80
800	11.47	11.96	12.45	13.45	14.45	15.46	16.48	17.51	19.60	21.71	23.84	26.00	28.17	30.36	32.55	34.76	39.19
1000	13.51	14.06	14.66	15.82	16.99	18.18	19.37	20.56	22.98	25.42	27.88	30.35	32.82	35.31	37.79	40.27	45.20
1200	15.42	16.07	16.72	18.03	19.36	20.69	22.02	23.37	26.07	28.78	31.50	34.22	36.93	39.63	42.30	44.96	50.16
1500	18.07	18.82	19.57	21.08	22.59	24.11	25.63	27.16	30.18	33.20	36.20	39.15	42.05	44.90	47.67	50.37	55.48
1800	20.48	21.31	22.14	23.81	25.47	27.13	28.78	30.42	33.67	36.86	39.96	42.96	45.84	48.60	51.21		
2000	21.95	22.83	23.71	25.45	27.19	28.92	30.63	32.32	35.64	38.84	41.92	44.83	47.57	50.12	52.45		
2500	25.19	26.15	27.09	28.96	30.79	32.58	34.32	36.00	39.19	42.11	44.70	46.94					
3000			29.69	31.54	33.31	34.98	36.56	38.03									
3500			31.43	33.10	34.63	35.99	37.19	38.19									

Power Rating Tables - High Power & Panther Timing Belts

Power Ratings (kW) for 20mm wide Higher Power Plus 8H Belt

Belt Width mm 8H Belt	20	30	50	85
Width Factor	1.00	1.58	2.74	4.77

RPM of Small Pulley	Number of Teeth on Small Pulley															
	22	24	26	28	30	32	34	36	38	40	44	48	56	64	72	80
10	0.07	0.07	0.08	0.09	0.09	0.10	0.10	0.11	0.12	0.12	0.13	0.15	0.17	0.20	0.22	0.25
20	0.13	0.15	0.16	0.17	0.18	0.20	0.21	0.22	0.23	0.25	0.27	0.29	0.34	0.39	0.44	0.49
50	0.34	0.37	0.40	0.43	0.46	0.49	0.52	0.55	0.58	0.61	0.67	0.74	0.86	0.98	1.10	1.23
70	0.47	0.52	0.56	0.60	0.64	0.69	0.73	0.77	0.82	0.86	0.94	1.03	1.20	1.37	1.55	1.72
100	0.62	0.69	0.75	0.82	0.88	0.95	1.02	1.08	1.15	1.22	1.35	1.47	1.72	1.96	2.21	2.45
200	1.05	1.16	1.27	1.37	1.49	1.60	1.71	1.82	1.94	2.05	2.28	2.51	2.99	3.47	3.96	4.45
300	1.42	1.57	1.72	1.86	2.01	2.16	2.32	2.47	2.62	2.78	3.09	3.41	4.05	4.70	5.36	6.04
500	2.09	2.30	2.52	2.73	2.95	3.17	3.40	3.62	3.85	4.07	4.53	5.00	5.94	6.89	7.86	8.84
700	2.68	2.96	3.24	3.52	3.80	4.08	4.37	4.66	4.95	5.24	5.83	6.43	7.63	8.86	10.10	11.36
1000	3.51	3.87	4.23	4.59	4.96	5.33	5.71	6.08	6.46	6.84	7.61	8.38	9.95	11.54	13.15	14.78
1200	4.02	4.43	4.84	5.26	5.68	6.11	6.54	6.97	7.40	7.83	8.71	9.59	11.38	13.20	15.03	16.87
1500	4.75	5.23	5.72	6.21	6.71	7.21	7.71	8.22	8.73	9.24	10.27	11.31	13.40	15.52	17.65	19.79
1800	5.44	5.99	6.55	7.11	7.68	8.25	8.83	9.40	9.98	10.56	11.74	12.91	15.29	17.67	20.06	22.45
2000	5.88	6.48	7.08	7.69	8.30	8.92	9.54	10.16	10.78	11.41	12.67	13.93	16.47	19.02	21.56	24.09
2500	6.94	7.64	8.35	9.06	9.78	10.49	11.22	11.94	12.67	13.39	14.85	16.31	19.22	22.10	24.94	27.73
3000	7.93	8.73	9.53	10.34	11.15	11.96	12.77	13.59	14.40	15.22	16.84	18.46	21.65	24.77	27.79	
3500	8.87	9.76	10.65	11.54	12.44	13.33	14.22	15.11	16.00	16.89	18.65	20.39	23.78	27.03		
4000	9.76	10.73	11.70	12.67	13.64	14.60	15.57	16.52	17.47	18.42	20.28	22.10	25.60			
4500	10.61	11.65	12.69	13.73	14.76	15.79	16.81	17.81	18.81	19.80	21.73	23.59				
5000	11.42	12.53	13.63	14.72	15.81	16.88	17.94	18.99	20.02	21.02	22.98					

Power Ratings (kW) for 40mm wide Higher Power Plus 14H Belt

Belt Width mm 14H Belt	40	55	85	115	170
Width Factor	1.00	1.44	2.32	3.21	4.82

RPM of Small Pulley	Number of Teeth on Small Pulley															
	28	29	30	32	34	36	38	40	44	48	52	56	60	64	68	72	80
10	0.39	0.41	0.42	0.45	0.48	0.50	0.53	0.56	0.62	0.67	0.73	0.78	0.84	0.90	0.95	1.01	1.12
20	0.78	0.81	0.84	0.90	0.95	1.01	1.06	1.12	1.23	1.34	1.46	1.57	1.68	1.79	1.90	2.02	2.24
50	1.96	2.03	2.10	2.24	2.38	2.52	2.66	2.80	3.08	3.36	3.64	3.92	4.20	4.48	4.76	5.04	5.60
70	2.74	2.84	2.94	3.14	3.33	3.53	3.72	3.92	4.31	4.70	5.10	5.49	5.88	6.27	6.66	7.06	7.84
100	3.92	4.06	4.20	4.48	4.76	5.04	5.32	5.60	6.16	6.72	7.28	7.84	8.40	8.96	9.52	10.08	11.20
200	6.87	7.16	7.45	8.04	8.64	9.24	9.85	10.46	11.71	12.97	14.26	15.56	16.79	17.91	19.03	20.14	22.38
300	9.31	9.70	10.10	10.90	11.71	12.52	13.35	14.18	15.86	17.58	19.31	21.08	22.86	24.67	26.49	28.33	32.07
500	13.65	14.22	14.80	15.97	17.15	18.35	19.55	20.77	23.23	25.73	28.27	30.84	33.44	36.07	38.72	41.40	46.82
700	17.54	18.28	19.03	20.52	22.04	23.57	25.11	26.67	29.82	33.02	36.25	39.53	42.84	46.18	49.54	52.94	59.79
1000	22.86	23.82	24.79	26.73	28.69	30.67	32.66	34.67	38.73	42.83	46.98	51.16	55.37	59.60	63.86	68.13	76.69
1200	26.15	27.24	28.34	30.55	32.78	35.02	37.29	39.56	44.15	48.78	53.45	58.14	62.85	67.56	72.29	77.01	86.41
1500	30.76	32.04	33.32	35.89	38.48	41.09	43.71	46.34	51.62	56.92	62.23	67.54	72.83	78.10	83.33	88.51	98.69
1800	35.05	36.49	37.93	40.82	43.73	46.64	49.56	52.49	58.33	64.16	69.95	75.69	81.35	86.93	92.40		
2000	37.74	39.38	40.82	43.90	46.99	50.08	53.17	56.25	62.40	68.49	74.50	80.40	86.19	91.82			
2500	43.93	45.67	47.41	50.87	54.32	57.74	61.13	64.50	71.10	77.50							
3000	49.36	51.24	53.11	56.81	60.46	64.04	67.56	70.99									
3500	54.00	55.96	57.89	61.68	65.36	68.91											
4000	57.84	59.79	61.71	65.41													

Power Ratings (kW) for 20mm wide RPP Gold 8P Belt

Belt Width mm 8P Belt	20	30	50	85
Width Factor	1.00	1.50	2.50	4.25

RPM of Small Pulley	Number of Teeth on Small Pulley															
	22	24	26	28	30	32	34	36	38	40	44	48	56	64	72	80
10	0.08	0.09	0.10	0.11	0.12	0.12	0.13	0.14	0.15	0.16	0.17	0.19	0.22	0.26	0.29	0.33
20	0.15	0.17	0.18	0.20	0.21	0.23	0.24	0.26	0.27	0.29	0.32	0.35	0.41	0.47	0.53	0.59
50	0.34	0.38	0.41	0.44	0.47	0.51	0.54	0.57	0.61	0.64	0.71	0.77	0.91	1.05	1.18	1.32
70	0.46	0.50	0.55	0.59	0.63	0.68	0.72	0.77	0.81	0.86	0.95	1.04	1.22	1.40	1.58	1.77
100	0.63	0.69	0.75	0.81	0.87	0.93	0.99	1.05	1.11	1.17	1.29	1.41	1.66	1.91	2.16	2.41
200	1.14	1.25	1.36	1.47	1.58	1.69	1.80	1.91	2.03	2.14	2.36	2.59	3.04	3.49	3.95	4.41
300	1.63	1.78	1.94	2.09	2.25	2.41	2.57	2.72	2.88	3.04	3.36	3.68	4.32	4.97	5.62	6.27
500	2.54	2.78	3.02	3.27	3.51	3.76	4.00	4.25	4.49	4.74	5.24	5.73	6.74	7.74	8.75	9.77
700	3.40	3.73	4.05	4.38	4.70	5.03	5.36	5.69	6.02	6.35	7.01	7.68	9.02	10.36	11.71	13.07
1000	4.53	4.98	5.43	5.88	6.33	6.79	7.24	7.70	8.17	8.63	9.56	10.50	12.39	14.30	16.22	18.15
1200	5.22	5.73	6.25	6.77	7.29	7.81	8.34	8.87	9.40	9.93	11.00	12.08	14.24	16.43	18.62	20.82
1500	6.20	6.81	7.42	8.04	8.65	9.28	9.90	10.52	11.15	11.78	13.05	14.32	16.87	19.44	22.01	24.58
1800	7.13	7.83	8.54	9.24	9.95	10.67	11.38	12.10	12.82	13.54	14.99	16.44	19.34	22.26	25.16	28.05
2000	7.74	8.49	9.26	10.02	10.79	11.56	12.33	13.11	13.88	14.66	16.22	17.79	20.91	24.03	27.14	30.21
2500	9.18	10.07	10.97	11.88	12.78	13.69	14.60	15.51	16.42	17.33	19.15	20.97	24.58	28.15	31.67	35.10
3000	10.55	11.57	12.60	13.63	14.66	15.69	16.72	17.75	18.78	19.81	21.86	23.89	27.90	31.81	35.59	
3500	11.85	13.00	14.14	15.29	16.43	17.57	18.72	19.85	20.99	22.11	24.35	26.56	30.87	35.00		
4000	13.10	14.35	15.61	16.86	18.11	19.35	20.59	21.82	23.04	24.25	26.64	28.98	33.48			
4500	14.29	15.65	17.00	18.35	19.69	21.02	22.34	23.65	24.94	26.22	28.72	31.15				
5000	15.43	16.89	18.33	19.76	21.18	22.59	23.97	25.34	26.69	28.01	30.59					

Power Ratings (kW) for 40mm wide RPP Gold 14P Belt

Belt Width mm 14P Belt	40	55	85	115	170
Width Factor	1.00	1.37	2.12	2.87	4.25

RPM of Small Pulley	Number of Teeth on Small Pulley																
	28	29	30	32	34	36	38	40	44	48	52	56	60	64	68	72	80
10	0.67	0.69	0.72	0.77	0.82	0.87	0.92	0.98	1.08	1.19	1.29	1.40	1.50	1.61	1.72	1.83	2.04
20	1.23	1.28	1.33	1.42	1.52	1.61	1.71	1.80	2.00	2.19	2.39	2.58	2.78	2.98	3.17	3.37	3.77
50	2.78	2.88	2.99	3.20	3.41	3.63	3.84	4.06	4.49	4.93	5.37	5.81	6.25	6.70	7.14	7.59	8.49
70	3.74	3.88	4.02	4.31	4.60	4.89	5.18	5.47	6.05	6.64	7.23	7.82	8.42	9.02	9.62	10.22	11.44
100	5.13	5.32	5.52	5.91	6.30	6.70	7.10	7.50	8.30	9.10	9.91	10.72	11.54	12.36	13.19	14.02	15.68
200	9.47	9.83	10.19	10.91	11.64	12.37	13.10	13.84	15.32	16.80	18.30	19.80	21.31	22.82	24.34	25.87	28.94
300	13.55	14.07	14.58	15.62	16.66	17.71	18.76	19.81	21.92	24.05	26.19	28.33	30.49	32.65	34.83	37.01	41.39
500	21.29	22.10	22.91	24.54	26.17	27.81	29.45	31.10	34.42	37.75	41.09	44.45	47.82	51.20	54.60	58.00	64.82
700	28.65	29.74	30.83	33.02	35.21	37.41	39.62	41.83	46.27	50.74	55.21	59.71	64.21	68.72	73.24	77.77	86.83
1000	38.58	40.11	41.65	44.73	47.84	50.96	54.10	57.25	63.60	69.99	76.42	82.88	89.36	95.87	102.39	108.93	122.02
1200	44.78	46.55	48.33	51.90	55.49	59.09	62.72	66.35	73.66	81.01	88.40	95.80	103.22	110.64	118.07	125.48	140.28
1500	53.67	55.79	57.91	62.16	66.43	70.70	75.01	79.32	87.96	96.62	105.29	113.95	122.58	131.19	139.75	148.26	165.08
1800	62.16	64.59	67.03	71.91	76.81	81.72	86.63	91.55	101.37	111.18	120.95	130.65	140.28	149.81	159.23		
2000	67.61	70.25	72.88	78.16	83.44	88.73	94.02	99.30	109.84	120.31	130.70	140.98	151.13	161.13			
2500	80.58	83.66	86.75	92.91	99.05	105.17	111.26	117.32	129.31	141.08							
3000	92.62	96.09	99.55	106.44	113.27	120.04	126.73	133.34									
3500	103.75	107.53	111.29	118.74	126.07	133.28											
4000	113.94	117.96	121.93	129.75													

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Power Rating Tables - Classical Timing Belts

Power Ratings (kW) for 3/8" wide XL Series Belts (1/5" Pitch)

RPM of Small Pulley	Number of Teeth Small Pulley																
	10	11	12	14	15	16	18	20	21	22	24	26	28	30	32	36	40
100	.004	.004	.005	.006	.006	.007	.007	.008	.009	.009	.010	.011	.012	.012	.013	.015	.016
200	.008	.009	.010	.011	.012	.013	.015	.016	.018	.019	.020	.022	.024	.025	.027	.029	.033
300	.012	.014	.015	.017	.019	.020	.022	.025	.026	.028	.030	.033	.036	.038	.040	.046	.050
400	.016	.018	.020	.023	.025	.027	.029	.033	.035	.037	.040	.044	.048	.050	.054	.063	.069
500	.020	.023	.025	.029	.031	.033	.037	.042	.044	.046	.050	.055	.060	.063	.069	.077	.086
600	.025	.027	.030	.035	.037	.040	.046	.050	.054	.056	.060	.066	.071	.077	.081	.091	.102
800	.034	.036	.040	.048	.050	.054	.063	.069	.071	.075	.084	.088	.096	.102	.111	.123	.136
1000	.042	.046	.050	.060	.065	.069	.077	.086	.090	.094	.102	.110	.119	.130	.136	.155	.171
1200	.050	.055	.060	.071	.077	.081	.091	.102	.108	.113	.123	.132	.142	.155	.165	.184	.205
1400	.059	.064	.071	.084	.090	.096	.109	.119	.125	.132	.144	.155	.167	.180	.192	.215	.240
1500	.062	.070	.075	.090	.096	.102	.115	.127	.134	.140	.155	.167	.180	.192	.205	.230	.257
1600	.070	.076	.084	.096	.102	.111	.123	.136	.144	.150	.165	.177	.190	.205	.220	.247	.272
1750	.076	.081	.090	.104	.112	.120	.134	.151	.157	.165	.179	.194	.210	.224	.239	.268	.299
2000	.087	.095	.102	.119	.130	.136	.155	.171	.180	.188	.205	.222	.240	.257	.272	.305	.340
2400		.112	.123	.142	.155	.165	.184	.205	.215	.224	.247	.266	.286	.305	.326	.365	.405
2800		.132	.144	.167	.180	.192	.215	.240	.251	.263	.286	.309	.332	.357	.378	.423	.468
3000		.140	.155	.180	.192	.205	.230	.257	.267	.280	.305	.331	.357	.380	.405	.451	.500
3200		.151	.165	.190	.200	.220	.247	.272	.286	.299	.326	.352	.378	.405	.430	.479	.529
3500		.165	.180	.210	.225	.239	.268	.299	.312	.326	.355	.384	.413	.441	.468	.522	.575
4000			.205	.240	.288	.272	.305	.340	.357	.372	.405	.436	.468	.500	.529	.589	.648
4500			.231	.269	.310	.306	.343	.380	.400	.416	.453	.487	.522	.555	.589	.654	.713
5000			.257	.297	.380	.340	.380	.420	.441	.460	.500	.537	.575	.610	.648	.713	.775
6000					.441	.405	.451	.500	.522	.545	.589	.632	.675	.713	.750	.819	.880
7000						.468	.522	.575	.600	.625	.675	.719	.763	.802	.825	.898	.959
8000							.589	.648	.675	.698	.750	.795	.840	.880	.915	.978	1.030
9000							.654	.713	.742	.769	.819	.863	.907	.942	.978	1.035	
10000							.713	.775	.802	.827	.880	.919	.959	.986	1.030		

Belt Width Reference	050	075	100
Belt Width Factor	0.42	0.71	1.00

Power Ratings (kW) for 1" wide L Series Belts (3/8" Pitch)

RPM of Small Pulley	Number of Teeth Small Pulley																
	12	13	14	15	16	17	18	19	20	21	22	24	26	28	30	32	36	40
100	0.04	0.05	0.05	0.06	0.06	0.07	0.07	0.07	0.07	0.08	0.09	0.10	0.10	0.11	0.12	0.13	0.14	0.16
200	0.10	0.10	0.11	0.12	0.13	0.13	0.14	0.15	0.16	0.16	0.17	0.19	0.20	0.22	0.23	0.25	0.28	0.31
300	0.14	0.15	0.16	0.17	0.19	0.20	0.21	0.22	0.23	0.25	0.25	0.28	0.31	0.33	0.35	0.37	0.42	0.47
400	0.19	0.20	0.22	0.23	0.25	0.26	0.28	0.30	0.31	0.33	0.34	0.37	0.40	0.43	0.46	0.50	0.56	0.62
500	0.23	0.25	0.28	0.29	0.31	0.33	0.35	0.37	0.39	0.41	0.43	0.47	0.51	0.54	0.58	0.62	0.70	0.78
600	0.28	0.31	0.33	0.35	0.37	0.40	0.42	0.44	0.47	0.49	0.51	0.56	0.60	0.65	0.70	0.75	0.84	0.93
700	0.33	0.35	0.38	0.41	0.43	0.46	0.49	0.51	0.54	0.57	0.60	0.65	0.71	0.76	0.81	0.87	0.97	1.08
800	0.37	0.40	0.43	0.46	0.50	0.53	0.56	0.59	0.62	0.62	0.69	0.75	0.81	0.87	0.93	0.98	1.11	1.23
1000	0.46	0.51	0.54	0.58	0.62	0.66	0.70	0.74	0.78	0.81	0.85	0.93	1.00	1.08	1.16	1.23	1.38	1.53
1200	0.56	0.60	0.66	0.70	0.75	0.79	0.84	0.88	0.93	0.97	1.01	1.11	1.20	1.29	1.38	1.47	1.65	1.82
1400	0.65	0.71	0.76	0.81	0.87	0.92	0.97	1.03	1.08	1.13	1.19	1.29	1.40	1.50	1.60	1.71	1.91	2.10
1500	0.70	0.76	0.81	0.87	0.93	0.98	1.04	1.10	1.16	1.21	1.27	1.38	1.49	1.60	1.72	1.82	2.04	2.25
1750	0.81	0.87	0.95	1.01	1.08	1.15	1.21	1.28	1.34	1.41	1.48	1.60	1.73	1.86	1.98	2.11	2.35	2.59
2000	0.93	1.01	1.08	1.16	1.23	1.31	1.38	1.45	1.53	1.60	1.68	1.82	1.96	2.10	2.25	2.37	2.66	2.90
2200	1.01	1.10	1.19	1.27	1.35	1.43	1.51	1.60	1.68	1.75	1.84	1.99	2.15	2.30	2.45	2.60	2.88	3.16
2500	1.16	1.25	1.34	1.43	1.53	1.62	1.72	1.81	1.89	1.98	2.07	2.25	2.42	2.59	2.75	2.91	3.21	3.50
2800	1.29	1.40	1.50	1.60	1.71	1.81	1.91	2.01	2.10	2.21	2.31	2.49	2.68	2.86	3.03	3.20	3.51	3.80
3000	1.38	1.49	1.60	1.71	1.82	1.93	2.04	2.14	2.25	2.35	2.45	2.65	2.84	3.03	3.21	3.39	3.71	3.99
3200		1.59	1.70	1.82	1.94	2.04	2.16	2.27	2.38	2.49	2.60	2.80	3.01	3.20	3.39	3.56	3.88	4.16
3500		1.73	1.86	1.98	2.11	2.23	2.35	2.47	2.58	2.70	2.81	3.03	3.25	3.44	3.63	3.80	4.12	4.38
4000			2.11	2.24	2.39	2.51	2.66	2.78	2.90	3.03	3.16	3.39	3.60	3.80	3.98	4.16	4.43	4.63
4500				2.50	2.65	2.80	2.94	3.07	3.21	3.34	3.47	3.71	3.92	4.12	4.29	4.44	4.66	4.75
5000				2.74	2.92	3.06	3.22	3.36	3.49	3.63	3.76	3.99	4.20	4.37	4.52	4.63	4.73	
5500				2.97	3.15	3.31	3.47	3.61	3.75	3.88	4.01	4.23	4.43	4.57	4.67	4.72		
6000				3.20	3.39	3.54	3.71	3.84	3.98	4.12	4.24	4.42	4.59	4.68	4.74	4.72		

Belt Width Reference	075	100	150	200	300
Belt Width Factor	0.71	1.00	1.56	2.14	3.36

Power Ratings (kW) for 1" wide H Series Belts (1/2" Pitch)

RPM of Small Pulley	Number of Teeth Small Pulley															
	14	16	18	19	20	21	22	24	26	28	30	32	36	40	44	48
100	0.19	0.21	0.24	0.25	0.26	0.28	0.29	0.31	0.34	0.37	0.40	0.43	0.48	0.53	0.58	0.63
200	0.37	0.43	0.48	0.50	0.53	0.55	0.58	0.63	0.69	0.74	0.79	0.84	0.95	1.05	1.16	1.27
300	0.55	0.63	0.72	0.75	0.79	0.83	0.87	0.95	1.03	1.11	1.19	1.27	1.42	1.58	1.74	1.89
400	0.74	0.84	0.95	1.00	1.05	1.11	1.16	1.27	1.37	1.48	1.58	1.69	1.89	2.10	2.31	2.52
500	0.93	1.05	1.19	1.25	1.32	1.39	1.45	1.58	1.72	1.84	1.98	2.10	2.36	2.63	2.89	3.15
600	1.11	1.27	1.42	1.51	1.58	1.66	1.74	1.89	2.05	2.21	2.36	2.52	2.83	3.15	3.46	3.77
700	1.29	1.48	1.66	1.75	1.84	1.93	2.03	2.21	2.39	2.57	2.76	2.94	3.30	3.66	4.03	4.39
800	1.48	1.69	1.89	2.00	2.10	2.21	2.31	2.52	2.73	2.94	3.15	3.36	3.77	4.18	4.59	4.99
900	1.66	1.89	2.13	2.25	2.36	2.48	2.60	2.83	3.07	3.30	3.54	3.77	4.23	4.69	5.14	5.59
1000	1.84	2.10	2.36	2.50	2.63	2.76	2.89	3.15	3.41	3.66	3.92	4.18	4.69	5.19	5.69	6.19
1100	2.03	2.31	2.60	2.75	2.89	3.03	3.18	3.46	3.74	4.03	4.30	4.59	5.15	5.69	6.24	6.77
1200		2.52	2.83	2.99	3.15	3.30	3.46	3.77	4.07	4.39	4.69	4.99	5.59	6.19	6.77	7.36
1400		2.94	3.30	3.48	3.66	3.84	4.02	4.38	4.74	5.10	5.45	5.80	6.48	7.16	7.83	8.47
1500		3.15	3.54	3.73	3.92	4.11	4.30	4.68	5.07	5.45	5.82	6.19	6.92	7.64	8.34	9.02
1600		3.36	3.77	3.98	4.18	4.38	4.59	4.99	5.39	5.80	6.19	6.58	7.36	8.11	8.84	9.55
1750		3.66	4.12	4.33	4.56	4.78	5.01	5.45	5.88	6.31	6.74	7.16	7.99	8.80	9.58	10.32
2000		4.18	4.68	4.94	5.19	5.45	5.69	6.18	6.68	7.16	7.64	8.11	9.03	9.90	10.74	11.53
2200			5.14	5.42	5.69	5.97	6.24	6.77	7.30	7.83	8.34	8.84	9.82	10.74	11.62	12.43
2500			5.82	6.12	6.43	6.74	7.04	7.63	8.22	8.80	9.35	9.90	10.95	11.92	12.82	13.63
2800			6.48	6.82	7.15	7.49	7.83	8.47	9.11	9.74	10.32	10.90	12.00	12.99	13.88	14.64
3000			6.92	7.27	7.63	7.98	8.34	9.01	9.68	10.33	10.94	11.53	12.65	13.63	14.49	15.20
3200			7.35	7.73	8.09	8.47	8.84	9.54	10.24	10.91	11.53	12.14	13.26	14.22	15.02	
3600				8.45	9.00	9.41	9.82	10.56	11.30	12.00	12.64	13.24	14.34	15.20		
4000				9.35	9.88	10.31	10.74	11.52	12.28	13.00	13.63	14.20				
4400					10.71	11.17	11.62	12.41	13.18	13.89	14.49					
4800					11.50	11.97	12.44	13.21	13.98	14.67						
5000					11.88	12.35	12.82	13.59	14.35	15.01						
5400					12.60	13.08	13.55	14.27	14.99							
6000					13.57	14.04	14.50	15.12								

Note: Shaded area indicates pulley speeds which can be used with a reduction in belt service life.

Timing Belt Drives - Installation

Cross+Morse Timing Belt Drives will give excellent performance and long life provided they are correctly installed. Pulleys must be rigidly mounted and correctly aligned, and belts installed with a snug fit not highly tensioned. One pulley should be flanged in all drives, and both pulleys flanged on drives with vertical shafts.

Pulley Manufacture and Rebore

Standard Pulleys are manufactured to high levels of concentricity. When plain bore pulleys are re-machined it is essential that concentricity between bore and pulley O.D. is kept within the following:-

Pulleys up to 200mm diameter - 0.10mm total run-out.

Pulleys over 200mm diameter - 0.05/100mm dia. total run-out to maximum 0.20mm.

Also the bore of the pulley must be perpendicular to side faces within 0.5mm/100mm dia. total run-out to a max. of 0.5mm.
In manufacture pulleys of 200mm and above diameter are statically balanced to levels indicated below.

Pulley Face Width mm	Pulley Diameter mm	Max. Unbalance gm
Up to 60	200-300 301-600	6 10
61-99	200-300 301-600 601-1000 over 1000	10 15 20 30
100 and over	200-300 301-600 601-1000 over 1000	20 30 40 60

This level of balancing is adequate for the majority of applications, but where belt speeds exceed 30 m/s pulleys will need to be further dynamically balanced to 1.8 x 10^{-3} Nm. Cast Iron pulleys must never be run over 30 m/s belt speed.

Installation and Alignment of Pulleys

Clean all oil, grease and dirt from pulleys, ensuring grooves and bore are clean and free from burrs. Pulleys should be assembled onto shafts and rigidly locked in place by taper bush or close fit bore and key on parallel bore pulleys. Alignment of shafts and pulleys is essential as misalignment will result in unequal belt tension and edge wear. To check alignment place a straight edge against the outside edges of the pulleys and position pulleys so that the straight edge touches the two outside and two inside edges of the pulleys. Alignment of pulleys should be confirmed after installation of belt.
Check the rigidity of the supporting framework. Shafts must be well supported to prevent distortion with resultant changes in centre distance which will result in belt slackness causing jumping of teeth under high starting or shock load conditions.

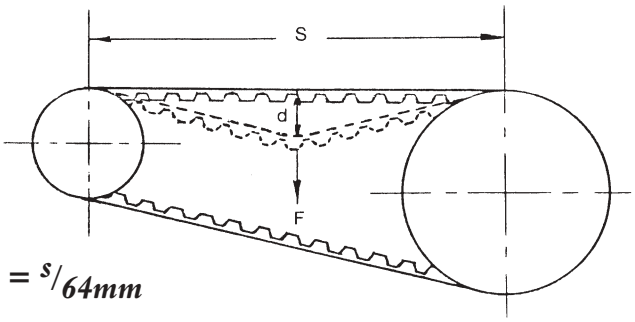
Timing Belt Installation

Timing belts are susceptible to kinking, and should never be forced or prised on to pulleys. Reduction of centre distance or removal of tensioning idler are normal methods to enable belt fitting. For fixed centre drives without idler the belt must be fitted to pulley prior to mounting on shafts or support bearings. To enable correct fitting where centres can be adjusted, the centres must be able to be reduced by the value in the table below under "allowance for installation" and increased by the tensioning allowance, from the nominal centre distance.

Belt Size	Allowance for Installation		Tensioning Allowance
	One Pulley Flanged	Both Pulleys Flanged	
3M	12.4	20.8	2.0
5M	19.6	32.2	2.5
8M	26.5	42.3	3.0
14M	43.3	66.9	4.0
XL	15.9	27.4	0.6
L	19.1	31.7	1.0
H	22.0	36.2	1.5
XH	45.0	69.0	2.0
T2.5	15.3	27.9	0.5
AT5 &T5	17.0	30.0	0.8
AT10 & T10	21.5	35.0	1.0

Belt Tension

Timing Belt Drives do not require as much tension as other belt drives that depend on friction to transmit the load. The belt should be installed with a snug fit, neither taut or loose. The correct level of tension can be determined by measuring the force necessary to deflect the belt an amount equal to 1/64th of its span centres 'S'. Values for measuring forces recorded on a spring balance applied mid-span of the belt should be as shown in the table below. The value recorded for a drive should be within 10% of these values. These measurements give correct tension for most drives, but for high shock load applications consult Cross+Morse Engineering.



$d = {}^{S}/_{64}mm$

Values for Measuring Force

Std. Metric Belts

Belt Size	F kg
3M06	.17
3M09	.29
3M15	.54
5M09	.42
5M15	.81
5M25	1.46
8M20	1.93
8M30	3.05
8M50	5.30
8M85	9.20
14M40	5.60
14M55	8.00
14M85	13.00
14M115	18.00
14M170	27.00

Classical and Polyurethane Belts

Belt Size	F kg
6T2.5	0.07
6T5	0.18
10T5	0.30
16T5	0.48
25T5	0.75
16T10	0.90
25T10	1.40
32T10	1.80
50T10	2.80
XL037	0.30
XL050	0.40
L050	0.6
L075	1.0
L100	1.4
H100	3.1
H150	4.8
H200	6.6
H300	10.4

High Power Metric and Open Ended Belts

The correct tensioning of RPP Plus and RPP Gold High Power belts includes consideration of transmitted power, operating speeds, and number of teeth in pulleys.
Open ended belts are normally tensioned according to max. linear load to be transmitted, to minimise any backlash on reversing drives. Advice on correct tensioning of those belts can be supplied by Cross+Morse technical dept, as well as assistance in belt selection.

Belt Storage

To ensure correct functioning of the belts and prevent premature failure, belts must be protected against sharp bending or creasing. They should be stored in a cool, dry, well ventilated room within temperature range 15-20°C. It is preferable to keep polyurethane belts in a darkened environment.

Use of Idlers

Inside or outside idlers used for tensioning or power take off should be on the slack side of the belt. Inside idlers must be grooved unless the number of grooves is more than 40, when flat idlers can be used. Flat faced idlers must not be crowned, and all idlers should be equal to, or greater than the smallest drive pulley. Idlers must be of fixed type, and positioned so that the arc of contact is kept to a minimum.

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Metric Series Timing Belts

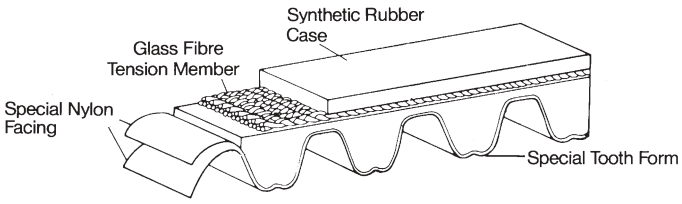
Standard High Torque Metric Timing Belt Drives

To provide optimum performance with a standard range of Metric High Torque Drive Pulleys, Cross+Morse selected the Megadyne deep profile. RPP series belts.
The RPP belts are, combined with a standard range of pulley to provide "off the shelf" drives in 4 pitches; 3mm (3M) 5mm (5M), 8mm (8M), and 14mm (14M), able to transmit up to 700kW, or drive shafts to 15,000 r.p.m.

The pulleys are available with 3 methods of shaft connection; Pilot bored, pp 15-18, for finishing with sized bore, keyway and setscrews can, optionally be supplied finished; taper bored for fitting standard taper bushes pp 21-22; and for optimum connection the Avante system, pp 19-20, for connection with shaft clamping elements.

Standard Metric Belts (pp 12)

The Megadyne RPP series of belts provide the ideal solution for most drives. Totally interchangeable with other deep profile belts, they are available in 4 pitch sizes; 3mm (3M), 5mm (5M); 8mm (8M), and 14mm (14M). Standard drives are suitable for applications from fractional kW up to 250kW power rating.
In order to transmit higher powers tooth contact between belt and pulley has to be increased. To achieve this a parabolic tooth form with contact angle increasing from tooth base to tip was adopted, enabling a deeper tooth form than classical belts. The improved level of meshing, combined with smoother engagement of drive, increased resistance to tooth shear and tooth jumping enabled higher torque transmission with reduced installation tension. Megadyne belts have an indentation at the top of the tooth to further improve meshing between belt and pulley by deformation of the tooth tip allowing precise moulding of tooth to pulley contours, reducing frictional wear. The indentation also allows air to escape, further reducing noise levels.



As with classical series belts, power is transmitted by a glass fibre tension member spirally wound across the width of the belt. The glass fibre cord ensures length stability combined with high strength and resistance to failure under repeated flexing. The tension member is bonded into a synthetic rubber body moulded integral with the drive teeth. The rubber compound selected has complete absence of age deformation and high resistance to mineral lubricating oils, heat, ozone and flex fatigue. A tough nylon fabric is bonded to the drive face of the belt, which by a patented treatment is self lubricating, for low coefficient of friction with exceptional resistance to abrasion and shear, for high drive efficiency with long belt and pulley life.

High Power Metric Belts (p 13)

New RPP Plus Belts provide increased torque and power capacity. Available 8mm (8H) and 14mm (14H) pitches, they operate on standard metric pulleys to transmit up to 470kW. Body of the belt is manufactured from reinforced polychloroprenic compound with exceptional resistance to flex fatigue, ozone, heat, and mineral oils. The teeth are faced with graphite impregnated nylon for high strength and low friction. A high module resistant fibre cord gives high breaking strength with reduced elasticity.

For even higher powered drives, up to 700kW, the RPP Gold series belts, were developed in 8mm (8P) and 14mm (14P) pitches. These use Aramid reinforced polychloroprene for the body of the belt with double layer graphite impregnated nylon facing for the teeth. The tension cables are in Kevlar for maximum strength with flexibility. The belts provide all the advantages of RPP Plus with additional load capacity, excellent anti-static properties, and ability to use idlers on the back of the belt.

Anti Static Belts

Belts conforming to BS2050 standards can be supplied for the 8M and 14M belt sizes. These belts are for application within chemical plants, oil refineries, and in mines.

The RPP Plus & RPP Gold high power belts have anti-static properties as standard.

Double sided Belts (p14)

To enable power to be taken from both sides of the belt to transfer direction of drive. Available in 5M and 14M tooth form to operate on standard Metric pulleys.

These belts have moulded teeth on both sides with nylon jacket, to enable full torque transmission. Ideal for Serpentine drives, and multi shaft arrangements.

'TIL' Long length Belts

Special manufacturing method enables extra long length endless belts to be manufactured.

Ideal for long centre distance drives where full torque transmission is required.

Open Ended Metric Belts (pp23-26)

Long length (up to 150 Metres) open ended belts are available in both standard neoprene rubber construction, and in Polyurethane with RPP tooth form.
Standard construction belts are available in 3M and 5M forms in widths 9,12 or 15mm; 5M and 8M form in widths 20 & 25mm and 8M form 30mm wide.
For increased Power capacity the "Green Belt" is available as an alternate/replacement, these being Polyurethane belts manufactured to tight tolerance with standard RPP tooth profile for maximum power transmission.
The teeth are faced with green nylon fabric giving reduced noise and friction. High strength steel tension member gives high breaking strengths with extremely low elongation. The belts are available in 5mm, 8mm, and 14mm pitch for linear drive applications, and are particularly suitable in drives with frequent speed change.

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Metric Series Timing Belts

CROSS+MORSE

3mm Pitch Standard Metric Belts Type 3M

Belt Length mm	No. Teeth	6mm Wide Belt		9mm Wide Belt		15mm Wide Belt	
		Cat. No.	Wt gms	Cat. No.	Wt gms	Cat. No.	Wt gms
90	30	90-3M6	2	90-3M9	3	90-3M15	5
105	35	105-3M6	2	105-3M9	3	105-3M15	5
129	43	129-3M6	3	129-3M9	4	129-3M15	7
141	47	141-3M6	3	141-3M9	4	141-3M15	7
144	48	144-3M6	3	144-3M9	4	144-3M15	7
147	49	147-3M6	3	147-3M9	5	147-3M15	8
150	50	150-3M6	3	150-3M9	5	150-3M15	8
159	53	159-3M6	3	159-3M9	5	159-3M15	8
168	56	168-3M6	3	168-3M9	5	168-3M15	9
174	58	174-3M6	4	174-3M9	5	174-3M15	9
177	59	177-3M6	4	177-3M9	5	177-3M15	9
180	60	180-3M6	4	180-3M9	6	180-3M15	9
186	62	186-3M6	4	186-3M9	6	186-3M15	10
195	65	195-3M6	4	195-3M9	6	195-3M15	10
201	67	201-3M6	4	201-3M9	6	201-3M15	10
204	68	204-3M6	4	204-3M9	6	204-3M15	11
210	70	210-3M6	4	210-3M9	6	210-3M15	11
213	71	213-3M6	4	213-3M9	7	213-3M15	11
225	75	225-3M6	5	225-3M9	7	225-3M15	12
231	77	231-3M6	5	231-3M9	7	231-3M15	12
240	80	240-3M6	5	240-3M9	7	240-3M15	12
243	81	243-3M6	5	243-3M9	8	243-3M15	13
246	82	246-3M6	5	246-3M9	8	246-3M15	13
252	84	252-3M6	5	252-3M9	8	252-3M15	13
255	85	255-3M6	5	255-3M9	8	255-3M15	13
264	88	264-3M6	5	264-3M9	8	264-3M15	14
267	89	267-3M6	6	267-3M9	8	267-3M15	14
270	90	270-3M6	6	270-3M9	8	270-3M15	14
276	92	276-3M6	6	276-3M9	9	276-3M15	14
285	95	285-3M6	6	285-3M9	9	285-3M15	15
288	96	288-3M6	6	288-3M9	9	288-3M15	15
291	97	291-3M6	6	291-3M9	9	291-3M15	15
297	99	297-3M6	6	297-3M9	9	297-3M15	15
300	100	300-3M6	6	300-3M9	9	300-3M15	15
312	104	312-3M6	6	312-3M9	10	312-3M15	16
318	106	318-3M6	7	318-3M9	10	318-3M15	16
327	109	327-3M6	7	327-3M9	10	327-3M15	17
330	110	330-3M6	7	330-3M9	10	330-3M15	17
336	112	336-3M6	7	336-3M9	10	336-3M15	17
339	113	339-3M6	7	339-3M9	10	339-3M15	17
345	115	345-3M6	7	345-3M9	11	345-3M15	18
357	119	357-3M6	7	357-3M9	11	357-3M15	18
363	121	363-3M6	7	363-3M9	11	363-3M15	19
375	125	375-3M6	8	375-3M9	12	375-3M15	19
384	128	384-3M6	8	384-3M9	12	384-3M15	20
390	130	390-3M6	8	390-3M9	12	390-3M15	20
393	131	393-3M6	8	393-3M9	12	393-3M15	20
405	135	405-3M6	8	405-3M9	13	405-3M15	21
420	140	420-3M6	9	420-3M9	13	420-3M15	22
432	144	432-3M6	9	432-3M9	13	432-3M15	22
447	149	447-3M6	9	447-3M9	14	447-3M15	23
474	158	474-3M6	10	474-3M9	15	474-3M15	24
480	160	480-3M6	10	480-3M9	15	480-3M15	25
486	162	486-3M6	10	486-3M9	15	486-3M15	25
489	163	489-3M6	10	489-3M9	15	489-3M15	25
501	167	501-3M6	10	501-3M9	15	501-3M15	26
510	170	510-3M6	11	510-3M9	16	510-3M15	26
513	171	513-3M6	11	513-3M9	16	513-3M15	26
522	174	522-3M6	11	522-3M9	16	522-3M15	27
531	177	531-3M6	11	531-3M9	16	531-3M15	27
537	179	537-3M6	11	537-3M9	17	537-3M15	28
564	188	564-3M6	12	564-3M9	17	564-3M15	29
570	190	570-3M6	12	570-3M9	18	570-3M15	29
576	192	576-3M6	12	576-3M9	18	576-3M15	30
579	193	579-3M6	12	579-3M9	18	579-3M15	30
597	199	597-3M6	12	597-3M9	18	597-3M15	31
600	200	600-3M6	12	600-3M9	19	600-3M15	31
633	211	633-3M6	13	633-3M9	20	633-3M15	33
648	216	648-3M6	13	648-3M9	20	648-3M15	33
669	223	669-3M6	14	669-3M9	21	669-3M15	34
711	237	711-3M6	15	711-3M9	22	711-3M15	37
735	245	735-3M6	15	735-3M9	23	735-3M15	38
738	246	738-3M6	15	738-3M9	23	738-3M15	38
756	252	756-3M6	16	756-3M9	23	756-3M15	39
804	268	804-3M6	17	804-3M9	25	804-3M15	41
882	294	882-3M6	18	882-3M9	27	882-3M15	45
945	315	945-3M6	19	945-3M9	29	945-3M15	49
1062	354	1062-3M6	22	1062-3M9	33	1062-3M15	55
1125	375	1125-3M6	23	1125-3M9	35	1125-3M15	58
1245	415	1245-3M6	26	1245-3M9	38	1245-3M15	64
1263	421	1263-3M6	26	1263-3M9	39	1263-3M15	65
1500	500	1500-3M6	31	1500-3M9	46	1500-3M15	77
1530	510	1530-3M6	32	1530-3M9	47	1530-3M15	79
1863	621	1863-3M6	38	1863-3M9	58	1863-3M15	96

5mm Pitch Standard Metric Belts Type 5M

Belt Length mm	No. Teeth	9mm Wide Belt		15mm Wide Belt		25mm Wide Belt	
		Cat. No.	Wt gms	Cat. No.	Wt gms	Cat. No.	Wt gms
180	36	180-5M9	8	180-5M15	13	180-5M25	21
225	45	225-5M9	9	225-5M15	16	225-5M25	26
235	47	235-5M9	10	235-5M15	16	235-5M25	27
245	49	245-5M9	10	245-5M15	17	245-5M25	29
255	51	255-5M9	11	255-5M15	18	255-5M25	30
265	53	265-5M9	11	265-5M15	19	265-5M25	31
270	54	270-5M9	11	270-5M15	19	270-5M25	32
285	57	285-5M9	12	285-5M15	20	285-5M25	33
295	59	295-5M9	12	295-5M15	21	295-5M25	35
300	60	300-5M9	13	300-5M15	21	300-5M25	35
305	61	305-5M9	13	305-5M15	21	305-5M25	36
325	65	325-5M9	14	325-5M15	23	325-5M25	38
345	69	345-5M9	14	345-5M15	24	345-5M25	40
350	70	350-5M9	15	350-5M15	25	350-5M25	41
375	75	375-5M9	16	375-5M15	26	375-5M25	44
400	80	400-5M9	17	400-5M15	28	400-5M25	47
420	84	420-5M9	18	420-5M15	29	420-5M25	49
425	85	425-5M9	18	425-5M15	30	425-5M25	50
450	90	450-5M9	19	450-5M15	32	450-5M25	53
455	91	455-5M9	19	455-5M15	32	455-5M25	53
460	92	460-5M9	19	460-5M15	32	460-5M25	54
465	93	465-5M9	20	465-5M15	33	465-5M25	54
475	95	475-5M9	20	475-5M15	33	475-5M25	56
500	100	500-5M9	21	500-5M15	35	500-5M25	59
525	105	525-5M9	22	525-5M15	37	525-5M25	61
535	107	535-5M9	22	535-5M15	37	535-5M25	63
565	113	565-5M9	24	565-5M15	40	565-5M25	66
575	115	575-5M9	24	575-5M15	40	575-5M25	67
580	116	580-5M9	24	580-5M15	41	580-5M25	68
600	120	600-5M9	25	600-5M15	42	600-5M25	70
610	122	610-5M9	26	610-5M15	43	610-5M25	71
635	127	635-5M9	27	635-5M15	44	635-5M25	74
640	128	640-5M9	27	640-5M15	45	640-5M25	75
670	134	670-5M9	28	670-5M15	47	670-5M25	78
675	135	675-5M9	28	675-5M15	47	675-5M25	79
700	140	700-5M9	29	700-5M15	49	700-5M25	82
705	141	705-5M9	30	705-5M15	49	705-5M25	82
710	142	710-5M9	30	710-5M15	50	710-5M25	83
725	145	725-5M9	30	725-5M15	51	725-5M25	85
740	148	740-5M9	31	740-5M15	52	740-5M25	87
750	150	750-5M9	31	750-5M15	52	750-5M25	87
755	151	755-5M9	32	755-5M15	53	755-5M25	88
800	160	800-5M9	34	800-5M15	56	800-5M25	94
835	167	835-5M9	35	835-5M15	58	835-5M25	98
850	170	850-5M9	36	850-5M15	60	850-5M25	99
890	178	890-5M9	37	890-5M15	62	890-5M25	104
900	180	900-5M9	38	900-5M15	63	900-5M25	106
935	187	935-5M9	39	935-5M15	65	935-5M25	109
940	188	940-5M9	39	940-5M15	66	940-5M25	110
950	190	950-5M9	40	950-5M15	67	950-5M25	111
980	196	980-5M9	41	980-5M15	69	980-5M25	115
1000	200	1000-5M9	42	1000-5M15	70	1000-5M25	117
1050	210	1050-5M9	44	1050-5M15	74	1050-5M25	123
1100	220	1100-5M9	46	1100-5M15	77	1100-5M25	129
1125	225	1125-5M9	47	1125-5M15	79	1125-5M25	132
1195	239	1195-5M9	50	1195-5M15	84	1195-5M25	140
1200	240	1200-5M9	50	1200-5M15	84	1200-5M25	140
1240	248	1240-5M9	52	1240-5M15	87	1240-5M25	145
1270	254	1270-5M9	53	1270-5M15	89	1270-5M25	149
1420	284	1420-5M9	60	1420-5M15	99	1420-5M25	166
1595	319	1595-5M9	67	1595-5M15	112	1595-5M25	187
1690	338	1690-5M9	41	1690-5M15	118	1690-5M25	198
1790	358	1790-5M9	75	1790-5M15	125	1790-5M25	209
1800	360	1800-5M9	76	1800-5M15	126	1800-5M25	211
1895	379	1895-5M9	80	1895-5M15	133	1895-5M25	222
2000	400	2000-5M9	84	2000-5M15	140	2000-5M25	234
2250	450	2250-5M9	95	2250-5M15	158	2250-5M25	263
2525	505	2525-5M9	106	2525-5M15	177	2525-5M25	295

8mm Pitch Standard Metric Belts Type 8M

Belt Length mm	No. Teeth	20mm Wide Belt		30mm Wide Belt		50mm Wide Belt		85mm Wide Belt	
		Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg
320	40	320-8M20	0.036	320-8M30	0.054	320-8M50	0.090	320-8M85	0.154
480	60	480-8M20	0.054	480-8M30	0.081	480-8M50	0.136	480-8M85	0.231
536	67	536-8M20	0.061	536-8M30	0.091	536-8M50	0.151	536-8M85	0.257
560	70	560-8M20	0.063	560-8M30	0.095	560-8M50	0.158	560-8M85	0.269
600	75	600-8M20	0.068	600-8M30	0.102	600-8M50	0.170	600-8M85	0.288
632	79	632-8M20	0.071	632-8M30	0.107	632-8M50	0.179	632-8M85	0.304
640	80	640-8M20	0.072	640-8M30	0.108	640-8M50	0.181	640-8M85	0.307
680	85	680-8M20	0.077	680-8M30	0.115	680-8M50	0.192	680-8M85	0.327
720	90	720-8M20	0.081	720-8M30	0.122	720-8M50	0.203	720-8M85	0.346
800	100	800-8M20	0.090	800-8M30	0.136	800-8M50	0.226	800-8M85	0.384
840	105	840-8M20	0.095	840-8M30	0.142	840-8M50	0.237	840-8M85	0.403
880	110	880-8M20	0.099	880-8M30	0.149	880-8M50	0.249	880-8M85	0.423
920	115	920-8M20	0.104	920-8M30	0.156	920-8M50	0.260	920-8M85	0.442
960	120	960-8M20	0.108	960-8M30	0.163	960-8M50	0.271	960-8M85	0.461
1040	130	1040-8M20	0.118	1040-8M30	0.176	1040-8M50	0.294	1040-8M85	0.499
1080	135	1080-8M20	0.122	1080-8M30	0.183	1080-8M50	0.305	1080-8M85	0.519
1120	140	1120-8M20	0.127	1120-8M30	0.190	1120-8M50	0.316	1120-8M85	0.538
1200	150	1200-8M20	0.136	1200-8M30	0.203	1200-8M50	0.339	1200-8M85	0.576
1224	153	1224-8M20	0.138	1224-8M30	0.207	1224-8M50	0.346	1224-8M85	0.588
1280	160	1280-8M20	0.145	1280-8M30	0.217	1280-8M50	0.362	1280-8M85	0.615
1352	169	1352-8M20	0.153	1352-8M30	0.229	1352-8M50	0.382	1352-8M85	0.649
1440	180	1440-8M20	0.163	1440-8M30	0.244	1440-8M50	0.407	1440-8M85	0.692
1464	183	1464-8M20	0.165	1464-8M30	0.248	1464-8M50	0.414	1464-8M85	0.703
1600	200	1600-8M20	0.181	1600-8M30	0.271	1600-8M50	0.452	1600-8M85	0.768
1760	220	1760-8M20	0.199	1760-8M30	0.296	1760-8M50	0.497	1760-8M85	0.845
1800	225	1800-8M20	0.203	1800-8M30	0.305	1800-8M50	0.509	1800-8M85	0.864
2000	250	2000-8M20	0.226	2000-8M30	0.339	2000-8M50	0.565	2000-8M85	0.961
2400	300	2400-8M20	0.271	2400-8M30	0.407	2400-8M50	0.678	2400-8M85	1.153
2600	325	2600-8M20	0.294	2600-8M30	0.441	2600-8M50	0.735	2600-8M85	1.249
2800	350	2800-8M20	0.316	2800-8M30	0.475	2800-8M50	0.791	2800-8M85	1.345
3048	381	3048-8M20	0.344	3048-8M30	0.517	3048-8M50	0.861	3048-8M85	1.464
3280	410	3280-8M20	0.371	3280-8M30	0.556	3280-8M50	0.927	3280-8M85	1.575
3600	450	3600-8M20	0.407	3600-8M30	0.610	3600-8M50	1.017	3600-8M85	1.729
4400	550	4400-8M20	0.497	4400-8M30	0.746	4400-8M50	1.243	4400-8M85	2.113

14mm Pitch Standard Metric Belts Type 14M

Belt Length mm	No. Teeth	40mm Wide Belt		55mm Wide Belt		85mm Wide Belt		115mm Wide Belt		170mm Wide Belt	
		Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg
966	69	966-14M40	0.38	966-14M55	0.52	966-14M85	0.81	966-14M115	1.09	966-14M170	1.62
1190	85	1190-14M40	0.47	1190-14M55	0.64	1190-14M85	1.00	1190-14M115	1.35	1190-14M170	1.99
1400	100	1400-14M40	0.55	1400-14M55	0.76	1400-14M85	1.17	1400-14M115	1.59	1400-14M170	2.34
1610	115	1610-14M40	0.63	1610-14M55	0.87	1610-14M85	1.35	1610-14M115	1.82	1610-14M170	2.70
1764	126	1764-14M40	0.70	1764-14M55	0.96	1764-14M85	1.48	1764-14M115	2.00	1764-14M170	2.95
1778	127	1778-14M40	0.70	1778-14M55	0.96	1778-14M85	1.49	1778-14M115	2.01	1778-14M170	2.98
1890	135	1890-14M40	0.74	1890-14M55	1.02	1890-14M85	1.58	1890-14M115	2.14	1890-14M170	3.16
2100	150	2100-14M40	0.83	2100-14M55	1.14	2100-14M85	1.76	2100-14M115	2.38	2100-14M170	3.52
2310	165	2310-14M40	0.91	2310-14M55	1.25	2310-14M85	1.93	2310-14M115	2.62	2310-14M170	3.87
2450	175	2450-14M40	0.97	2450-14M55	1.33	2450-14M85	2.05	2450-14M115	2.78	2450-14M170	4.10
2590	185	2590-14M40	1.02	2590-14M55	1.40	2590-14M85	2.17	2590-14M115	2.93	2590-14M170	4.34
2800	200	2800-14M40	1.10	2800-14M55	1.52	2800-14M85	2.34	2800-14M115	3.17	2800-14M170	4.69
3150	225	3150-14M40	1.24	3150-14M55	1.71	3150-14M85	2.64	3150-14M115	3.57	3150-14M170	5.27
3360	240	3360-14M40	1.32	3360-14M55	1.82	3360-14M85	2.81	3360-14M115	3.81	3360-14M170	5.63
3500	250	3500-14M40	1.38	3500-14M55	1.90	3500-14M85	2.93	3500-14M115	3.96	3500-14M170	5.86
3850	275	3850-14M40	1.52	3850-14M55	2.09	3850-14M85	3.22	3850-14M115	4.36	3850-14M170	6.45
4326	309	4326-14M40	1.70	4326-14M55	2.34	4326-14M85	3.62	4326-14M115	4.90	4326-14M170	7.24
4578	327	4578-14M40	1.80	4578-14M55	2.48	4578-14M85	3.83	4578-14M115	5.19	4578-14M170	7.67
4956	354	4956-14M40	1.95	4956-14M55	2.68	4956-14M85	4.15	4956-14M115	5.61	4956-14M170	8.30

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High Power Metric Timing Belts

High Power RPP Plus and RPP Gold Belts

The improved design RPP Plus and RPP Gold Belts can transmit higher torques whilst still operating on standard HTD pulleys. Replacing a standard metric belt with the equivalent RPP Plus belt can enable up to 100% more torque transmission, whilst the equivalent RPP Gold belt provides up to 200% more. Both are available in 8mm and 14mm pitch.

8mm Pitch RPP Plus High Power Belts Type 8H

Belt Length mm	No. Teeth	20mm Wide Belt		30mm Wide Belt		50mm Wide Belt		85mm Wide Belt	
		Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg
288	36	288-8H20	0.033	288-8H30	0.049	288-8H50	0.081	288-8H85	0.136
320	40	320-8H20	0.036	320-8H30	0.054	320-8H50	0.090	320-8H85	0.154
352	44	352-8H20	0.040	352-8H30	0.060	352-8H50	0.099	352-8H85	0.169
384	48	384-8H20	0.043	384-8H30	0.065	384-8H50	0.108	384-8H85	0.184
408	51	408-8H20	0.046	408-8H30	0.069	408-8H50	0.115	408-8H85	0.196
480	60	480-8H20	0.054	480-8H30	0.081	480-8H50	0.136	480-8H85	0.231
536	67	536-8H20	0.061	536-8H30	0.091	536-8H50	0.151	536-8H85	0.257
544	68	544-8H20	0.061	544-8H30	0.092	544-8H50	0.154	544-8H85	0.261
560	70	560-8H20	0.063	560-8H30	0.095	560-8H50	0.158	560-8H85	0.269
600	75	600-8H20	0.068	600-8H30	0.102	600-8H50	0.170	600-8H85	0.288
632	79	632-8H20	0.071	632-8H30	0.107	632-8H50	0.179	632-8H85	0.304
640	80	640-8H20	0.072	640-8H30	0.108	640-8H50	0.181	640-8H85	0.307
680	85	680-8H20	0.077	680-8H30	0.115	680-8H50	0.192	680-8H85	0.327
720	90	720-8H20	0.081	720-8H30	0.122	720-8H50	0.203	720-8H85	0.346
800	100	800-8H20	0.090	800-8H30	0.136	800-8H50	0.226	800-8H85	0.384
840	105	840-8H20	0.095	840-8H30	0.142	840-8H50	0.237	840-8H85	0.403
880	110	880-8H20	0.099	880-8H30	0.149	880-8H50	0.249	880-8H85	0.423
920	115	920-8H20	0.104	920-8H30	0.156	920-8H50	0.260	920-8H85	0.442
960	120	960-8H20	0.108	960-8H30	0.163	960-8H50	0.271	960-8H85	0.461
1040	130	1040-8H20	0.118	1040-8H30	0.176	1040-8H50	0.294	1040-8H85	0.499
1080	135	1080-8H20	0.122	1080-8H30	0.183	1080-8H50	0.305	1080-8H85	0.519
1120	140	1120-8H20	0.127	1120-8H30	0.190	1120-8H50	0.316	1120-8H85	0.538
1200	150	1200-8H20	0.136	1200-8H30	0.203	1200-8H50	0.339	1200-8H85	0.576
1224	153	1224-8H20	0.138	1224-8H30	0.207	1224-8H50	0.346	1224-8H85	0.588
1280	160	1280-8H20	0.145	1280-8H30	0.217	1280-8H50	0.362	1280-8H85	0.615
1352	169	1352-8H20	0.153	1352-8H30	0.229	1352-8H50	0.382	1352-8H85	0.649
1440	180	1440-8H20	0.163	1440-8H30	0.244	1440-8H50	0.407	1440-8H85	0.692
1464	183	1464-8H20	0.165	1464-8H30	0.248	1464-8H50	0.414	1464-8H85	0.703
1600	200	1600-8H20	0.181	1600-8H30	0.271	1600-8H50	0.452	1600-8H85	0.768
1760	220	1760-8H20	0.199	1760-8H30	0.298	1760-8H50	0.497	1760-8H85	0.845
1800	225	1800-8H20	0.203	1800-8H30	0.305	1800-8H50	0.509	1800-8H85	0.864
2000	250	2000-8H20	0.226	2000-8H30	0.339	2000-8H50	0.565	2000-8H85	0.961
2200	275	2200-8H20	0.249	2200-8H30	0.373	2200-8H50	0.622	2200-8H85	1.057
2400	300	2400-8H20	0.271	2400-8H30	0.407	2400-8H50	0.678	2400-8H85	1.153
2600	325	2600-8H20	0.294	2600-8H30	0.441	2600-8H50	0.735	2600-8H85	1.249
2800	350	2800-8H20	0.316	2800-8H30	0.475	2800-8H50	0.791	2800-8H85	1.345
3048	381	3048-8H20	0.344	3048-8H30	0.517	3048-8H50	0.861	3048-8H85	1.464
3280	410	3280-8H20	0.371	3280-8H30	0.556	3280-8H50	0.927	3280-8H85	1.575
3600	450	3600-8H20	0.407	3600-8H30	0.610	3600-8H50	1.017	3600-8H85	1.729
4400	550	4400-8H20	0.497	4400-8H30	0.746	4400-8H50	1.243	4400-8H85	2.113

14mm Pitch RPP Plus High Power Belts Type 14H

Belt Length mm	No. Teeth	40mm Wide Belt		55mm Wide Belt		85mm Wide Belt		115mm Wide Belt		170mm Wide Belt	
		Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg
966	69	966-14H40	0.38	966-14H55	0.52	966-14H85	0.81	966-14H115	1.09	966-14H170	1.62
1092	78	1092-14H40	0.43	1092-14H55	0.59	1092-14H85	0.91	1092-14H115	1.24	1092-14H170	1.83
1190	85	1190-14H40	0.47	1190-14H55	0.64	1190-14H85	1.00	1190-14H115	1.35	1190-14H170	1.99
1400	100	1400-14H40	0.55	1400-14H55	0.76	1400-14H85	1.17	1400-14H115	1.59	1400-14H170	2.34
1610	115	1610-14H40	0.63	1610-14H55	0.87	1610-14H85	1.35	1610-14H115	1.82	1610-14H170	2.70
1764	126	1764-14H40	0.70	1764-14H55	0.96	1764-14H85	1.48	1764-14H115	2.00	1764-14H170	2.95
1778	127	1778-14H40	0.70	1778-14H55	0.96	1778-14H85	1.49	1778-14H115	2.01	1778-14H170	2.98
1890	135	1890-14H40	0.74	1890-14H55	1.02	1890-14H85	1.58	1890-14H115	2.14	1890-14H170	3.16
2100	150	2100-14H40	0.83	2100-14H55	1.14	2100-14H85	1.76	2100-14H115	2.38	2100-14H170	3.52
2310	165	2310-14H40	0.91	2310-14H55	1.25	2310-14H85	1.93	2310-14H115	2.62	2310-14H170	3.87
2450	175	2450-14H40	0.97	2450-14H55	1.33	2450-14H85	2.05	2450-14H115	2.78	2450-14H170	4.10
2590	185	2590-14H40	1.02	2590-14H55	1.40	2590-14H85	2.17	2590-14H115	2.93	2590-14H170	4.34
2800	200	2800-14H40	1.10	2800-14H55	1.52	2800-14H85	2.34	2800-14H115	3.17	2800-14H170	4.69
3150	225	3150-14H40	1.24	3150-14H55	1.71	3150-14H85	2.64	3150-14H115	3.57	3150-14H170	5.27
3360	240	3360-14H40	1.32	3360-14H55	1.82	3360-14H85	2.81	3360-14H115	3.81	3360-14H170	5.63
3500	250	3500-14H40	1.38	3500-14H55	1.90	3500-14H85	2.93	3500-14H115	3.96	3500-14H170	5.86
3850	275	3850-14H40	1.52	3850-14H55	2.09	3850-14H85	3.22	3850-14H115	4.36	3850-14H170	6.45
4326	309	4326-14H40	1.70	4326-14H55	2.34	4326-14H85	3.62	4326-14H115	4.90	4326-14H170	7.24
4578	327	4578-14H40	1.80	4578-14H55	2.48	4578-14H85	3.83	4578-14H115	5.19	4578-14H170	7.67
4956	354	4956-14H40	1.95	4956-14H55	2.68	4956-14H85	4.15	4956-14H115	5.61	4956-14H170	8.30

8mm Pitch RPP Gold High Power Belts Type 8P

Belt Length mm	No. Teeth	20mm Wide Belt		30mm Wide Belt		50mm Wide Belt		85mm Wide Belt	
		Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg
288	36	288-8P20	0.033	288-8P30	0.049	288-8P50	0.081	288-8P85	0.136
320	40	320-8P20	0.036	320-8P30	0.054	320-8P50	0.090	320-8P85	0.154
352	44	352-8P20	0.040	352-8P30	0.060	352-8P50	0.099	352-8P85	0.169
384	48	384-8P20	0.043	384-8P30	0.065	384-8P50	0.108	384-8P85	0.184
408	51	408-8P20	0.046	408-8P30	0.069	408-8P50	0.115	408-8P85	0.196
480	60	480-8P20	0.054	480-8P30	0.081	480-8P50	0.136	480-8P85	0.231
536	67	536-8P20	0.061	536-8P30	0.091	536-8P50	0.151	536-8P85	0.257
544	68	544-8P20	0.061	544-8P30	0.092	544-8P50	0.154	544-8P85	0.261
560	70	560-8P20	0.063	560-8P30	0.095	560-8P50	0.158	560-8P85	0.269
600	75	600-8P20	0.068	600-8P30	0.102	600-8P50	0.170	600-8P85	0.288
632	79	632-8P20	0.071	632-8P30	0.107	632-8P50	0.179	632-8P85	0.304
640	80	640-8P20	0.072	640-8P30	0.108	640-8P50	0.181	640-8P85	0.307
680	85	680-8P20	0.077	680-8P30	0.115	680-8P50	0.192	680-8P85	0.327
720	90	720-8P20	0.081	720-8P30	0.122	720-8P50	0.203	720-8P85	0.346
800	100	800-8P20	0.090	800-8P30	0.136	800-8P50	0.226	800-8P85	0.384
840	105	840-8P20	0.095	840-8P30	0.142	840-8P50	0.237	840-8P85	0.403
880	110	880-8P20	0.099	880-8P30	0.149	880-8P50	0.249	880-8P85	0.423
920	115	920-8P20	0.104	920-8P30	0.156	920-8P50	0.260	920-8P85	0.442
960	120	960-8P20	0.108	960-8P30	0.163	960-8P50	0.271	960-8P85	0.461
1040	130	1040-8P20	0.118	1040-8P30	0.176	1040-8P50	0.294	1040-8P85	0.499
1080	135	1080-8P20	0.122	1080-8P30	0.183	1080-8P50	0.305	1080-8H85	0.519
1120	140	1120-8P20	0.127	1120-8P30	0.190	1120-8P50	0.316	1120-8H85	0.538
1200	150	1200-8P20	0.136	1200-8P30	0.203	1200-8P50	0.339	1200-8H85	0.576
1224	153	1224-8P20	0.138	1224-8P30	0.207	1224-8P50	0.346	1224-8H85	0.588
1280	160	1280-8P20	0.145	1280-8P30	0.217	1280-8P50	0.362	1280-8H85	0.615
1352	169	1352-8P20	0.153	1352-8P30	0.229	1352-8P50	0.382	1352-8H85	0.649
1440	180	1440-8P20	0.163	1440-8P30	0.244	1440-8P50	0.407	1440-8H85	0.692
1464	183	1464-8P20	0.165	1464-8P30	0.248	1464-8P50	0.414	1464-8H85	0.703
1600	200	1600-8P20	0.181	1600-8P30	0.271	1600-8P50	0.452	1600-8H85	0.768
1760	220	1760-8P20	0.199	1760-8P30	0.298	1760-8P50	0.497	1760-8H85	0.845
1800	225	1800-8P20	0.203	1800-8P30	0.305	1800-8P50	0.509	1800-8H85	0.864
2000	250	2000-8P20	0.226	2000-8P30	0.339	2000-8P50	0.565	2000-8H85	0.961
2200	275	2200-8P20	0.249	2200-8P30	0.373	2200-8P50	0.622	2200-8H85	1.057
2400	300	2400-8P20	0.271	2400-8P30	0.407	2400-8P50	0.678	2400-8H85	1.153
2600	325	2600-8P20	0.294	2600-8P30	0.441	2600-8P50	0.735	2600-8H85	1.249
2800	350	2800-8P20	0.316	2800-8P30	0.475	2800-8P50	0.791	2800-8H85	1.345
3048	381	3048-8P20	0.344	3048-8P30	0.517	3048-8P50	0.861	3048-8H85	1.464
3280	410	3280-8P20	0.371	3280-8P30	0.556	3280-8P50	0.927	3280-8H85	1.575
3600	450	3600-8P20	0.407	3600-8P30	0.610	3600-8P50	1.017	3600-8H85	1.729
4400	550	4400-8P20	0.497	4400-8P30	0.746	4400-8P50	1.243	4400-8P85	2.113

14mm Pitch RPP Gold High Power Belts Type 14P

Belt Length mm	No. Teeth	40mm Wide Belt		55mm Wide Belt		85mm Wide Belt		115mm Wide Belt		170mm Wide Belt	
		Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg
966	69	966-14P40	0.38	966-14P55	0.52	966-14P85	0.81	966-14P115	1.09	966-14P170	1.62
1092	78	1092-14P40	0.43	1092-14P55	0.59	1092-14P85	0.91	1092-14P115	1.24	1092-14P170	1.83
1190	85	1190-14P40	0.47	1190-14P55	0.64	1190-14P85	1.00	1190-14P115	1.35	1190-14P170	1.99
1400	100	1400-14P40	0.55	1400-14P55	0.76	1400-14P85	1.17	1400-14P115	1.59	1400-14P170	2.34
1610	115	1610-14P40	0.63	1610-14P55	0.87	1610-14P85	1.35	1610-14P115	1.82	1610-14P170	2.70
1764	126	1764-14P40	0.70	1764-14P55	0.96	1764-14P85	1.48	1764-14P115	2.00	1764-14P170	2.95
1778	127	1778-14P40	0.70	1778-14P55	0.96	1778-14P85	1.49	1778-14P115	2.01	1778-14P170	2.98
1890	135	1890-14P40	0.74	1890-14P55	1.02	1890-14P85	1.58	1890-14P115	2.14	1890-14P170	3.16
2100	150	2100-14P40	0.83	2100-14P55	1.14	2100-14P85	1.76	2100-14P115	2.38	2100-14P170	3.52
2310	165	2310-14P40	0.91	2310-14P55	1.25	2310-14P85	1.93	2310-14P115	2.62	2310-14P170	3.87
2450	175	2450-14P40	0.97	2450-14P55	1.33	2450-14P85	2.05	2450-14P115	2.78	2450-14P170	4.10
2590	185	2590-14P40	1.02	2590-14P55	1.40	2590-14P85	2.17	2590-14P115	2.93	2590-14P170	4.34
2800	200	2800-14P40	1.10	2800-14P55	1.52	2800-14P85	2.34	2800-14P115	3.17	2800-14P170	4.69
3150	225	3150-14P40	1.24	3150-14P55	1.71	3150-14P85	2.64	3150-14P115	3.57	3150-14P170	5.27
3360	240	3360-14P40	1.32	3360-14P55	1.82	3360-14P85	2.81	3360-14P115	3.81	3360-14P170	5.63
3500	250	3500-14P40	1.38	3500-14P55	1.90	3500-14P85	2.93	3500-14P115	3.96	3500-14P170	5.86
3850	275	3850-14P40	1.52	3850-14P55	2.09	3850-14P85	3.22	3850-14P115	4.36	3850-14P170	6.45
4326	309	4326-14P40	1.70	4326-14P55	2.34	4326-14P85	3.62	4326-14P115	4.90	4326-14P170	7.24
4578	327	4578-14P40	1.80	4578-14P55	2.48	4578-14P85	3.83	4578-14P115	5.19	4578-14P170	7.67
4956	354	4956-14P40	1.95	4956-14P55	2.68	4956-14P85	4.15	4956-14P115	5.61	4956-14P170	8.30

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Metric Series Timing Belt Drives

CROSS+MORSE

Double Sided Metric Belts

Double-sided belts have teeth equally constructed on each side of the belt, which enables them to mesh with toothed pulleys on both the inside and outside. The construction of the belts is basically the same as standard Metric belts, except that the nylon facing is also on the backing teeth, enabling full torque transmission from each side of the belt.

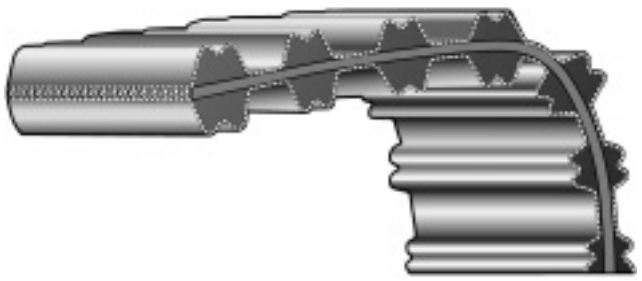
Double sided belts enable:-

- **Reverse motion between internal and external pulleys.**
- **Require only one belt to drive a series of pulleys.**
- **Simplified design layouts and weight reduction.**

Standard Double sided belts are available in three sizes, 5M, 8M, and 14M, all operating on standard HTD pulleys.

5mm Pitch Double Sided Metric Belts Type 5M-DD

Belt Length mm	No. Teeth	9mm Wide Belt		15mm Wide Belt		25mm Wide Belt	
		Cat. No.	Wt gms	Cat. No.	Wt gms	Cat. No.	Wt gms
635	127	635-5M9DD	27	635-5M15DD	45	635-5M25DD	74
640	128	640-5M9DD	27	640-5M15DD	45	640-5M25DD	75
675	135	675-5M9DD	28	675-5M15DD	47	675-5M25DD	79
700	140	700-5M9DD	29	700-5M15DD	49	700-5M25DD	81
705	141	705-5M9DD	30	705-5M15DD	49	705-5M25DD	82
710	142	710-5M9DD	30	710-5M15DD	50	710-5M25DD	83
725	145	725-5M9DD	30	725-5M15DD	51	725-5M25DD	85
740	148	740-5M9DD	31	740-5M15DD	52	740-5M25DD	86
755	151	755-5M9DD	31	755-5M15DD	53	755-5M25DD	88
800	160	800-5M9DD	34	800-5M15DD	56	800-5M25DD	93
850	170	850-5M9DD	36	850-5M15DD	60	850-5M25DD	99
890	178	890-5M9DD	37	890-5M15DD	62	890-5M25DD	104
935	187	935-5M9DD	39	935-5M15DD	65	935-5M25DD	108
940	188	940-5M9DD	40	940-5M15DD	66	940-5M25DD	110
950	190	950-5M9DD	40	950-5M15DD	67	950-5M25DD	111
980	196	980-5M9DD	41	980-5M15DD	69	980-5M25DD	114
1000	200	1000-5M9DD	42	1000-5M15DD	70	1000-5M25DD	117
1050	210	1050-5M9DD	44	1050-5M15DD	74	1050-5M25DD	123
1125	225	1125-5M9DD	47	1125-5M15DD	79	1125-5M25DD	131
1195	239	1195-5M9DD	50	1195-5M15DD	84	1195-5M25DD	140
1240	248	1240-5M9DD	52	1240-5M15DD	87	1240-5M25DD	145
1270	254	1270-5M9DD	53	1270-5M15DD	89	1270-5M25DD	148
1420	284	1420-5M9DD	60	1420-5M15DD	100	1420-5M25DD	166
1595	319	1595-5M9DD	67	1595-5M15DD	112	1595-5M25DD	186
1690	338	1690-5M9DD	71	1690-5M15DD	118	1690-5M25DD	197
1790	358	1790-5M9DD	75	1790-5M15DD	125	1790-5M25DD	209
1800	360	1800-5M9DD	76	1800-5M15DD	126	1800-5M25DD	210
1895	379	1895-5M9DD	80	1895-5M15DD	133	1895-5M25DD	221



8mm Pitch Double Sided Metric Belts Type 8M-DD

Belt Length mm	No. Teeth	20mm Wide Belt		30mm Wide Belt		50mm Wide Belt		85mm Wide Belt	
		Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg
600	75	600-8M20DD	.072	600-8M30DD	.108	600-8M50DD	.180	600-8M85DD	.306
632	79	632-8M20DD	.076	632-8M30DD	.113	632-8M50DD	.189	632-8M85DD	.322
640	80	640-8M20DD	.077	640-8M30DD	.115	640-8M50DD	.192	640-8M85DD	.326
680	85	680-8M20DD	.082	680-8M30DD	.122	680-8M50DD	.204	680-8M85DD	.347
720	90	720-8M20DD	.086	720-8M30DD	.130	720-8M50DD	.216	720-8M85DD	.367
800	100	800-8M20DD	.096	800-8M30DD	.144	800-8M50DD	.240	800-8M85DD	.408
840	105	840-8M20DD	.101	840-8M30DD	.151	840-8M50DD	.252	840-8M85DD	.428
880	110	880-8M20DD	.106	880-8M30DD	.158	880-8M50DD	.264	880-8M85DD	.449
920	115	920-8M20DD	.111	920-8M30DD	.165	920-8M50DD	.276	920-8M85DD	.469
960	120	960-8M20DD	.115	960-8M30DD	.173	960-8M50DD	.288	960-8M85DD	.490
1040	130	1040-8M20DD	.125	1040-8M30DD	.187	1040-8M50DD	.312	1040-8M85DD	.530
1120	140	1120-8M20DD	.134	1120-8M30DD	.202	1120-8M50DD	.336	1120-8M85DD	.571
1200	150	1200-8M20DD	.144	1200-8M30DD	.216	1200-8M50DD	.360	1200-8M85DD	.612
1224	153	1224-8M20DD	.147	1224-8M30DD	.220	1224-8M50DD	.367	1224-8M85DD	.625
1280	160	1280-8M20DD	.154	1280-8M30DD	.230	1280-8M50DD	.384	1280-8M85DD	.653
1352	169	1352-8M20DD	.163	1352-8M30DD	.242	1352-8M50DD	.405	1352-8M85DD	.690
1440	180	1440-8M20DD	.173	1440-8M30DD	.259	1440-8M50DD	.432	1440-8M85DD	.734
1600	200	1600-8M20DD	.192	1600-8M30DD	.288	1600-8M50DD	.480	1600-8M85DD	.816
1760	220	1760-8M20DD	.211	1760-8M30DD	.317	1760-8M50DD	.528	1760-8M85DD	.898
1800	225	1800-8M20DD	.216	1800-8M30DD	.324	1800-8M50DD	.540	1800-8M85DD	.918
2000	250	2000-8M20DD	.240	2000-8M30DD	.360	2000-8M50DD	.600	2000-8M85DD	1.020
2400	300	2400-8M20DD	.288	2400-8M30DD	.432	2400-8M50DD	.720	2400-8M85DD	1.224
2600	325	2600-8M20DD	.312	2600-8M30DD	.468	2600-8M50DD	.780	2600-8M85DD	1.326
2800	350	2800-8M20DD	.336	2800-8M30DD	.504	2800-8M50DD	.840	2800-8M85DD	1.428
3048	381	3048-8M20DD	.365	3048-8M30DD	.549	3048-8M50DD	.912	3048-8M85DD	1.551
3280	410	3280-8M20DD	.394	3280-8M30DD	.590	3280-8M50DD	.985	3280-8M85DD	1.675
3600	450	3600-8M20DD	.432	3600-8M30DD	.648	3600-8M50DD	1.080	3600-8M85DD	1.836
4400	550	4400-8M20DD	.528	4400-8M30DD	.792	4400-8M50DD	1.320	4400-8M85DD	2.244

14mm Pitch Double-sided Metric Belts Type 14M - DD

Belt Length mm	No. Teeth	40mm Wide Belt		55mm Wide Belt		85mm Wide Belt		115mm Wide Belt		170mm Wide Belt	
		Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg	Cat. No.	Wt kg
966	69	966-14M40DD	0.35	966-14M55DD	0.48	966-14M85DD	0.75	966-14M115DD	1.01	966-14M170DD	1.49
1190	85	1190-14M40DD	0.43	1190-14M55DD	0.60	1190-14M85DD	0.92	1190-14M115DD	1.24	1190-14M170DD	1.84
1400	100	1400-14M40DD	0.51	1400-14M55DD	0.70	1400-14M85DD	1.08	1400-14M115DD	1.46	1400-14M170DD	2.16
1610	115	1610-14M40DD	0.58	1610-14M55DD	0.80	1610-14M85DD	1.24	1610-14M115DD	1.68	1610-14M170DD	2.48
1778	127	1778-14M40DD	0.64	1778-14M55DD	0.89	1778-14M85DD	1.37	1778-14M115DD	1.85	1778-14M170DD	2.74
1890	135	1890-14M40DD	0.69	1890-14M55DD	0.94	1890-14M85DD	1.46	1890-14M115DD	1.97	1890-14M170DD	2.92
2100	150	2100-14M40DD	0.76	2100-14M55DD	1.05	2100-14M85DD	1.62	2100-14M115DD	2.19	2100-14M170DD	3.24
2310	165	2310-14M40DD	0.84	2310-14M55DD	1.15	2310-14M85DD	1.78	2310-14M115DD	2.41	2310-14M170DD	3.56
2450	175	2450-14M40DD	0.89	2450-14M55DD	1.22	2450-14M85DD	1.89	2450-14M115DD	2.56	2450-14M170DD	3.78
2590	185	2590-14M40DD	0.94	2590-14M55DD	1.29	2590-14M85DD	2.00	2590-14M115DD	2.70	2590-14M170DD	4.00
2800	200	2800-14M40DD	1.02	2800-14M55DD	1.40	2800-14M85DD	2.16	2800-14M115DD	2.92	2800-14M170DD	4.32
3150	225	3150-14M40DD	1.14	3150-14M55DD	1.57	3150-14M85DD	2.43	3150-14M115DD	3.29	3150-14M170DD	4.86
3500	250	3500-14M40DD	1.27	3500-14M55DD	1.75	3500-14M85DD	2.70	3500-14M115DD	3.65	3500-14M170DD	5.40
3850	275	3850-14M40DD	1.40	3850-14M55DD	1.92	3850-14M85DD	2.97	3850-14M115DD	4.02	3850-14M170DD	5.94
4326	309	4326-14M40DD	1.57	4326-14M55DD	2.16	4326-14M85DD	3.34	4326-14M115DD	4.52	4326-14M170DD	6.68
4578	327	4578-14M40DD	1.66	4578-14M55DD	2.28	4578-14M85DD	3.53	4578-14M115DD	4.78	4578-14M170DD	7.06
4956	354	4956-14M40DD	1.80	4956-14M55DD	2.47	4956-14M85DD	3.82	4956-14M115DD	5.18	4956-14M170DD	7.64

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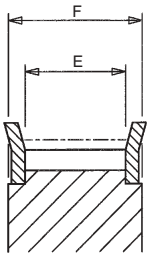
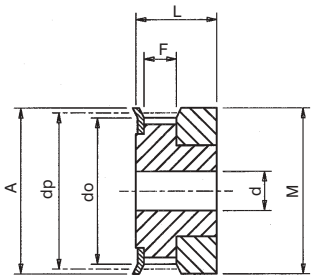
HTD Timing Pulleys - 3M Belts

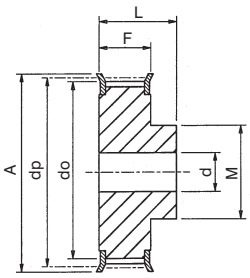
Cross+Morse HTD Pulleys are manufactured to close tolerances to ensure concentric running, and have precision generated gear teeth to match the high power and speed capabilities of HTD drive belts. Only high quality materials are used for pulley manufacture; aluminium being selected for 3M and larger 5M pulleys to keep weight and inertia low; all other pulleys machined from medium carbon steel bar or 260 Grade cast iron and finished with zinc phosphate for corrosion protection.
Standard pulleys are offered with a large range of tooth sizes in widths to suit all standard HTD belts. Pulleys for 5M, 8M and 14M drives are available with parallel pilot bore for reworking to customers requirements , bored for shaft clamping elements, or with taper bore to be combined with stock taper brushes for the complete off- the Shelf drive. Pulleys of non-standard widths or numbers of teeth can be supplied to order, or teeth can be generated on customers own blanks.
Smaller pulleys are fitted with two flanges to retain the drive belt, these being identified in tables by suffix 'F' on pulley type. The flanges are pressed onto pulley body and retained by spin rivetting.
Dimensions over and between flanges are provided in table below.



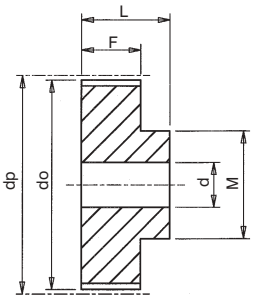
Belt Size	3M		5M			8M				14M				
Belt Width mm	9	15	9	15	25	20	30	50	85	40	55	85	115	170
E	10.2	17	11.9	17.9	27.9	23	33	55	90	47	63	95	126	180
F	13.4	20	14.5	20.5	30.5	28	38	60	95	54	70	102	133	187



Type 0F
Material: Aluminium



Type 1F
Material: Aluminium



Type 1
Material: Aluminium

Catalogue No.	No. Teeth Z	Pulley Type	Pitch Circle Diameter dp	Min. Bore d	Max Bore d	Outside Diameter do	Flange Diameter A	Pulley Width F	Bore Length L	Hub Diameter M	Approx. Weight kg
3mm Pitch Pulleys for 9mm wide Belts. Ref. 3M09											
10-3M-09	10	0F	9.55	–	4.0	8.8	13.0	10.2	17.5	13.0	.004
12-3M-09	12	0F	11.46	–	6.0	10.7	15.0	10.2	17.5	15.0	.006
14-3M-09	14	0F	13.37	–	7.0	12.6	16.0	10.2	17.5	16.0	.007
15-3M-09	15	0F	14.32	–	8.0	13.6	17.5	10.2	17.5	17.5	.008
16-3M-09	16	1F	15.28	4.0	6.5	14.5	17.5	12.8	20.6	10.0	.007
18-3M-09	18	1F	17.19	6.0	7.0	16.4	20.0	12.8	20.6	11.0	.008
20-3M-09	20	1F	19.10	6.0	8.0	18.3	23.0	12.8	20.6	13.0	.010
21-3M-09	21	1F	20.05	6.0	8.5	19.3	25.0	12.8	20.6	14.0	.013
22-3M-09	22	1F	21.01	6.0	8.5	20.3	25.0	12.8	20.6	14.0	.014
24-3M-09	24	1F	22.92	6.0	8.5	22.2	25.0	12.8	20.6	14.0	.016
26-3M-09	26	1F	24.83	6.0	10.5	24.1	28.0	12.8	20.6	16.0	.018
28-3M-09	28	1F	26.74	6.0	11.5	26.0	32.0	12.8	20.6	18.0	.024
30-3M-09	30	1F	28.65	6.0	12.7	27.9	32.0	12.8	20.6	20.0	.028
32-3M-09	32	1F	30.55	6.0	14.0	29.8	36.0	12.8	20.6	22.0	.032
36-3M-09	36	1F	34.38	6.0	17.0	33.6	39.0	13.4	22.2	26.0	.045
40-3M-09	40	1F	38.20	6.0	18.5	37.4	42.0	13.4	22.2	28.0	.055
44-3M-09	44	1F	42.02	6.0	22.5	41.3	48.0	13.4	22.2	33.0	.074
48-3M-09	48	1	45.84	8.0	22.5	45.1	–	13.4	22.2	33.0	.074
60-3M-09	60	1	57.30	8.0	22.5	56.5	–	13.4	22.2	33.0	.106
72-3M-09	72	1	68.75	8.0	22.5	68.0	–	13.4	22.2	33.0	.145
3mm Pitch Pulleys for 15mm wide Belts. Ref. 3M15											
10-3M-15	10	0F	9.55	–	4.0	8.8	13.0	17.0	26.0	13.0	.006
12-3M-15	12	0F	11.46	–	6.0	10.7	15.0	17.0	26.0	15.0	.008
14-3M-15	14	0F	13.37	–	7.0	12.6	16.0	17.0	26.0	16.0	.010
15-3M-15	15	0F	14.32	–	8.0	13.6	17.5	17.0	26.0	17.5	.012
16-3M-15	16	1F	15.28	4.0	6.5	14.5	17.5	19.5	26.0	10.0	.010
18-3M-15	18	1F	17.19	6.0	7.0	16.4	20.0	19.5	26.0	11.0	.012
20-3M-15	20	1F	19.10	6.0	8.0	18.3	23.0	19.5	26.0	13.0	.014
21-3M-15	21	1F	20.05	6.0	8.5	19.3	25.0	19.5	26.0	14.0	.016
22-3M-15	22	1F	21.01	6.0	8.5	20.3	25.0	19.5	26.0	14.0	.018
24-3M-15	24	1F	22.92	6.0	8.5	22.2	25.0	19.5	26.0	14.0	.020
26-3M-15	26	1F	24.83	6.0	10.5	24.1	28.0	19.5	26.0	16.0	.027
28-3M-15	28	1F	26.74	6.0	11.5	26.0	32.0	19.5	26.0	18.0	.030
30-3M-15	30	1F	28.65	6.0	12.7	27.9	32.0	19.5	26.0	20.0	.038
32-3M-15	32	1F	30.55	6.0	14.0	29.8	36.0	19.5	26.0	22.0	.045
36-3M-15	36	1F	34.38	6.0	17.0	33.6	39.0	20.0	30.0	26.0	.060
40-3M-15	40	1F	38.20	6.0	18.5	37.4	42.0	20.0	30.0	28.0	.075
44-3M-15	44	1F	42.02	6.0	22.5	41.3	48.0	20.0	30.0	33.0	.095
48-3M-15	48	1	45.84	8.0	22.5	45.1	–	20.0	30.0	33.0	.103
60-3M-15	60	1	57.30	8.0	22.5	56.5	–	20.0	30.0	33.0	.150
72-3M-15	72	1	68.75	8.0	22.5	68.0	–	20.0	30.0	33.0	.210

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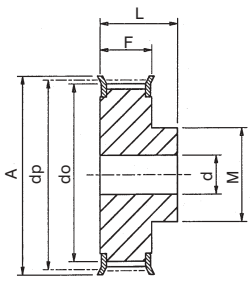
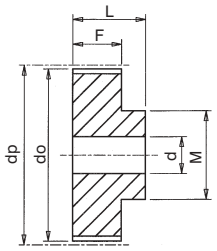
HTD Timing Pulleys - 5M Belts

Pulley Types

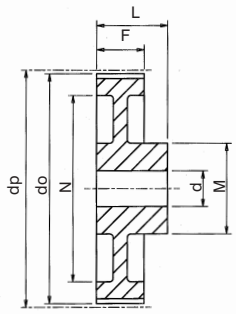
Pulley types referred to in tables are as drawings below. The suffix 'F' indicates pulley flanges



Type 1F
Material: Steel



Type 1
Material: Aluminium



Type 2
Material: Aluminium

Catalogue No.	No. Teeth Z	Pulley Type	Pitch Circle Diameter dp	Min. Bore d	Max Bore d	Outside Diameter do	Flange Diameter A	Pulley Width F	Bore Length L	Hub Diameter M	Rim Diameter N	Approx. Weight kg
5mm Pitch Pulleys for 9mm wide Belts. Ref. 5M09												
12-5M-09	12	1F	19.10	4.0	8	18.0	23.0	14.5	20.0	13.0	–	.028
14-5M-09	14	1F	22.28	6.0	8	21.1	25.0	14.5	20.0	13.0	–	.034
15-5M-09	15	1F	23.87	6.0	10	22.7	28.0	14.5	20.0	16.0	–	.042
16-5M-09	16	1F	25.46	6.0	11	24.3	28.0	14.5	20.0	16.5	–	.050
18-5M-09	18	1F	28.65	6.0	13	27.5	32.0	14.5	20.0	20.0	–	.070
20-5M-09	20	1F	31.83	6.0	14	30.7	36.0	14.5	22.5	23.0	–	.094
21-5M-09	21	1F	33.42	6.0	15	32.3	38.0	14.5	22.5	24.0	–	.110
22-5M-09	22	1F	35.01	6.0	16	33.9	39.0	14.5	22.5	25.5	–	.118
24-5M-09	24	1F	38.20	6.0	18	37.1	42.0	14.5	22.5	27.0	–	.145
26-5M-09	26	1F	41.38	6.0	20	40.2	44.0	14.5	22.5	30.0	–	.170
28-5M-09	28	1F	44.56	6.0	20	43.4	48.0	14.5	22.5	30.5	–	.200
30-5M-09	30	1F	47.75	6.0	24	46.6	51.0	14.5	22.5	35.0	–	.236
32-5M-09	32	1F	50.93	8.0	26	49.8	54.0	14.5	22.5	38.0	–	.270
36-5M-09	36	1F	57.30	8.0	26	56.2	60.0	14.5	22.5	38.0	–	.324
40-5M-09	40	1F	63.66	8.0	26	62.5	71.0	14.5	22.5	38.0	–	.400
44-5M-09	44	2	70.03	8.0	26	68.9	–	14.5	25.5	38.0	58	.170
48-5M-09	48	2	76.39	8.0	26	75.3	–	14.5	25.5	45.0	74	.182
60-5M-09	60	2	95.49	8.0	30	94.4	–	14.5	25.5	45.0	90	.230
72-5M-09	72	2	114.59	8.0	30	113.5	–	14.5	25.5	45.0	100	.270
5mm Pitch Pulleys for 15mm wide Belts. Ref. 5M15												
12-5M-15	12	1F	19.10	–	8	18.0	23.0	20.5	26.0	13.0	–	.034
14-5M-15	14	1F	22.28	6.0	8	21.1	25.0	20.5	26.0	13.0	–	.046
15-5M-15	15	1F	23.87	6.0	10	22.7	28.0	20.5	26.0	16.0	–	.056
16-5M-15	16	1F	25.46	6.0	11	24.3	28.0	20.5	26.0	16.5	–	.064
18-5M-15	18	1F	28.65	6.0	13	27.5	32.0	20.5	26.0	20.0	–	.086
20-5M-15	20	1F	31.83	6.0	14	30.7	36.0	20.5	26.0	23.0	–	.112
21-5M-15	21	1F	33.42	6.0	15	32.3	38.0	20.5	26.0	24.0	–	.130
22-5M-15	22	1F	35.01	6.0	16	33.9	39.0	20.5	26.0	25.5	–	.140
24-5M-15	24	1F	38.20	6.0	18	37.1	42.0	20.5	28.0	27.0	–	.180
26-5M-15	26	1F	41.38	6.0	20	40.2	44.0	20.5	28.0	30.0	–	.220
28-5M-15	28	1F	44.56	6.0	20	43.4	48.0	20.5	28.0	30.5	–	.250
30-5M-15	30	1F	47.75	6.0	24	46.6	51.0	20.5	28.0	35.0	–	.300
32-5M-15	32	1F	50.93	8.0	26	49.8	54.0	20.5	28.0	38.0	–	.350
36-5M-15	36	1F	57.30	8.0	26	56.2	60.0	20.5	28.0	38.0	–	.426
40-5M-15	40	1F	63.66	8.0	26	62.5	71.0	20.5	28.0	38.0	–	.520
44-5M-15	44	2	70.03	8.0	26	68.9	–	20.5	30.0	38.0	58	.225
48-5M-15	48	2	76.39	8.0	26	75.3	–	20.5	30.0	38.0	74	.187
60-5M-15	60	2	95.49	8.0	34	94.4	–	20.5	30.0	50.0	90	.305
72-5M-15	72	2	114.59	8.0	34	113.5	–	20.5	30.0	50.0	100	.375
5mm Pitch Pulleys for 25mm wide Belts. Ref. 5M25												
12-5M-25	12	1F	19.10	–	8	18.0	23.0	30.5	36.0	13.0	–	0.50
14-5M-25	14	1F	22.28	6.0	8	21.1	25.0	30.5	36.0	13.0	–	0.70
15-5M-25	15	1F	23.87	6.0	10	22.7	28.0	30.5	36.0	16.0	–	0.80
16-5M-25	16	1F	25.46	6.0	11	24.3	28.0	30.5	36.0	16.5	–	.100
18-5M-25	18	1F	28.65	6.0	13	27.5	32.0	30.5	36.0	20.0	–	.120
20-5M-25	20	1F	31.83	6.0	14	30.7	36.0	30.5	36.0	23.0	–	.160
21-5M-25	21	1F	33.42	6.0	15	32.3	38.0	30.5	38.0	24.0	–	.180
22-5M-25	22	1F	35.01	6.0	16	33.9	39.0	30.5	38.0	25.5	–	.210
24-5M-25	24	1F	38.20	6.0	18	37.1	42.0	30.5	38.0	27.0	–	.250
26-5M-25	26	1F	41.38	6.0	20	40.2	44.0	30.5	38.0	30.0	–	.300
28-5M-25	28	1F	44.56	6.0	20	43.4	48.0	30.5	38.0	30.5	–	.350
30-5M-25	30	1F	47.75	6.0	24	46.6	51.0	30.5	38.0	35.0	–	.420
32-5M-25	32	1F	50.93	8.0	26	49.8	54.0	30.5	38.0	38.0	–	.485
36-5M-25	36	1F	57.30	8.0	26	56.2	60.0	30.5	38.0	38.0	–	.595
40-5M-25	40	1F	63.66	8.0	26	62.5	71.0	30.5	38.0	38.0	–	.745
44-5M-25	44	1	70.03	8.0	26	68.9	–	30.5	40.0	38.0	–	.320
48-5M-25	48	2	76.39	8.0	26	75.3	–	30.5	40.0	38.0	74	.275
60-5M-25	60	2	95.49	8.0	34	94.4	–	30.5	40.0	50.0	90	.435
72-5M-25	72	2	114.59	8.0	34	113.5	–	30.5	40.0	50.0	100	.525

All dimensions in mm. Other sizes of Pulleys can be supplied on short delivery.

Pulleys can be supplied bored and keywayed. For Taper Bore Pulleys see page 21, and Avante pulleys pages 19-20

Pulley Installation

Correct and accurate installation of Timing Drives is essential. Pulley alignment and shaft parallelism is very important as misalignment of the drive will cause unequal loading across the belt width and edge wear of belt on flanges. Pulley alignment can be checked by placing a straight edge against the outside edge of the pulleys and adjusting so contact made evenly across both pulleys.
The shaft should be located within a rigid framework, as any distortion under load could result in a reduction of centre distance which will cause jumping of belt on pulley teeth. If idlers are used they must be locked firmly into position after correct belt tensioning.
Refer to page 9 for additional on drive installation.

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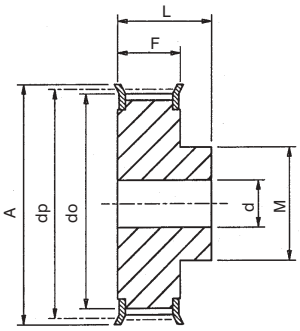
Plain Bore Pulleys 8M Belts

Catalogue No.	No. Teeth Z	Pulley Type	Pitch Circle Diameter dp	Min. Bore d	Max Bore d	Outside Diameter do	Flange Diameter A	Pulley Width F	Bore Length L	Hub Diameter M	Rim Diameter N	Approx. Weight kg
8mm Pitch Pulleys for 20mm wide Belts. Ref. 8M20												
P22-8M-20	22	1F	56.02	12	**29**	54.7	60	28	38	43	–	0.54
P24-8M-20	24	1F	61.12	12	**30**	59.8	66	28	38	45	–	0.65
P26-8M-20	26	1F	66.21	12	**32**	64.9	70	28	38	48	–	0.80
P28-8M-20	28	1F	71.30	15	**34**	70.1	75	28	38	50	–	0.87
P30-8M-20	30	1F	76.39	15	**36**	75.1	82	28	38	55	–	1.02
P32-8M-20	32	1F	81.49	15	**40**	80.2	87	28	38	60	–	1.20
P34-8M-20	34	1F	86.58	15	**44**	85.2	91	28	38	66	–	1.40
P36-8M-20	36	1F	91.67	15	**46**	90.3	97	28	38	70	–	1.55
P38-8M-20	38	1F	96.77	15	**50**	95.4	102	28	38	75	–	1.65
P40-8M-20	40	1F	101.86	15	**50**	100.5	106	28	38	75	–	1.74
P44-8M-20	44	1F	112.05	15	**50**	110.7	120	28	38	75	–	2.10
P48-8M-20	48	1F	122.23	15	**50**	120.9	128	28	38	75	–	2.68
P56-8M-20	56	2F	142.60	15	**54**	141.2	150	28	38	80	116	2.88
P64-8M-20	64	2F	162.97	15	**54**	161.6	168	28	38	80	137	3.30
P72-8M-20	72	2F	183.35	15	**54**	182.0	192	28	38	80	158	3.85
P80-8M-20	80	2	203.72	15	**54**	202.4	–	28	38	90	180	4.16
P90-8M-20	90	2	229.18	15	**54**	227.8	–	28	38	90	204	4.88
*P112-8M-20	112	2	285.21	18	**54**	283.8	–	28	38	90	254	6.20
*P144-8M-20	144	2	366.69	20	**54**	365.3	–	28	38	90	336	8.40
*P168-8M-20	168	2	427.81	20	**60**	426.4	–	28	38	100	400	10.20
*P192-8M-20	192	2	488.92	20	**60**	487.6	–	28	38	100	460	13.30
8mm Pitch Pulleys for 30mm wide Belts. Ref. 8M30												
P22-8M-30	22	1F	56.02	12	29	54.7	60	38	48	43	–	0.69
P24-8M-30	24	1F	61.12	12	30	59.8	66	38	48	45	–	0.84
P26-8M-30	26	1F	66.21	12	32	64.9	70	38	48	48	–	1.00
P28-8M-30	28	1F	71.30	15	34	70.1	75	38	48	50	–	1.12
P30-8M-30	30	1F	76.39	15	36	75.1	82	38	48	55	–	1.32
P32-8M-30	32	1F	81.49	15	40	80.2	87	38	48	60	–	1.53
P34-8M-30	34	1F	86.58	15	44	85.2	91	38	48	66	–	1.80
P36-8M-30	36	1F	91.67	15	46	90.3	97	38	48	70	–	1.99
P38-8M-30	38	1F	96.77	15	50	95.4	102	38	48	75	–	2.23
P40-8M-30	40	1F	101.86	15	50	100.5	106	38	48	75	–	2.40
P44-8M-30	44	1F	112.05	15	50	110.7	120	38	48	75	–	2.80
P48-8M-30	48	1F	122.23	15	50	120.9	128	38	48	75	–	3.20
P56-8M-30	56	2F	142.60	15	60	141.2	150	38	48	90	116	4.04
P64-8M-30	64	2F	162.97	15	60	161.6	168	38	48	90	137	4.57
P72-8M-30	72	2F	183.35	15	63	182.0	192	38	48	95	158	5.46
P80-8M-30	80	2	203.72	15	60	202.4	–	38	48	100	180	5.73
P90-8M-30	90	2	229.18	15	60	227.8	–	38	48	100	204	6.57
P112-8M-30	112	2	285.21	18	60	283.8	–	38	48	100	254	7.80
P144-8M-30	144	2	366.69	20	60	365.3	–	38	48	100	336	9.78
P168-8M-30	168	2	427.81	20	60	426.4	–	38	48	100	400	12.47
P192-8M-30	192	2	488.92	20	60	487.6	–	38	48	100	460	15.00
8mm Pitch Pulleys for 50mm wide Belts. Ref. 8M50												
P22-8M-50	22	1F	56.02	–	29	54.7	60	60	70	43	–	1.00
P24-8M-50	24	1F	61.12	–	30	59.8	66	60	70	45	–	1.23
P26-8M-50	26	1F	66.21	–	32	64.9	70	60	70	48	–	1.50
P28-8M-50	28	1F	71.30	–	34	70.1	75	60	70	50	–	1.67
P30-8M-50	30	1F	76.39	–	36	75.1	82	60	70	55	–	1.97
P32-8M-50	32	1F	81.49	–	40	80.2	87	60	70	60	–	2.27
P34-8M-50	34	1F	86.58	–	44	85.2	91	60	70	66	–	2.69
P36-8M-50	36	1F	91.67	–	46	90.3	97	60	70	70	–	2.97
P38-8M-50	38	1F	96.77	–	50	95.4	102	60	70	75	–	3.23
P40-8M-50	40	1F	101.86	–	50	100.5	106	60	70	75	–	3.50
P44-8M-50	44	1F	112.05	–	50	110.7	120	60	70	75	–	3.90
P48-8M-50	48	1F	122.23	–	54	120.9	128	60	70	80	–	4.30
P56-8M-50	56	3F	142.60	18	60	141.2	150	60	60	90	116	5.57
P64-8M-50	64	3F	162.97	18	67	161.6	168	60	60	100	137	6.95
P72-8M-50	72	3F	183.35	18	67	182.0	192	60	60	100	158	8.00
P80-8M-50	80	3	203.72	18	66	202.4	–	60	60	110	180	8.90
P90-8M-50	90	3	229.18	18	66	227.8	–	60	60	110	204	9.90
P112-8M-50	112	3	285.21	18	66	283.8	–	60	60	110	254	12.32
P144-8M-50	144	3	366.69	20	66	365.3	–	60	60	110	336	15.95
P168-8M-50	168	3	427.81	20	72	426.4	–	60	60	120	400	18.03
P192-8M-50	192	3	488.92	20	78	487.6	–	60	60	130	460	22.00
8mm Pitch Pulleys for 85mm wide Belts. Ref. 8M85												
P22-8M-85	22	1F	56.02	–	29	54.7	60	95	105	43	–	1.55
P24-8M-85	24	1F	61.12	–	30	59.8	66	95	105	45	–	1.90
P26-8M-85	26	1F	66.21	–	32	64.9	70	95	105	48	–	2.25
P28-8M-85	28	1F	71.30	–	34	70.1	75	95	105	50	–	2.55
P30-8M-85	30	1F	76.39	–	36	75.1	82	95	105	55	–	3.00
P32-8M-85	32	1F	81.49	–	40	80.2	87	95	105	60	–	3.57
P34-8M-85	34	1F	86.58	–	44	85.2	91	95	105	66	–	4.00
P36-8M-85	36	1F	91.67	–	46	90.3	97	95	105	70	–	4.50
P38-8M-85	38	1F	96.77	–	50	95.4	102	95	105	75	–	4.90
P40-8M-85	40	1F	101.86	–	50	100.5	106	95	105	75	–	5.20
P44-8M-85	44	1F	112.05	–	50	110.7	120	95	105	75	–	6.60
P48-8M-85	48	1F	122.23	–	54	120.9	128	95	105	80	–	7.60
P56-8M-85	56	1F	142.60	20	54	141.2	150	95	105	90	–	9.80
P64-8M-85	64	3F	162.97	20	67	161.6	168	95	95	100	137	11.72
P72-8M-85	72	3F	183.35	20	74	182.0	192	95	95	110	158	14.57
P80-8M-85	80	3	203.72	20	66	202.4	–	95	95	110	180	12.72
P90-8M-85	90	3	229.18	20	66	227.8	–	95	95	110	204	14.27
P112-8M-85	112	3	285.21	24	66	283.8	–	95	95	110	254	19.40
P144-8M-85	144	3	366.69	24	72	365.3	–	95	95	120	336	22.50
P168-8M-85	168	3	427.81	24	72	426.4	–	95	95	120	400	26.00
P192-8M-85	192	3	488.92	24	78	487.6	–	95	95	130	460	29.00

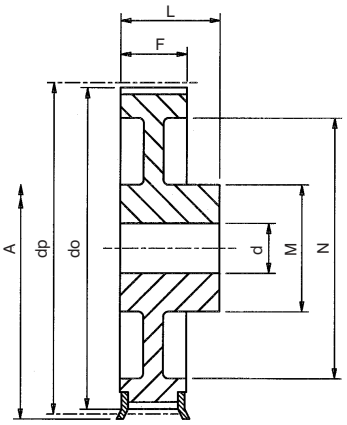
*Non-stock items, manufactured to customer order only. All dimensions in mm.
Standard Pulleys can be reworked to customers bore and keyway requirements

Pulley Types

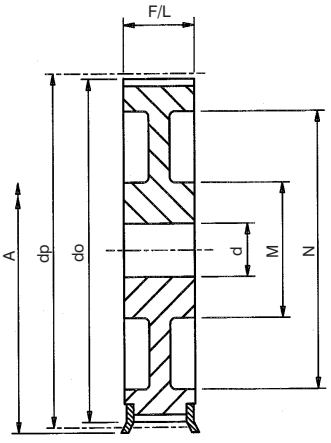
The Pulley types referred to in tables are as drawings below. Suffix 'F' indicates pulley has flanges. Pulley below dividing line in tables are manufactured in cast iron. Pulleys 112 teeth (80 teeth on 8M-85) and above incorporate lightening holes in design.



Type 1F
Material: Steel



Type 2/2F
Material: Steel or Cast Iron



Type 3/3F
Material: Steel or Cast Iron

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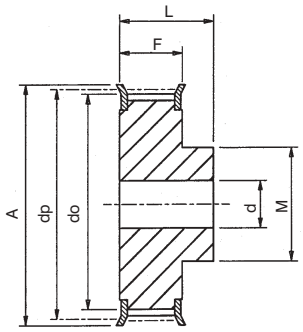
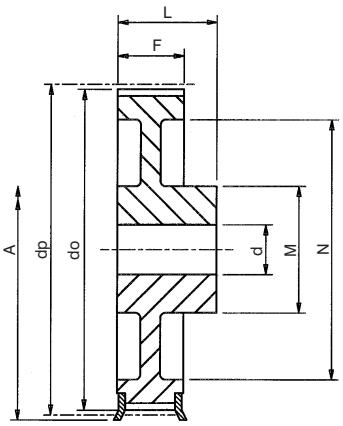
Plain Bore Pulleys 14M Belts

Pulley Types

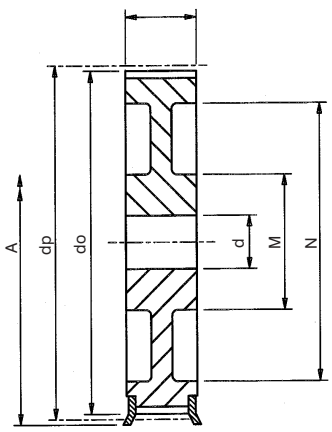
The pulley types referred to in tables are as drawings below. Suffix 'F' indicates pulley has flanges. Pulleys below dividing line in tables are manufactured in cast iron, unflanged pulleys incorporate lightening holes in design, except P80-14M-170. Std. Pulleys can be reworked to customers bore and keyway requirements.



Type 1F
Material: Steel



Type 2/2F
Material: Steel or Cast Iron



Type 3/3F
Material: Cast Iron

Catalogue No.	No. Teeth Z	Pulley Type	Pitch Circle Dia. dp	Min. Bore d	Max. Bore d	Outside Diameter do	Flange Diameter A	Pulley Width F	Bore Length L	Hub Diameter M	Rim Diameter N	Approx Weight kg
14mm Pitch Pulleys for 40mm Wide Belts. Ref. 14M40												
P28-14M-40	28	1F	124.78	24	67	122.1	128	54	69	100	–	5.10
P30-14M-40	30	1F	133.69	24	67	131.0	138	54	69	100	–	5.83
P32-14M-40	32	1F	142.60	24	67	139.9	154	54	69	100	–	6.60
P34-14M-40	34	1F	151.52	24	67	148.8	160	54	69	100	–	7.36
P36-14M-40	36	1F	160.43	24	67	157.7	168	54	69	100	–	8.13
P38-14M-40	38	1F	169.34	24	80	166.6	183	54	69	120	–	8.86
P40-14M-40	40	1F	178.25	24	80	175.5	188	54	69	120	–	9.90
P44-14M-40	44	1F	196.08	24	80	193.3	211	54	69	120	–	11.04
P48-14M-40	48	2F	213.90	24	82	211.1	226	54	69	135	170	11.88
P56-14M-40	56	2F	249.55	28	82	246.8	256	54	69	135	207	13.46
P64-14M-40	64	2F	285.21	28	82	282.4	296	54	69	135	240	15.84
P72-14M-40	72	2	320.86	28	82	318.1	–	54	69	135	278	15.93
P80-14M-40	80	2	356.51	28	82	353.7	–	54	69	135	314	17.36
P90-14M-40	90	2	401.07	28	82	398.3	–	54	69	135	358	19.47
P112-14M-40	112	2	499.11	28	82	496.3	–	54	69	135	456	23.77
*P144-14M-40	144	2	641.71	28	82	638.9	–	54	69	135	600	29.80
*P168-14M-40	168	2	748.66	28	82	745.9	–	54	69	135	706	34.60
*P192-14M-40	192	2	855.62	28	82	852.8	–	54	69	135	813	39.60
14mm Pitch Pulleys for 55mm Wide Belts. Ref. 14M55												
P28-14M-55	28	1F	124.78	24	67	122.1	128	70	85	100	–	5.99
P30-14M-55	30	1F	133.69	24	67	131.0	138	70	85	100	–	7.06
P32-14M-55	32	1F	142.60	24	67	139.9	154	70	85	100	–	8.13
P34-14M-55	34	1F	151.52	24	67	148.8	160	70	85	100	–	9.20
P36-14M-55	36	1F	160.43	24	67	157.7	168	70	85	100	–	10.27
P38-14M-55	38	1F	169.34	24	80	166.6	183	70	85	120	–	11.55
P40-14M-55	40	1F	178.25	24	80	175.5	188	70	85	120	–	11.98
P44-14M-55	44	1F	196.08	24	80	193.3	211	70	85	120	–	13.37
P48-14M-55	48	3F	213.90	24	82	211.1	226	70	70	135	170	13.57
P56-14M-55	56	3F	249.55	28	82	246.8	256	70	70	135	207	15.43
P64-14M-55	64	3F	285.21	28	82	282.4	296	70	70	135	240	18.20
P72-14M-55	72	3	320.86	28	82	318.1	–	70	70	135	278	18.22
P80-14M-55	80	3	356.51	28	82	353.7	–	70	70	135	314	20.12
P90-14M-55	90	3	401.07	28	82	398.3	–	70	70	135	358	22.85
P112-14M-55	112	3	499.11	28	82	496.3	–	70	70	135	456	28.20
P144-14M-55	144	3	641.71	28	82	638.9	–	70	70	135	600	37.30
P168-14M-55	188	3	748.66	28	82	745.9	–	70	70	135	706	47.00
P192-14M-55	192	3	855.62	28	82	852.8	–	70	70	135	813	85.00
14mm Pitch Pulleys for 85mm Wide Belts. Ref. 14M85												
P28-14M-85	28	1F	124.78	–	67	122.1	128	102	117	100	–	8.83
P30-14M-85	30	1F	133.69	–	67	131.0	138	102	117	100	–	9.73
P32-14M-85	32	1F	142.60	–	67	139.9	154	102	117	100	–	11.23
P34-14M-85	34	1F	151.52	–	67	148.8	160	102	117	100	–	12.73
P36-14M-85	36	1F	160.43	–	67	157.7	168	102	117	100	–	14.12
P38-14M-85	38	1F	169.34	–	80	166.6	183	102	117	120	–	16.29
P40-14M-85	40	1F	178.25	–	90	175.5	188	102	117	135	–	18.29
P44-14M-85	44	1F	196.08	–	90	193.3	211	102	117	135	–	24.93
P48-14M-85	48	1F	213.90	–	100	211.1	226	102	117	150	–	26.75
P56-14M-85	56	3F	249.55	32	90	246.8	256	102	102	150	207	24.04
P64-14M-85	64	3F	285.21	32	90	282.4	296	102	102	150	240	25.20
P72-14M-85	72	3	320.86	32	90	318.1	–	102	102	150	278	27.31
P80-14M-85	80	3	356.51	32	90	353.7	–	102	102	150	314	29.55
P90-14M-85	90	3	401.07	32	90	398.3	–	102	102	150	358	32.70
P112-14M-85	112	3	499.11	32	90	496.3	–	102	102	150	456	40.50
P144-14M-85	144	3	641.71	32	90	638.9	–	102	102	150	600	52.20
P168-14M-85	168	3	748.66	32	90	745.9	–	102	102	150	706	65.00
P192-14M-85	192	3	855.62	32	100	852.8	–	102	102	165	813	85.00
14mm Pitch Pulleys for 115mm Wide Belts. Ref. 14M115												
P28-14M-115	28	1F	124.78	–	67	122.1	128	133	148	100	–	10.80
P30-14M-115	30	1F	133.69	–	67	131.0	138	133	148	100	–	11.98
P32-14M-115	32	1F	142.60	–	67	139.9	154	133	148	100	–	14.10
P34-14M-115	34	1F	151.52	–	67	148.8	160	133	148	100	–	15.83
P36-14M-115	36	1F	160.43	–	80	157.7	168	133	148	120	–	17.76
P38-14M-115	38	1F	169.34	–	80	166.6	183	133	148	120	–	20.54
P40-14M-115	40	1F	178.25	–	90	175.5	188	133	148	135	–	22.00
P44-14M-115	44	1F	196.08	–	94	193.3	211	133	148	140	–	23.46
P48-14M-115	48	1F	213.90	–	100	211.1	226	133	148	150	–	26.75
P56-14M-115	56	1F	249.55	–	100	246.8	256	133	148	150	–	29.42
P64-14M-115	64	3F	285.21	32	90	282.4	296	133	133	150	240	34.70
P72-14M-115	72	3	320.86	32	90	318.1	–	133	133	150	278	35.70
P80-14M-115	80	3	356.51	32	90	353.7	–	133	133	150	314	38.20
P90-14M-115	90	3	401.07	32	90	398.3	–	133	133	150	358	42.00
P112-14M-115	112	3	499.11	32	90	496.3	–	133	133	150	456	53.00
P144-14M-115	144	3	641.71	32	100	638.9	–	133	133	165	600	73.00
P168-14M-115	168	3	748.66	32	100	745.9	–	133	133	165	706	84.50
P192-14M-115	192	3	855.62	32	100	852.8	–	133	133	165	813	102.00
14mm Pitch Pulleys for 170mm Wide Belts. Ref. 14M170												
P28-14M-170	28	1F	124.78	–	67	122.1	128	187	202	100	–	14.80
P30-14M-170	30	1F	133.69	–	67	131.0	138	187	202	100	–	16.70
P32-14M-170	32	1F	142.60	–	67	139.9	154	187	202	100	–	19.40
P34-14M-170	34	1F	151.52	–	67	148.8	160	187	202	100	–	21.85
P36-14M-170	36	1F	160.43	–	80	157.7	168	187	202	120	–	25.20
P38-14M-170	38	1F	169.34	–	90	166.6	183	187	202	135	–	28.40
P40-14M-170	40	1F	178.25	–	94	175.5	188	187	202	140	–	32.26
* P48-14M-170	48	1F	213.90	–	107	211.1	226	187	202	160	–	39.50
* P64-14M-170	64	1F	285.21	–	120	282.4	296	187	202	180	–	54.00
P80-14M-170	80	3	356.51	32	108	353.7	–	187	187	180	314	69.40
P90-14M-170	90	3	401.07	38	108	398.3	–	187	187	180	358	71.30
P112-14M-170	112	3	499.11	38	108	496.3	–	187	187	200	456	88.00
P144-14M-170	144	3	641.71	38	108	638.9	–	187	187	220	600	113.00
*P192-14M-170	192	3	855.62	38	108	852.8	–	187	187	220	813	140.00

*Non-stock items, manufactured to customer order only. All dimensions in mm.
Standard Pulleys can be reworked to customers bore and keyway requirements.

Avante Pulleys for Htd Size 5M & 8M Belts

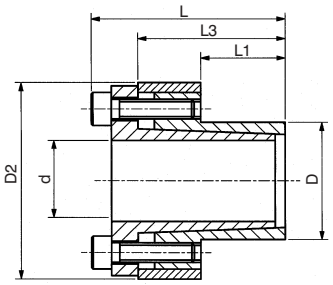
The Avante drive system combines the advantages of Shaft Clamping Elements with a standard range of Timing Belt Pulleys, providing a unique zero backlash connection between shafting and Timing Belt drive. Each HTD belt Pulley is finish bored to suit one size of Clamping Element of the ACE81 series, each of which is available with several metric bore sizes.
The combination eliminates the need for keys, circlips or stepped shafts for Pulley location, and permits timing of the finished drive, and simple adjustment to the timing at latter times. The total lack of either rotary or axial free play makes the drives well suited to torque reversal and timing applications. Simple synchronisation of drives is achieved and the design enables quick easy assembly and removal of Pulleys on the shafting.

Avante Clamping Element dimensions

Clamping Element Size	Dimensions mm d max	D	D2	L	L1	L3	X	Axial Strength F kN	Surface Pressure Hub N/mm2	Clamping Screws No	Size	Torque Nm	Approx Weight kg
ACE81 -x26	20	26	40.5	31.5	14	27.5	12	14.5	100	6	M4	5	0.22
ACE81 -x38	30	38	57.0	39	14	33	18	22	104	4	M6	17	0.32
ACE81 -x38H	30	38	57.0	52	27	46	18	33	81	6	M6	17	0.40
ACE81 -x52	42	52	70.5	52	27	46	18	44	79	8	M6	17	0.60
ACE81 -x72	60	72	96.5	68	37	60	18	105	99	10	M8	41	1.50

Standard bore sizes, with transmittable torques 'T'

ACE81 -x26	d mm	11	12	14	15	16	18	19	20				
	T Nm	80	87	102	108	116	130	138	145				
ACE81 -x38	d mm	19	20	22	24	25	28	30					
	T Nm	210	220	242	265	276	309	331					
ACE81 -x38H	d mm	19	20	22	24	25	28	30					
	T Nm	314	331	364	397	413	465	497					
ACE81 -x52	d mm	24	25	28	30	32	35	38	40	42			
	T Nm	529	552	618	662	706	772	839	883	926			
ACE81 -x72	d mm	28	30	32	35	38	40	42	45	48	50	55	60
	T Nm	1462	1567	1671	1828	1985	2089	2194	2350	2506	2611	2872	3133



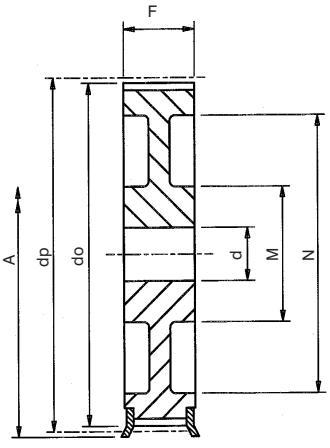
*The Clamping Element part No. combines the unit size with the bore size replacing the dash. e.g. a 24mm bored size 38H unit has part No. ACE81-24x38H and will fit all pulleys showing bush ref. -x38H

Standard Avante HTD Pulleys dimensions

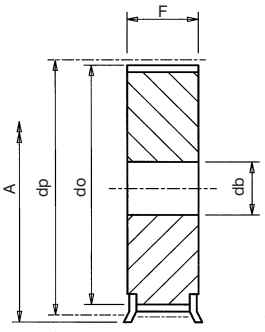
Catalogue No.	No. Teeth Z	Pulley Type	ACE81 Bush Ref.	Pitch Circle ∅ dp	Outside ∅ do	Flange ∅ A	Pulley Width F	Pulley Bore ∅ db	Hub ∅ db	Rim ∅ N	C/Bore ∅ C	C/Bore Depth E	Approx. Weight kg
5mm Pitch Pulleys for 9mm Wide Belts. Ref. 5M09													
A24-5M-09	24	4F	-x26	38.20	37.1	43	14.5	26	–	–	–	–	0.06
A26-5M-09	26	4F	-x26	41.38	40.2	44	14.5	26	–	–	–	–	0.08
A28-5M-09	28	4F	-x26	44.56	43.4	48	14.5	26	–	–	–	–	0.11
A30-5M-09	30	4F	-x26	47.75	46.6	51	14.5	26	–	–	–	–	0.13
A32-5M-09	32	4F	-x38	50.93	49.8	56	14.5	38	–	–	–	–	0.09
A36-5M-09	36	4F	-x38	57.30	56.2	60	14.5	38	–	–	–	–	0.15
A40-5M-09	40	4F	-x38	63.66	62.5	70	14.5	38	–	–	–	–	0.22
A44-5M-09	44	4	-x38	70.03	68.9	–	14.5	38	–	–	–	–	0.27
A48-5M-09	48	4	-x38	76.39	75.3	–	14.5	38	–	–	–	–	0.35
A60-5M-09	60	4	-x38	95.49	94.4	–	14.5	38	–	–	–	–	0.63
A72-5M-09	72	4	-x38	114.59	113.5	–	14.5	38	–	–	–	–	0.98
5mm Pitch Pulleys for 15mm Wide Belts. Ref. 5M15													
A24-5M-15	24	4F	-x26	38.20	37.1	43	20.5	26	–	–	–	–	0.08
A26-5M-15	26	4F	-x26	41.38	40.2	44	20.5	26	–	–	–	–	0.11
A28-5M-15	28	4F	-x26	44.56	43.4	48	20.5	26	–	–	–	–	0.15
A30-5M-15	30	4F	-x26	47.75	46.6	51	20.5	26	–	–	–	–	0.18
A32-5M-15	32	4F	-x38	50.93	49.8	56	20.5	38	–	–	–	–	0.12
A36-5M-15	36	4F	-x38	57.30	56.2	60	20.5	38	–	–	–	–	0.21
A40-5M-15	40	4F	-x38	63.66	62.5	70	20.5	38	–	–	–	–	0.30
A44-5M-15	44	4	-x38	70.03	68.9	–	20.5	38	–	–	–	–	0.38
A48-5M-15	48	4	-x38	76.39	75.3	–	20.5	38	–	–	–	–	0.50
A60-5M-15	60	4	-x38	95.49	94.4	–	20.5	38	–	–	–	–	0.90
A72-5M-15	72	4	-x38	114.59	113.5	–	20.5	38	–	–	–	–	1.39
5mm Pitch Pulleys for 25mm Wide Belts. Ref. 5M25													
A24-5M-25	24	4F	-x26	38.20	37.1	43	30.5	26	–	–	–	–	0.12
A26-5M-25	26	4F	-x26	41.38	40.2	44	30.5	26	–	–	–	–	0.16
A28-5M-25	28	4F	-x26	44.56	43.4	48	30.5	26	–	–	–	–	0.21
A30-5M-25	30	4F	-x26	47.75	46.6	51	30.5	26	–	–	–	–	0.26
A32-5M-25	32	4F	-x38H	50.93	49.8	56	30.5	38	–	–	–	–	0.17
A36-5M-25	36	4F	-x38H	57.30	56.2	60	30.5	38	–	–	–	–	0.30
A40-5M-25	40	4F	-x38H	63.66	62.5	70	30.5	38	–	–	–	–	0.44
A44-5M-25	44	4	-x38H	70.03	68.9	–	30.5	38	–	–	–	–	0.57
A48-5M-25	48	4	-x38H	76.39	75.3	–	30.5	38	–	–	–	–	0.74
A60-5M-25	60	4	-x38H	95.49	94.4	–	30.5	38	–	–	–	–	1.33
A72-5M-25	72	4	-x38H	114.59	113.5	–	30.5	38	–	–	–	–	2.07
8mm Pitch Pulleys for 20mm Wide Belts. Ref. 8M20													
A22-8M-20	22	4F	-x38H	56.02	54.7	62	28.0	38	–	–	–	–	0.23
A24-8M-20	24	4F	-x38H	61.12	59.8	66	28.0	38	–	–	–	–	0.33
A26-8M-20	26	4F	-x38H	66.21	64.9	71	28.0	38	–	–	–	–	0.43
A28-8M-20	28	4F	-x38H	71.30	70.1	75	28.0	38	–	–	–	–	0.55
A30-8M-20	30	4F	-x52	76.39	75.1	82	28.0	52	–	–	–	–	0.45
A32-8M-20	32	4F	-x52	81.49	80.2	87	28.0	52	–	–	–	–	0.59
A34-8M-20	34	4F	-x52	86.58	85.2	91	28.0	52	–	–	–	–	0.73
A36-8M-20	36	4F	-x52	91.67	90.3	98	28.0	52	–	–	–	–	0.88
A38-8M-20	38	4F	-x52	96.77	95.4	102	28.0	52	–	–	–	–	1.04
A40-8M-20	40	4F	-x52	101.86	100.5	110	28.0	52	–	–	–	–	1.21
A44-8M-20	44	4F	-x52	112.05	110.7	120	28.0	52	–	–	–	–	1.57
A48-8M-20	48	4F	-x52	122.23	120.9	128	28.0	52	–	–	–	–	1.97
A56-8M-20	56	3F	-x52	142.60	141.2	150	28.0	52	80	116	–	–	2.27
A64-8M-20	64	3F	-x52	162.97	161.6	168	28.0	52	80	137	–	–	2.86
A72-8M-20	72	3F	-x52	183.35	182.0	192	28.0	52	80	158	–	–	3.52
A80-8M-20	80	3	-x52	203.72	202.4	–	28.0	52	90	180	–	–	4.30
A90-8M-20	90	3	-x52	229.18	227.8	–	28.0	52	90	204	–	–	5.36
A112-8M-20	112	3	-x52	285.21	283.8	–	28.0	52	90	254	–	–	5.55

Pulley Types

Pulley types referred to in tables are as drawings below. Suffix 'F' indicates pulley has flanges. Pulley below dividing line in tables are manufactured in cast iron. Pulleys over 250mm dia. incorporate lightening holes in design.



Type 3/3F
Material: Steel or Cast Iron



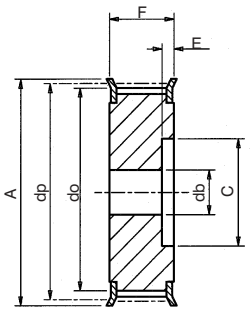
Type 4/4F
Material: Steel or Cast Iron

Tel +44 121 360 0155 Fax +44 121 325 1079 Email sales@crossmorse.com

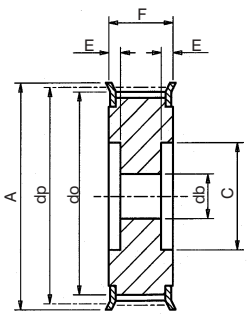
Avante Pulleys for HTD Size 8M & 14M Belts

Pulley Types

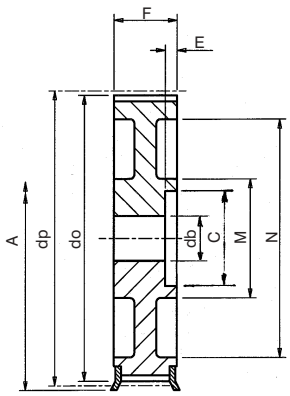
The pulley types referred to in tables are as drawings below. Suffix 'F' indicates pulley has flanges. Pulley below dividing line in tables are manufactured in cast iron, pulleys over 250mm dia incorporate lightening holes in design.



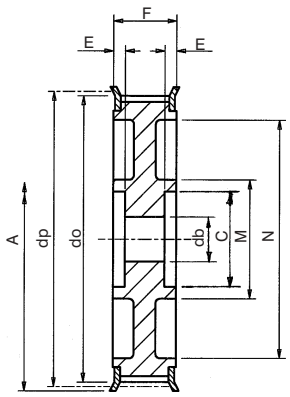
Type 6F
Material: Steel



Type 14F
Material: Steel or Cast Iron



Type 15/15F
Material: Steel or Cast Iron



Type 16F
Material: Cast Iron

Catalogue No.	No. Teeth Z	Pulley Type	ACE81 Bush Ref.	Pitch Circle ∅ dp	Outside ∅ do	Flange ∅ A	Pulley Width F	Pulley Bore ∅ db	Hub ∅ M	Rim ∅ N	C/Bore ∅ C	C/Bore Depth E	Approx. Weight kg
8mm Pitch Pulleys for 30mm Wide Belts. Ref. 8M30													
A22-8M-30	22	4F	-x38H	56.02	54.7	62	38.0	38	–	–	–	–	0.31
A24-8M-30	24	4F	-x38H	61.12	59.8	66	38.0	38	–	–	–	–	0.44
A26-8M-30	26	4F	-x38H	66.21	64.9	71	38.0	38	–	–	–	–	0.58
A28-8M-30	28	4F	-x38H	71.30	70.1	75	38.0	38	–	–	–	–	0.74
A30-8M-30	30	4F	-x52	76.39	75.1	82	38.0	52	–	–	–	–	0.61
A32-8M-30	32	4F	-x52	81.49	80.2	87	38.0	52	–	–	–	–	0.79
A34-8M-30	34	4F	-x52	86.58	85.2	91	38.0	52	–	–	–	–	0.98
A36-8M-30	36	4F	-x52	91.67	90.3	98	38.0	52	–	–	–	–	1.18
A38-8M-30	38	4F	-x52	96.77	95.4	102	38.0	52	–	–	–	–	1.40
A40-8M-30	40	4F	-x72	101.86	100.5	110	38.0	72	–	–	–	–	1.04
A44-8M-30	44	4F	-x72	112.05	110.7	120	38.0	72	–	–	–	–	1.54
A48-8M-30	48	4F	-x72	122.23	120.9	128	38.0	72	–	–	–	–	2.08
A56-8M-30	56	3F	-x72	142.60	141.2	150	38.0	72	90	116	–	–	2.55
A64-8M-30	64	3F	-x72	162.97	161.6	168	38.0	72	90	137	–	–	3.23
A72-8M-30	72	3F	-x72	183.35	182.0	192	38.0	72	95	158	–	–	4.11
A80-8M-30	80	3	-x72	203.72	202.4	–	38.0	72	100	180	–	–	4.95
A90-8M-30	90	3	-x72	229.18	227.8	–	38.0	72	100	204	–	–	6.18
A112-8M-30	112	3	-x72	285.21	283.8	–	38.0	72	100	254	–	–	6.79
8mm Pitch Pulleys for 50mm Wide Belts. Ref. 8M50													
A22-8M-50	22	4F	-x38H	56.02	54.7	62	60.0	38	–	–	–	–	0.47
A24-8M-50	24	4F	-x38H	61.12	59.8	66	60.0	38	–	–	–	–	0.68
A26-8M-50	26	4F	-x38H	66.21	64.9	71	60.0	38	–	–	–	–	0.90
A28-8M-50	28	4F	-x38H	71.30	70.1	75	60.0	38	–	–	–	–	1.15
A30-8M-50	30	4F	-x52	76.39	75.1	82	60.0	52	–	–	–	–	0.95
A32-8M-50	32	4F	-x52	81.49	80.2	87	60.0	52	–	–	–	–	1.23
A34-8M-50	34	4F	-x52	86.58	85.2	91	60.0	52	–	–	–	–	1.53
A36-8M-50	36	4F	-x52	91.67	90.3	98	60.0	52	–	–	–	–	1.85
A38-8M-50	38	4F	-x72	96.77	95.4	102	60.0	72	–	–	–	–	1.27
A40-8M-50	40	4F	-x72	101.86	100.5	110	60.0	72	–	–	–	–	1.63
A44-8M-50	44	4F	-x72	112.05	110.7	120	60.0	72	–	–	–	–	2.41
A48-8M-50	48	6F	-x72	122.23	120.9	128	60.0	72	–	–	99	22.5	2.62
A56-8M-50	56	15F	-x72	142.60	141.2	150	60.0	72	90	116	99	22.5	3.82
A64-8M-50	64	15F	-x72	162.97	161.6	168	60.0	72	100	137	99	22.5	5.24
A72-8M-50	72	15F	-x72	183.35	182.0	192	60.0	72	100	158	99	22.5	6.31
A80-8M-50	80	15	-x72	203.72	202.4	–	60.0	72	110	180	99	22.5	7.82
A90-8M-50	90	15	-x72	229.18	227.8	–	60.0	72	110	204	99	22.5	9.59
A112-8M-50	112	15	-x72	285.21	283.8	–	60.0	72	110	254	99	22.5	10.68
14mm Pitch Pulleys for 40mm Wide Belts. Ref. 14M40													
A28-14M-40	28	4F	-x72	124.78	122.1	128	54.0	72	–	–	–	–	2.8
A30-14M-40	30	4F	-x72	133.69	131.0	140	54.0	72	–	–	–	–	3.5
A32-14M-40	32	4F	-x72	142.60	139.9	156	54.0	72	–	–	–	–	4.3
A34-14M-40	34	4F	-x72	151.52	148.8	159	54.0	72	–	–	–	–	5.1
A36-14M-40	36	4F	-x72	160.43	157.7	168	54.0	72	–	–	–	–	6.0
A38-14M-40	38	4F	-x72	169.34	166.6	183	54.0	72	–	–	–	–	6.9
A40-14M-40	40	4F	-x72	178.25	175.5	192	54.0	72	–	–	–	–	7.9
A44-14M-40	44	4F	-x72	196.08	193.3	211	54.0	72	–	–	–	–	10.0
A48-14M-40	48	3F	-x72	213.90	211.1	226	54.0	72	135	170	–	–	9.9
A56-14M-40	56	3F	-x72	249.55	246.8	256	54.0	72	135	207	–	–	12.1
A64-14M-40	64	3F	-x72	285.21	282.4	296	54.0	72	135	240	–	–	14.9
A72-14M-40	72	3	-x72	320.86	318.1	–	54.0	72	135	278	–	–	14.0
A80-14M-40	80	3	-x72	356.51	353.7	–	54.0	72	135	314	–	–	15.8
A90-14M-40	90	3	-x72	401.07	398.3	–	54.0	72	135	358	–	–	18.4
A112-14M-40	112	3	-x72	499.11	496.3	–	54.0	72	135	456	–	–	24.6
14mm Pitch Pulleys for 55mm Wide Belts. Ref. 14M55													
A28-14M-55	28	6F	-x72	124.78	122.1	128	70.0	72	–	–	99	22.5	3.0
A30-14M-55	30	6F	-x72	133.69	131.0	140	70.0	72	–	–	99	22.5	3.9
A32-14M-55	32	6F	-x72	142.60	139.9	156	70.0	72	–	–	99	22.5	4.9
A34-14M-55	34	6F	-x72	151.52	148.8	159	70.0	72	–	–	99	22.5	6.0
A36-14M-55	36	6F	-x72	160.43	157.7	168	70.0	72	–	–	99	22.5	7.1
A38-14M-55	38	6F	-x72	169.34	166.6	183	70.0	72	–	–	99	22.5	8.3
A40-14M-55	40	6F	-x72	178.25	175.5	192	70.0	72	–	–	99	22.5	9.6
A44-14M-55	44	6F	-x72	196.08	193.3	211	70.0	72	–	–	99	22.5	12.3
A48-14M-55	48	15F	-x72	213.90	211.1	226	70.0	72	135	170	99	22.5	12.0
A56-14M-55	56	15F	-x72	249.55	246.8	256	70.0	72	135	207	99	22.5	14.6
A64-14M-55	64	15F	-x72	285.21	282.4	296	70.0	72	135	240	99	22.5	17.9
A72-14M-55	72	15	-x72	320.86	318.1	–	70.0	72	135	278	99	22.5	17.5
A80-14M-55	80	15	-x72	356.51	353.7	–	70.0	72	135	314	99	22.5	19.8
A90-14M-55	90	15	-x72	401.07	398.3	–	70.0	72	135	358	99	22.5	23.2
A112-14M-55	112	15	-x72	499.11	496.3	–	70.0	72	135	456	99	22.5	31.3
14mm Pitch Pulleys for 85mm Wide Belts. Ref. 14M85													
A28-14M-85	28	14F	-x72	124.78	122.1	128	102.0	72	–	–	99	32.0	3.4
A30-14M-85	30	14F	-x72	133.69	131.0	140	102.0	72	–	–	99	32.0	4.8
A32-14M-85	32	14F	-x72	142.60	139.9	156	102.0	72	–	–	99	32.0	6.2
A34-14M-85	34	14F	-x72	151.52	148.8	159	102.0	72	–	–	99	32.0	7.8
A36-14M-85	36	14F	-x72	160.43	157.7	168	102.0	72	–	–	99	32.0	9.4
A38-14M-85	38	14F	-x72	169.34	166.6	183	102.0	72	–	–	99	32.0	11.2
A40-14M-85	40	14F	-x72	178.25	175.5	192	102.0	72	–	–	99	32.0	13.0
A44-14M-85	44	14F	-x72	196.08	193.3	211	102.0	72	–	–	99	32.0	17.0
A48-14M-85	48	14F	-x72	213.90	211.1	226	102.0	72			99	32.0	21.4
A56-14M-85	56	16F	-x72	249.55	246.8	256	102.0	72	150	207	99	32.0	22.2

Pulley Installation

Slacken screws in clamping element by two turns, removing one completely and fit into empty thread release hole tightening this screw so as to keep the inner and outer cones apart. Ensure all contact surfaces are clean, and lightly oiled with clean thin unmodified oil. Insert clamping element in hub and fit on shaft. Remove screw from release hole and refit in original hole. Position Pulley and tighten all screws finger tight so pulley can still be moved on shaft. Correct and accurate installation of Timing Drives is essential. Pulley alignment and shaft parallelism are important to ensure even loading across belt width, and avoid edge wear of belts on flanges. Pulley alignment can be checked by placing a straight edge against the outside edge of the pulleys and adjusting so contact is even across both pulleys. When the pulleys are correctly aligned they can be locked to the shafts by tightening all clamping screws evenly in a diametrically opposite sequence using torque wrench set initially at half catalogue clamping screw torque, then 3/4 value, and finally full torque. No movement of pulleys will occur during clamping.

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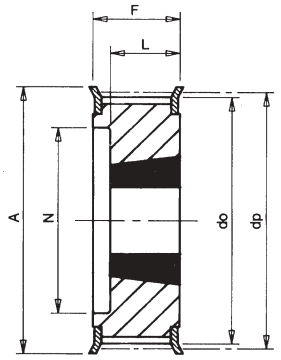
Taper Bore Pulleys for HTD Size 5M & 8M Belts

Catalogue No.	No. Teeth Z	Pulley Type	Pitch Circle Dia. dp	Taper Bush Ref.	Max. Bore d	Outside Diameter do	Flange Diameter A	Pulley Width F	Bore Length L	Hub Diameter M	Rim Diameter N	Approx Weight kg
5mm Pitch Pulleys for 15mm Wide Belt Ref. 5M15												
34-5M-15	34	9F	54.11	1008	25	53.0	57	22	22	–	–	0.23
36-5M-15	36	9F	57.30	1108	28	56.2	60	22	22	–	–	0.23
38-5M-15	38	9F	60.48	1108	28	59.4	67	22	22	–	–	0.29
40-5M-15	40	9F	63.66	1108	28	62.5	71	22	22	–	–	0.38
44-5M-15	44	9F	70.03	1108	28	68.9	75	22	22	–	–	0.48
48-5M-15	48	8F	76.39	1210	32	75.3	83	22	25	59	–	0.50
56-5M-15	56	8F	89.13	1210	32	87.4	93	22	25	70	–	0.66
64-5M-15	64	8F	101.86	1210	32	100.7	106	22	25	80	–	0.85
72-5M-15	72	8	114.59	1610	42	113.5	–	22	25	92	–	1.25
80-5M-15	80	8	127.32	1610	42	126.2	–	22	25	92	–	1.70
90-5M-15	90	8	143.24	1610	42	142.1	–	22	25	92	–	2.25
112-5M-15	112	8	178.25	2012	50	177.1	–	20	32	110	–	3.20
136-5M-15	136	7	216.45	2012	50	215.3	–	20	32	110	199	3.60
8mm Pitch Pulleys for 20mm Wide Belt Ref. 8M20												
22-8M-20	22	5F	56.02	1008	25	54.7	60	28	22	–	37	0.26
24-8M-20	24	5F	61.12	1108	28	59.8	66	28	22	–	44	0.33
26-8M-20	26	5F	66.21	1108	28	64.9	70	28	22	–	45	0.39
28-8M-20	28	5F	71.30	1108	28	70.1	75	28	22	–	50	0.48
30-8M-20	30	5F	76.39	1108	28	75.1	83	28	22	–	58	0.58
32-8M-20	32	5F	81.49	1610	42	80.2	87	28	25	–	63	0.46
34-8M-20	34	5F	86.58	1610	42	85.2	91	28	25	–	64	0.60
36-8M-20	36	5F	91.67	1610	42	90.3	97	28	25	–	68	0.74
38-8M-20	38	5F	96.77	1610	42	95.4	102	28	25	–	72	0.87
40-8M-20	40	5F	101.86	1610	42	100.5	106	28	25	–	76	1.09
44-8M-20	44	8F	112.05	2012	50	110.7	120	28	32	92	–	1.30
48-8M-20	48	8F	122.23	2012	50	120.9	128	28	32	96	–	1.74
56-8M-20	56	8F	142.60	2012	50	141.2	150	28	32	110	–	2.68
64-8M-20	64	11F	162.97	2012	50	161.6	168	28	32	110	137	2.98
72-8M-20	72	11F	183.35	2012	50	182.0	192	28	32	110	158	3.52
80-8M-20	80	11	203.72	2012	50	202.4	–	28	32	110	180	3.60
90-8M-20	90	11	229.18	2012	50	227.8	–	28	32	110	204	4.26
8mm Pitch Pulleys for 30mm Wide Belt Ref. 8M30												
22-8M-30	22	5F	56.02	1008	25	54.7	60	38	22	–	37	0.32
24-8M-30	24	5F	61.12	1108	28	59.8	66	38	22	–	44	0.42
26-8M-30	26	5F	66.21	1108	28	64.9	70	38	22	–	44	0.49
28-8M-30	28	5F	71.30	1210	32	70.1	75	38	25	–	50	0.60
30-8M-30	30	9F	76.39	1615	42	75.1	83	38	38	–	–	0.49
32-8M-30	32	9F	81.49	1615	42	80.2	87	38	38	–	–	0.64
34-8M-30	34	9F	86.58	1615	42	85.2	91	38	38	–	–	0.84
36-8M-30	36	9F	91.67	1615	42	90.3	97	38	38	–	–	1.05
38-8M-30	38	9F	96.77	1615	42	95.4	102	38	38	–	–	1.25
40-8M-30	40	9F	101.86	1615	42	100.5	106	38	38	–	–	1.46
44-8M-30	44	5F	112.05	2012	50	110.7	120	38	32	–	86	1.45
48-8M-30	48	5F	122.23	2012	50	120.9	128	38	32	–	90	1.94
56-8M-30	56	5F	142.60	2012	50	141.2	150	38	32	–	110	4.09
64-8M-30	64	8F	162.97	2517	60	161.6	168	38	45	125	–	4.58
72-8M-30	72	11F	183.35	2517	60	182.0	192	38	45	125	158	4.74
80-8M-30	80	11	203.72	2517	60	202.4	–	38	45	125	180	4.89
90-8M-30	90	11	229.18	2517	60	227.8	–	38	45	125	204	5.55
112-8M-30	112	11	285.21	2517	60	283.8	–	38	45	125	254	8.56
144-8M-30	144	11	366.69	2517	60	365.3	–	38	45	125	336	9.55
8mm Pitch Pulleys for 50mm Wide Belt Ref. 8M50												
28-8M-50	28	5F	71.30	1210	32	70.1	75	60	25	–	50	0.83
30-8M-50	30	5F	76.39	1615	42	75.1	83	60	38	–	58	0.71
32-8M-50	32	5F	81.49	1615	42	80.2	87	60	38	–	63	0.89
34-8M-50	34	5F	86.58	1615	42	85.2	91	60	38	–	65	1.16
36-8M-50	36	5F	91.67	1615	42	90.3	97	60	38	–	68	1.42
38-8M-50	38	5F	96.77	1615	42	95.4	102	60	38	–	72	1.75
40-8M-50	40	13F	101.86	2012	50	100.5	106	60	32	–	80	1.31
44-8M-50	44	13F	112.05	2012	50	110.7	120	60	32	–	86	1.86
48-8M-50	48	13F	122.23	2012	50	120.9	128	60	32	–	95	2.50
56-8M-50	56	13F	142.60	2517	60	141.2	150	60	45	–	116	3.70
64-8M-50	64	13F	162.97	2517	60	161.6	168	60	45	–	136	5.45
72-8M-50	72	12F	183.35	2517	60	182.0	192	60	45	125	158	6.22
80-8M-50	80	13	203.72	3020	75	202.4	–	60	51	–	180	8.38
90-8M-50	90	12	229.18	3020	75	227.8	–	60	51	160	204	8.43
112-8M-50	112	12	285.21	3020	75	283.8	–	60	51	170	254	12.75
144-8M-50	144	12	366.69	3020	75	365.3	–	60	51	170	336	16.00
168-8M-50	168	7	427.81	3525	90	426.4	–	60	65	198	395	19.00
192-8M-50	192	7	488.92	3525	90	487.6	–	60	65	198	455	23.00
8mm Pitch Pulleys for 85mm Wide Belt Ref. 8M85												
34-8M-85	34	13F	86.58	1615	42	85.2	91	95	38	–	65	1.56
36-8M-85	36	13F	91.67	1615	42	90.3	97	95	38	–	68	2.04
38-8M-85	38	13F	96.77	1615	42	95.4	102	95	38	–	72	2.40
40-8M-85	40	13F	101.86	2012	50	100.5	106	95	32	–	80	1.95
44-8M-85	44	13F	112.05	2012	50	110.7	120	95	32	–	86	2.51
48-8M-85	48	13F	122.23	2517	60	120.9	128	95	45	–	97	2.90
56-8M-85	56	13F	142.60	2517	60	141.2	150	95	45	–	116	4.85
64-8M-85	64	13F	162.97	2517	60	161.6	168	95	45	–	136	6.76
72-8M-85	72	13F	183.35	3020	75	182.0	192	95	51	–	150	8.72
80-8M-85	80	13	203.72	3020	75	202.4	–	95	51	–	180	9.80
90-8M-85	90	13	229.18	3020	75	227.8	–	95	51	–	204	11.74
112-8M-85	112	12	285.21	3020	75	283.8	–	95	51	170	254	13.15
144-8M-85	144	12	366.69	3525	90	365.3	–	95	65	198	336	17.50
168-8M-85	168	12	427.81	3525	90	426.4	–	95	65	198	395	21.00
192-8M-85	192	12	488.92	3525	90	487.6	–	95	65	198	455	28.00

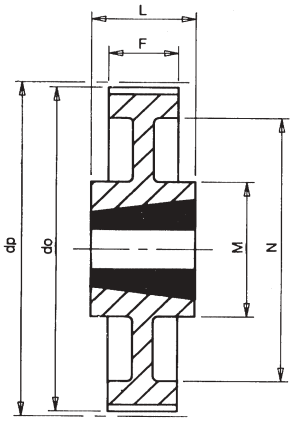
For bore sizes of Taper Bushes for above pulleys refer to page 23. Pulleys are also available with pilot bore ref. pp 16-17, and Avante Clamping Elements pp 19-20. All dimensions in mm.

Pulley Types

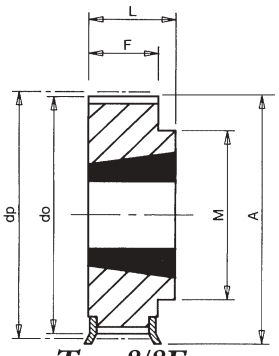
The pulley types referred to in tables are as drawings following. Suffix 'F' indicates pulley has flanges. Pulleys below dividing lines in tables are manufactured in Cast Iron, and pulleys over 300mm diameter generally have lightening holes in web.



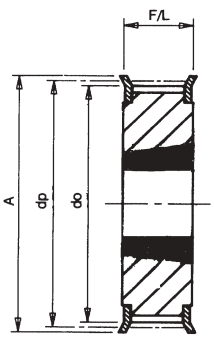
Type 5F



Type 7



Type 8/8F



Type 9F

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Taper Bore Pulleys for HTD Size 14M Belts

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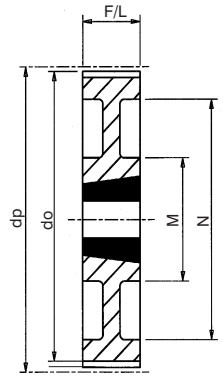
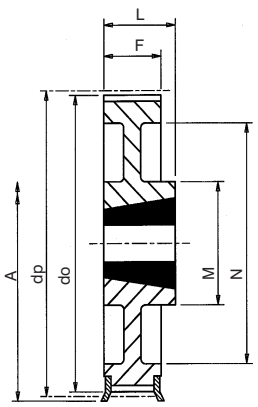
Pulley Types

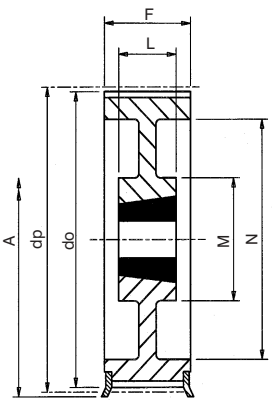
The pulley types referred to in tables are as drawings following. Suffix 'F' indicates pulley has flanges. Pulleys below dividing lines in tables are manufactured in Cast iron, and pulleys over 350mm diameter generally have lightening holes in web.



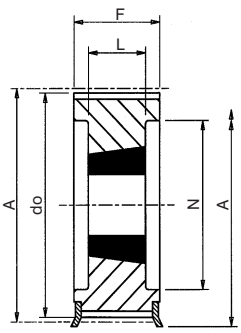
Type 10



Type 11/11F



Type 12/12F



Type 13/13F

Catalogue No.	No. Teeth Z	Pulley Type	Pitch Circle Dia. dp	Taper Bush Ref.	Max. Bore d	Outside Diameter do	Flange Diameter A	Pulley Width F	Bore Length L	Hub Diameter M	Rim Diameter N	Approx Weight kg
14mm Pitch Pulleys for 40mm Wide Belts. Ref. 14M40												
28-14M-40	28	13F	124.78	2012	50	122.1	128	54	32	–	94	2.18
*29-14M-40	29	13F	129.23	2012	50	126.6	138	54	32	–	98	2.50
30-14M-40	30	13F	133.69	2012	50	131.0	138	54	32	–	98	2.90
32-14M-40	32	13F	142.60	2012	50	139.9	154	54	32	–	108	3.71
34-14M-40	34	13F	151.52	2517	60	148.8	160	54	45	–	110	4.22
36-14M-40	36	13F	160.43	2517	60	157.7	168	54	45	–	120	5.23
38-14M-40	38	13F	169.34	2517	60	166.6	183	54	45	–	130	5.90
40-14M-40	40	13F	178.25	2517	60	175.5	188	54	45	–	138	6.54
44-14M-40	44	13F	196.08	3020	75	193.3	211	54	51	–	155	8.00
48-14M-40	48	13F	213.90	3020	75	211.1	226	54	51	–	170	9.80
*56-14M-40	56	13F	249.55	3020	75	246.8	256	54	51	–	208	13.50
*64-14M-40	64	12F	285.21	3020	75	282.4	296	54	51	170	240	13.20
72-14M-40	72	12	320.86	3020	75	318.1	–	54	51	170	280	14.76
80-14M-40	80	12	356.51	3020	75	353.7	–	54	51	170	315	15.46
90-14M-40	90	12	401.07	3020	75	398.3	–	54	51	170	360	17.03
112-14M-40	112	12	499.11	3020	75	496.3	–	54	51	170	457	22.20
144-14M-40	144	12	641.71	3020	75	638.9	–	54	51	170	600	31.00
168-14M-40	168	12	748.66	3020	75	745.9	–	54	51	170	706	38.50
192-14M-40	192	12	855.62	3020	75	852.8	–	54	51	170	813	46.80
*216-14M-40	216	12	962.57	3020	75	959.8	–	54	51	170	920	55.80
14mm Pitch Pulleys for 55mm Wide Belts. Ref. 14M55												
28-14M-55	28	13F	124.78	2012	50	122.1	128	70	32	–	94	2.40
*29-14M-55	29	13F	129.23	2012	50	126.6	138	70	32	–	100	2.80
30-14M-55	30	13F	133.69	2517	60	131.0	138	70	45	–	100	2.95
32-14M-55	32	13F	142.60	2517	60	139.9	154	70	45	–	108	3.99
34-14M-55	34	13F	151.52	2517	60	148.8	160	70	45	–	110	4.96
36-14M-55	36	13F	160.43	2517	60	157.7	168	70	45	–	120	5.67
38-14M-55	38	13F	169.34	2517	60	166.6	183	70	45	–	130	6.76
40-14M-55	40	13F	178.25	2517	60	175.5	188	70	45	–	138	7.63
44-14M-55	44	13F	196.08	3020	75	193.3	211	70	51	–	155	9.37
48-14M-55	48	13F	213.90	3020	75	211.1	226	70	51	–	170	11.26
56-14M-55	56	13F	249.55	3020	75	246.8	256	70	51	–	208	15.00
64-14M-55	64	12F	285.21	3020	75	282.4	296	70	51	170	240	15.18
72-14M-55	72	12	320.86	3020	75	318.1	–	70	51	170	280	16.88
80-14M-55	80	12	356.51	3020	75	353.7	–	70	51	170	315	17.74
90-14M-55	90	12	401.07	3020	75	398.3	–	70	51	170	360	20.49
112-14M-55	112	12	499.11	3020	75	496.3	–	70	51	170	457	25.82
144-14M-55	144	12	641.71	3020	75	638.9	–	70	51	170	600	36.70
168-14M-55	168	12	748.66	3020	75	745.9	–	70	51	170	706	45.30
192-14M-55	192	12	855.62	3020	75	852.8	–	70	51	170	813	54.90
*216-14M-55	216	7	962.57	3535	90	959.8	–	70	89	190	920	68.50
14mm Pitch Pulleys for 85mm Wide Belts. Ref. 14M85												
28-14M-85	28	13F	124.78	2517	60	122.1	128	102	45	–	98	2.94
*29-14M-85	29	13F	129.23	2517	60	126.6	138	102	45	–	100	3.45
30-14M-85	30	13F	133.69	2517	60	131.0	138	102	45	–	100	4.09
32-14M-85	32	13F	142.60	2517	60	139.9	154	102	45	–	108	5.23
34-14M-85	34	13F	151.52	2517	60	148.8	160	102	45	–	110	6.54
36-14M-85	36	13F	160.43	3020	75	157.7	168	102	51	–	125	6.33
38-14M-85	38	13F	169.34	3020	75	166.6	183	102	51	–	130	7.42
40-14M-85	40	13F	178.25	3020	75	175.5	188	102	51	–	138	8.72
44-14M-85	44	13F	196.08	3030	75	193.3	211	102	76	–	155	13.12
48-14M-85	48	13F	213.90	3030	75	211.1	226	102	76	–	170	16.46
56-14M-85	56	13F	249.55	3525	90	246.8	256	102	65	–	210	18.07
64-14M-85	64	12F	285.21	3525	90	282.4	296	102	65	190	240	20.27
72-14M-85	72	12	320.86	3525	90	318.1	–	102	65	190	280	22.15
80-14M-85	80	12	356.51	3525	90	353.7	–	102	65	190	315	24.17
90-14M-85	90	12	401.07	3525	90	398.3	–	102	65	190	360	26.94
112-14M-85	112	12	499.11	3525	90	496.3	–	102	65	190	457	34.20
144-14M-85	144	12	641.71	3525	90	638.9	–	102	65	190	600	45.50
168-14M-85	168	12	748.66	3525	90	745.9	–	102	65	190	706	58.40
192-14M-85	192	10	855.62	4040	100	852.8	–	102	102	230	813	92.00
216-14M-85	216	10	962.57	4040	100	959.8	–	102	102	230	920	105.00
14mm Pitch Pulleys for 115mm Wide Belts. Ref. 14M115												
28-14M-115	28	13F	124.78	2517	60	122.1	128	133	45	–	98	4.10
*29-14M-115	29	13F	129.23	2517	60	126.6	138	133	45	–	100	4.65
30-14M-115	30	13F	133.69	2517	60	131.0	138	133	45	–	100	5.45
32-14M-115	32	13F	142.60	2517	60	139.9	154	133	45	–	108	6.23
34-14M-115	34	13F	151.52	2517	60	148.8	160	133	45	–	110	8.00
36-14M-115	36	13F	160.43	3020	75	157.7	168	133	51	–	125	7.18
38-14M-115	38	13F	169.34	3020	75	166.6	183	133	51	–	130	8.85
40-14M-115	40	13F	178.25	3020	75	175.5	188	133	51	–	138	10.10
44-14M-115	44	13F	196.08	3030	75	193.3	211	133	76	–	155	14.60
48-14M-115	48	13F	213.90	3030	75	211.1	226	133	76	–	170	18.20
56-14M-115	56	13F	249.55	3535	90	246.8	256	133	89	–	210	26.30
*64-14M-115	64	12F	285.21	3535	90	282.4	296	133	89	190	240	27.50
*72-14M-115	72	12	320.86	3535	90	318.1	–	133	89	190	280	29.70
80-14M-115	80	12	356.51	3535	90	353.7	–	133	89	190	315	32.10
90-14M-115	90	12	401.07	3535	90	398.3	–	133	89	190	360	35.70
112-14M-115	112	12	499.11	3535	90	496.3	–	133	89	190	457	45.40
144-14M-115	144	12	641.71	4040	100	638.9	–	133	102	230	600	62.50
168-14M-115	168	12	748.66	4040	100	745.9	–	133	102	230	706	75.50
192-14M-115	192	12	855.62	4040	100	852.8	–	133	102	230	813	102.00
*216-14M-115	216	12	962.57	4040	100	959.8	–	133	102	230	920	115.00

*Non-stock items, manufactured to customer order only. All dimensions in mm.

For 14M170 belt drives a standard range of pilot bore pulleys is available, ref page 18, alternatively taper bore sprockets can be manufactured to order, for details of recommended dimensions contact Cross+Morse Technical Department. For bore sizes of Taper Bushes refer to page 23

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Taper Bushes

Bush Dimensions

Bush No.	Approx. Weight kg	Bush Dimensions					Metric Bore Bushes			Imperial Bore Sizes		
		Length mm	o.d. large end of taper mm	Grub Screws			Bore sizes available mm	Keyway mm		Bore sizes available inches	Keyway Inches	
				No.	Screw Size	Key Size mm		Width	Depth at Centre		Width	Depth at Side
1008	0.11	22.2	35	2	1/4" x 1/2" B.S.W.	3	9 10 11 12 14 16 18 19 20 22 24 25	3 4 5 6 8	1.4 1.8 2.3 2.8 1.3**	3/8 1/2 5/8 3/4 7/8 1	1/8 3/16 1/4 1/4	1/16 3/32 1/8 1/16*
1108	0.12	22.2	38	2	1/4" x 1/2" B.S.W.	3	9 10 11 12 14 16 18 19 20 22 24 25 28	3 4 5 6 8 8	1.4 1.8 2.3 2.8 3.3 1.3**	3/8 1/2 5/8 3/4 7/8 1 1 1/8	1/8 3/16 1/4 5/16	1/16 3/32 1/8 5/64*
1210	0.23	25.4	48	2	3/8" x 5/8" B.S.W.	5	11 12 14 16 18 19 20 22 24 25 28 30 32	4 5 6 8 10	1.8 2.3 2.8 3.3 3.3	5/8 1/2 7/8 3/4 1 1/8 1 1/4	1/8 3/16 1/4 5/16	1/16 3/32 1/8 1/8
1215	0.35	38.1										
1310	0.28	25.4	51	2	3/8" x 5/8" B.S.W.	5	14 16 18 19 20 22 24 25 28 30 32 35	5 6 8 10 10	2.3 2.8 3.3 3.3 1.3**	5/8 1/2 7/8 3/4 1 1/8 1 1/4 1 3/8	1/8 3/16 1/4 5/16 3/8	1/16 3/32 1/8 1/8 1/8
1610	0.35	25.4	57	2	3/8" x 5/8" B.S.W.	5	14 16 18 19 20 22 24 25 28 30 32 35 38 40 42 (1615 only) 42	5 6 8 10 12 12	2.3 2.8 3.3 3.3 3.3 1.3**	5/8 1/2 7/8 3/4 1 1 1/8 1 1/4 1 3/8 1 1/2 1 5/8	1/8 3/16 1/4 5/16 3/8 7/16	1/16 3/32 1/8 1/8 1/8 1/8*
1615	0.45	38.1										
2012	0.68	31.8	70	2	7/16" x 7/8" B.S.W.	6	14 15 16 18 19 20 22 24 25 28 30 32 35 38 40 42 45 48 50	5 6 8 10 12 14	2.3 2.8 3.3 3.3 3.3 3.8	3/4 7/8 1 1 1/8 1 1/4 1 3/8 1 1/2 1 5/8 1 3/4 1 7/8 2	3/16 1/4 5/16 3/8 7/16 1/2	3/32 1/8 1/8 1/8 5/32 5/32
2517	1.5	44.5	86	2	1/2" x 1" B.S.W.	6	19 20 22 24 25 28 30 32 35 38 40 42 45 48 50 55 60 65†	6 8 10 12 14 16 18	2.8 3.3 3.3 3.8 3.8 4.3 4.4	7/8 1 1 1/8 1 1/4 1 3/8 1 1/2 1 5/8 1 3/4 1 7/8 2 2 3/8 2 1/4 2 1/2	1/4 5/16 3/8 7/16 1/2 5/8 5/8	1/8 1/8 1/8 5/32 5/32 7/32 3/16
2525	1.9	63										
3020	2.7	50.8	108	2	5/8" x 1 1/4" B.S.W.	8	25 28 30 32 35 38 40 42 45 48 50 55 60 65 70 75	8 10 12 14 16 18 20	3.3 3.3 3.3 3.8 4.3 4.4 4.9	1 1/4 1 3/8 1 1/2 1 5/8 1 3/4 1 7/8 2 2 1/4 2 3/8 2 1/2 2 5/8 2 3/4 3	5/16 3/8 7/16 1/2 5/8 3/4	1/8 1/8 5/32 5/32 7/32 1/4
3030	3.6	76										
3525	4.0	63	127	3	1/2" x 1 1/4" B.S.W.	10	32 35 38 40 42 45 48 50 55 60 65 70 75 80 85 90	10 12 14 16 18 20 22 25	3.3 3.3 3.8 4.3 4.4 4.9 5.4 5.4	1 1/2 1 5/8 1 3/4 2 2 1/4 2 3/8 2 1/2 2 3/4 3 3 1/4 3 3/8 3 1/2	3/8 7/16 1/2 5/8 3/4 7/8 7/8	1/8 5/32 5/32 7/32 1/4 5/16 1/4*
3535	5.0	89										
4030	6.5	76	146	3	5/8" x 1 3/4" B.S.W.	12	40 42 45 48 50 55 60 65 70 75 80 85 90 95 100	12 14 16 18 20 22 25 28	3.3 3.8 4.3 4.4 4.9 5.4 5.4 6.4	1 3/4 2 2 1/4 2 3/8 2 1/2 2 3/4 3 3 1/4 3 1/2 3 3/4 4	7/16 1/2 5/8 3/4 7/8 1	5/32 5/32 7/32 1/4 5/16 1/4*
4040	7.7	102										
4535	8	89	162	3	3/4" x 2" B.S.W.	14	55 60 65 70 75 80 85 90 95 100 105 110	16 18 20 22 25 28	4.3 4.4 4.9 5.4 5.4 6.4	2 1/4 2 3/8 2 1/2 2 3/4 3 3 1/4 3 1/2 3 3/4 4 4 1/4 4 1/2	5/8 3/4 7/8 1 1 1/4	7/32 1/4 5/16 3/8 1/4*
4545	10	114										
5040	12	102	178	3	7/8" x 2 1/2" B.S.W.	17	70 75 80 85 90 95 100 105 110 115 120 125	20 22 25 28 32	4.9 5.4 5.4 6.4 7.4	2 3/4 3 3 1/4 3 1/2 3 3/4 4 4 1/4 4 1/2 4 3/4 5	3/4 7/8 1 1 1/4 1 1/4	1/4 5/16 3/8 7/16 5/16*
5050	14	127										

†Bore size 65mm has keyway 2.3mm deep on 2525 Bush

* Shallow Key not to B.S. 46 Part 1.
**Shallow Key not to B.S. 4235 Part 1.

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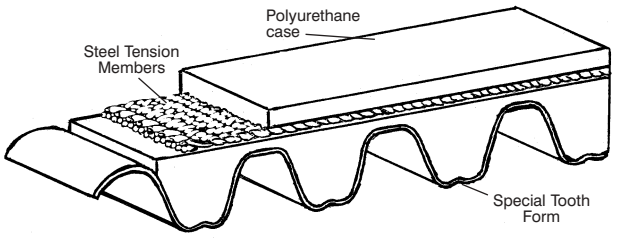
Green Belt linear Drives

Green Power Polyurethane Metric Belts

The Green Power Polyurethane Timing Belt offers a highly efficient, high strength system for the transmission of linear power in transfer systems.
Utilising the Megadyne RPP tooth form the belts can be used
with standard pulleys to metric pitches 5mm (5M), 8mm (8M) and 14mm(4M) with standard width belts able to handle loads up to 3,700kg with speeds up to 80m/sec.
The body of the belt is Polyurethane with a hardness of 85 Shore A to provide good tooth strength to resist the high shock and surge loads encountered in reciprocating drives. High strength steel tension members provide high breaking strength combined with low elasticity.
The teeth are faced with a green nylon fabric which increases tooth strength; reduces the coefficient of friction between belt and pulley, improving meshing with the pulley and reducing noise levels. The nylon has good wear properties and ensures a clean drive media.
Extensive development has resulted in a homogeneous combination of all components, the cohesive bond imparting superior load carrying capacity giving the Green Power Belts the ability to exceed the performance of other belts already in the market place.
The parabolic profile of the Standard Green Power Belts has a contact angle which increases from the base of the tooth to the top, permitting an increased tooth profile compared to other metric belts. The parabolic shape and tooth depth provide the following advantages:-

- Reduced interference between belt and pulley improving meshing characteristics.
- Reduced noise levels.
- Increased resistance to tooth jumping.
- Increased shear strength.
- Increased torque capacity.
- Reduced installation tension.
- Controlled deformation of the softer top section of the tooth.

The belts are manufactured in a continuous process with the steel tensile member parallel to belt edge. The open ended belts are available in 50-100 metre rolls, but can be



Mechanical Features of Green Power Linear Belts

- Dimensional consistency.
- Low pre-tension requirement.
- Low noise levels.
- High abrasion resistance.
- No maintenance.
- High flexibility.
- Linear speeds up to 80m/sec
- High positional accuracy

Chemical Features of Green Power Linear Belts

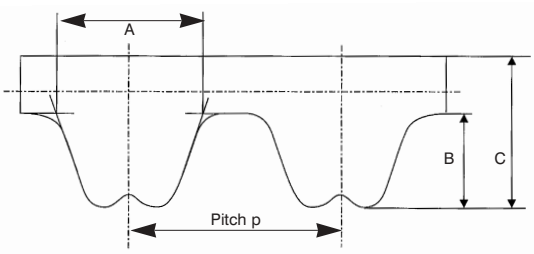
- Working temperatures -30°C to +85°C and up to +110°C for short periods.
- High resistance to Oils and Greases.
- Moderate resistance to Acids and Alkaline solutions.
- Resistant to Ozone, UVA rays, Hydrolysis and Ageing.
- Non flaking, non- toxic, suitable for food and clean room applications.
- The PU body is suitable for joining with other thermoplastic materials.

Endless Belts

Endless Belts can be produced by welding open ended lengths, a multi-finger connection being used to minimise strength loss.
Also a limited range of endless manufactured bolts is available from 1.9 metre length for power transmission applications. These can be provided backed with Linatex, Tenax and softer PU compounds.

Green Power Belt Dimensions

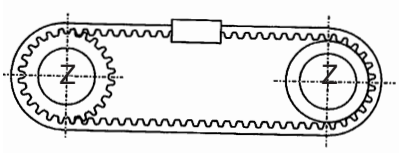
Belt Size	Pitch P mm	Tooth Length A mm	Tooth Height B mm	Belt Thick. C mm	Tol. Thickness mm	Min.Number Pulley Teeth Z min	Min.Diameter Outside Idler di mm
U5M	5	3.35	2	3.8	±0.20	12	60
U8M	8	5.50	3.2	5.4	±0.30	18	100
HPU8M	8	5.50	3.2	5.4	±0.30	22	150
U14M	14	9.50	6	10	±0.40	32	250



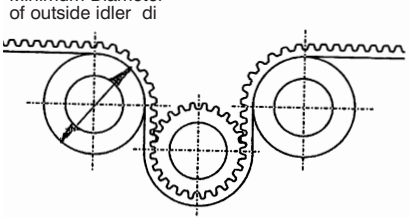
Standard Green Power Belt Dimensions

Cat. No	Pitch mm	Width mm	Width Tol. mm	Working Load Fm Max. N	Breaking Load N	Elasticity mm/m/1000N	Weight kg/m
U5M10E	5	10	±0.5	875	2680	4.50	0.0391
U5M15E	5	15	±0.5	1330	4020	3.00	0.0586
U5M25E	5	25	±0.5	1700	7230	1.65	0.0977
U5M30E	5	30	±0.5	2375	8050	1.45	0.1172
U5M50E	5	50	±0.5	4750	15000	0.83	0.1953
U8M10E	8	10	±0.5	1460	5460	2.50	0.0657
U8M15E	8	15	±0.5	2190	8190	1.95	0.0985
U8M20E	8	20	±0.5	3020	10920	1.35	0.1313
U8M30E	8	30	±0.5	4480	17290	0.85	0.1970
U8M50E	8	50	±0.5	7100	30940	0.55	0.3283
U8M85E	8	85	±0.5	12650	53600	0.32	0.5580
U8M100E	8	100	±0.5	15800	63995	0.24	0.6565
HPU8M10E	8	10	±0.5	2000	8250	2.00	0.0707
HPU8M20E	8	20	±0.5	3650	18150	1.05	0.1417
HPU8M30E	8	30	±0.5	5970	26400	0.67	0.2122
HPU8M50E	8	50	±0.5	9370	46200	0.43	0.3528
HPU8M85E	8	85	±0.5	16960	77550	0.24	0.6022
HPU8M100E	8	100	±0.5	19850	90750	0.21	0.7085
U14M40E	14	40	±1.0	12300	49200	0.32	0.4710
U14M55E	14	55	±1.0	16750	67650	0.24	0.6470
U14M85E	14	85	±1.0	28500	104550	0.14	1.0000
U14M115E	14	115	±1.0	36500	144525	0.11	1.3553

Minimum number of teeth on pulley Z min



Minimum Diameter of outside idler di



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Green Belt Selection Procedure

A Green Belt used for linear application can be selected either by consideration of the loads and accelerative forces applied to the belt, or by the power applied to the driving pulley and the speed of rotation.

In order to select the Green Belt it is first necessary to compile together, dependant on method of selection, the following relevant design parameters.

a) Is drive horizontal or vertical
b) The mass of all moving parts to be moved by the belt.
c) Maximum Belt velocity
d) Maximum rate of acceleration
e) Frictional forces due to load being moved
f) Desired Pulley, diameters
g) Pulley Centres/Total length of movement required
h) Driving Motor Power
i) Driving Pulley speed (r.p.m.)
j) Any width constrictions

Selection of Belt Considering Motor Power

1) Use Power and Pulley speed to select size (pitch) of belt from graph 1 opposite.
2) Considering the desired pulley diameter determine number of teeth in pulley

$$\text{No. Teeth } Z = \frac{dp \times \Pi}{P}$$

3) From Tooth Shear Resistance table against Pulley Speed 'N' determine value for Fs for selected belt size.
4) Determine numbers of pulley teeth in mesh Zm, normally equals $Z/2$, Zm has a maximum Value of 12
5) Then Belt Width $b = \frac{P \times 12 \times 10^6}{Fs \times Zm \times Z \times N}$ mm

Select next larger standard width to width calculated

6) Belt length $L = 2A + Zxp$ mm

Where centre distance not specified but carriage motion distance is, the min. pulley centre can be determined as:-

$Amin = Lm + Lc + dp$. mm

The belt can then be specified by type - width x length e.g.

U8M 50E X 2600 - 2600mm length belt.

Selection of Belt considering loads and accelerative forces

1) Calculate the linear drive force Fp

For Horizontal drives $Fp = M \times a + F_F$ N

For Vertical drives $Fp = M(9.807+a) + F_F$ N

From table below select size of belt for the application

Size of Belt	Drive Load Range N	Max Rate acceleration m/sec²
U5M	0 - 920	80
U8M	500 - 3650	60
HPU8M	500 - 3800	60
U14M	1000 - 9000	40

2) Considering the desired pulley diameter determine number of teeth in pulley

$$\text{No. Teeth } Z = \frac{dp \times \Pi}{P}$$

3) Determine Pulley speed, r.p.m. from linear speed of belt V.

$$N = \frac{60V}{Zxp} \times 1000 \text{ r.p.m}$$

4) From Tooth Shear Resistance table against Pulley Speed 'N', determine value for Fs for selected belt size.
5) Determine number of pulley teeth in mesh Zm, normally equals Z/2. Zm has a maximum value of 12.
6) Then belt width $b = \frac{Fp}{Fs \times Zm}$ mm

Select next larger standard width to width calculated.

7) Belt Length $L = 2A + Zxp$ mm

Where Centre distance not specified but carriage motion distance is, the min. pulley centre distance can be determined as:-A min. = Lm + Lc +dp mm

8) Having determined a belt size and length the calculation for linear drive force can be recalculated incorporating the belt weight and idler pulley (the drive pulley inertia does not effect the belt forces, for horizontal drives.)

Corrected value $Fp = (M + M_B + Mc)\,a + F_{F...}$ N

For vertical drives

Corrected value $Fp = (M + M_B + Mc)\,a + 9.807M + F_{F...}N$

If significantly changed recheck belt width - section 6.

The belt can then be specified by type - width x length e.g.

U5M 20E x 1500 - 1500mm length belt

Terms and Definitions :-

a	= acceleration	m/sec
A	= centre distance pulley shafts	mm
b	= belt width	cm
d	= bore of pulley	mm
do	= outside diameter of pulley	mm
dp	= pitch diameter of pulley	mm
F	= total force seen by belt	N
F_F	= friction forces seen by belt	N
F_m	= max. acceptable force for belt (table p23)	N
Fp	= linear driving force	N
Fs	= tooth shear resistance (see table below)	N/cm
F_T	= total force seen by belt	N
Fx	= fitting tension for belt (see p25)	N
L	= length of belt	mm
Lc	= length of moving carriage	mm
Lm	= distance moved by carriage	mm
m_B	= unit weight of belt (table p23)	gm/m
M	= weight of moving components (carriage)	kg
M_B	= weight of belt length	
	$= m_B \times L$	kg
Mc	= compensated weight for pulley	
	$= \frac{Mp}{2}\left(1+\frac{d^2}{do^2}\right)$	
Mp	= weight of idler pulley	kg
N	= shaft speed	r.p.m
p	= belt pitch	mm
P	= drive power	KW
V	= belt/carriage linear speed	m/sec
Z	= number of teeth on pulley	
Zm	= number of teeth in mesh with belt	=12 max

Tooth Shear Resistance

Pulley Speed N r.p.m	Value for Teeth Shear Resistance Fs N/cm by belt size			
	U5M	U8M	HPU8M	UI4M
0	36.70	75.71	75.71	139.65
20	36.36	74.72	74.72	137.37
40	36.02	73.73	73.73	135.03
60	35.68	72.74	72.74	132.81
80	35.34	71.75	71.75	130.53
100	35.00	70.76	70.76	128.24
200	32.85	65.10	65.10	118.00
300	31.50	62.00	62.00	111.00
400	30.45	59.75	59.75	105.00
500	29.55	57.35	57.35	100.51
600	28.58	55.50	55.50	96.04
700	27.78	53.64	53.64	92.39
800	27.10	52.08	52.07	89.31
900	26.52	50.73	50.72	86.64
1000	26.00	49.54	49.54	84.28
1100	25.54	48.50	48.49	82.17
1200	25.13	47.56	47.54	80.25
1300	24.75	46.70	46.69	78.49
1400	24.40	45.92	45.90	76.86
1500	24.08	45.20	45.18	75.34
1600	23.78	44.53	44.51	73.90
1700	23.50	43.90	43.88	72.54
1800	23.24	43.31	43.29	71.25
2000	22.75	42.24	42.21	68.81
2200	22.31	41.27	41.24	66.54
2400	21.91	40.40	40.35	64.38
2600	21.54	39.58	39.53	62.30
2800	21.19	38.83	38.77	60.29
3000	20.86	38.12	38.05	58.32
3200	20.54	37.44	37.37	56.38
3400	20.24	36.80	36.72	54.46
3600	19.96	36.19	36.09	52.54
3800	19.68	35.62	35.50	50.62
4000	19.41	35.04	34.91	48.69
4500	18.76	33.68	33.52	43.81
5000	18.14	32.39	32.20	38.77
5500	17.53	31.15	30.92	33.53
6000	16.94	29.93	29.66	28.07
6500	16.34	28.74	28.41	22.34
7000	15.75	27.53	27.15	–
7500	15.15	26.33	25.89	–
8000	14.54	25.11	24.62	–
9000	13.28	22.62	22.00	–
10000	11.97	20.04	19.27	–

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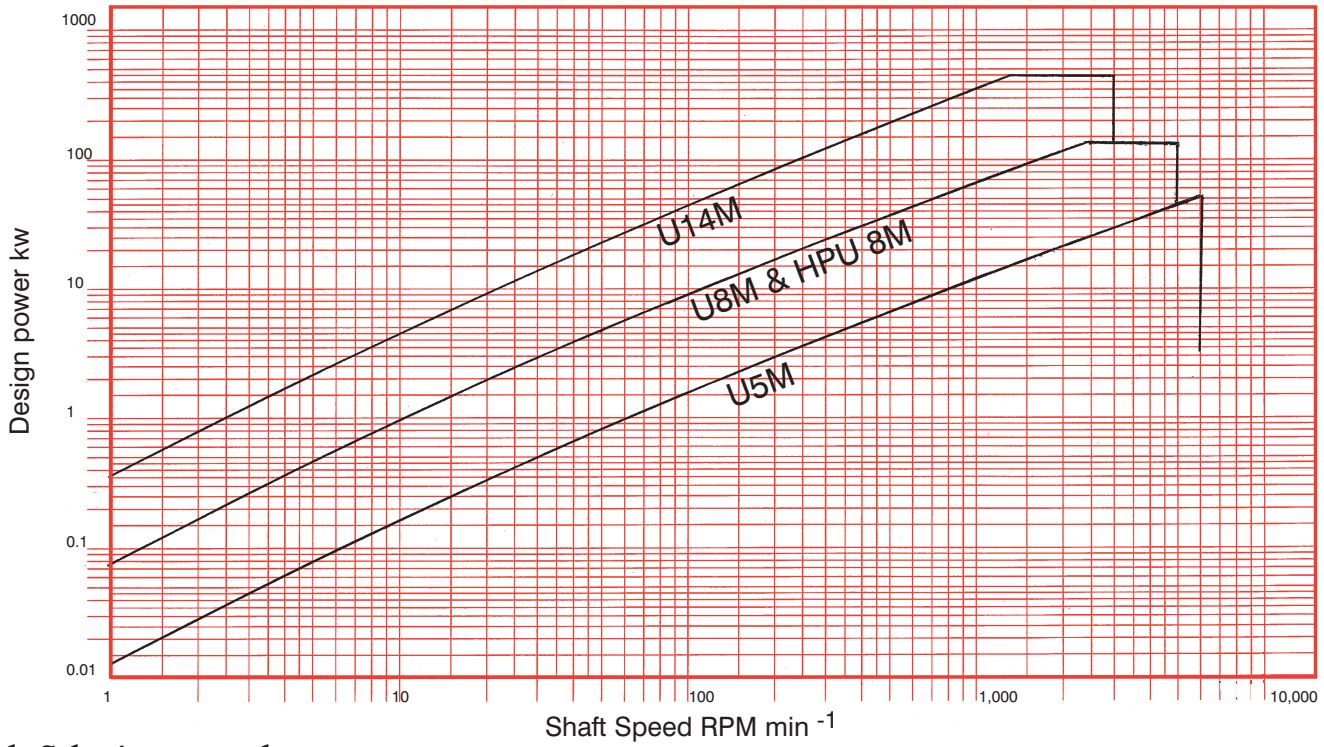
Green Belt Selection and Application

Green Belt Selection Table



Belt Selection examples

A) Belt required to drive oscillating table powered by 0.2kw motor gearbox driving pulley at 270 r.p.m. The belt is required to have pulley centres 2000mm and pulley diameters approx 25mm.

1) By consideration of the Power and Speed values in table above we will select a U5M belt.

2) Considering the pulley diameter (25mm) we can determine
No.Teeth Z $= \frac{dp \times \pi}{p} = \frac{25\pi}{5} = 15.7$ ⇨ 16 Teeth

For 16 tooth pulley actual dp = 25.46mm.

3) From Tooth Shear Resistance table, p24, determine value Fs for pulley speed (use table values next above).
@ 300r.p.m Fs = 31.50

4) Determine no teeth in mesh. As this is a conveyor with equal pulleys :- $Zm = Z/2 = 8$

5) Belt width is from equation $b = \frac{p \times 12 \times 10^6}{Fs \times Zm \times Z \times N}$
$= \frac{0.2 \times 12 \times 10^6}{31.50 \times 8 \times 16 \times 270}$
= 2.2 cm
next largest belt standard width = 25 mm

6) Belt length L = 2A + Z x p mm
= 4080 mm

Thus belt specification is U5M25Ex 4080

B) Carriage to be moved vertically by belt on 2500 mm pulley centres, Weight of carriage 100kg moves max velocity 3m/sec with max acceleration 10m/sec^2, Frictional loss 50N with pulleys to be approx 75 mm diameter.

1) Calculate driving force Fp = M(9.807+ a) + F_F N
= 100(9.807+10) + 50 = 2030.7N
From table p23 belt size should be U8M

2) Calc No. Teeth Pulley $Z = \frac{dp \times \pi}{p} = \frac{75\pi}{8} = 29.45$ ⇨ 30 teeth
For 30 tooth pulley actual dp = 76.4 mm

3) Determine pulley speed $N = \frac{60\ V}{Z \times p} .1000 = 750$ r.p.m

4) From Tooth Sheer Resistance table, p25, determine value Fs
@ 800 r.p.m = 52.08

5) Determine teeth in mesh $Zm = Z/2 = 30/2 = 15$ but 12 is max

6) Determine belt width $b = \frac{Fp}{Fs \times Zm} = \frac{2030.7}{52.08 \times 12} = 3.25$ cm
Next larger standard width is 50 mm

7) Belt length L = 2A + Z x p mm = 5240 mm

8) Check corrected value for Fp including belt weight
Corrected Fp = (M + M_B + Mc) a + 9.807M + F_F N
= (100 + 1.85 + 1.15) 10 + 9.807 x 100 + 50 N
= 1030 + 981 + 50 = 2061 N
Change to original figure minimal so belt selection stands.
Thus belt specification is U8M50E x 5240

Belt Tensioning

The belt tension is determined by the value of the driving force Fp. The fitting tension Fx must ensure that both strands of the belt run without sagging, as otherwise the accuracy of transmission and belt life would be compromised. Thus the fitting tension should always exceed the maximum driving force, and is applied to both strands of the belt.

$F x > Fp$

Thus in example B where Fp max is 2061N a sensible belt tension could be 2,500 N.
Determining the fitting tension is simple, in that the centre distance of the pulleys is increased to a level equal to the elastic stretch of the belt under this load. Values for elasticity of belts is provided in Std Belt Dimensions table. (Page 24)

Thus for our example B to get a tension of 2,500N we must extend the belt by 215 x 0.55 = 1.375 mm/m.
As the existing centres are 2500 mm the total extension will be 2.5 x 1.375 = 3.44 mm.
Under working conditions the total load seen by either strand of the belt equals the fitting tension + working load.

Total Load F_T = Fp + Fx N
For our example F_T = 2061 + 2500 = 4561N

It is imperative this load does not exceed the maximum working load F_M max shown in table bottom of page 24

$F_M \geq F_T$

For U8M50E belt F_M = 7100N so selection in example is o.k., otherwise a wider belt would have been required.

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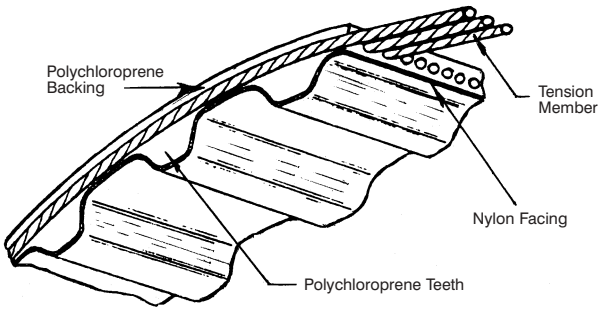
Classical Series Timing Belts

Classical Series Timing Belts are manufactured in 5 pitch sizes, XL (1/5), L (3/8″), H (1/2″), XH (7/8″) and XXH (1 1/4″). Standard stock lengths and widths are shown below, the XH and XXH Series being available to order. Although in many designs Classical Belts have been replaced by the new Parabolic Belts they are still preferred on some drives due to lower cost, larger selection stock belts and pulleys and their suitability for low torque high speed applications.



Timing Belt Construction

The classical timing belt consists of four components.

Cable Tension Member: A continuous helically wound glass fibre cable is the load carrying element at the heart of the belt. This tension member provides the belt with enormous tensile strength with a high level of flexibility.

Polychloroprene Backing: A thin, strong, wear resistant polychloroprene rubber sleeve is bonded to the tension cable to provide a flexible protection.

Polychloroprene Teeth: Moulded integral with the polychloroprene backing, made of moderately hard, shear resistant rubber compound, the teeth are accurately formed and precisely spaced pulley engagement.

Nylon Facing: A tough, wear resistant nylon duck, with low coefficient of friction, protects the wearing surface of the teeth in the same manner as case hardening protects the surface of steel.

Special Construction Belts

Belts for special applications can be produced to order in minimum batch sizes.

Anti- Static Belts: Belts conforming to BS 2050 Standard can be provided on all standard belt sizes. These belts are for applications where static discharges must be avoided, such as chemical plants, mines and oil refineries.

High Temperature Belts: For applications in confined areas with elevated temperatures, these belts can operate at up to 120°C.

Oil Resistance Belts: For areas where belts could be subject to frequent contact with lubricating oils.

Belts with a combination of these features can also be offered.

Ground Back Belts: All belts supplied by Cross+Morse have ground backs and uniform tension member to ensure smooth running. For very sensitive drives the belt thickness tolerance can be tightened from the standard ± 0.6mm to ± 0.25mm (Class 2) or even ± 0.15mm (Class 1). These belts provide improved accuracy of drive on positioning applications.

Other Pitch and Widths of Belts: Belts can also be provided in 2mm pitch MXL, 7/8 inch pitch XH and 1 1/4 inch pitch XXH, for replacement purposes. Widths up to mould turn (approx 400mm) can be supplied.

Standard Stock Timing Belt Sizes
XL Series - 1/5" Pitch

Belt Length Code	Pitch Length mm	No. Teeth N	1/4" Wide Belt		3/8" Wide Belt	
			Cat. No	Wt.gms	Cat. No	Wt.gms
54XL	137.16	27	54XL 025	2.0	54XL 037	2.9
60XL	152.40	30	60XL 025	2.3	60XL 037	3.3
70XL	177.80	35	70XL 025	2.6	70XL 037	3.8
80XL	203.20	40	80XL 025	2.9	80XL 037	4.4
90XL	228.60	45	90XL 025	3.3	90XL 037	4.9
98XL	248.92	49	98XL 025	3.6	98XL 037	5.3
100XL	254.00	50	100XL 025	3.7	100XL 037	5.5
102XL	259.08	51	102XL 025	3.7	102XL 037	5.6
106XL	269.24	53	106XL 025	3.9	106XL 037	5.8
110XL	279.40	55	110XL 025	4.0	110XL 037	6.0
120XL	304.80	60	120XL 025	4.4	120XL 037	6.5
130XL	330.20	65	130XL 025	4.8	130XL 037	7.0
140XL	355.60	70	140XL 025	5.1	140XL 037	7.6
150XL	381.00	75	150XL 025	5.5	150XL 037	8.2
156XL	396.24	78	156XL 025	5.7	156XL 037	8.5
160XL	406.40	80	160XL 025	5.9	160XL 037	8.7
170XL	431.80	85	170XL 025	6.2	170XL 037	9.3
180XL	457.20	90	180XL 025	6.6	180XL 037	9.8
182XL	462.28	91	182XL 025	6.7	182XL 037	10.0
190XL	482.60	95	190XL 025	7.0	190XL 037	10.4
198XL	502.92	99	198XL 025	7.3	198XL 037	10.9
200XL	508.00	100	200XL 025	7.3	200XL 037	11.0
202XL	513.08	101	202XL 025	7.4	202XL 037	11.1
210XL	533.40	105	210XL 025	7.7	210XL 037	11.5
212XL	538.48	106	212XL 025	7.8	212XL 037	11.7
214XL	543.56	107	214XL 025	7.9	214XL 037	11.8

Belt Length Code	Pitch Length mm	No. Teeth N	1/4" Wide Belt		3/8" Wide Belt	
			Cat. No	Wt.gms	Cat. No	Wt.gms
220XL	558.80	110	220XL 025	8.1	220XL 037	12.1
228XL	579.12	114	228XL 025	8.4	228XL 037	12.5
230XL	584.20	115	230XL 025	8.4	230XL 037	12.6
234XL	594.36	117	234XL 025	8.6	234XL 037	12.9
240XL	609.60	120	240XL 025	8.8	240XL 037	13.2
250XL	635.00	125	250XL 025	9.2	250XL 037	13.7
260XL	660.40	130	260XL 025	9.5	260XL 037	14.3
270XL	685.80	135	270XL 025	9.9	270XL 037	14.8
276XL	701.04	138	276XL 025	10.1	276XL 037	15.2
290XL	736.60	145	290XL 025	10.6	290XL 037	15.9
310XL	787.40	155	310XL 025	11.4	310XL 037	17.1
316XL	802.64	158	316XL 025	11.6	316XL 037	17.4
320XL	812.80	160	320XL 025	11.7	320XL 037	17.6
330XL	838.20	165	330XL 025	12.1	330XL 037	18.1
344XL	873.76	172	334XL 025	12.6	344XL 037	18.9
352XL	894.08	176	352XL 025	12.9	352XL 037	19.4
364XL	924.56	182	364XL 025	13.3	364XL 037	20.0
380XL	965.20	190	380XL 025	13.9	380XL 037	20.9
384XL	975.36	192	384XL 025	14.1	384XL 037	21.1
390XL	990.60	195	390XL 025	14.3	390XL 037	21.4
392XL	995.68	196	392XL 025	14.4	392XL 037	21.6
434XL	1102.36	217	434XL 025	15.9	434XL 037	23.9
530XL	1346.20	265	530XL 025	19.4	530XL 037	29.1
600XL	1524.00	300	600XL 025	22.0	600XL 037	33.0
710XL	1803.40	355	710XL 025	26.0	710XL 037	39.1

The belts are standard construction stock length and width sizes. Other pitches, widths, and special constructions can be supplied to order. Special Constructions include: Ground-back Belts, Static Conductive, Oil Resistant, High Temperature Resistant and Double Sided Construction. For further details contact Cross+Morse Technical Department.

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Classical Series Timing Belts

Standard Stock Timing Belt Sizes

L Series - 3/8" Pitch

Belt Length Code	Pitch Length mm	No. Teeth N	1/2" Wide Belt		3/4" Wide Belt		1" Wide Belt	
			Cat. No.	Wt. kg.	Cat. No.	Wt. kg.	Cat. No.	Wt. kg.
124L	314.33	33	124 L050	.015	124 L075	.023	124L 100	.031
135L	342.90	36	135 L050	.017	135 L075	.023	135L 100	.034
150L	381.00	40	150 L050	.019	150 L075	.026	150L 100	.038
173L	438.15	46	173 L050	.020	173 L075	.030	173L 100	.039
187L	476.25	50	187 L050	.022	187 L075	.034	187L 100	.044
202L	514.35	54	202 L050	.023	202 L075	.035	202L 100	.046
210L	533.40	56	210 L050	.025	210 L075	.038	210L 100	.051
225L	571.50	60	225 L050	.026	225 L075	.039	225L 100	.052
240L	609.60	64	240 L050	.028	240 L075	.042	240L 100	.056
255L	647.70	68	255 L050	.030	255 L075	.045	255L 100	.060
270L	685.80	72	270 L050	.032	270 L075	.047	270L 100	.063
285L	723.90	76	285 L050	.034	285 L075	.049	285L 100	.068
300L	762.00	80	300 L050	.035	300 L075	.053	300L 100	.070
322L	819.15	86	322 L050	.038	322 L075	.056	322L 100	.075
345L	876.30	92	345 L050	.040	345 L075	.060	345L 100	.081
367L	932.18	98	367 L050	.043	367 L075	.063	367L 100	.085
390L	990.60	104	390 L050	.046	390 L075	.068	390L 100	.091
405L	1028.70	108	405 L050	.047	405 L075	.071	405L 100	.095
412L	1047.75	110	412 L050	.048	412 L075	.072	412L 100	.096
420L	1066.80	112	420 L050	.049	420 L075	.074	420L 100	.098
450L	1143.00	120	450 L050	.054	450 L075	.078	450L 100	.105
480L	1219.20	128	480 L050	.058	480 L075	.083	480L 100	.116
510L	1295.40	136	510 L050	.062	510 L075	.089	510L 100	.120
540L	1371.60	144	540 L050	.065	540 L075	.093	540L 100	.130
600L	1524.00	160	600 L050	.070	600 L075	.105	600L 100	.139
728L	1847.85	194	728 L050	.085	728 L075	.128	728L 100	.170
817L	2076.45	218	817 L050	.095	817 L075	.142	817L 100	.190

H Series - 1/2" Pitch

Belt Length Code	Pitch Length mm	No. Teeth N	1/2" Wide Belt		1" Wide Belt		1 1/2" Wide Belt		2" Wide Belt		3" Wide Belt	
			Cat. No.	Wt. kg.	Cat. No.	Wt. kg.	Cat. No.	Wt. kg.	Cat. No.	Wt. kg.	Cat. No.	Wt. kg.
240H	609.60	48	240H 075	.052	240H 100	.069	240H 150	.103	240H 200	.137	240H 300	.206
270H	685.80	54	270H 075	.058	270H 100	.077	270H 150	.116	270H 200	.154	270H 300	.231
300H	762.00	60	300H 075	.065	300H 100	.088	300H 150	.131	300H 200	.175	300H 300	.263
330H	838.20	66	330H 075	.071	330H 100	.096	330H 150	.142	330H 200	.193	330H 300	.289
360H	914.40	72	360H 075	.078	360H 100	.104	360H 150	.155	360H 200	.207	360H 300	.311
390H	990.60	78	390H 075	.084	390H 100	.114	390H 150	.167	390H 200	.228	390H 300	.341
420H	1066.80	84	420H 075	.091	420H 100	.120	420H 150	.180	420H 200	.240	420H 300	.360
450H	1143.00	90	450H 075	.097	450H 100	.129	450H 150	.193	450H 200	.258	450H 300	.386
480H	1219.20	96	480H 075	.104	480H 100	.138	480H 150	.206	480H 200	.275	480H 300	.412
510H	1295.40	102	510H 075	.110	510H 100	.146	510H 150	.219	510H 200	.292	510H 300	.438
540H	1371.60	108	540H 075	.116	540H 100	.155	540H 150	.232	540H 200	.309	540H 300	.464
570H	1447.80	114	570H 075	.122	570H 100	.163	570H 150	.245	570H 200	.326	570H 300	.489
600H	1524.00	120	600H 075	.129	600H 100	.171	600H 150	.258	600H 200	.343	600H 300	.515
630H	1600.20	126	630H 075	.135	630H 100	.180	630H 150	.270	630H 200	.360	630H 300	.540
660H	1676.40	132	660H 075	.142	660H 100	.189	660H 150	.284	660H 200	.378	660H 300	.567
700H	1778.00	140	700H 075	.151	700H 100	.200	700H 150	.301	700H 200	.400	700H 300	.601
725H	1841.50	145	725H 075	.156	725H 100	.208	725H 150	.311	725H 200	.415	725H 300	.623
750H	1905.00	150	750H 075	.161	750H 100	.215	750H 150	.322	750H 200	.430	750H 300	.644
800H	2032.00	160	800H 075	.172	800H 100	.229	800H 150	.343	800H 200	.458	800H 300	.687
850H	2159.00	170	850H 075	.183	850H 100	.243	850H 150	.365	850H 200	.487	850H 300	.730
900H	2286.00	180	900H 075	.194	900H 100	.258	900H 150	.386	900H 200	.515	900H 300	.773
1000H	2540.00	200	1000H 075	.215	1000H 100	.286	1000H 150	.429	1000H 200	.572	1000H 300	.859
1100H	2794.00	220	1100H 075	.237	1100H 100	.315	1100H 150	.472	1100H 200	.630	1100H 300	.944
1120H	2844.80	224	1120H 075	.241	1120H 100	.321	1120H 150	.481	1120H 200	.641	1120H 300	.961
1140H	2895.60	228	1140H 075	.246	1140H 100	.326	1140H 150	.489	1140H 200	.653	1140H 300	.978
1150H	2921.00	230	1150H 075	.248	1150H 100	.329	1150H 150	.493	1150H 200	.659	1150H 300	.987
1250H	3175.00	250	1250H 075	.269	1250H 100	.358	1250H 150	.537	1250H 200	.716	1250H 300	1.073
1400H	3556.00	280	1400H 075	.301	1400H 100	.401	1400H 150	.601	1400H 200	.801	1400H 300	1.201
1700H	4318.00	340	1700H 075	.366	1700H 100	.487	1700H 150	.730	1700H 200	.973	1700H 300	1.460

The belts are standard construction stock length and width sizes. Other pitches, widths, and special constructions can be supplied to order. Special Constructions include: Ground-back Belts, Static Conductive, Oil Resistant, High Temperature Resistant.
For further details contact Cross+Morse Technical Department. Standard Belts to XH and XXH formats can be supplied on short delivery time.

Open Ended Classical Series Belts

Open ended classical belts are available all sizes of classical belts for application on reciprocating drives, etc. All belts operate on standard pulleys and can be secured by clamping plates (page 44).

Cat. No	Belt Type	Pitch mm	Width mm	No. Teeth/Metre	Wt/Metre gms	Std. Length
XL025E	XL025	5.08	6.4	196.8	14.4	110m
XL031E	XL031	5.08	7.9	196.8	18.0	90m
XL037E	XL037	5.08	9.5	196.8	21.6	70m
L050E	L050	9.53	12.7	105.0	45.7	90m
L075E	L075	9.53	19.1	105.0	68.4	70m
L100E	L100	9.53	25.4	105.0	91.5	50m
H050E	H050	12.70	12.7	78.7	56.5	70m
H075E	H075	12.70	19.1	78.7	84.8	70m
H100E	H100	12.70	25.4	78.7	113.0	70m

Classical Series Timing Belts

CROSS+MORSE

Double Sided Classical Belts

Construction of these belts same as standard Classical Belts, but with teeth on both sides of the belt. Both faces of belt have nylon facing for wear resistance. These belts enable driving of pulleys by both sides of belt.

XL Series Double Sided Belts - 1/5" Pitch

Belt Length Code	Pitch Length mm	No. Teeth N	1/4" Wide Belt		3/8" Wide Belt	
			Cat. No.	Wt. kg.	Cat. No.	Wt. kg.
120XL	304.80	60	120XL025DD	4.4	120XL025DD	6.5
130XL	330.20	65	130XL025DD	4.8	130XL037DD	7.0
140XL	355.60	70	140XL025DD	5.1	140XL037DD	7.6
150XL	381.00	75	150XL025DD	5.5	150XL037DD	8.2
156XL	396.24	78	156XL025DD	5.7	156XL037DD	8.5
160XL	406.40	80	160XL025DD	5.9	160XL037DD	8.7
170XL	431.80	85	170XL025DD	6.2	170XL037DD	9.3
180XL	457.20	90	180XL025DD	6.6	180XL037DD	9.8
182XL	462.28	91	182XL025DD	6.7	182XL037DD	10.0
190XL	482.60	95	190XL025DD	7.0	190XL037DD	10.4
198XL	502.92	99	198XL025DD	7.3	198XL037DD	10.9
200XL	508.00	100	200XL025DD	7.3	200XL037DD	11.0
202XL	513.08	101	202XL025DD	7.4	202XL037DD	11.1
210XL	533.40	105	210XL025DD	7.7	210XL037DD	11.5
212XL	538.48	106	212XL025DD	7.8	212XL037DD	11.7
214XL	543.56	107	214XL025DD	7.9	214XL037DD	11.8
220XL	558.80	110	220XL025DD	8.1	220XL037DD	12.1
228XL	579.12	114	228XL025DD	8.4	228XL037DD	12.5
230XL	584.20	115	230XL025DD	8.4	230XL037DD	12.6
234XL	594.36	117	234XL025DD	8.6	234XL037DD	12.9

Belt Length Code	Pitch Length mm	No. Teeth N	1/4" Wide Belt		3/8" Wide Belt	
			Cat. No.	Wt. kg.	Cat. No.	Wt. kg.
240XL	609.60	120	240XL025DD	8.8	240XL037DD	13.2
250XL	635.00	125	250XL025DD	9.2	250XL037DD	13.7
260XL	660.40	130	260XL025DD	9.5	260XL037DD	14.3
270XL	685.80	135	270XL025DD	9.9	270XL037DD	14.8
276XL	701.04	138	276XL025DD	10.1	276XL037DD	15.2
290XL	736.60	145	290XL025DD	10.6	290XL037DD	15.9
310XL	787.40	155	310XL025DD	11.4	310XL037DD	17.1
316XL	802.64	158	316XL025DD	11.6	316XL037DD	17.4
320XL	812.80	160	320XL025DD	11.7	320XL037DD	17.6
330XL	838.20	165	330XL025DD	12.1	330XL037DD	18.1
344XL	873.76	172	344XL025DD	12.6	344XL037DD	18.9
352XL	894.08	176	352XL025DD	12.9	352XL037DD	19.4
364XL	924.26	182	364XL025DD	13.3	364XL037DD	20.0
380XL	965.20	190	380XL025DD	13.9	380XL037DD	20.9
384XL	975.36	192	384XL025DD	14.1	384XL037DD	21.1
390XL	990.60	195	390XL025DD	14.3	390XL037DD	21.4
392XL	995.68	196	392XL025DD	14.4	392XL037DD	21.6
434XL	1102.36	217	434XL025DD	15.9	434XL037DD	23.9
530XL	1346.20	265	530XL025DD	19.4	530XL037DD	29.1
600XL	1524.00	300	600XL025DD	22.0	600XL037DD	33.0

L Series Double Sided Belts - 3/8" Pitch

Belt Length Code	Pitch Length mm	No. Teeth N	1/2" Wide Belt		3/4" Wide Belt		1" Wide Belt	
			Cat. No.	Wt. kg.	Cat. No.	Wt. kg.	Cat. No.	Wt. kg.
124L	314.33	33	124L050DD	.015	124L075DD	.022	124L100DD	.031
135L	342.90	36	135L050DD	.017	135L075DD	.024	135L100DD	.034
150L	381.00	40	150L050DD	.019	150L075DD	.026	150L100DD	.038
173L	438.15	46	173L050DD	.020	173L075DD	.030	173L100DD	.039
187L	476.25	50	187L050DD	.022	187L075DD	.034	187L100DD	.044
202L	514.35	54	202L050DD	.023	202L075DD	.035	202L100DD	.046
210L	533.40	56	210L050DD	.025	210L075DD	.038	210L100DD	.051
225L	571.50	60	225L050DD	.026	225L075DD	.039	225L100DD	.052
240L	609.60	64	240L050DD	.028	240L075DD	.042	240L100DD	.056
255L	647.70	68	255L050DD	.030	255L075DD	.045	255L100DD	.060
270L	685.80	72	270L050DD	.032	270L075DD	.047	270L100DD	.063
285L	723.90	76	285L050DD	.034	285L075DD	.049	285L100DD	.068
300L	762.00	80	300L050DD	.035	300L075DD	.053	300L100DD	.070
322L	819.15	86	322L050DD	.038	322L075DD	.056	322L100DD	.075
345L	876.30	92	345L050DD	.040	345L075DD	.060	345L100DD	.081
367L	932.18	98	367L050DD	.043	367L075DD	.063	367L100DD	.085
390L	990.60	104	390L050DD	.046	390L075DD	.068	390L100DD	.091
405L	1028.70	108	405L050DD	.047	405L075DD	.071	405L100DD	.095
412L	1047.75	110	412L050DD	.048	412L075DD	.072	412L100DD	.096
420L	1066.80	112	420L050DD	.049	420L075DD	.074	420L100DD	.098
450L	1143.00	120	450L050DD	.054	450L075DD	.078	450L100DD	.105
480L	1219.20	128	480L050DD	.058	480L075DD	.083	480L100DD	.116
510L	1295.40	136	510L050DD	.062	510L075DD	.089	510L100DD	.120
540L	1371.60	144	540L050DD	.065	540L075DD	.093	540L100DD	.130
600L	1524.00	160	600L050DD	.070	600L075DD	.105	600L100DD	.139
728L	1847.85	194	728L050DD	.085	728L075DD	.128	728L100DD	.170
817L	2076.45	218	817L050DD	.095	817L075DD	.142	817L100DD	.190

H Series Double Sided Belts - 1/2" Pitch

Belt Length Code	Pitch Length mm	No. Teeth N	1/2" Wide Belt		1" Wide Belt		1 1/2" Wide Belt		2" Wide Belt		3" Wide Belt	
			Cat. No.	Wt. kg.	Cat. No.	Wt. kg.	Cat. No.	Wt. kg.	Cat. No.	Wt. kg.	Cat. No.	Wt. kg.
240H	609.60	48	240H075DD	.052	240H100DD	.069	240H150DD	.103	240H200DD	.137	240H300DD	.206
270H	685.80	54	270H075DD	.058	270H100DD	.077	270H150DD	.116	270H200DD	.154	270H300DD	.231
300H	762.00	60	300H075DD	.065	300H100DD	.088	300H150DD	.131	300H200DD	.175	300H300DD	.263
330H	838.20	66	330H075DD	.071	330H100DD	.096	330H150DD	.142	330H200DD	.193	330H300DD	.289
360H	914.40	72	360H075DD	.078	360H100DD	.104	360H150DD	.155	360H200DD	.207	360H300DD	.311
390H	990.60	78	390H075DD	.084	390H100DD	.114	390H150DD	.167	390H200DD	.228	390H300DD	.341
420H	1066.80	84	420H075DD	.091	420H100DD	.120	420H150DD	.180	420H200DD	.240	420H300DD	.360
450H	1143.00	90	450H075DD	.097	450H100DD	.129	450H150DD	.193	450H200DD	.258	450H300DD	.386
480H	1219.20	96	480H075DD	.104	480H100DD	.138	480H150DD	.206	480H200DD	.275	480H300DD	.412
510H	1295.40	102	510H075DD	.110	510H100DD	.146	510H150DD	.219	510H200DD	.292	510H300DD	.438
540H	1371.60	108	540H075DD	.116	540H100DD	.155	540H150DD	.232	540H200DD	.309	540H300DD	.464
570H	1447.80	114	570H075DD	.122	570H100DD	.163	570H150DD	.245	570H200DD	.326	570H300DD	.489
600H	1524.00	120	600H075DD	.129	600H100DD	.171	600H150DD	.258	600H200DD	.343	600H300DD	.515
630H	1600.20	126	630H075DD	.135	630H100DD	.180	630H150DD	.270	630H200DD	.360	630H300DD	.540
660H	1676.40	132	660H075DD	.142	660H100DD	.189	660H150DD	.284	660H200DD	.378	660H300DD	.567
700H	1778.00	140	700H075DD	.151	700H100DD	.200	700H150DD	.301	700H200DD	.400	700H300DD	.601
725H	1841.50	145	725H075DD	.156	725H100DD	.208	725H150DD	.311	725H200DD	.415	725H300DD	.623
750H	1905.00	150	750H075DD	.161	750H100DD	.215	750H150DD	.322	750H200DD	.430	750H300DD	.644
800H	2032.00	160	800H075DD	.172	800H100DD	.229	800H150DD	.343	800H200DD	.458	800H300DD	.687
850H	2159.00	170	850H075DD	.183	850H100DD	.243	850H150DD	.365	850H200DD	.487	850H300DD	.730
900H	2286.00	180	900H075DD	.194	900H100DD	.258	900H150DD	.386	900H200DD	.515	900H300DD	.773
1000H	2540.00	200	1000H075DD	.215	1000H100DD	.286	1000H150DD	.429	1000H200DD	.572	1000H300DD	.859
1100H	2794.00	220	1100H075DD	.237	1100H100DD	.315	1100H150DD	.472	1100H200DD	.630	1100H300DD	.944
1120H	2844.80	224	1120H075DD	.241	1120H100DD	.321	1120H150DD	.481	1120H200DD	.641	1120H300DD	.961
1140H	2895.60	228	1140H075DD	.246	1140H100DD	.326	1140H150DD	.489	1140H200DD	.653	1140H300DD	.978
1150H	2921.00	230	1150H075DD	.248	1150H100DD	.329	1150H150DD	.493	1150H200DD	.659	1150H300DD	.987
1250H	3175.00	250	1250H075DD	.269	1250H100DD	.358	1250H150DD	.537	1250H200DD	.716	1250H300DD	1.073
1400H	3556.00	280	1400H075DD	.301	1400H100DD	.401	1400H150DD	.601	1400H200DD	.801	1400H300DD	1.201
1700H	4318.00	340	1700H075DD	.366	1700H100DD	.487	1700H150DD	.730	1700H200DD	.973	1700H300DD	1.460

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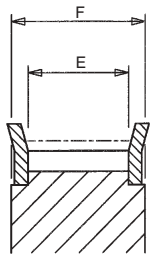
Classical Timing Belt Pulleys

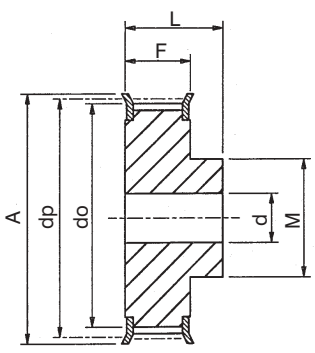
Classical Timing Belt Pulleys have evenly spaced grooves cut in their periphery, to make correct, positive engagement with the mating teeth of the belt. Cross+Morse pulleys are manufactured with involute groove form to enable the teeth to enter and leave the pulley with negligible friction and minimum backlash.
Pulleys are available in a number of stock widths and large selection of numbers of teeth to provide maximum versatility in drive selection. Pulleys for 3/8" pitch 'L', and 1/2" pitch 'H', drives are available with pilot bore for reworking to customers requirements or with taper bush for the complete off the shelf drive. All pulleys are precision manufactured to close tolerances to ensure concentric running, and it is important when reworking stock pulleys to accurately locate on the outside diameter to maintain concentricity.
Pulleys of non-standard widths or numbers of teeth can be supplied to order, or alternately teeth can be cut on customers blanks. All pulleys are manufactured in good quality steel except for larger pulleys where cast iron is used (1/5" pitch 'XL', aluminium castings). Generally pulleys up to 48 teeth are supplied with two flanges to retain the timing belt. These flanges are accurately machined, pressed onto the pulley bodies and retained by spin rivetting. Dimensions over and between flanges for standard pulleys are indicated below. The dimension over the flanges is generally the same as recommended width of tooth for unflanged pulleys.



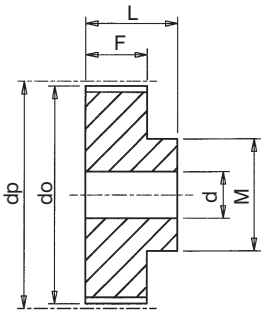
Belt Size	(1/5") XL	(3/8") L			(1/2") H			
Belt Width Ref.	XL037	L050	L075	L100	H100	H150	H200	H300
Belt Width	3/8"	1/2"	3/4"	1"	1"	1 1/2"	2"	3"
E	10.7	14.3	20.8	27.0	27.0	40.0	53.0	79.0
F min.	14.3	19.0	25.5	32.0	32.0	45.0	58.0	84.0

Standard Pulleys for XL (1/5" pitch) Belts

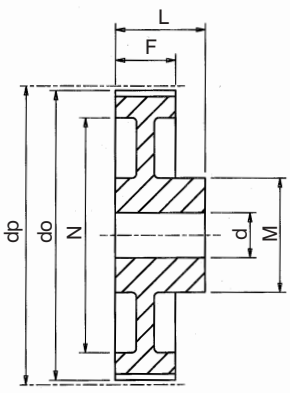
Pulley Types



Type 1F
(Steel)



Type 1
(Aluminium)



Type 2
(Aluminium)

Catalogue No.	No. Teeth Z	Pulley Type	Pitch Circle Dia. dp	Min. Bore d	Max. Bore d	Outside Diameter do	Flange Diameter A	Pulley Width F	Bore Length L	Hub Diameter M	Rim Diameter N	Approx Weight kg
1/5" Pitch Pulleys for 3/8" Wide Belts. Ref. XL037												
10XL037	10	1F	16.17	4.0	6	15.7	23	14.3	19.8	9.5	–	0.01
11XL037	11	1F	17.79	4.0	7	17.3	23	14.3	19.8	11.0	–	0.02
12XL037	12	1F	19.40	4.0	8	18.9	25	14.3	19.8	12.7	–	0.02
14XL037	14	1F	22.64	6.0	9	22.1	28	14.3	19.8	14.3	–	0.03
15XL037	15	1F	24.26	6.0	11	23.8	28	14.3	19.8	15.9	–	0.04
16XL037	16	1F	25.87	6.0	12	25.4	32	14.3	19.8	17.5	–	0.05
18XL037	18	1F	29.11	6.0	13	28.6	35	14.3	19.8	20.6	–	0.06
20XL037	20	1F	32.34	6.0	15	31.8	38	14.3	22.2	23.8	–	0.08
21XL037	21	1F	33.96	6.0	15	33.5	38	14.3	22.2	23.8	–	0.09
22XL037	22	1F	35.57	6.0	16	35.1	41	14.3	22.2	25.4	–	0.10
24XL037	24	1F	38.81	6.0	18	38.3	44	14.3	22.2	27.0	–	0.12
26XL037	26	1F	42.04	6.0	20	41.5	48	14.3	22.2	30.0	–	0.14
28XL037	28	1F	45.28	6.0	20	44.8	51	14.3	22.2	30.2	–	0.16
30XL037	30	1F	48.51	6.0	24	48.0	54	14.3	22.2	34.9	–	0.19
32XL037	32	1	51.74	8.0	25	51.2	–	14.3	25.4	38.0	–	0.11
36XL037	36	1	58.21	8.0	25	57.7	–	14.3	25.4	38.0	–	0.13
40XL037	40	1	64.68	8.0	25	64.2	–	14.3	25.4	38.0	–	0.17
42XL037	42	2	67.91	8.0	25	67.4	–	14.3	25.4	38.0	58	0.13
44XL037	44	2	71.15	8.0	25	70.6	–	14.3	25.4	38.0	60	0.14
48XL037	48	2	77.62	8.0	25	77.1	–	14.3	25.4	38.0	66	0.15
60XL037	60	2	97.02	8.0	25	96.5	–	14.3	25.4	38.0	82	0.18
72XL037	72	2	116.43	8.0	25	115.9	–	14.3	25.4	38.0	100	0.27

All dimensions in mm.
Pulleys of 32 teeth and above manufactured in aluminium. Smaller pulleys in steel.
All pulleys provided with 2 setscrews of 90°, 10T-12T size M3, all others M4.

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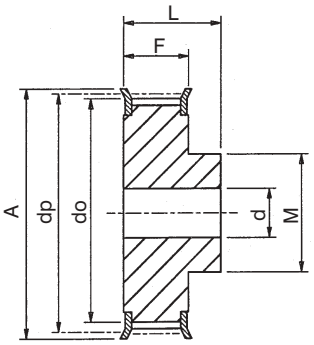
Plain Bore Pulleys for 'L' Series Timing Belts

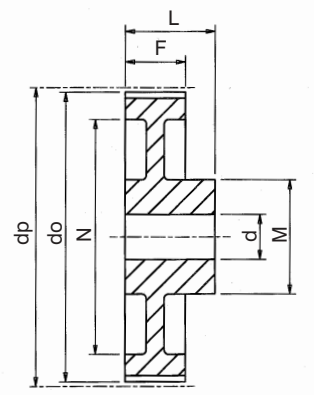
Catalogue No.	No. Teeth Z	Pulley Type	Pitch Circle Diameter dp	Min. Bore d	Max Bore d	Outside Diameter do	Flange Diameter A	Pulley Width F	Bore Length L	Hub Diameter M	Rim Diameter N	Approx. Weight kg
3/8" Pitch Pulleys for 1/2" wide Belts. Ref. L050												
P10L050	10	1F	30.32	8	13	29.6	37	19	28	20	–	0.12
P12L050	12	1F	36.38	8	15	35.6	43	19	30	24	–	0.16
P13L050	13	1F	39.41	8	19	38.7	44	19	30	28	–	0.19
P14L050	14	1F	42.45	8	19	41.7	48	19	30	28	–	0.22
P15L050	15	1F	45.48	8	23	44.7	51	19	30	34	–	0.29
P16L050	16	1F	48.51	8	24	47.8	54	19	32	36	–	0.34
P17L050	17	1F	51.54	10	24	50.8	57	19	32	36	–	0.38
P18L050	18	1F	54.57	10	27	53.8	60	19	32	40	–	0.42
P19L050	19	1F	57.61	10	27	56.8	64	19	32	40	–	0.46
P20L050	20	1F	60.64	10	27	59.9	66.5	19	32	40	–	0.50
P21L050	21	1F	63.67	10	30	62.9	70	19	32	45	–	0.57
P22L050	22	1F	66.70	10	30	65.9	75	19	32	45	–	0.61
P24L050	24	1F	72.77	10	36	72.0	79	19	32	55	–	0.81
P26L050	26	1F	78.83	11	38	78.1	86	19	32	58	–	0.91
P28L050	28	1F	84.89	11	38	84.1	91	19	32	58	–	1.03
P30L050	30	1F	90.96	11	46	90.2	97	19	32	70	–	1.27
P32L050	32	1F	97.02	11	46	96.3	102	19	32	70	–	1.35
P36L050	36	1F	109.15	11	46	108.4	115	19	32	70	–	1.65
P40L050	40	1F	121.28	11	46	120.5	128	19	32	70	–	1.70
P44L050	44	1F	133.40	11	46	132.6	142	19	32	70	–	2.35
P48L050	48	1F	145.53	11	46	144.8	150	19	32	70	–	2.68
P60L050	60	2	181.91	14	45	181.2	–	19	42	75	163	1.90
P72L050	72	2	218.30	14	45	217.5	–	19	42	75	199	2.42
P84L050	84	2	254.68	14	45	253.9	–	19	42	75	236	2.86
P96L050	96	2	291.06	14	45	290.3	–	19	42	75	272	3.30
3/8" Pitch Pulleys for 3/4" wide Belts. Ref. L075												
P12L075	12	1F	36.38	8	15	35.6	43	25	38	24	–	0.22
P13L075	13	1F	39.41	8	19	38.7	44	25	38	28	–	0.25
P14L075	14	1F	42.45	11	19	41.7	48	25	38	28	–	0.27
P15L075	15	1F	45.48	11	23	44.7	51	25	38	34	–	0.34
P16L075	16	1F	48.51	11	24	47.8	54	25	38	36	–	0.43
P17L075	17	1F	51.54	11	24	50.8	57	25	38	36	–	0.47
P18L075	18	1F	54.57	11	27	53.8	60	25	38	40	–	0.51
P19L075	19	1F	57.61	11	27	56.8	64	25	38	40	–	0.55
P20L075	20	1F	60.64	11	27	59.9	66.5	25	38	40	–	0.59
P21L075	21	1F	63.67	11	30	62.9	70	25	38	45	–	0.64
P22L075	22	1F	66.70	11	30	65.9	75	25	38	45	–	0.77
P24L075	24	1F	72.77	11	36	72.0	79	25	38	55	–	0.97
P26L075	26	1F	78.83	11	38	78.1	86	25	38	58	–	1.08
P28L075	28	1F	84.89	11	38	84.1	91	25	38	58	–	1.20
P30L075	30	1F	90.96	11	46	90.2	97	25	38	70	–	1.37
P32L075	32	1F	97.02	11	46	96.3	102	25	38	70	–	1.54
P36L075	36	1F	109.15	11	46	108.4	115	25	38	70	–	2.10
P40L075	40	1F	121.28	11	46	120.5	128	25	38	70	–	2.55
P44L075	44	1F	133.40	11	46	132.6	142	25	38	70	–	3.05
P48L075	48	1F	145.53	11	46	144.8	150	25	38	70	–	3.55
P60L075	60	2	181.91	14	45	181.2	–	25	45	75	163	2.63
P72L075	72	2	218.30	14	45	217.5	–	25	45	75	199	2.84
P84L075	84	2	254.68	14	45	253.9	–	25	45	75	236	3.42
P96L075	96	2	291.06	14	45	290.3	–	25	45	75	272	3.85
3/8" Pitch Pulleys for 1" wide Belts. Ref. L100												
P12L100	12	1F	36.38	8	15	35.6	43	32	45	24	–	0.26
P13L100	13	1F	39.41	8	19	38.7	44	32	45	28	–	0.30
P14L100	14	1F	42.45	11	19	41.7	48	32	45	28	–	0.34
P15L100	15	1F	45.48	11	23	44.7	51	32	45	34	–	0.41
P16L100	16	1F	48.51	11	24	47.8	54	32	45	36	–	0.48
P17L100	17	1F	51.54	11	24	50.8	57	32	45	36	–	0.55
P18L100	18	1F	54.57	11	27	53.8	60	32	45	40	–	0.62
P19L100	19	1F	57.61	11	27	56.8	64	32	45	40	–	0.70
P20L100	20	1F	60.64	11	27	59.9	66.5	32	45	40	–	0.72
P21L100	21	1F	63.67	11	30	62.9	70	32	45	45	–	0.77
P22L100	22	1F	66.70	11	30	65.9	75	32	45	45	–	0.88
P24L100	24	1F	72.77	11	36	72.0	79	32	45	55	–	1.16
P26L100	26	1F	78.83	11	38	78.1	86	32	45	58	–	1.44
P28L100	28	1F	84.89	11	38	84.1	91	32	45	58	–	1.56
P30L100	30	1F	90.96	11	46	90.2	97	32	45	70	–	1.88
P32L100	32	1F	97.02	11	46	96.3	102	32	45	70	–	2.08
P36L100	36	1F	109.15	11	46	108.4	115	32	45	70	–	2.56
P40L100	40	1F	121.28	11	46	120.5	128	32	45	70	–	2.68
P44L100	44	1F	133.40	11	46	132.6	142	32	45	70	–	3.77
P48L100	48	1F	145.53	11	46	144.8	150	32	45	70	–	4.32
P60L100	60	2	181.91	14	45	181.2	–	32	45	75	163	2.90
P72L100	72	2	218.30	14	45	217.5	–	32	45	75	199	3.14
P84L100	84	2	254.68	14	45	253.9	–	32	45	75	236	3.70
P96L100	96	2	291.06	14	45	290.3	–	32	45	75	272	4.20

Pulley Types

The Pulley types referred to in tables are as drawings below. Suffix 'F' indicates pulley has flanges. Pulley below dividing line in tables are manufactured in cast iron.
Std. Pulleys can be reworked to customers bore and keyway requirements.



Type 1F
Material: Steel



Type 2
Material: Cast Iron
Webs have lightening holes

All dimensions in mm.
Other sizes of Pulleys can be supplied on short delivery.
All Pulleys can be supplied finish bored and keywayed.

Parallel bore pulleys can be machined and fitted with bearings for idler pulleys. When using pulleys as inside idlers it is recommended that number of teeth of idler should be more than that of smaller drive pulley.

Pulley Installation

Correct and accurate installation of Timing Drives is essential. Pulley alignment and shaft parallelism is very important as misalignment of the drive will cause unequal loading across the belt width and edge wear of belt on flanges. Pulley alignment can be checked by placing a straight edge against the outside edge of the pulleys and adjusting so contact made evenly across both pulleys.
The shaft should be located within a rigid framework, as any distortion under load could result in a reduction of centre distance which will cause jumping of belt on pulley teeth. If idlers are used they must be locked firmly into position after correct belt tensioning.
Refer to page 10 for additional information on drive installation.

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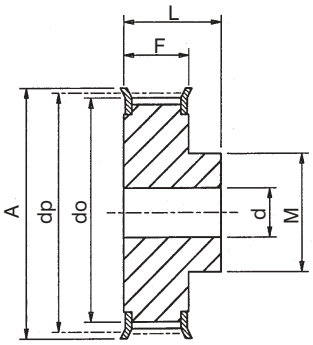
Plain Bore Pulleys for 'H' Series Timing Belts

CROSS+MORSE

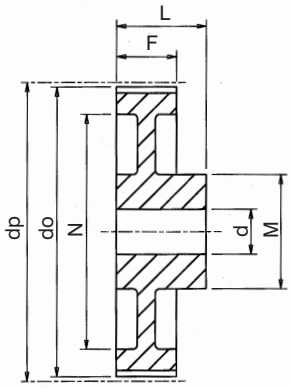
Pulley Types

The pulley types referred to in tables are as drawings below. The suffix 'F' indicates pulley has flanges.

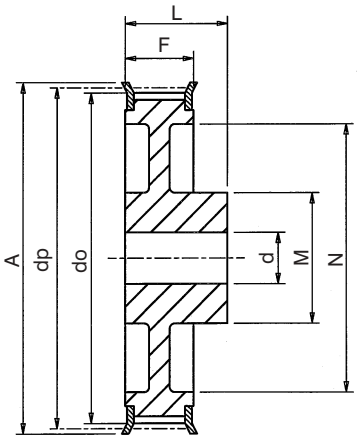
Pulleys below dividing line in tables are in Cast iron, and of spoked design.
Std. Pulleys can be reworked to customers bore and keyway.



Type 1F
Material: Steel



Type 2
Material: Cast Iron



Type 2F
Material: Cast Iron

Catalogue No.	No. Teeth Z	Pulley Type	Pitch Circle Dia. dp	Min. Bore d	Max. Bore d	Outside Diameter do	Flange Diameter A	Pulley Width F	Bore Length L	Hub Diameter M	Rim Diameter N	Approx Weight kg
1/2" Pitch Pulleys for 1" Wide Belts. Ref. H100												
P14H100	14	1F	56.60	12	27	55.2	64	32	45	40	–	0.67
P16H100	16	1F	64.68	12	30	63.3	70	32	45	45	–	0.88
P18H100	18	1F	72.77	12	36	71.4	79	32	45	55	–	1.15
P19H100	19	1F	76.81	14	40	75.4	82.5	32	45	60	–	1.33
P20H100	20	1F	80.85	14	41	79.5	87	32	45	62	–	1.40
P21H100	21	1F	84.89	14	43	83.5	91	32	45	65	–	1.50
P22H100	22	1F	88.94	14	45	87.6	94	32	45	68	–	1.70
P24H100	24	1F	97.02	14	47	95.7	102	32	45	72	–	1.95
P26H100	26	1F	105.11	14	54	103.7	112	32	45	80	–	2.43
P28H100	28	1F	113.19	14	54	111.8	120	32	45	80	–	2.70
P30H100	30	1F	121.28	14	54	119.9	128	32	45	80	–	3.20
P32H100	32	1F	129.36	14	54	128.0	135	32	45	80	–	3.50
P36H100	36	1F	145.53	14	54	144.2	150	32	45	80	–	4.65
P40H100	40	1F	161.70	14	54	160.3	168	32	45	80	–	5.30
P44H100	44	2F	177.87	14	48	176.5	184	32	50	80	150	3.80
P48H100	48	2F	194.04	14	54	192.7	200	32	50	90	170	3.70
P60H100	60	2	242.55	19	70	241.2	–	32	50	120	216	6.25
P72H100	72	2	291.06	19	70	289.7	–	32	55	120	263	8.85
P84H100	84	2	339.57	19	70	338.2	–	32	55	120	312	10.00
P96H100	96	2	388.08	19	70	386.7	–	32	60	120	360	10.48
P120H100	120	2	485.10	19	70	483.7	–	32	60	120	458	13.30
1/2" Pitch Pulleys for 1 1/2" Wide Belts. Ref. H150												
P14H150	14	1F	56.60	19	28	55.2	64	46	58	42	–	0.95
P16H150	16	1F	64.68	19	30	63.3	70	46	58	45	–	1.08
P18H150	18	1F	72.77	19	36	71.4	79	46	58	55	–	1.45
P19H150	19	1F	76.81	19	40	75.4	82.5	46	58	60	–	1.55
P20H150	20	1F	80.85	19	41	79.5	87	46	58	62	–	1.70
P21H150	21	1F	84.89	19	43	83.5	91	46	58	65	–	2.20
P22H150	22	1F	88.94	19	45	87.6	94	46	58	68	–	2.26
P24H150	24	1F	97.02	19	47	95.7	102	46	58	72	–	2.69
P26H150	26	1F	105.11	19	54	103.7	112	46	58	80	–	3.20
P28H150	28	1F	113.19	19	54	111.8	120	46	58	80	–	3.39
P30H150	30	1F	121.28	19	54	119.9	128	46	58	80	–	4.10
P32H150	32	1F	129.36	19	54	128.0	135	46	58	80	–	4.77
P36H150	36	1F	145.53	19	54	144.2	150	46	58	80	–	6.02
P40H150	40	1F	161.70	19	54	160.3	168	46	58	80	–	7.50
P44H150	44	2F	177.87	19	48	176.5	184	46	58	80	150	5.00
P48H150	48	2F	194.04	19	54	192.7	200	46	65	90	170	5.08
P60H150	60	2	242.55	19	70	241.2	–	46	65	120	216	7.70
P72H150	72	2	291.06	24	70	289.7	–	46	65	120	263	8.70
P84H150	84	2	339.57	24	70	338.2	–	46	65	120	312	10.64
P96H150	96	2	388.08	24	70	386.7	–	46	65	120	360	13.40
P120H150	120	2	485.10	24	70	483.7	–	46	65	120	458	15.70
1/2" Pitch Pulleys for 2" Wide Belts. Ref. H200												
P14H200	14	1F	56.60	–	28	55.2	64	59	70	42	–	1.10
P16H200	16	1F	64.68	–	30	63.3	70	59	70	45	–	1.34
P18H200	18	1F	72.77	–	36	71.4	79	59	70	55	–	1.80
P19H200	19	1F	76.81	–	40	75.4	82.5	59	70	60	–	1.90
P20H200	20	1F	80.85	–	41	79.5	87	59	70	62	–	2.11
P21H200	21	1F	84.89	–	43	83.5	91	59	70	65	–	2.23
P22H200	22	1F	88.94	–	45	87.6	94	59	70	68	–	2.45
P24H200	24	1F	97.02	–	47	95.7	102	59	70	72	–	2.97
P26H200	26	1F	105.11	–	54	103.7	112	59	70	80	–	3.95
P28H200	28	1F	113.19	–	54	111.8	120	59	70	80	–	4.60
P30H200	30	1F	121.28	–	54	119.9	128	59	70	80	–	5.00
P32H200	32	1F	129.36	–	54	128.0	135	59	70	80	–	5.93
P36H200	36	1F	145.53	–	54	144.2	150	59	70	80	–	7.53
P40H200	40	1F	161.70	–	54	160.3	168	59	70	80	–	9.11
P44H200	44	2F	177.87	19	48	176.5	184	59	70	80	150	5.00
P48H200	48	2F	194.04	24	54	192.7	200	59	75	90	170	6.37
P60H200	60	2	242.55	24	70	241.2	–	59	75	120	216	9.27
P72H200	72	2	291.06	28	70	289.7	–	59	75	120	263	10.32
P84H200	84	2	339.57	28	70	338.2	–	59	75	120	312	11.70
P96H200	96	2	388.08	28	70	386.7	–	59	75	120	360	13.70
P120H200	120	2	485.10	28	70	483.7	–	59	75	120	458	18.10
1/2" Pitch Pulleys for 3" Wide Belts. Ref. H300												
P14H300	14	1F	56.60	–	28	55.2	64	86	100	42	–	1.40
P16H300	16	1F	64.68	–	30	63.3	70	86	100	45	–	1.89
P18H300	18	1F	72.77	–	36	71.4	79	86	100	55	–	2.55
P19H300	19	1F	76.81	–	40	75.4	82.5	86	100	60	–	2.90
P20H300	20	1F	80.85	–	41	79.5	87	86	100	62	–	3.24
P21H300	21	1F	84.89	–	43	83.5	91	86	100	65	–	3.56
P22H300	22	1F	88.94	–	45	87.6	94	86	100	68	–	4.00
P24H300	24	1F	97.02	–	47	95.7	102	86	100	72	–	4.80
P26H300	26	1F	105.11	–	54	103.7	112	86	100	80	–	5.78
P28H300	28	1F	113.19	–	54	111.8	120	86	100	80	–	6.54
P30H300	30	1F	121.28	–	54	119.9	128	86	100	80	–	7.00
P32H300	32	1F	129.36	–	54	128.0	135	86	100	80	–	8.66
P36H300	36	1F	145.53	–	54	144.2	150	86	100	80	–	10.92
P40H300	40	1F	161.70	–	54	160.3	168	86	100	80	–	13.50
P44H300	44	2	177.87	24	48	176.5	–	86	100	80	150	8.06
P48H300	48	2	194.04	24	54	192.7	–	86	100	90	170	9.67
P60H300	60	2	242.55	24	70	241.2	–	86	100	120	216	13.30
P72H300	72	2	291.06	28	70	289.7	–	86	100	120	263	15.70
P84H300	84	2	339.57	28	70	338.2	–	86	100	120	312	17.10
P96H300	96	2	388.08	28	70	386.7	–	86	100	120	360	20.40
P120H300	120	2	485.10	28	70	483.7	–	86	100	120	458	27.80

Other sizes of Pulleys can be supplied on short delivery.
All Pulleys can be supplied finish bored and keywayed.

All dimensions in mm.

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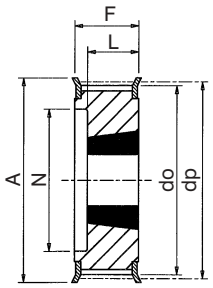
Taper Bore Pulleys for 'L' Series Timing Belts

Catalogue No.	No. Teeth Z	Pulley Type	Pitch Circle Diameter dp	Taper Bush Size	Max Bore d	Outside Diameter do	Flange Diameter A	Pulley Width F	Bore Length L	Hub Diameter M	Rim Diameter N	Approx. Weight kg
3/8" Pitch Pulleys for 1/2" wide Belts. Ref. L050												
18L050	18	8F	54.57	1108	28	53.8	60	19	22	45	–	0.17
19L050	19	8F	57.61	1108	28	56.8	64	19	22	45	–	0.20
20L050	20	8F	60.64	1108	28	59.9	66.5	19	22	48	–	0.23
21L050	21	8F	63.67	1108	28	62.9	70	19	22	48	–	0.30
22L050	22	8F	66.70	1108	28	65.9	75	19	22	51	–	0.36
23L050	23	8F	69.73	1108	28	69.0	79	19	22	54	–	0.41
24L050	24	8F	72.77	1108	28	72.0	79	19	22	54	–	0.45
25L050	25	8F	75.80	1108	28	75.0	82.5	19	22	56	–	0.50
26L050	26	8F	78.83	1108	28	78.1	86	19	22	60	–	0.55
27L050	27	8F	81.86	1108	28	81.1	86	19	22	62	–	0.61
28L050	28	8F	84.89	1108	28	84.1	91	19	22	65	–	0.68
30L050	30	8F	90.96	1108	28	90.2	97	19	22	70	–	0.82
32L050	32	8F	97.02	1108	28	96.3	102	19	22	74	–	0.98
36L050	36	8F	109.15	1108	28	108.4	115	19	22	85	–	1.38
40L050	40	8F	121.28	1610	42	120.5	128	19	25	97	–	1.75
48L050	48	11F	145.53	1610	42	144.8	150	19	25	88	120	1.76
60L050	60	7	181.91	1610	42	181.2	–	19	25	92	166	2.18
72L050	72	7	218.30	1610	42	217.5	–	19	25	92	202	2.40
84L050	84	7	254.68	1610	42	253.9	–	19	25	92	236	3.09
96L050	96	7	291.06	2012	50	290.3	–	19	32	106	270	4.20
120L050	120	7	363.83	2012	50	363.1	–	19	32	106	343	5.22
3/8" Pitch Pulleys for 3/4" wide Belts. Ref. L075												
18L075	18	9F	54.57	1108	28	53.8	60	25	25	–	–	0.24
19L075	19	9F	57.61	1108	28	56.8	64	25	25	–	–	0.28
20L075	20	9F	60.64	1108	28	59.9	66.5	25	25	–	–	0.33
21L075	21	9F	63.67	1108	28	62.9	70	25	25	–	–	0.38
22L075	22	9F	66.70	1108	28	65.9	75	25	25	–	–	0.45
23L075	23	9F	69.73	1108	28	69.0	79	25	25	–	–	0.52
24L075	24	9F	72.77	1108	28	72.0	79	25	25	–	–	0.58
25L075	25	9F	75.80	1108	28	75.0	82.5	25	25	–	–	0.64
26L075	26	9F	78.83	1108	28	78.1	86	25	25	–	–	0.71
27L075	27	9F	81.86	1108	28	81.1	86	25	25	–	–	0.79
28L075	28	9F	84.89	1108	28	84.1	91	25	25	–	–	0.86
30L075	30	9F	90.96	1108	28	90.2	97	25	25	–	–	1.04
32L075	32	9F	97.02	1108	28	96.3	102	25	25	–	–	1.21
36L075	36	9F	109.15	1610	42	108.4	115	25	25	–	–	1.41
40L075	40	9F	121.28	1610	42	120.5	128	25	25	–	–	1.86
48L075	48	10F	145.53	1610	42	144.8	150	25	25	92	120	2.00
60L075	60	10	181.91	1610	42	181.2	–	25	25	92	166	2.58
72L075	72	10	218.30	1610	42	217.5	–	25	25	92	202	2.67
84L075	84	7	254.68	2010	50	253.9	–	25	32	106	236	3.95
96L075	96	7	291.06	2012	50	290.3	–	25	32	106	270	5.10
120L075	120	7	363.83	2012	50	363.1	–	25	32	106	343	6.20
3/8" Pitch Pulleys for 1" wide Belts. Ref. L100												
18L100	18	5F	54.57	1108	28	53.8	60	31	22	–	38	0.25
19L100	19	5F	57.61	1108	28	56.8	64	31	22	–	38	0.31
20L100	20	5F	60.64	1108	28	59.9	66.5	31	22	–	45	0.36
21L100	21	5F	63.67	1108	28	62.9	70	31	22	–	45	0.41
22L100	22	5F	66.70	1108	28	65.9	75	31	22	–	48	0.47
23L100	23	5F	69.73	1108	28	69.0	79	32	22	–	52	0.53
24L100	24	5F	72.77	1108	28	72.0	79	32	22	–	52	0.60
25L100	25	5F	75.80	1108	28	75.0	82.5	32	22	–	54	0.67
26L100	26	5F	78.83	1108	28	78.1	86	32	22	–	60	0.73
27L100	27	5F	81.86	1108	28	81.1	86	32	22	–	60	0.80
28L100	28	5F	84.89	1108	28	84.1	91	32	22	–	65	0.87
30L100	30	5F	90.96	1210	32	90.2	97	32	25	–	71	0.98
32L100	32	5F	97.02	1210	32	96.3	102	32	25	–	75	1.18
36L100	36	5F	109.15	1610	42	108.4	115	32	25	–	86	1.42
40L100	40	5F	121.28	1610	42	120.5	128	32	25	–	96	1.90
48L100	48	14F	145.53	1610	42	144.8	150	32	25	92	120	2.30
60L100	60	12	181.91	1610	42	181.2	–	32	25	92	166	2.95
72L100	72	10	218.30	2012	50	217.5	–	32	32	106	202	3.60
84L100	84	10	254.68	2012	50	253.9	–	32	32	106	236	4.40
96L100	96	10	291.06	2012	50	290.3	–	32	32	106	270	5.90
120L100	120	10	363.83	2012	50	363.1	–	32	32	106	343	7.35

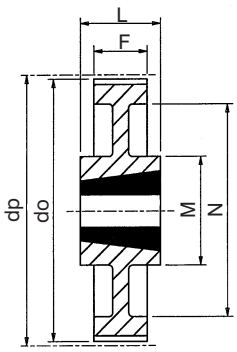
All dimensions in mm. For Taper Bush dimensions refer page 23.

Pulley Types

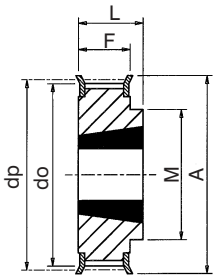
Pulley types referred to in tables are as drawings below. The suffix 'F' indicates pulley has flanges. Pulleys below dividing line in tables are manufactured in cast iron. Types 7, 10 & 12 when in cast iron have lightening holes.



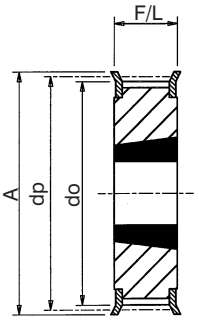
Type 5F



Type 7



Type 8F

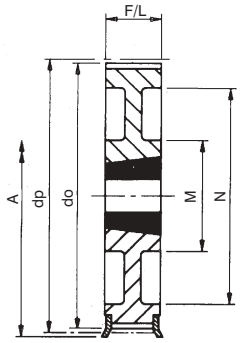


Type 9F

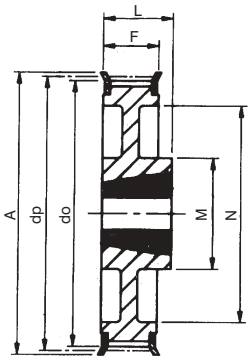
Pulley Installation

Correct and accurate installation of Timing Drives is essential. Pulley alignment and shaft parallelism is very important as misalignment of the drive will cause unequal loading across the belt width and edge wear of belt on flanges. Pulley alignment can be checked by placing a straight edge against the outside edge of the pulleys and adjusting so contact made evenly across both pulleys.
The shaft should be located within a rigid framework, as any distortion under load could result in a reduction of centre distance which will cause jumping of belt on pulley teeth. If idlers are used they must be locked firmly into position after correct belt tensioning.
Refer to page 10 for additional information on drive installation.

Taper Bore Pulleys for 'H' Series Timing Belts



Types 10/10F



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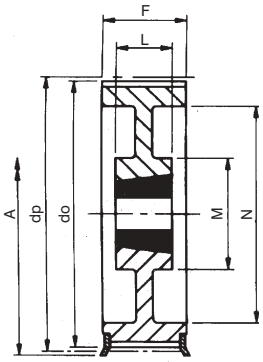
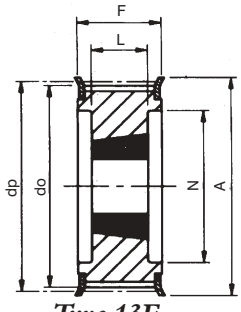
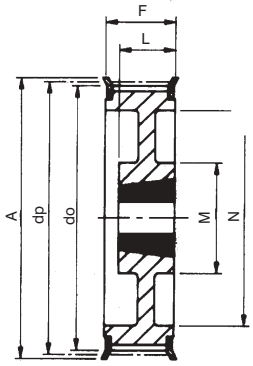


Type 12/12F



Type 13F



Type 17F

Catalogue No.	No. Teeth Z	Pulley Type	Pitch Circle Diameter dp	Taper Bush Size	Max Bore	Outside Diameter do	Flange Diameter A	Pulley Width F	Bore Length L	Hub Diameter M	Rim Diameter N	Approx. Weight kg
½" Pitch Pulleys for 1" wide Belts. Ref. H100												
16H100	16	5F	64.68	1108	28	63.3	70	31	22	–	45	0.42
18H100	18	5F	72.77	1210	32	71.4	79	31	25	–	52	0.48
19H100	19	5F	76.81	1210	32	74.4	82.5	31	25	–	56	0.58
20H100	20	5F	80.55	1210	32	79.5	87	31	25	–	60	0.68
21H100	21	5F	84.89	1210	32	83.5	91	32	25	–	64	0.79
22H100	22	5F	88.94	1210	32	87.6	94	32	25	–	67	0.90
23H100	23	5F	92.98	1610	42	91.6	97	32	25	–	70	0.96
24H100	24	5F	97.02	1610	42	95.7	102	32	25	–	73.5	1.00
25H100	25	5F	101.06	1610	42	99.7	106	32	25	–	77	1.12
26H100	26	5F	105.11	1610	42	103.7	112	32	25	–	82	1.26
27H100	27	5F	109.15	1610	42	107.8	115	32	25	–	85	1.40
28H100	28	5F	113.19	1610	42	111.8	120	32	25	–	90.5	1.54
30H100	30	5F	121.28	1610	42	119.9	128	32	25	–	98	1.85
32H100	32	17F	129.36	1610	42	128.0	135	32	25	80	106	1.68
36H100	36	17F	145.53	1610	42	144.2	150	32	25	92	121	2.25
40H100	40	17F	161.70	1610	42	160.3	168	32	25	92	138	2.59
44H100	44	10F	177.87	2012	50	176.5	184	32	32	106	152	3.56
48H100	48	10F	194.04	2012	50	192.7	200	32	32	106	169	4.10
60H100	60	12	242.55	2012	50	241.2	–	34	32	106	223	3.88
72H100	72	12	291.06	2012	50	289.7	–	34	32	106	270	4.45
84H100	84	12	339.57	2012	50	338.2	–	34	32	106	318	6.15
96H100	96	7	388.08	2517	60	386.7	–	34	45	119	366	7.84
120H100	120	7	485.10	2517	60	483.7	–	34	45	119	462	10.05
½" Pitch Pulleys for 1½" wide Belts. Ref. H150												
18H150	18	5F	72.77	1210	32	71.4	79	45	25	–	52	0.66
19H150	19	5F	76.81	1210	32	74.4	82.5	45	25	–	56	0.78
20H150	20	5F	80.55	1210	32	79.5	87	45	25	–	60	0.88
21H150	21	5F	84.89	1210	32	83.5	91	45	25	–	64	0.99
22H150	22	5F	88.94	1210	32	87.6	94	45	25	–	67	1.13
23H150	23	5F	92.98	1610	42	91.6	97	45	25	–	70	1.12
24H150	24	5F	97.02	1610	42	95.7	102	45	25	–	73.5	1.25
25H150	25	5F	101.06	1610	42	99.7	106	45	25	–	77	1.40
26H150	26	5F	105.11	1610	42	103.7	112	45	25	–	82	1.54
27H150	27	5F	109.15	1610	42	107.8	115	45	25	–	85	1.70
28H150	28	5F	113.19	1610	42	111.8	120	45	25	–	90.5	1.84
30H150	30	5F	121.28	1610	42	119.9	128	45	25	–	98	2.17
32H150	32	17F	129.36	1610	42	128.0	135	45	25	80	106	2.21
36H150	36	17F	145.53	1610	42	144.2	150	45	25	92	121	2.79
40H150	40	17F	161.70	1610	42	160.3	168	45	25	92	138	3.26
44H150	44	17F	177.87	2012	50	176.5	184	45	32	106	152	4.20
48H150	48	17F	194.04	2012	50	192.7	200	45	32	106	169	4.72
60H150	60	12	242.55	2012	50	241.2	–	46	32	106	223	4.58
72H150	72	12	291.06	2012	50	289.7	–	46	32	106	270	5.46
84H150	84	12	339.57	2012	50	338.2	–	46	32	106	320	6.73
96H150	96	12	388.08	2517	60	386.7	–	46	45	119	366	9.00
120H150	120	12	485.10	2517	60	483.7	–	46	45	119	462	12.20
½" Pitch Pulleys for 2" wide Belts. Ref. H200												
18H200	18	5F	72.77	1210	32	71.4	79	58	25	–	52	0.82
19H200	19	5F	76.81	1210	32	74.4	82.5	58	25	–	56	0.92
20H200	20	5F	80.55	1610	42	79.5	87	58	25	–	62	0.92
21H200	21	5F	84.89	1610	42	83.5	91	58	25	–	64	1.04
22H200	22	5F	88.94	1610	42	87.6	94	58	25	–	67	1.20
23H200	23	5F	92.98	1610	42	91.6	97	58	25	–	70	1.36
24H200	24	5F	97.02	1610	42	95.7	102	58	25	–	73.5	1.52
25H200	25	5F	101.06	1610	42	99.7	106	58	25	–	77	1.68
26H200	26	5F	105.11	1610	42	103.7	112	58	25	–	82	1.82
27H200	27	5F	109.15	1610	42	107.8	115	58	25	–	85	2.02
28H200	28	5F	113.19	1610	42	111.8	120	58	25	–	90.5	2.14
30H200	30	5F	121.28	1610	42	119.9	128	58	25	–	98	2.50
32H200	32	5F	129.36	2012	50	128.0	135	58	32	–	106	2.92
36H200	36	17F	145.53	2012	50	144.2	150	58	32	102	121	3.52
40H200	40	17F	161.70	2012	50	160.3	168	58	32	106	138	4.10
44H200	44	17F	177.87	2012	50	176.5	184	58	32	106	152	4.90
48H200	48	17F	194.04	2517	60	192.7	200	58	45	119	168	6.25
60H200	60	12	242.55	2517	60	241.2	–	60	45	119	223	5.82
72H200	72	12	291.06	2517	60	289.7	–	60	45	119	270	6.80
84H200	84	12	339.57	2517	60	338.2	–	60	45	119	320	8.26
96H200	96	12	388.08	2517	60	386.7	–	60	45	119	366	9.90
120H200	120	12	485.10	2517	60	483.7	–	60	45	119	462	13.00
½" Pitch Pulleys for 3" wide Belts. Ref. H300												
20H300	20	13F	80.55	1615	42	79.5	87	84	38	–	64.5	1.19
21H300	21	13F	84.89	1615	42	83.5	91	84	38	–	65	1.50
22H300	22	13F	88.94	1615	42	87.6	94	84	38	–	67	1.76
23H300	23	13F	92.98	1615	42	91.6	97	84	38	–	70	2.00
24H300	24	13F	97.02	1615	42	95.7	102	84	38	–	73.5	2.25
25H300	25	13F	101.06	1615	42	99.7	106	84	38	–	77	2.49
26H300	26	13F	105.11	1615	42	103.7	112	84	38	–	82	2.69
27H300	27	13F	109.15	2012	50	107.8	115	84	32	–	85	2.50
28H300	28	13F	113.19	2012	50	111.8	120	84	32	–	90.5	2.65
30H300	30	13F	121.28	2012	50	119.9	128	84	32	–	98	3.15
32H300	32	13F	129.36	2517	60	128.0	135	84	45	–	106	3.52
36H300	36	13F	145.53	2517	60	144.2	150	84	45	–	121	4.94
40H300	40	13F	161.70	2517	60	160.3	168	84	45	119	138	6.40
48H300	48	12F	194.04	2517	60	192.7	200	86	45	119	165	7.10
60H300	60	12	242.55	2517	60	241.2	–	86	45	119	223	7.45
72H300	72	12	291.06	2517	60	289.7	–	86	45	119	270	9.92
84H300	84	12	339.57	2517	60	338.2	–	86	45	119	320	11.57
96H300	96	12	388.08	3030	75	386.7	–	86	76	150	362	13.40
120H300	120	12	485.10	3030	75	483.7	–	86	76	150	460	16.50

All dimensions in mm. For details of Taper Bushes refer to page 23

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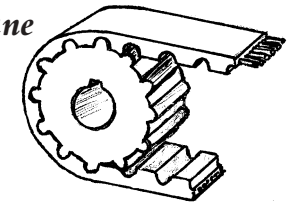
Polyurethane Timing Belts

Polyurethane Timing Belts are offered in three standard metric pitches, 2.5mm, 5mm, and 10mm, and also standard imperial pitch, 1/5" (XL). Belts can also be supplied in 2mm and 20mm pitch, 0.08" (MXL) and 3/8" (XL) pitch to order. In addition to the standard single sided belts, double sided belts with moulded teeth on both sides of the belt can be supplied (T5 and T10 only) for multishaft, serpentine drives and some conveyor applications.The metric belts are offered in two designs 'T' and 'AT' series both using steel tension cords encased in the polyurethane jacket with integral drive teeth. The method of manufacture ensures close control of pitch length, which combined with the inelastic properties of the steel tension member create a belt drive with high positional accuracy resulting in these belts being popular for instrument drives, robotics, and servo mechanisms. The imperial pitch belts use Kevlar tension members for increased strength and flexibility making them suited to higher power applications. The metric series belts can be also supplied with Kevlar tension member if required. Polyurethane has excellent resistance to mineral oils, greases and many slight acidic solutions, it is basically non marking and resistant to crumbling making it suitable for food and cigarette processing machines, and for paper handling in office equipment. Polyurethane belts can be used on applications with environmental temperature range -30°C, to 80°C, with belt speed up to 80 m/sec. In addition to the standard belt listed on page 37, open ended belt can be supplied for most constructions and widths, and fitted with welded attachments for conveying applications and positional rack drives, refer to page 43 for further details. The low inertia of the belts and aluminium pulleys plus accurate pitching make both the endless and open ended belt ideal for the high acceleration rates encountered in robotics.The high flexibility of the polyurethane belt enables crossed drives to be achieved (shafts at right angles), where reasonable length centres exist and narrow width belts are used. Both high shaft speeds and power capabilities can be achieved with the 'T' and 'AT' series of belts. The T2.5, T5, and AT5 belts are all able to run at up to 40,000 r.p.m with AT5 belts transmitting 15kW. The T10 and AT10 belts, can operate to 15,000 r.p.m with power capacity to 70kW, and higher powers of up to 200kW can be achieved with 20mm pitch AT 20 belts available to special order.

AT Series Polyurethane Timing Belts

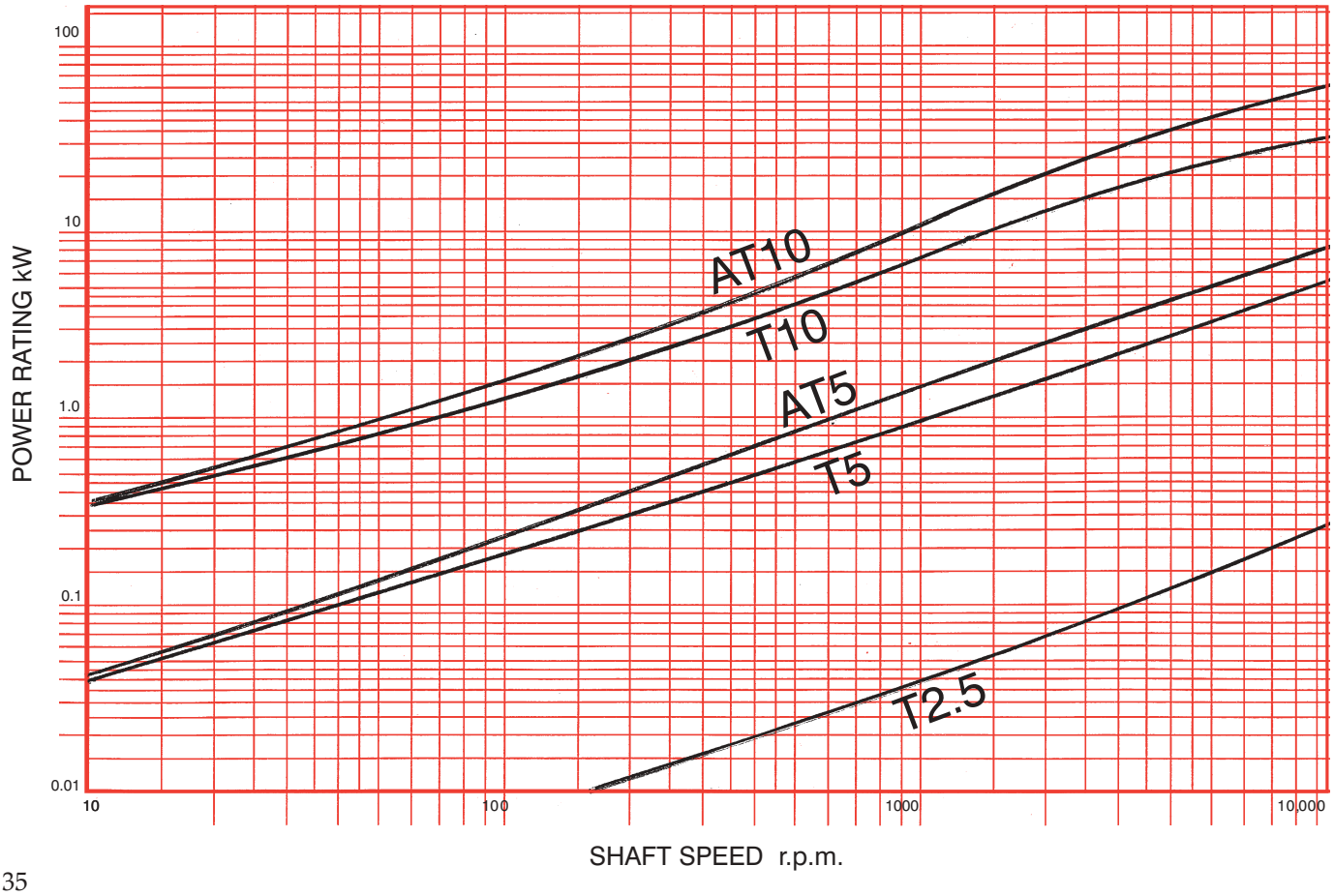


Polyurethane belts are suitable for drives in a wide variety of machinery including Office machinery, Machine Tools, Pumps, Textile Machinery, Printing Machinery, Paper manufacturers, down to precision Camera drives and servo mechanisms.
The 'AT' series of Polyurethane belts have increased tooth width and higher strength tension members than the 'T' Series.
The increased tooth size with resultant increased stiffness improves meshing with pulley teeth and enables transmission of higher powers. Increased strength tension members improve pitch accuracy and also increase power capacity. Both improvements result in an increase of power transmission capacity of approx 50%. Quieter operation, as a result of improved tooth meshing, and reduced polygonal effect plus ability to use narrower section belts, is combined with improved positional accuracy of power transmission, with linear accuracy better than ± 0.1mm/Metre belt length.

Design limits for standard Polyurethane Timing Belts.

Belt Size Width x Pitch	Max. Allowable Belt Tension N.	Min. No. Teeth Drive Pulley	Min dia of Idler Pulley mm
6T2.5	65	10	15
10T5	330	10	30
16T5	570	10	30
25T5	930	10	30
16T10	1100	12	60
25T10	1800	12	60
32T10	2300	12	60
50T10	3800	12	60
10AT5	490	15	60
16AT5	840	15	60
25AT5	1100	15	60
25AT10	3500	15	120
32AT10	4750	15	120
50AT10	7750	15	120

Standard Belt Power Ratings



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Polyurethane Belt Drives Selection Procedure

The most important factor considered when selecting a Polyurethane "T" or "AT" series belt is the tooth shear strength. The calculation of Power capacity is based on the specific shear strength of each tooth in mesh relative to the belt width in cms. The maximum tooth shear strength Fs must not be exceeded. Values for tooth shear strength are shown in the table at foot of the page. The 'AT' series belts offer a higher tooth strength due to the larger tooth cross section. The high pitch accuracy of Polyurethane belts allows for up to 12 teeth to share the drive loads. Other factors which should be considered in belt selection are the number of teeth on the small pulley and diameters of tensioners/idlers pulleys. The drive design should also ensure that the maximum working load does not exceed maximum allowable tension of the members Fm.

In order to make a selection it is first necessary to compile together the following relevant design parameters

a) Power to be transmitted P. kW
b) Speed of fastest shaft N_1 r.p.m.
c) Drive ratio required, i - reduction or speed increase.
d) Maximum pulley diameters which can be accommodated.
e) Type of driver and driven equipment.
f) Shaft diameters and centre distance A

Selection of Belt Pitch and Width.

1) The size of Belt selected must always ensure maximum tooth shear and tensile strengths are not exceeded, and that pulley sizes meet their criteria. Under start-up conditions normal running torques can be exceeded by 2-2.5 times with electric motors, and this must be allowed for in the calculation.
Peak loads caused by oscillating and torsional loads can be up to 1.7 times mean torque loads, and design factor f_1* should consider this. Emergency braking systems may impose the maximum torque in the application.
Speed increase drives impose heavier shock conditions, and a factor needs to be applied to cover these as below :-

i = 1 to 1.5	f_2 = 1.1
i = 1.5 to 2.5	f_2 = 1.2
i = 2.5 +	f_2 = 1.3

* Values for f_1 can be found on page 4 , Table 1.

The total design factor $f_d = f_1 + f_2$ or start-up overload factor fs which ever is highest
The design Power $P_d = P \times f_d$ or fs

Using graph on page opposite select suitable belt size to transmit the design power at the shaft speed N_1 r.p.m.

2. Select number of teeth in pulleys, by consideration of the restraints of maximum pulley diameter and shaft diameters. The minimum pulley pitch diameter should be at least twice shaft diameter. The minimum number of teeth on the pulleys is also constrained by the belt design, reference belt characteristics table opposite page.
The actual pulley diameters can be obtained by referring to pulley dimension tables on pages 38 to 42 or by using formula.

Pitch dia pulley $dp = \frac{Z.p}{\pi}$ mm

The number of teeth in small and large pulleys can be determined from the drive reduction ratio i.

$$i = \frac{Z_2}{Z_1}$$

3) Determine the number of teeth in mesh on small pulley Z_m from formula

$$Zm = \frac{Z_1}{2\pi}\left(\pi - \mathrm{Sin}^{-1}\left[\frac{Z_2 - Z_1}{\pi . A}\right]\right)$$

4) Determine belt tension from drive Power P_d or drive torque M_d

$$F_T = \frac{1000.Pd}{Z_1.N_1.p}$$ from power input

or $$F_T = \frac{2000\ Td}{dp}$$ from torque input

5) Determine belt width by consideration of belt tooth shear strength

belt width $b = \frac{F_T}{Fs.\ Zm.}$ cm

Select the next largest standard width for belt.
If result from below formula for belt width gives impractical result rework selection sequence with next sizes of belt to obtain revised width.

6) Final chain belt tension maximum Fm is not exceeded i.e.

$$Fm \geq F_T$$

7) To determine belt length refer to paragraph 5 on page 2.

Terms and Definitions :-

A	= centre distance pulley shafts	mm
b	= belt width	cm
d	= bore of pulley	mm
dp	= pitch diameter of pulley	mm
fd	= design factor	
fs	= starting overload factor	
Fm	= max. working tension in belt	N
Fs	= tooth shear resistance (see table below)	N/cm
F_T	= total linear force on belt	N
i	= drive ratio	
L	= belt Length	mm
N_1	= shaft speed - high speed shaft	r.p.m.
N_2	= shaft speed - low speed shaft	r.p.m.
P	= motor power	k.w
Pd	= design power	k.w
P	= belt pitch	mm
Z_1	= no teeth on small pulley	
Z_2	= no teeth on large pulley	
Zm	= no teeth in mesh in small pulley	

Pulley Speed N r.p.m	Value for Teeth Shear Resistance Fs N/cm				
	T2.5	T5	T10	AT5	AT10
0	9.03	24.00	50.50	35.3	73.5
20	8.72	23.38	49.00	34.9	72.4
40	8.48	22.86	47.70	34.5	71.4
60	8.28	22.41	46.60	34.1	70.5
80	8.10	22.01	45.70	33.8	69.6
100	7.95	21.65	44.80	33.5	68.7
200	7.39	20.28	41.40	32.0	65.0
300	7.01	19.30	39.10	30.9	62.1
400	6.71	18.55	37.20	29.8	59.5
500	6.48	17.93	35.70	29.0	57.4
600	6.28	17.41	34.40	28.2	55.5
700	6.11	16.96	33.30	27.5	53.7
800	5.97	16.56	32.40	26.8	52.2
900	5.83	16.20	31.50	26.3	50.8
1000	5.71	15.88	30.70	25.7	49.5
1100	5.61	15.58	30.00	25.2	48.3
1200	5.51	15.31	29.30	24.8	47.2
1300	5.41	15.06	28.70	24.3	46.2
1400	5.33	14.83	28.20	23.9	45.2
1500	5.25	14.61	27.60	23.5	44.3
1600	5.17	14.40	27.10	23.2	43.4
1700	5.10	14.21	26.70	22.8	42.6
1800	5.04	14.03	26.20	22.5	41.8
1900	4.97	13.85	25.80	22.2	41.0
2000	4.91	13.69	25.40	21.9	40.3
2200	4.80	13.38	24.60	21.3	39.0
2400	4.70	13.10	23.90	20.8	37.8
2600	4.60	12.84	23.30	20.3	36.6
2800	4.51	12.59	22.70	19.8	35.5
3000	4.43	12.37	22.20	19.4	34.5
3200	4.36	12.16	21.70	19.0	33.6
3400	4.28	11.96	21.20	18.6	32.7
3600	4.22	11.77	20.70	18.3	31.9
3800	4.15	11.59	20.30	17.9	31.1
4000	4.09	11.42	19.86	17.6	30.3
4500	3.95	11.03	18.91	16.9	28.5
5000	3.82	10.68	18.06	16.2	26.9
5500	3.70	10.36	17.28	15.6	25.5
6000	3.60	10.07	16.58	15.0	24.2
6500	3.51	9.81	15.93	14.5	23.0
7000	3.42	9.56	15.33	14.0	21.8
7500	3.33	9.33	14.76	13.5	20.8
8000	3.26	9.11	14.24	13.1	19.8
9000	3.11	8.72	13.28	12.3	17.9
10000	2.99	8.37	12.42	11.6	16.3
12000	2.77	–	–	–	–
15000	2.50	–	–	–	–
18000	2.28	–	–	–	–
20000	2.15	–	–	–	–

Standard Stock Polyurethane Belts

Standard belts are available in a number of stock widths as indicated below. For metric belts an individual belt reference number is obtained by prefixing the catalogue reference shown in tables, by its width in mm. For example a 280mm long belt of T5 construction with 12mm width has reference:

12T5-280

belt width - construction - length

For imperial pitch belts, the references are as rubber belts but prefixed 'U', e.g. U150XL037. Other pitches, belt lengths and widths can supplied to order, contact Cross+Morse for further information.

2.5mm Pitch Belts - Ref. T2.5

Cat. Ref.	Length mm	No. Teeth
T2.5-120	120	48
T2.5-145	145	58
T2.5-160	160	64
T2.5-177	177.5	71
T2.5-200	200	80
T2.5-230	230	92
T2.5-245	245	98
T2.5-265	265	106
T2.5-285	285	114
T2.5 290	290	116
T2.5-305	305	122
T2.5-317	317.5	127
T2.5-330	330	132
T2.2-380	380	152
T2.5-420	420	168
T2.5-480	480	192
T2.5-500	500	200
T2.5-600	600	240
T2.5-620	620	248
T2.5-650	650	260
T2.5-680	680	272
T2.5-780	780	312
T2.5-880	880	352
T2.5-915	915	366
T2.5-950	950	380
T2.5-1185	1185	474

1/5" Pitch Belts - Ref. U-XL

Cat. Ref.	Length mm	No. Teeth
U60-XL	152.4	30
U70-XL	177.8	35
U80-XL	203.2	40
U90-XL	228.6	45
U100-XL	254.0	50
U110-XL	279.4	55
U120-XL	304.8	60
U130-XL	330.2	65
U140-XL	355.6	70
U150-XL	381.0	75
U160-XL	406.4	80
U170-XL	431.8	85
U180-XL	457.2	90
U190-XL	482.6	95
U200-XL	508.0	100
U210-XL	533.4	105
U220-XL	558.8	110
U230-XL	584.2	115
U240-XL	609.6	120
U250-XL	635.0	125
U260-XL	660.4	130

U-XL Belt Widths and Weights

Width Ref.	Belt Width	Weight gms/m
25	6.3	14
37	9.5	21
50	12.7	28

Open ended and long length fabricated belts are also available refer to page 43 for further details.

5mm Pitch Belts - Ref. T5

Cat. Ref.	Length mm	No. Teeth
T5-120	120	24
T5-150	150	30
T5-185	185	37
T5-200	200	40
T5-215	215	43
T5-225	225	45
T5-245	245	49
T5-250	250	50
T5 255	255	51
T5-260	260	52
T5-270	270	54
T5-280	280	56
T5-295	295	59
T5-305	305	61
T5-330	330	66
T5-340	340	68
T5-350	350	70
T5-355	355	71
T5-365	365	73
T5-390	390	78
T5-400	400	80
T5-410*	410	82
T5-420	420	84
T5-455	455	91
T5-460*	460	92
T5-475	475	95
T5-480	480	96
T5-500	500	100
T5-510	510	102
T5-525	525	105
T5-545	545	109
T5-550	550	110
T5-560	560	112
T5-575	575	115
T5-590*	590	118
T5-610	610	122
T5-620*	620	124
T5-630	630	126
T5-650	650	130
T5-660	660	132
T5-690	690	138
T5-720	720	144
T5-750*	750	150
T5-780	780	156
T5-815*	815	163
T5-830	830	166
T5-840	840	168
T5-860*	860	172
T5-885	885	177
T5-900	900	180
T5-940*	940	188
T5-990	990	198
T5-1075	1075	215
T5-1100*	1100	220
T5-1200	1200	240
T5-1215	1215	243
T5-1275	1275	255
T5-1280	1280	256
T5-1315	1315	263
T5-1355	1355	271
T5-1380	1380	276
T5-1955	1955	391

10mm Pitch Belts - Ref. T10

Cat. Ref.	Length mm	No. Teeth
T10-260*	260	26
T10-340	340	34
T10-370	370	37
T10-400	400	40
T10-410	410	41
T10-440	440	44
T10-480	480	48
T10-500	500	50
T10-530*	530	53
T10-560	560	56
T10-600	600	60
T10-610	610	61
T10-630*	630	63
T10-660*	660	66
T10-680	680	68
T10-690	690	69
T10-700	700	70
T10-720*	720	72
T10-730	730	73
T10-750	750	75
T10-780	780	78
T10-810	810	81
T10-840*	840	84
T10-880	880	88
T10-890	890	89
T10-900	900	90
T10-920	920	92
T10-960	960	96
T10-970	970	97
T10-980*	980	98
T10-1010	1010	101
T10-1080	1080	108
T10-1110	1110	111
T10-1140	1140	114
T10-1150	1150	115
T10-1210*	1210	121
T10-1240*	1240	124
T10-1250	1250	125
T10-1300	1300	130
T10-1320*	1320	132
T10-1350*	1350	135
T10-1390	1390	139
T10-1400	1400	140
T10-1420*	1420	142
T10-1460	1460	146
T10-1500	1500	150
T10-1560	1560	156
T10-1610*	1610	161
T10-1750	1750	175
T10-1780	1780	178
T10-1880*	1880	188
T10-1960	1960	196
T10-2250	2250	225

*These belt sizes are also available in Double Sided construction suffix 'DD' to Cat. No.

Belt Widths and Weights T & AT Series

Belt Type	Belt Width mm										
	4	6	8	10	12	16	20	25	32	50	75
T2.5	6	9	12	15	18						
T5		15	19	24	29	38	48	60			
T10				48	58	77	96	120	154	240	360
AT5		21	27	34	41	54	68	85			
AT10				63	76	101	126	158	202	315	473

Figures in Belt Width column for respective type of belt are weight gms/metre length. Unshaded weights are Standard Stock width belts, shaded are to order only.

5mm Pitch Belts - Ref. AT5

Cat. Ref.	Length mm	No. Teeth
AT5-225	225	45
AT5-255	255	51
AT5-280	280	56
AT5-300	300	60
AT5-340	340	68
AT5-375	375	75
AT5-390	390	78
AT5-420	420	84
AT5-450	450	90
AT5-455	455	91
AT5-500	500	100
AT5-545	545	109
AT5-600	600	120
AT5-610	610	122
AT5-660	660	132
AT5-710	710	142
AT5-720	720	144
AT5-750	750	150
AT5-780	780	156
AT5-825	825	165
AT5-860	860	172
AT5-975	975	195
AT5-1050	1050	210
AT5-1125	1125	225
AT5-1500	1500	300
AT5-2000	2000	400

10mm Pitch Belts - Ref. AT10

Cat. Ref.	Length mm	No. Teeth
AT10-500	500	50
AT10-560	560	56
AT10-600	600	60
AT10-610	610	61
AT10-660	660	66
AT10-700	700	70
AT10-730	730	73
AT10-780	780	78
AT10-800	800	80
AT10-840	840	84
AT10-890	890	89
AT10-920	920	92
AT10-960	960	96
AT10-980	980	98
AT10-1000	1000	100
AT10-1010	1010	101
AT10-1050	1050	105
AT10-1080	1080	108
AT10-1100	1100	110
AT10-1150	1150	115
AT10-1200	1200	120
AT10-1210	1210	121
AT10-1250	1250	125
AT10-1280	1280	128
AT10-1300	1300	130
AT10-1320	1320	132
AT10-1350	1350	135
AT10-1360	1360	136
AT10-1400	1400	140
AT10-1420	1420	142
AT10-1480	1480	148
AT10-1500	1500	150
AT10-1600	1600	160
AT10-1700	1700	170
AT10-1720	1720	172
AT10-1800	1800	180
AT10-1860	1860	186
AT10-1940	1940	194

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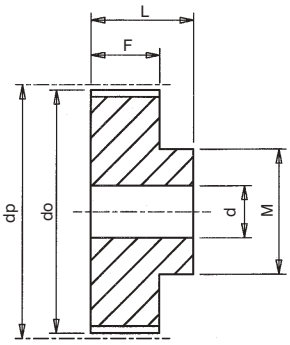
Avante Pulleys for Metric Polyurethane T5 and T10 Belts

The Avante drive system combines the advantages of Shaft Clamping Elements with a standard range of Metric 'T' Series Pulleys, providing a unique zero backlash connection. Avante T Pulleys operate with the Avante Clamping Element,details of which can be found on page 19. The system is ideal for positioning drives; and offers cost savings by elimination of machining for drive keys and axial location.

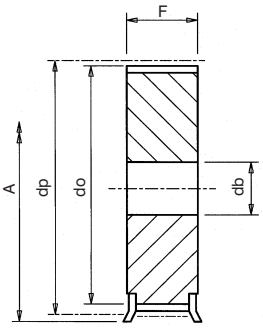
Pulley Types

Pulley Types referred to in the tables are as drawings below. Suffix 'F' indicates pulley has flanges. All pulleys are manufactured from Aluminium for low weight and inertia

All dimensions in mm.



Type 1



Type 4/4F

*Refer to Page 19 for Bush details

Catalogue No.	No. Teeth Z	Pulley Type	ACE81 Bush Ref.*	Bush bore sizes min mm	Bush bore sizes max mm	Pitch Circle ∅ dp	Outside ∅ do	Flange ∅ A	Pulley Width F	Bore Length L	Pulley Bore ∅ db	Hub ∅ M	Approx. Weight kg
5mm Pitch Pulleys for 10mm Wide Belt Ref. 10T5													
A10T5 -22	22	4F	-x26	11	20	35.01	34.2	38.0	15	15	26	–	0.022
A10T5 -24	24	4F	-x26	11	20	38.20	37.4	43.0	15	15	26	–	0.030
A10T5 -25	25	4F	-x26	11	20	39.79	38.9	44.0	15	15	26	–	0.034
A10T5 -26	26	4F	-x26	11	20	41.38	40.5	44.0	15	15	26	–	0.039
A10T5 -27	27	4F	-x26	11	20	42.97	42.1	48.0	15	15	26	–	0.043
A10T5 -28	28	4F	-x26	11	20	44.56	43.7	48.0	15	15	26	–	0.048
A10T5 -30	30	4F	-x26	11	20	47.75	46.9	51.0	15	15	26	–	0.058
A10T5 -32	32	4F	-x26	11	20	50.93	50.1	56.0	15	15	26	–	0.068
A10T5 -36	36	4F	-x38	19	30	57.30	56.5	63.0	15	15	38	–	0.066
A10T5 -40	40	4F	-x38	19	30	63.66	62.8	66.5	15	15	38	–	0.092
A10T5 -42	42	4F	-x38	19	30	66.85	66.0	70.0	15	15	38	–	0.105
A10T5 -44	44	4	-x38	19	30	70.03	69.2	–	15	15	38	–	0.098
A10T5 -48	48	4	-x38	19	30	76.39	75.6	–	15	15	38	–	0.126
A10T5 -60	60	4	-x38	19	30	95.49	94.7	–	15	15	38	–	0.227
5mm Pitch Pulleys for 16mm Wide Belt Ref. 16T5													
A16T5 -22	22	4F	-x26	11	20	35.01	34.2	38.0	21	21	26	–	0.027
A16T5 -24	24	4F	-x26	11	20	38.20	37.4	43.0	21	21	26	–	0.038
A16T5 -25	25	4F	-x26	11	20	39.79	38.9	44.0	21	21	26	–	0.043
A16T5 -26	26	4F	-x26	11	20	41.38	40.5	44.0	21	21	26	–	0.049
A16T5 -27	27	4F	-x26	11	20	42.97	42.1	48.0	21	21	26	–	0.055
A16T5 -28	28	4F	-x26	11	20	44.56	43.7	48.0	21	21	26	–	0.061
A16T5 -30	30	4F	-x26	11	20	47.75	46.9	51.0	21	21	26	–	0.075
A16T5 -32	32	4F	-x26	11	20	50.93	50.1	56.0	21	21	26	–	0.089
A16T5 -36	36	4F	-x38	19	30	57.30	56.5	63.0	21	21	38	–	0.086
A16T5 -40	40	4F	-x38	19	30	63.66	62.8	66.5	21	21	38	–	0.120
A16T5 -42	42	4F	-x38	19	30	66.85	66.0	70.0	21	21	38	–	0.139
A16T5 -44	44	4	-x38	19	30	70.03	69.2	–	21	21	38	–	0.137
A16T5 -48	48	4	-x38	19	30	76.39	75.6	–	21	21	38	–	0.177
A16T5 -60	60	4	-x38	19	30	95.49	94.7	–	21	21	38	–	0.318
5mm Pitch Pulleys for 25mm Wide Belt Ref. 25T5													
A25T5 -22	22	4F	-x26	11	20	35.01	34.2	38.0	30	30	26	–	0.034
A25T5 -24	24	4F	-x26	11	20	38.20	37.4	43.0	30	30	26	–	0.049
A25T5 -25	25	4F	-x26	11	20	39.79	38.9	44.0	30	30	26	–	0.056
A25T5 -26	26	4F	-x26	11	20	41.38	40.5	44.0	30	30	26	–	0.064
A25T5 -27	27	4F	-x26	11	20	42.97	42.1	48.0	30	30	26	–	0.073
A25T5 -28	28	4F	-x26	11	20	44.56	43.7	48.0	30	30	26	–	0.082
A25T5 -30	30	4F	-x26	11	20	47.75	46.9	51.0	30	30	26	–	0.100
A25T5 -32	32	4F	-x26	11	20	50.93	50.1	56.0	30	30	26	–	0.120
A25T5 -36	36	4F	-x38	19	30	57.30	56.5	63.0	30	30	38	–	0.115
A25T5 -40	40	4F	-x38	19	30	63.66	62.8	66.5	30	30	38	–	0.163
A25T5 -42	42	4F	-x38	19	30	66.85	66.0	70.0	30	30	38	–	0.190
A25T5 -44	44	4	-x38	19	30	70.03	69.2	–	30	30	38	–	0.195
A25T5 -48	48	4	-x38	19	30	76.39	75.6	–	30	30	38	–	0.252
A16T5 -60	60	4	-x38	19	30	95.49	94.7	–	30	30	38	–	0.454
10mm Pitch Pulleys for 16mm Wide Belt Ref. 16T10													
A16T10 -12	12	4F	-x26	11	20	38.20	36.3	43.0	21	21	26	–	0.03
A16T10 -14	14	4F	-x26	11	20	44.56	42.7	48.0	21	21	26	–	0.06
A16T10 -15	15	4F	-x26	11	20	47.75	45.9	51.0	21	21	26	–	0.07
A16T10 -16	16	4F	-x26	11	20	50.93	49.1	56.0	21	21	26	–	0.08
A16T10 -18	18	4F	-x38	19	30	57.30	55.4	60.0	21	21	38	–	0.08
A16T10 -19	19	4F	-x38	19	30	60.48	58.6	66.5	21	21	38	–	0.10
A16T10 -20	20	4F	-x38	19	30	63.66	61.8	66.5	21	21	38	–	0.11
A16T10 -22	22	4F	-x38	19	30	70.03	68.2	75.0	21	21	38	–	0.15
A16T10 -24	24	4F	-x38	19	30	76.39	74.5	83.0	21	21	38	–	0.19
A16T10 -25	25	4F	-x38	19	30	79.58	77.7	83.0	21	21	38	–	0.22
A16T10 -26	26	4F	-x38	19	30	82.76	80.9	87.0	21	21	38	–	0.24
A16T10 -27	27	4F	-x38	19	30	85.94	84.1	91.0	21	21	38	–	0.26
A16T10 -28	28	4F	-x38	19	30	89.13	87.3	93.0	21	21	38	–	0.29
A16T10 -30	30	4F	-x38	19	30	95.49	93.6	97.0	21	21	38	–	0.34
A16T10 -32	32	4F	-x38	19	30	101.86	100.0	106.0	21	21	38	–	0.40
A16T10 -36	36	4F	-x38	19	30	114.59	112.7	119.0	21	21	38	–	0.52
A16T10 -40	40	4F	-x38	19	30	127.32	125.5	131.0	21	21	38	–	0.65
A16T10 -44	44	1	-x52	24	42	140.06	138.2	–	21	31	52	88	0.86
A16T10 -48	48	1	-x52	24	42	152.79	150.9	–	21	31	52	95	1.05
A16T10 -60	60	1	-x52	24	42	190.99	189.1	–	21	31	52	110	1.70
10mm Pitch Pulleys for 25mm Wide Belt Ref. 25T10													
A25T10 -12	12	4F	-x26	11	20	38.20	36.3	43.0	30	30	26	–	0.04
A25T10 -14	14	4F	-x26	11	20	44.56	42.7	48.0	30	30	26	–	0.08
A25T10 -15	15	4F	-x26	11	20	47.75	45.9	51.0	30	30	26	–	0.09
A25T10 -16	16	4F	-x26	11	20	50.93	49.1	56.0	30	30	26	–	0.11
A25T10 -18	18	4F	-x38H	19	30	57.30	55.4	60.0	30	30	38	–	0.11
A25T10 -19	19	4F	-x38H	19	30	60.48	58.6	66.5	30	30	38	–	0.13
A25T10 -20	20	4F	-x38H	19	30	63.66	61.8	66.5	30	30	38	–	0.16
A25T10 -22	22	4F	-x38H	19	30	70.03	68.2	75.0	30	30	38	–	0.21
A25T10 -24	24	4F	-x52	24	42	76.39	74.5	83.0	30	30	52	–	0.19
A25T10 -25	25	4F	-x52	24	42	79.58	77.7	83.0	30	30	52	–	0.22
A25T10 -26	26	4F	-x52	24	42	82.76	80.9	87.0	30	30	52	–	0.25
A25T10 -27	27	4F	-x52	24	42	85.94	84.1	91.0	30	30	52	–	0.28
A25T10 -28	28	4F	-x52	24	42	89.13	87.3	93.0	30	30	52	–	0.32
A25T10 -30	30	4F	-x52	24	42	95.49	93.6	97.0	30	30	52	–	0.39
A25T10 -32	32	4F	-x52	24	42	101.86	100.0	106.0	30	30	52	–	0.47
A25T10 -36	36	4F	-x52	24	42	114.59	112.7	119.0	30	30	52	–	0.64
A25T10 -40	40	4F	-x52	24	42	127.32	125.5	131.0	30	30	52	–	0.84
A25T10 -44	44	4	-x52	24	42	140.06	138.2	–	30	30	52	–	1.05
A25T10 -48	48	4	-x52	24	42	152.79	150.9	–	30	30	52	–	1.29
A25T10 -60	60	4	-x52	24	42	190.99	189.1	–	30	30	52	–	2.12

Pulley Installation

Slacken screws in clamping element by two turns, removing one completely and fit into empty thread release hole tightening this screw so as to keep the inner and outer cones apart. Ensure all contact surfaces are clean, and lightly oiled with clean thin unmodified oil. Insert clamping element in hub and fit on shaft. Remove screw from release hole and refit in original hole. Position Pulley and tighten all screws finger tight so pulley can still be moved on shaft. Correct and accurate installation of Timing Drives is essential. Pulley alignment and shaft parallelism are important to ensure even loading across belt width, and avoid edge wear of belts on flanges. Pulley alignment can be checked by placing a straight edge against the outside edge of the pulleys and adjusting so contact is even across both pulleys. When the pulleys are correctly aligned they can be locked to the shafts by tightening all clamping screws evenly in a diametrically opposite sequence using torque wrench set initially at half catalogue clamping screw torque, then 3/4 value, and finally full torque.

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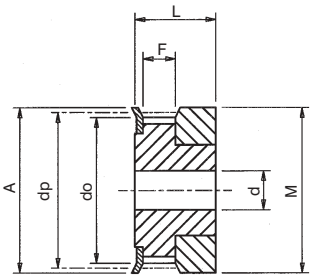
Pulleys for Metric Polyurethane T2.5 and T5 Belts

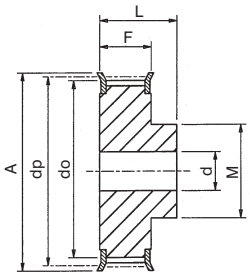
Catalogue No.	No. Teeth Z	Pulley Type	Pitch Circle Diameter dp	Min. Bore d	Max Bore d	Outside Diameter do	Flange Diameter A	Pulley Width F	Bore Length L	Hub Diameter M	Approx. Weight kg
2.5mm Pitch Pulleys for 6mm Wide Belt Ref. 6T2.5-											
6 T2.5-12	12	0F	9.55	–	4	9.0	13.0	9	16	12	.003
6 T2.5-14	14	0F	11.14	–	5	10.6	15.0	9	16	14	.004
6 T2.5-15	15	0F	11.94	–	6	11.4	15.0	9	16	15	.005
6 T2.5-16	16	0F	12.73	–	7	12.2	16.0	9	16	16	.005
6 T2.5-18	18	1F	14.32	–	6.5	13.8	17.5	10	16	10	.006
6 T2.5-19	19	1F	15.12	–	6.5	14.6	20.0	10	16	10	.007
6 T2.5-20	20	1F	15.92	–	7	15.4	20.0	10	16	11	.008
6 T2.5-22	22	1F	17.51	–	7	17.0	22.0	10	16	11	.010
6 T2.5-24	24	1F	19.10	4	8	18.5	22.0	10	16	12	.012
6 T2.5-25	25	1F	19.89	4	8.5	19.3	25.0	10	16	13	.013
6 T2.5-26	26	1F	20.69	4	9	20.1	26.0	10	16	14	.014
6 T2.5-28	28	1F	22.28	4	9	21.7	26.0	10	16	14	.016
6 T2.5-30	30	1F	23.87	6	10	23.3	28.0	10	16	16	.018
6 T2.5-32	32	1F	25.46	6	10	24.9	32.0	10	16	16	.020
6 T2.5-36	36	1F	28.65	6	13	28.1	36.0	10	16	20	.026
6 T2.5-40	40	1F	31.83	6	14	31.3	38.0	10	16	22	.032
6 T2.5-44	44	1	35.01	6	15	34.5	–	10	16	24	.040
6 T2.5-48	48	1	38.20	6	17	37.7	–	10	16	26	.048
6 T2.5-60	60	1	47.75	8	22	47.2	–	10	16	34	.073
5mm Pitch Pulleys for 10mm Wide Belt Ref. 10T5-											
10 T5-10	10	1F	15.92	–	5	15.0	19.5	15	21	8	.012
10 T5-12	12	1F	19.10	–	7	18.2	23.0	15	21	11	.016
10 T5-14	14	1F	22.28	–	9	21.4	25.0	15	21	14	.019
10 T5-15	15	1F	23.87	6	10	23.0	28.0	15	21	16	.021
10 T5-16	16	1F	25.46	6	11	24.6	32.0	15	21	18	.025
10 T5-18	18	1F	28.65	6	13	27.8	32.0	15	21	20	.031
10 T5-19	19	1F	30.24	6	14	29.4	36.0	15	21	22	.036
10 T5-20	20	1F	31.83	6	15	31.0	36.0	15	21	23	.038
10 T5-22	22	1F	35.01	6	15	34.1	38.0	15	21	24	.046
10 T5-24	24	1F	38.20	6	17	37.4	42.0	15	21	26	.054
10 T5-25	25	1F	39.79	6	17	38.9	44.0	15	21	26	.058
10 T5-26	26	1F	41.38	6	17	40.6	44.0	15	21	26	.062
10 T5-27	27	1F	42.97	8	19	42.2	48.0	15	21	30	.064
10 T5-28	28	1F	44.56	8	20	43.7	48.0	15	21	32	.071
10 T5-30	30	1F	47.75	8	22	46.9	51.0	15	21	34	.075
10 T5-32	32	1F	50.93	8	24	50.1	54.0	15	21	38	.088
10 T5-36	36	1F	57.30	8	24	56.4	64.0	15	21	38	.114
10 T5-40	40	1F	63.66	8	26	62.8	66.5	15	21	40	.138
10 T5-42	42	1F	66.84	8	26	66.0	70.0	15	21	40	.153
10 T5-44	44	1	70.03	8	29	69.2	–	15	21	45	.170
10 T5-48	48	1	76.39	8	32	75.5	–	15	21	50	.200
10 T5-60	60	1	95.49	8	42	94.6	–	15	21	65	.308
5mm Pitch Pulleys for 16mm Wide Belt Ref. 16T5-											
16 T5-10	10	1F	15.92	–	5	15.0	19.5	21	27	8	.016
16 T5-12	12	1F	19.10	–	7	18.2	23.0	21	27	11	.022
16 T5-14	14	1F	22.28	–	9	21.4	25.0	21	27	14	.027
16 T5-15	15	1F	23.87	6	10	23.0	28.0	21	27	16	.030
16 T5-16	16	1F	25.46	6	11	24.6	32.0	21	27	18	.036
16 T5-18	18	1F	28.65	6	13	27.8	32.0	21	27	20	.044
16 T5-19	19	1F	30.24	6	14	29.4	36.0	21	27	22	.050
16 T5-20	20	1F	31.83	6	15	31.0	36.0	21	27	23	.054
16 T5-22	22	1F	35.01	6	15	34.1	38.0	21	27	24	.055
16 T5-24	24	1F	38.20	6	17	37.4	42.0	21	27	26	.077
16 T5-25	25	1F	39.79	6	17	38.9	44.0	21	27	26	.082
16 T5-26	26	1F	41.38	6	17	40.6	44.0	21	27	26	.086
16 T5-27	27	1F	42.97	8	19	42.2	48.0	21	27	30	.092
16 T5-28	28	1F	44.56	8	20	43.7	48.0	21	27	32	.094
16 T5-30	30	1F	47.75	8	22	46.9	51.0	21	27	34	.106
16 T5-32	32	1F	50.93	8	24	50.1	54.0	21	27	38	.124
16 T5-36	36	1F	57.30	8	24	56.4	64.0	21	27	38	.160
16 T5-40	40	1F	63.66	8	26	62.8	66.5	21	27	40	.195
16 T5-42	42	1F	66.84	8	26	66.0	70.0	21	27	40	.206
16 T5-44	44	1	70.03	8	29	69.2	–	21	27	45	.230
16 T5-48	48	1	76.39	8	32	75.5	–	21	27	50	.282
16 T5-60	60	1	95.49	8	42	94.6	–	21	27	65	.432
5mm Pitch Pulleys for 25mm Wide Belt Ref. 25T5-											
25 T5-10	10	1F	15.92	–	5	15.0	19.5	30	36	8	.025
25 T5-12	12	1F	19.10	–	7	18.2	23.0	30	36	11	.032
25 T5-14	14	1F	22.28	–	9	21.4	25.0	30	36	14	.038
25 T5-15	15	1F	23.87	6	10	23.0	28.0	30	36	16	.042
25 T5-16	16	1F	25.46	6	11	24.6	32.0	30	36	18	.052
25 T5-18	18	1F	28.65	6	13	27.8	32.0	30	36	20	.063
25 T5-19	19	1F	30.24	6	14	29.4	36.0	30	36	22	.072
25 T5-20	20	1F	31.83	6	15	31.0	36.0	30	36	23	.078
25 T5-22	22	1F	35.01	6	15	34.1	38.0	30	36	24	.082
25 T5-24	24	1F	38.20	8	17	37.4	42.0	30	36	26	.110
25 T5-25	25	1F	39.79	8	17	38.9	44.0	30	36	26	.117
25 T5-26	26	1F	41.38	8	17	40.6	44.0	30	36	26	.121
25 T5-27	27	1F	42.97	8	19	42.2	48.0	30	36	30	.123
25 T5-28	28	1F	44.56	8	20	43.7	48.0	30	36	32	.127
25 T5-30	30	1F	47.75	8	22	46.9	51.0	30	36	34	.152
25 T5-32	32	1F	50.93	8	24	50.1	54.0	30	36	38	.177
25 T5-36	36	1F	57.30	8	24	56.4	64.0	30	36	38	.232
25 T5-40	40	1F	63.66	8	26	62.8	66.5	30	36	40	.278
25 T5-42	42	1F	66.84	8	26	66.0	70.0	30	36	40	.296
25 T5-44	44	1	70.03	8	29	69.2	–	30	36	45	.327
25 T5-48	48	1	76.39	8	32	75.5	–	30	36	50	.402
25 T5-60	60	1	95.49	8	42	94.6	–	30	36	65	.617

Pulley Types

The Pulley types referred to in tables are as drawings below.
Suffix 'F' indicates pulley has flanges.
Std. Pulleys can be reworked to customers bore and keywaying requirement.



Type 0F



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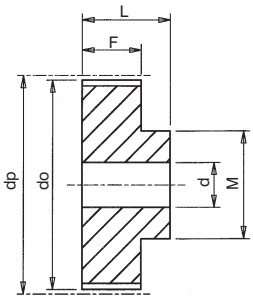

Type 1

All pulleys machined from aluminium for low weight and inertia, and fitted as indicated with steel flanges.
All dimensions in mm

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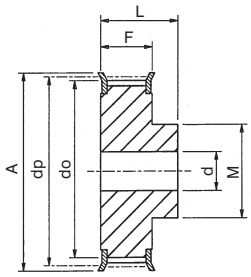
Pulleys for Metric Polyurethane T10 Belts

Pulley Types

The Pulley types referred to in tables are as drawings below.
Suffix 'F' indicates pulley has flanges.
Std. Pulleys can be reworked to customers bore and keyways requirements.



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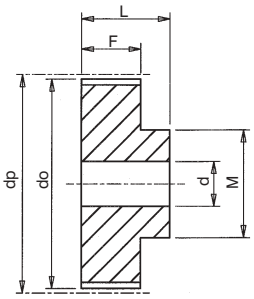

Type 1

All pulleys machined from aluminium for low weight and inertia, and fitted as indicated with steel flanges.
All dimensions in mm

Catalogue No.	No. Teeth Z	Pulley Type	Pitch Circle Dia. dp	Min. Bore d	Max. Bore d	Ouside Diameter do	Flange Dia. A	Pulley Width F	Bore Length L	Hub Dia. M	Approx. Weight kg
10mm Pitch Pulleys for 16mm Wide Belt Ref. 16T10											
16 T10-12	12	1F	38.20	6	18	36.3	42	21	31	28	0.08
16 T10-14	14	1F	44.56	8	21	42.7	48	21	31	32	0.11
16 T10-15	15	1F	47.75	8	21	45.9	51	21	31	32	0.12
16 T10-16	16	1F	50.93	8	23	49.1	54	21	31	35	0.14
16 T10-18	18	1F	57.30	8	26	55.4	60	21	31	40	0.17
16 T10-19	19	1F	60.48	8	28	58.6	66	21	31	44	0.19
16 T10-20	20	1F	63.66	8	30	61.8	66	21	31	46	0.21
16 T10-22	22	1F	70.03	8	34	68.2	75	21	31	52	0.26
16 T10-24	24	1F	76.39	8	38	74.5	83	21	31	58	0.29
16 T10-25	25	1F	79.58	8	39	77.7	83	21	31	60	0.31
16 T10-26	26	1F	82.76	8	39	80.9	87	21	31	60	0.36
16 T10-27	27	1F	85.94	8	39	84.1	91	21	31	60	0.37
16 T10-28	28	1F	89.13	8	39	87.2	93	21	31	60	0.40
16 T10-30	30	1F	95.49	8	39	93.6	97	21	31	60	0.44
16 T10-32	32	1F	101.86	10	42	100.0	106	21	31	65	0.49
16 T10-36	36	1F	114.59	10	45	112.7	119	21	31	70	0.63
16 T10-40	40	1F	127.32	10	52	125.4	131	21	31	80	0.77
16 T10-44	44	1	140.06	10	57	138.2	–	21	31	88	1.00
16 T10-48	48	1	152.79	16	62	150.9	–	21	31	95	1.09
16 T10-60	60	1	190.99	16	72	189.1	–	21	31	110	1.70
10mm Pitch Pulleys for 25mm Wide Belt Ref. 25T10											
25 T10-12	12	1F	38.20	6	18	36.3	42	30	40	28	0.10
25 T10-14	14	1F	44.56	8	21	42.7	48	30	40	32	0.14
25 T10-15	15	1F	47.75	8	21	45.9	51	30	40	32	0.16
25 T10-16	16	1F	50.93	8	23	49.1	54	30	40	35	0.18
25 T10-18	18	1F	57.30	8	26	55.4	60	30	40	40	0.23
25 T10-19	19	1F	60.48	8	28	58.6	66	30	40	44	0.25
25 T10-20	20	1F	63.66	8	30	61.8	66	30	40	46	0.28
25 T10-22	22	1F	70.03	8	34	68.2	75	30	40	52	0.34
25 T10-24	24	1F	76.39	8	38	74.5	83	30	40	58	0.39
25 T10-25	25	1F	79.58	8	39	77.7	83	30	40	60	0.42
25 T10-26	26	1F	82.76	8	39	80.9	87	30	40	60	0.48
25 T10-27	27	1F	85.94	8	39	84.1	91	30	40	60	0.54
25 T10-28	28	1F	89.13	8	39	87.2	93	30	40	60	0.55
25 T10-30	30	1F	95.49	8	39	93.6	97	30	40	60	0.64
25 T10-32	32	1F	101.86	10	42	100.0	106	30	40	65	0.69
25 T10-36	36	1F	114.59	10	45	112.7	119	30	40	70	0.87
25 T10-40	40	1F	127.32	10	52	125.4	131	30	40	80	1.07
25 T10-44	44	1	140.06	10	57	138.2	–	30	40	88	1.35
25 T10-48	48	1	152.79	16	62	150.9	–	30	40	95	1.52
25 T10-60	60	1	190.99	16	72	189.1	–	30	40	110	2.34
10mm Pitch Pulleys for 32mm Wide Belt Ref. 32T10-											
32 T10-18	18	1F	57.30	10	26	55.4	60	37	47	40	0.26
32 T10-19	19	1F	60.48	10	28	58.6	66	37	47	44	0.28
32 T10-20	20	1F	63.66	12	30	61.8	66	37	47	46	0.32
32 T10-22	22	1F	70.03	12	34	68.2	75	37	47	52	0.40
32 T10-24	24	1F	76.39	12	38	74.5	83	37	47	58	0.48
32 T10-25	25	1F	79.58	12	39	77.7	83	37	47	60	0.53
32 T10-26	26	1F	82.76	12	39	80.9	87	37	47	60	0.57
32 T10-27	27	1F	85.94	12	39	84.1	91	37	47	60	0.60
32 T10-28	28	1F	89.13	12	39	87.2	93	37	47	60	0.64
32 T10-30	30	1F	95.49	12	39	93.6	97	37	47	60	0.74
32 T10-32	32	1F	101.86	12	42	100.0	106	37	47	65	0.85
32 T10-36	36	1F	114.59	16	45	112.7	119	37	47	70	1.07
32 T10-40	40	1F	127.32	16	52	125.4	131	37	47	80	1.32
32 T10-44	44	1	140.06	16	57	138.2	–	37	47	88	1.61
32 T10-48	48	1	152.79	16	62	150.9	–	37	47	95	1.93
32 T10-60	60	1	190.99	16	72	189.1	–	37	47	110	3.00
10mm Pitch Pulleys for 50mm Wide Belt Ref. 50T10											
50 T10-18	18	1F	57.30	10	26	55.4	60	56	66	40	0.43
50 T10-19	19	1F	60.48	10	28	58.6	66	56	66	44	0.47
50 T10-20	20	1F	63.66	12	30	61.8	66	56	66	46	0.52
50 T10-22	22	1F	70.03	12	34	68.2	75	56	66	52	0.57
50 T10-24	24	1F	76.39	12	38	74.5	83	56	66	58	0.74
50 T10-25	25	1F	79.58	12	39	77.7	83	56	66	60	0.77
50 T10-26	26	1F	82.76	12	39	80.9	87	56	66	60	0.82
50 T10-27	27	1F	85.94	12	39	84.1	91	56	66	60	0.91
50 T10-28	28	1F	89.13	12	39	87.2	93	56	66	60	0.96
50 T10-30	30	1F	95.49	12	39	93.6	97	56	66	60	1.17
50 T10-32	32	1F	101.86	12	42	100.0	106	56	66	65	1.30
50 T10-36	36	1F	114.59	16	45	112.7	119	56	66	70	1.64
50 T10-40	40	1F	127.32	16	52	125.4	131	56	66	80	2.00
50 T10-44	44	1	140.06	16	57	138.2	–	56	66	88	2.36
50 T10-48	48	1	152.79	16	62	150.9	–	56	66	95	2.83
50 T10-60	60	1	190.99	16	72	189.1	–	56	66	110	4.37

Pulley Installation

Correct and accurate installation of Timing Drives is essential. Pulley alignment and shaft parallelism is very important as misalignment of the drive will cause unequal loading across the belt width and edge wear of belt on flanges. Pulley alignment can be checked by placing a straight edge against the outside edge of the pulleys and adjusting so contact made evenly across both pulleys.
The shafts should be located within a rigid framework, as any distortion under load could result in a reduction of centre distance which will cause jumping of belt on pulley teeth. If idlers are used they must be locked firmly into position after correct belt tensioning.
Refer to page 10 for additional information on drive installation.

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Pulleys for Metric Polyurethane AT 5 Belts

AT Series Timing Pulleys

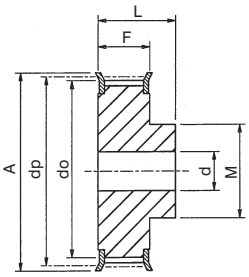
Designed to complete the power Transmission package for the enhanced power 'AT' series belts, are the Cross pilot bore stock pulleys for AT5 and AT10 belt drives.
The 'AT' series belts provide increased power capacity in a Polyurethane belt by increasing the belt tooth size and also the tension members.
The increased tooth width of AT series belts increases both the strength and stiffness of the tooth improving meshing with the pulley's also the longer flat surface of the teeth enables better transmission of radial loads.

Higher strength tension members improve pitch accuracy along with increasing the tensile strength of the belt, which combined with the stronger teeth enables increase in power transmitted by approx 50% over the 'T' series belts.
The 'AT' belt design provides improved accuracy in linear drives, with reduced backlash when using standard pulleys.
The longer tooth reduces polygon effect which combined with the opportunity to reduce belt width enables reduction in noise levels.
Cross offer AT5 and AT10 pulleys as standard, but can also manufacture to customers design including AT20.

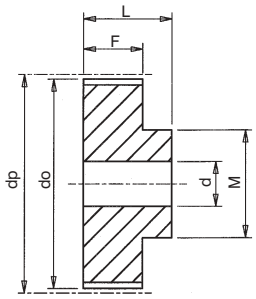
Catalogue No.	No. Teeth Z	Pulley Type	Pitch Circle Diameter dp	Min. Bore d	Max Bore d	Outside Diameter do	Flange Diameter A	Pulley Width F	Bore Length L	Hub Diameter M	Approx. Weight kg
5mm Pitch Pulleys for 10mm Wide Belt Ref. 10AT 5											
10AT5-12	12	1F	19.10	–	7	18.2	23.0	15	21	11	.016
10AT5-14	14	1F	22.28	–	9	21.4	25.0	15	21	14	.019
10AT5-15	15	1F	23.87	6	10	23.0	28.0	15	21	16	.021
10AT5-16	16	1F	25.46	6	11	24.6	32.0	15	21	18	.025
10AT5-18	18	1F	28.65	6	13	27.8	32.0	15	21	20	.031
10AT5-19	19	1F	30.24	6	14	29.4	36.0	15	21	22	.036
10AT5-20	20	1F	31.83	6	15	31.0	36.0	15	21	23	.038
10AT5-22	22	1F	35.01	6	15	34.1	38.0	15	21	24	.046
10AT5-24	24	1F	38.20	6	17	37.4	42.0	15	21	26	.054
10AT5-25	25	1F	39.79	6	17	38.9	44.0	15	21	26	.058
10AT5-26	26	1F	41.38	6	17	40.6	44.0	15	21	26	.062
10AT5-27	27	1F	42.97	8	19	42.2	48.0	15	21	30	.064
10AT5-28	28	1F	44.56	8	20	43.7	48.0	15	21	32	.071
10AT5-30	30	1F	47.75	8	22	46.9	51.0	15	21	34	.075
10AT5-32	32	1F	50.93	8	24	50.1	54.0	15	21	38	.088
10AT5-36	36	1F	57.30	8	24	56.4	64.0	15	21	38	.114
10AT5-40	40	1F	63.66	8	26	62.8	66.5	15	21	40	.138
10AT5-42	42	1F	66.84	8	26	66.0	70.0	15	21	40	.153
10AT5-44	44	1	70.03	8	29	69.2	–	15	21	45	.170
10AT5-48	48	1	76.39	8	32	75.5	–	15	21	50	.200
10AT5-60	60	1	95.49	8	42	94.6	–	15	21	65	.308
5mm Pitch Pulleys for 16mm Wide Belt Ref. 16AT 5											
16AT5-12	12	1F	19.10	–	7	18.2	23.0	21	27	11	.022
16AT5-14	14	1F	22.28	–	9	21.4	25.0	21	27	14	.027
16AT5-15	15	1F	23.87	6	10	23.0	28.0	21	27	16	.030
16AT5-16	16	1F	25.46	6	11	24.6	32.0	21	27	18	.036
16AT5-18	18	1F	28.65	6	13	27.8	32.0	21	27	20	.044
16AT5-19	19	1F	30.24	6	14	29.4	36.0	21	27	22	.050
16AT5-20	20	1F	31.83	6	15	31.0	36.0	21	27	23	.054
16AT5-22	22	1F	35.01	6	15	34.1	38.0	21	27	24	.055
16AT5-24	24	1F	38.20	6	17	37.4	42.0	21	27	26	.077
16AT5-25	25	1F	39.79	6	17	38.9	44.0	21	27	26	.082
16AT5-26	26	1F	41.38	6	17	40.6	44.0	21	27	26	.086
16AT5-27	27	1F	42.97	8	19	42.2	48.0	21	27	30	.092
16AT5-28	28	1F	44.56	8	20	43.7	48.0	21	27	32	.094
16AT5-30	30	1F	47.75	8	22	46.9	51.0	21	27	34	.106
16AT5-32	32	1F	50.93	8	24	50.1	54.0	21	27	38	.124
16AT5-36	36	1F	57.30	8	24	56.4	64.0	21	27	38	.160
16AT5-40	40	1F	63.66	8	26	62.8	66.5	21	27	40	.195
16AT5-42	42	1F	66.84	8	26	66.0	70.0	21	27	40	.206
16AT5-44	44	1	70.03	8	29	69.2	–	21	27	45	.230
16AT5-48	48	1	76.39	8	32	75.5	–	21	27	50	.282
16AT5-60	60	1	95.49	8	42	94.6	–	21	27	65	.432
5mm Pitch Pulleys for 25mm Wide Belt Ref. 25AT 5											
25AT5-12	12	1F	19.10	–	7	18.2	23.0	30	36	11	.032
25AT5-14	14	1F	22.28	–	9	21.4	25.0	30	36	14	.038
25AT5-15	15	1F	23.87	6	10	23.0	28.0	30	36	16	.042
25AT5-16	16	1F	25.46	6	11	24.6	32.0	30	36	18	.052
25AT5-18	18	1F	28.65	6	13	27.8	32.0	30	36	20	.063
25AT5-19	19	1F	30.24	6	14	29.4	36.0	30	36	22	.072
25AT5-20	20	1F	31.83	6	15	31.0	36.0	30	36	23	.078
25AT5-22	22	1F	35.01	6	15	34.1	38.0	30	36	24	.082
25AT5-24	24	1F	38.20	8	17	37.4	42.0	30	36	26	.110
25AT5-25	25	1F	39.79	8	17	38.9	44.0	30	36	26	.117
25AT5-26	26	1F	41.38	8	17	40.6	44.0	30	36	26	.121
25AT5-27	27	1F	42.97	8	19	42.2	48.0	30	36	30	.123
25AT5-28	28	1F	44.56	8	20	43.7	48.0	30	36	32	.127
25AT5-30	30	1F	47.75	8	22	46.9	51.0	30	36	34	.152
25AT5-32	32	1F	50.93	8	24	50.1	54.0	30	36	38	.177
25AT5-36	36	1F	57.30	8	24	56.4	64.0	30	36	38	.232
25AT5-40	40	1F	63.66	8	26	62.8	66.5	30	36	40	.278
25AT5-42	42	1F	66.84	8	26	66.0	70.0	30	36	40	.296
25AT5-44	44	1	70.03	8	29	69.2	–	30	36	45	.327
25AT5-48	48	1	76.39	8	32	75.5	–	30	36	50	.402
25AT5-60	60	1	95.49	8	42	94.6	–	30	36	65	.617

Pulley Types

The Pulley types referred to in tables are as drawings below.
Suffix 'F' indicates pulley has flanges.
Std. Pulleys can be reworked to customers bore and keywaying requirement.



Type 1F



Type 1

All pulleys machined from aluminium for low weight and inertia, and fitted as indicated with steel flanges.
All dimensions in mm

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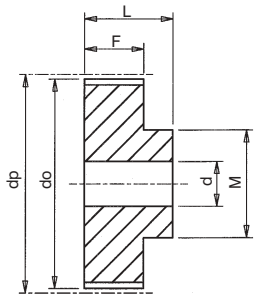
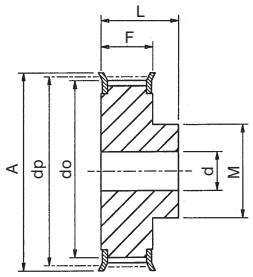
Pulleys for Metric Polyurethane AT10 Belts

Pulley Types

The Pulley types referred to in tables are as drawings below.
Suffix 'F' indicates pulley has flanges.
Std. Pulleys can be reworked to customers bore and keyways requirements.



Type 1



Type 1F

All pulleys machined from aluminium for low weight and inertia, and fitted as indicated with steel flanges.
All dimensions in mm

Catalogue No.	No. Teeth Z	Pulley Type	Pitch Circle Dia. dp	Min. Bore d	Max. Bore d	Ouside Diameter do	Flange Dia. A	Pulley Width F	Bore Length L	Hub Dia. M	Approx. Weight kg
10mm Pitch Pulleys for 16mm Wide Belt Ref. 16AT10											
16 AT10-15	15	1F	47.75	8	21	45.9	51	21	31	32	0.12
16 AT10-16	16	1F	50.93	8	23	49.1	54	21	31	35	0.14
16 AT10-18	18	1F	57.30	8	26	55.4	60	21	31	40	0.17
16 AT10-19	19	1F	60.48	8	28	58.6	66	21	31	44	0.19
16 AT10-20	20	1F	63.66	8	30	61.8	66	21	31	46	0.21
16 AT10-22	22	1F	70.03	8	34	68.2	75	21	31	52	0.26
16 AT10-24	24	1F	76.39	8	38	74.5	83	21	31	58	0.29
16 AT10-25	25	1F	79.58	8	39	77.7	83	21	31	60	0.31
16 AT10-26	26	1F	82.76	8	39	80.9	87	21	31	60	0.36
16 AT10-27	27	1F	85.94	8	39	84.1	91	21	31	60	0.37
16 AT10-28	28	1F	89.13	8	39	87.2	93	21	31	60	0.40
16 AT10-30	30	1F	95.49	8	39	93.6	97	21	31	60	0.44
16 AT10-32	32	1F	101.86	10	42	100.0	106	21	31	65	0.49
16 AT10-36	36	1F	114.59	10	45	112.7	119	21	31	70	0.63
16 AT10-40	40	1F	127.32	10	52	125.4	131	21	31	80	0.77
16 AT10-44	44	1	140.06	10	57	138.2	–	21	31	88	1.00
16 AT10-48	48	1	152.79	16	62	150.9	–	21	31	95	1.09
16 AT10-60	60	1	190.99	16	72	189.1	–	21	31	110	1.70
10mm Pitch Pulleys for 25mm Wide Belt Ref. 25AT10											
25 AT10-15	15	1F	47.75	8	21	45.9	51	30	40	32	0.16
25 AT10-16	16	1F	50.93	8	23	49.1	54	30	40	35	0.18
25 AT10-18	18	1F	57.30	8	26	55.4	60	30	40	40	0.23
25 AT10-19	19	1F	60.48	8	28	58.6	66	30	40	44	0.25
25 AT10-20	20	1F	63.66	8	30	61.8	66	30	40	46	0.28
25 AT10-22	22	1F	70.03	8	34	68.2	75	30	40	52	0.34
25 AT10-24	24	1F	76.39	8	38	74.5	83	30	40	58	0.39
25 AT10-25	25	1F	79.58	8	39	77.7	83	30	40	60	0.42
25 AT10-26	26	1F	82.76	8	39	80.9	87	30	40	60	0.48
25 AT10-27	27	1F	85.94	8	39	84.1	91	30	40	60	0.54
25 AT10-28	28	1F	89.13	8	39	87.2	93	30	40	60	0.55
25 AT10-30	30	1F	95.49	8	39	93.6	97	30	40	60	0.64
25 AT10-32	32	1F	101.86	10	42	100.0	106	30	40	65	0.69
25 AT10-36	36	1F	114.59	10	45	112.7	119	30	40	70	0.87
25 AT10-40	40	1F	127.32	10	52	125.4	131	30	40	80	1.07
25 AT10-44	44	1	140.06	10	57	138.2	–	30	40	88	1.35
25 AT10-48	48	1	152.79	16	62	150.9	–	30	40	95	1.52
25 AT10-60	60	1	190.99	16	72	189.1	–	30	40	110	2.34
10mm Pitch Pulleys for 32mm Wide Belt Ref. 32AT10-											
32 AT10-18	18	1F	57.30	10	26	55.4	60	37	47	40	0.26
32 AT10-19	19	1F	60.48	10	28	58.6	66	37	47	44	0.28
32 AT10-20	20	1F	63.66	12	30	61.8	66	37	47	46	0.32
32 AT10-22	22	1F	70.03	12	34	68.2	75	37	47	52	0.40
32 AT10-24	24	1F	76.39	12	38	74.5	83	37	47	58	0.48
32 AT10-25	25	1F	79.58	12	39	77.7	83	37	47	60	0.53
32 AT10-26	26	1F	82.76	12	39	80.9	87	37	47	60	0.57
32 AT10-27	27	1F	85.94	12	39	84.1	91	37	47	60	0.60
32 AT10-28	28	1F	89.13	12	39	87.2	93	37	47	60	0.64
32 AT10-30	30	1F	95.49	12	39	93.6	97	37	47	60	0.74
32 AT10-32	32	1F	101.86	12	42	100.0	106	37	47	65	0.85
32 AT10-36	36	1F	114.59	16	45	112.7	119	37	47	70	1.07
32 AT10-40	40	1F	127.32	16	52	125.4	131	37	47	80	1.32
32 AT10-44	44	1	140.06	16	57	138.2	–	37	47	88	1.61
32 AT10-48	48	1	152.79	16	62	150.9	–	37	47	95	1.93
32 AT10-60	60	1	190.99	16	72	189.1	–	37	47	110	3.00
10mm Pitch Pulleys for 50mm Wide Belt Ref. 50AT10											
50 AT10-18	18	1F	57.30	10	26	55.4	60	56	66	40	0.43
50 AT10-19	19	1F	60.48	10	28	58.6	66	56	66	44	0.47
50 AT10-20	20	1F	63.66	12	30	61.8	66	56	66	46	0.52
50 AT10-22	22	1F	70.03	12	34	68.2	75	56	66	52	0.57
50 AT10-24	24	1F	76.39	12	38	74.5	83	56	66	58	0.74
50 AT10-25	25	1F	79.58	12	39	77.7	83	56	66	60	0.77
50 AT10-26	26	1F	82.76	12	39	80.9	87	56	66	60	0.82
50 AT10-27	27	1F	85.94	12	39	84.1	91	56	66	60	0.91
50 AT10-28	28	1F	89.13	12	39	87.2	93	56	66	60	0.96
50 AT10-30	30	1F	95.49	12	39	93.6	97	56	66	60	1.17
50 AT10-32	32	1F	101.86	12	42	100.0	106	56	66	65	1.30
50 AT10-36	36	1F	114.59	16	45	112.7	119	56	66	70	1.64
50 AT10-40	40	1F	127.32	16	52	125.4	131	56	66	80	2.00
50 AT10-44	44	1	140.06	16	57	138.2	–	56	66	88	2.36
50 AT10-48	48	1	152.79	16	62	150.9	–	56	66	95	2.83
50 AT10-60	60	1	190.99	16	72	189.1	–	56	66	110	4.37

Pulley Installation

Correct and accurate installation of Timing Drives is essential. Pulley alignment and shaft parallelism is very important as misalignment of the drive will cause unequal loading across the belt width and edge wear of belt on flanges. Pulley alignment can be checked by placing a straight edge against the outside edge of the pulleys and adjusting so contact made evenly across both pulleys.
The shafts should be located within a rigid framework, as any distortion under load could result in a reduction of centre distance which will cause jumping of belt on pulley teeth. If idlers are used they must be locked firmly into position after correct belt tensioning.
Refer to page 10 for additional information on drive installation.

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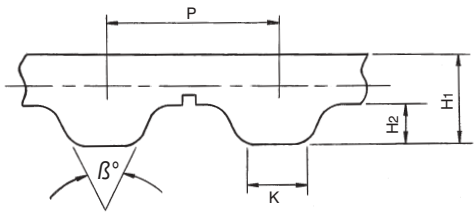
Open Ended and Special Construction Polyurethane Timing Belts

Open ended belts are manufactured in a continuous process with the steel tension members running parallel to the edges. The belts are manufactured in standard 50 metre rolls, but longer lengths are available to request. The open ended belts are normally used for reciprocating linear motions such as robotics.
The open ended belts can also be used to produce long length endless belts which are produced using an automated, precision cut vee finger joint which is weld joined. The strength of the join is by the polyurethane, but due to the large contact area loads up to 50% of the belt capacity can still be transmitted, whilst excellent flexibility and smooth running are retained, The joined belts are mainly used on Conveyor applications, and the addition of welded attachments and special backing materials extends application opportunities.

Standard Tooth Forms available



Belt Type	Pitch p	H_1	H_2	K	B°
T5	5.00	2.20	1.20	1.80	40
T10	10.00	4.50	2.50	3.50	40
AT5	5.00	2.70	1.20	2.50	50
AT10	10.00	5.00	2.50	5.00	50
AT20	20.00	8.00	5.00	10.00	50
XL	5.08	2.25	1.25	1.35	50
L	9.53	3.50	1.90	3.20	40
H	12.70	4.30	2.30	4.40	40

Standard Widths Metric Belts - width in mm

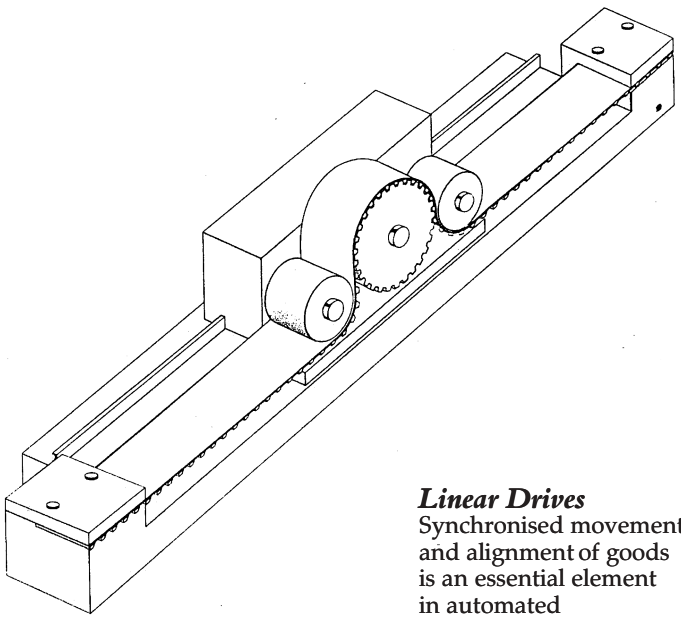
Belt Type	6	10	16	25	32	50	75	100	150	200
T5	●	●	●	●	●	●				
T10			●	●	●	●	●	●		
AT5	●	●	●	●	●	●	●			
AT10			●	●	●	●	●	●	●	
AT20				●	●	●	●	●	●	●

Standard Widths Imperial Belts - width in 0.01”

Belt Type	025	031	037	050	075	100	150	200
XL	●	●	●	●	●	●		
L			●	●	●	●	●	
H				●	●	●	●	●

Special Belt Backings

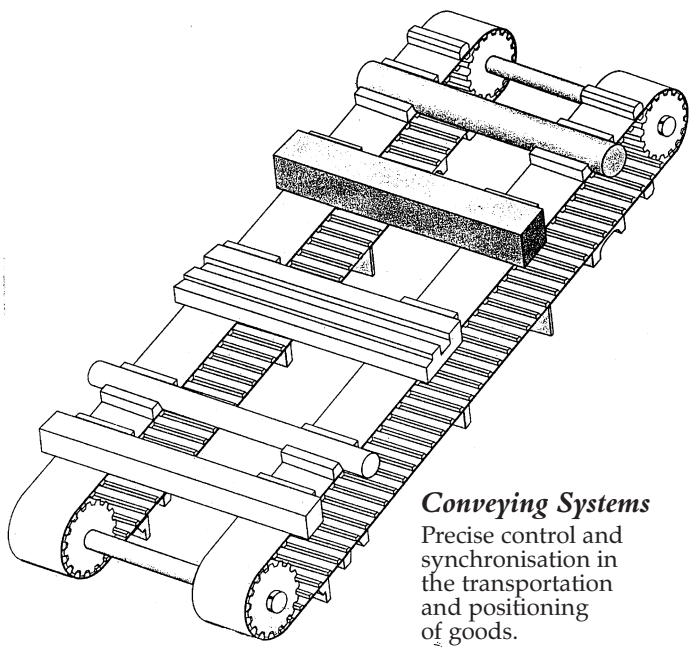
To assist in the movement of many products there is a range of specialist materials which can be bonded to the back of all sizes of Polyurethane Belts. Thickness up to 15mm enable profiling of the backing to transport special shapes, such as drawing tube from extrusion process.
Materials available with coefficient of friction varying for 0.3μ to 1.3μ and hardness 70° ShA down below 35° ShA, including open cellular materials which accommodate profile changes.
Materials include polyurethane in various grades and hardness values, Linatex, Neoprene for haul - off applications, PVC, Natural Rubbers and Silicon Rubber in flat finish on honeycomb construction for higher grip.
Materials, profiles and constructions are available to cater for almost every application.



Linear Drives
Synchronised movements and alignment of goods is an essential element in automated handling systems.

Conveyor Systems

For conveyor applications the belts can be used in standard welded endless form to transport items in a horizontal plane, or for inclined applications or where positioning is required a wide range of polyurethane profiles is available for permanent welding to the timing belt back surface. Profiles can also be developed for specific applications. Flighted belts ensure positive movement of products with accurate location providing an option to attachment Roller Chain.



Conveying Systems
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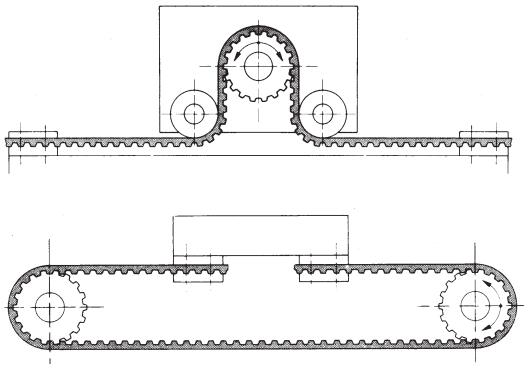
Timing Belt Clamping Plates and Timing Bars

Timing Belt Clamping Plates

For the simple retention of open ended timing belts used on conveying or reciprocating drives, a standard range of clamping plates is available for all the heavier pitch belts. Manufactured in aluminium, these clamping plates provide accurate, location of the belts.



Clamping Plates for HTD Belts

Belt Pitch Size	F	d	B	A	S	L (Belt Width Code)							
						20	30	40	50	55	85	115	170
						C							
8M	8	9	5	66	15	45	55		75		110		
14M	10	11	9	116	22			71		86	116	146	201

Clamping Plates for Classical Series Belts

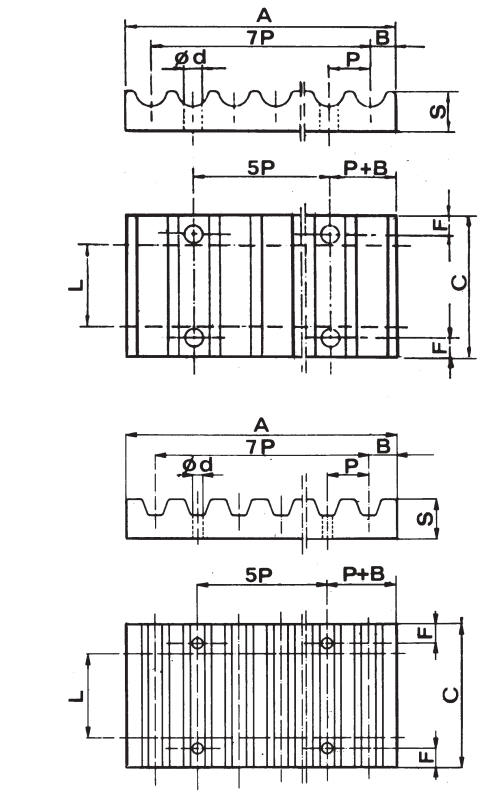
Belt Pitch Size	F	d	B	A	S	L (Belt Width Code)				
						025	037	050	075	100
						C				
XL	6	5.5	3.5	42.5	8	25.5	28.5			
L	8	9	5	76.6	15			39	45	51.5
H	10	11	9	106.9	22			45	51	57.5

Clamping Plates for 'T' Series Belts

Belt Pitch Size	F	d	B	A	S	L (Belt Width Code)				
						10	16	25	32	50
						C				
T5	6	5.5	3.2	41.8	8	29	35	44		
T10	8	9	5	80	15		41	50	57	75

Clamping Plates for 'AT' Series Belts

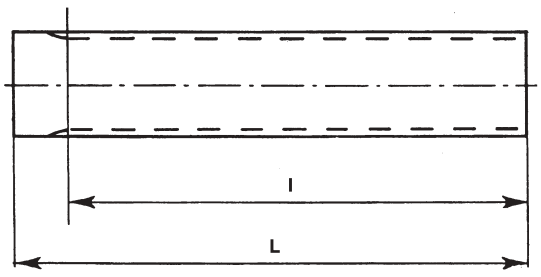
Belt Pitch Size	F	d	B	A	S	L (Belt Width Code)				
						10	16	25	32	50
						C				
AT5	6	5.5	3.2	41.8	8	29	35	44		
AT10	8	9	5	80	15		41	50	57	75



Timing Bars

For extra wide belt drives and to manufacture special pulleys. Available in tooth sizes indicated in following table of standard bar sizes.

No. Teeth	Belt Type					No. Teeth	Belt Type				
	XL	L	T2.5	T5	T10		XL	L	T2.5	T5	T10
10	c	e	a	c	e	34	f	–	c	f	f
11	c	e	–	c	e	35	f	–	d	f	–
12	c	f	a	c	e	36	f	–	d	f	f
13	c	f	a	c	e	37	–	–	–	f	–
14	d	f	a	e	f	38	f	–	e	f	f
15	d	f	a	e	f	39	f	–	–	–	–
16	e	f	a	e	f	40	f	–	e	f	f
17	e	f	a	e	f	41	f	–	–	–	–
18	e	f	a	e	f	42	f	–	e	f	–
19	e	f	b	e	f	43	f	–	–	–	–
20	e	f	b	f	f	44	f	–	e	f	–
21	f	f	b	f	f	45	–	–	e	f	f
22	f	f	c	f	f	46	–	–	–	f	–
23	f	f	–	f	f	48	f	–	e	f	f
24	f	f	c	f	f	50	–	–	f	f	–
25	f	–	–	f	–	56	f	–	–	–	–
26	f	–	c	f	f	60	f	–	f	f	f
27	f	f	c	f	–	65	–	–	f	–	–
28	f	–	c	f	f	70	–	–	f	–	–
29	f	–	c	f	–	72	f	–	f	f	f
30	f	f	c	f	f	80	–	–	–	f	–
32	f	–	c	f	f	90	–	–	f	f	–
33	f	–	–	–	–	100	–	–	f	f	–



Bar Size	l	L
a	50	75
b	90	120
c	125	140
d	132	140
e	140	140
f	160	160

All sizes indicated available in aluminium.
XL and L sizes also available in steel.

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Timing Belt Trouble Shooting Guide

When a timing belt drive is correctly designed and installed - with proper consideration given to design factors for service conditions - premature failure should not occur. If problems are encountered the table below may help identify the cause and suitable corrective action. In addition to problems shown less apparent causes of drive failure may exist, such as excessive reverse bending, sub-minimum diameter idler, etc; and for complete assurance in determining cause of failure and correct remedy it is always advisable to consult a drive specialist.

Causes of Premature Belt Failure

Mode of Failure	Probable Causes	Corrective Action
Abnormal wear of the belt: a) on the side of the tooth	Belt excessively taut	Reduce centre distance
	Excessive overloading	Use a wider belt
	Incorrect contour or diameter of pulley	Replace pulley after checking
b) on the bottom of the tooth	Excessive installation tension	Reduce centre distance
c) at the tooth root	Incorrect diameter of pulley	Replace pulley after checking
d) on the side of the belt	Incorrect contour or diameter of pulley	Replace pulley after checking
	Misalignment or wrong setting of pulleys	Correct the positioning of the pulleys
	Oscillation of the axes and/or the bearings	Reinforce the bearing mountings
	Flanges bent	Replace flanges
Failure through traction or through laceration of the teeth, indicating corrosion of the tension member	Diameter of pulley too small	Increase the diameter of the pulleys or use belts and pulleys of smaller pitch
	Excessive moisture	Eliminate the moisture
	Acid or caustic atmosphere	Refer to factory for special belt
Shearing of belt teeth	Number of teeth in mesh less than six	Increase the pulley diameters or use belts and pulleys of smaller pitch
	Excessive load	Use a higher capacity bel
Rupture of tension member	Excessive load	Use a higher capacity belt
	Diameter of pulley below minimum	Increase the diameter of the pulleys
Breaks or cracks in the top surface of the belt	Exposure to excessively low temperatures (below - 25°C)	Eliminate low temperature
Softening of the top surface of the belt	Exposure to excessively high temperatures (over + 100°C) or oil contamination	Eliminate the high temperature or reduce the amount of oil present
Apparent elongation of the belt	Reduction of centre distance due to bearings not being firmly fixed	Restore the initial centre distance and strengthen the bearings
Belt overriding the flanges	Faulty installation of the flanges	Reinstall the flanges properly
	Misalignment of pulleys	Align pulleys
Excessive wear of pulley teeth	Excessive overloading	Use a higher capacity drive
	Belt excessively taut	Reduce the centre distance
	Pulley material insufficiently hard	Harden the pulley surface
Drive excessively noisy	Pulleys out of line	Align pulleys
	Excessive installation tension	Reduce the centre distance
	Excessive load	Use a higher capacity drive
	Diameter of pulley below minimum	Increase the diameter of the pulleys
	Air trapped in belt	Change to Metric Series belt drive

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