

Twin Power Belt Drive Systems

Twin Power Belts are similar in construction to standard synchronous belts, including nylon-faced teeth on both sides. This construction uses essentially the same design parameters as standard synchronous belts. Gates 3mm and 5mm pitch Twin Power PowerGrip® HTD® belts have helically-wound fiberglass tension members embedded in a Neoprene body with the belt teeth faced with a tough wear-resistant nylon fabric. A unique feature of this construction is that Gates Twin Power belts can transmit their full rated load on either the front or back side.

The three principal dimensions, in millimeters, shown below, are used to specify a Twin Power PowerGrip® HTD® belt.:

TP Twin Power	450 Pitch Length	3M Pitch	09 Width
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Belt pitch is the distance in millimeters between two adjacent tooth centers as measured on the pitch line of the belt. Belt pitch length is the total length (circumference) in millimeters as measured along the pitch line. The theoretical pitch line of a PowerGrip® HTD® belt lies within the tensile member.

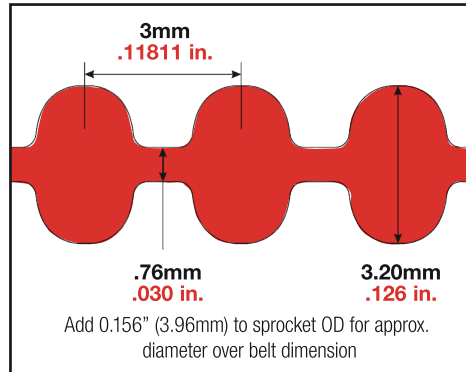
Three principal dimensions of a sprocket — number of grooves, pitch and belt width in millimeters — are used to specify a PowerGrip® HTD® sprocket as shown below:

P22 Number of Grooves	3M Pitch	09 Belt Width
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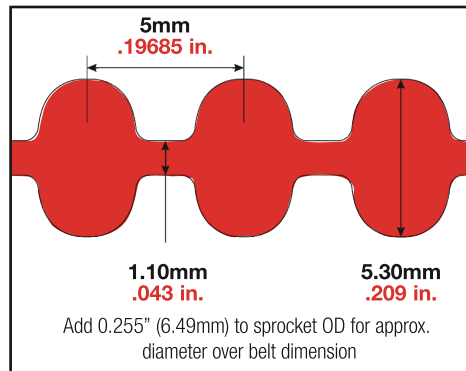
NOTE: For drive design procedure, see Page 24.

Belt tooth to sprocket groove clearance is greater in PowerGrip® HTD® drives than in PowerGrip Timing drives. If the higher torque capacity of PowerGrip® HTD® is required together with minimal backlash characteristics, use PowerGrip® GT®3.

3mm Pitch – Reference Dimensions



5mm Pitch – Reference Dimensions



PowerGrip® HTD® Belt Drives – Twin Power

PowerGrip HTD Belt Lengths

3mm Pitch Belt Lengths

Belt Length Code	Pitch Length		Number of Teeth	Belt Length Code	Pitch Length		Number of Teeth	Belt Length Code	Pitch Length		Number of Teeth
	(mm)	(in)			(mm)	(in)			(mm)	(in)	
TP381-3M	381	15.00	127	TP525-3M	525	20.67	175	TP735-3M	735	28.94	245
TP384-3M	384	15.12	128	TP528-3M	528	20.79	176	TP738-3M	738	29.06	246
TP387-3M	387	15.24	129	TP531-3M	531	20.91	177	TP753-3M	753	29.65	251
TP390-3M	390	15.35	130	TP537-3M	537	21.14	179	TP795-3M	795	31.30	265
TP396-3M	396	15.59	132	TP558-3M	558	21.97	186	TP822-3M	822	32.36	274
TP399-3M	399	15.71	133	TP564-3M	564	22.20	188	TP837-3M	837	32.95	279
TP405-3M	405	15.94	135	TP570-3M	570	22.44	190	TP843-3M	843	33.19	281
TP411-3M	411	16.18	137	TP576-3M	576	22.68	192	TP873-3M	873	34.37	291
TP417-3M	417	16.42	139	TP585-3M	585	23.03	195	TP882-3M	882	34.72	294
TP420-3M	420	16.54	140	TP591-3M	591	23.27	197	TP891-3M	891	35.08	297
TP426-3M	426	16.77	142	TP597-3M	597	23.50	199	TP900-3M	900	35.43	300
TP432-3M	432	17.01	144	TP600-3M	600	23.62	200	TP915-3M	915	36.02	305
TP435-3M	435	17.13	145	TP606-3M	606	23.86	202	TP945-3M	945	37.20	315
TP438-3M	438	17.24	146	TP609-3M	609	23.98	203	TP951-3M	951	37.44	317
TP444-3M	444	17.48	148	TP612-3M	612	24.09	204	TP981-3M	981	38.62	327
TP447-3M	447	17.60	149	TP627-3M	627	24.69	209	TP1002-3M	1002	39.45	334
TP459-3M	459	18.07	153	TP633-3M	633	24.92	211	TP1026-3M	1026	40.39	342
TP468-3M	468	18.43	156	TP639-3M	639	25.16	213	TP1035-3M	1035	40.75	345
TP471-3M	471	18.54	157	TP645-3M	645	25.39	215	TP1062-3M	1062	41.81	354
TP474-3M	474	18.66	158	TP648-3M	648	25.51	216	TP1125-3M	1125	44.29	375
TP480-3M	480	18.90	160	TP654-3M	654	25.75	218	TP1155-3M	1155	45.47	385
TP486-3M	486	19.13	162	TP657-3M	657	25.87	219	TP1191-3M	1191	46.89	397
TP489-3M	489	19.25	163	TP663-3M	663	26.10	221	TP1263-3M	1263	49.72	421
TP492-3M	492	19.37	164	TP669-3M	669	26.34	223	TP1500-3M	1500	59.06	500
TP501-3M	501	19.72	167	TP684-3M	684	26.93	228	TP1512-3M	1512	59.53	504
TP510-3M	510	20.08	170	TP687-3M	687	27.05	229	TP1587-3M	1587	62.48	529
TP513-3M	513	20.20	171	TP696-3M	696	27.40	232	TP1956-3M	1956	77.01	652
TP519-3M	519	20.43	173	TP711-3M	711	27.99	237	TP2004-3M	2004	78.90	668

All sizes are made-to-order. Contact Gates Customer Service for availability.

3mm Pitch Stock Belt Widths

Belt Width Code	Belt Width (mm)	Belt Width (in)
06	6	0.236
09	9	0.354
15	15	0.591

5mm Pitch Stock Belt Widths

Belt Width Code	Belt Width (mm)	Belt Width (in)
09	9	0.354
15	15	0.591
25	25	0.984

5mm Pitch Belt Lengths

Belt Length Code	Pitch Length		Number of Teeth	Belt Length Code	Pitch Length		Number of Teeth	Belt Length Code	Pitch Length		Number of Teeth
	(mm)	(in)			(mm)	(in)			(mm)	(in)	
TP400-5M	400	15.75	80	TP695-5M	695	27.36	139	TP1295-5M	1295	50.98	259
TP415-5M	415	16.34	83	TP710-5M	710	27.95	142	TP1375-5M	1375	54.13	275
TP425-5M	425	16.73	85	TP740-5M	740	29.13	148	TP1420-5M	1420	55.91	284
TP450-5M	450	17.72	90	TP745-5M	745	29.33	149	TP1575-5M	1575	62.01	315
TP460-5M	460	18.11	92	TP765-5M	765	30.12	153	TP1595-5M	1595	62.80	319
TP475-5M	475	18.70	95	TP790-5M	790	31.10	158	TP1635-5M	1635	64.37	327
TP480-5M	480	18.90	96	TP800-5M	800	31.50	160	TP1690-5M	1690	66.54	338
TP495-5M	495	19.49	99	TP830-5M	830	32.68	166	TP1720-5M	1720	67.72	344
TP500-5M	500	19.69	100	TP835-5M	835	32.87	167	TP1790-5M	1790	70.47	358
TP520-5M	520	20.47	104	TP850-5M	850	33.46	170	TP1800-5M	1800	70.87	360
TP535-5M	535	21.06	107	TP870-5M	870	34.25	174	TP1895-5M	1895	74.61	379
TP555-5M	555	21.85	111	TP890-5M	890	35.04	178	TP1945-5M	1945	76.57	389
TP565-5M	565	22.24	113	TP925-5M	925	36.42	185	TP1980-5M	1980	77.95	396
TP580-5M	580	22.83	116	TP950-5M	950	37.40	190	TP2000-5M	2000	78.74	400
TP585-5M	585	23.03	117	TP975-5M	975	38.39	195	TP2110-5M	2110	83.07	422
TP600-5M	600	23.62	120	TP985-5M	985	38.78	197	TP2250-5M	2250	88.58	450
TP615-5M	615	24.21	123	TP1000-5M	1000	39.37	200	TP2525-5M	2525	99.41	505
TP635-5M	635	25.00	127	TP1050-5M	1050	41.34	210	TP2760-5M	2760	108.66	552
TP655-5M	655	25.79	131	TP1115-5M	1115	43.90	223	TP3120-5M	3120	122.83	624
TP665-5M	665	26.18	133	TP1125-5M	1125	44.29	225	TP3170-5M	3170	124.80	634
TP670-5M	670	26.38	134	TP1195-5M	1195	47.05	239	TP3430-5M	3430	135.04	686
TP680-5M	680	26.77	136	TP1250-5M	1250	49.21	250	TP3800-5M	3800	149.61	760
TP685-5M	685	26.97	137	TP1270-5M	1270	50.00	254				

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