



CONFIGURABLE TIMING PULLEYS & TIMING BELTS

FEATURING BRAND NEW TOOTH PROFILES AND BORE SIZES

1ST EDITION

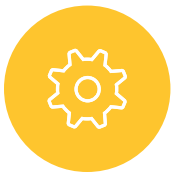




WHY MISUMI?

Our mission is to provide innovative configurable products that fulfill our customers' needs for high quality, competitive prices and short delivery times.

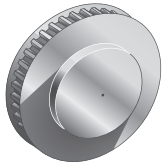
MISUMI currently serves over 150,000 customers worldwide. MISUMI's products can be utilized in a diverse range of industries including automotive, medical, semiconductor, packaging and 3D Printing.



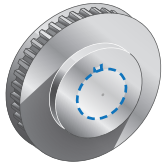
New Configurable Timing Pulleys!

Use MISUMI's Configurable Timing Pulleys

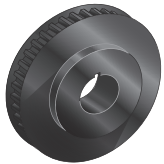
THE STANDARD PROCESS



Order standard part



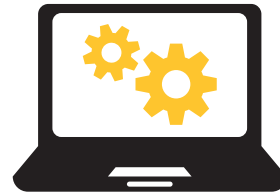
Send to machine shop for bore & keyway machining



Send to plater to coat the timing pulley

RECEIVE YOUR MACHINED
AND PLATED PULLEY
4-6 WEEKS LATER

THE MISUMI WAY



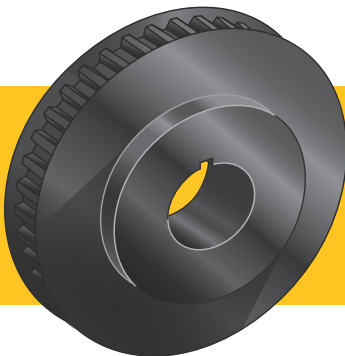
Configure
Online



RECEIVE YOUR
CONFIGURED
PULLEY IN AS FEW AS
4 DAYS

Don't be kept waiting on your part for weeks

Save design and machine building time by configuring your new pulleys online, including bores, materials, and surface coatings. All MISUMI timing pulleys have a configurable bore, so you'll never need to re-bore a pulley again to fit your application.



Standard Materials

Steel
Stainless Steel
Aluminum

Standard Coating

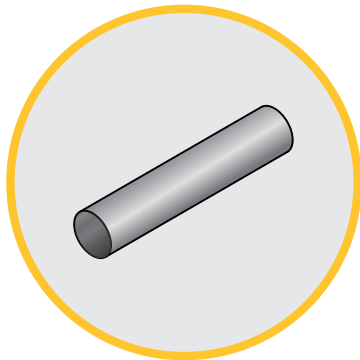
Clear Anodized
Hard Clear Anodized
Black Oxide Coating
Black Anodized
Electroless Nickel Plating



Configurable ordering made easy.

Only MISUMI offers a completely configurable choice.

Configuring your MISUMI components to your exact specifications is easy with our 3D CAD downloads, free engineering support, and over 9 million configurable components.

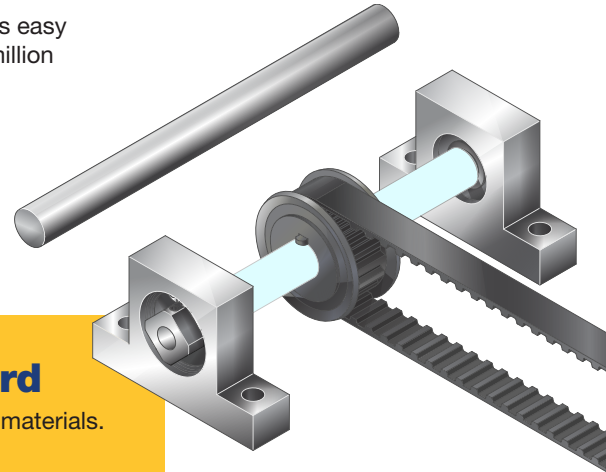


1 →

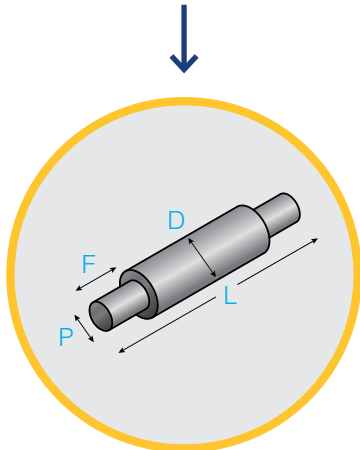
Select Part
Select Material

Standard

Off the shelf, stock materials.



vs.



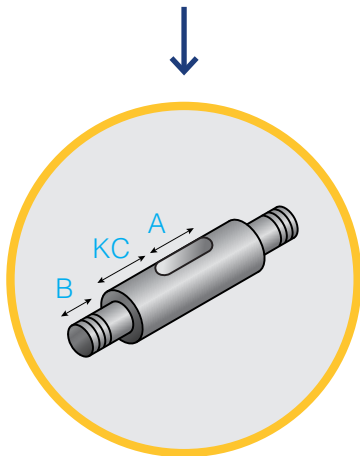
2

Configure Size
(Diameter,
Length, etc.)

Configurable

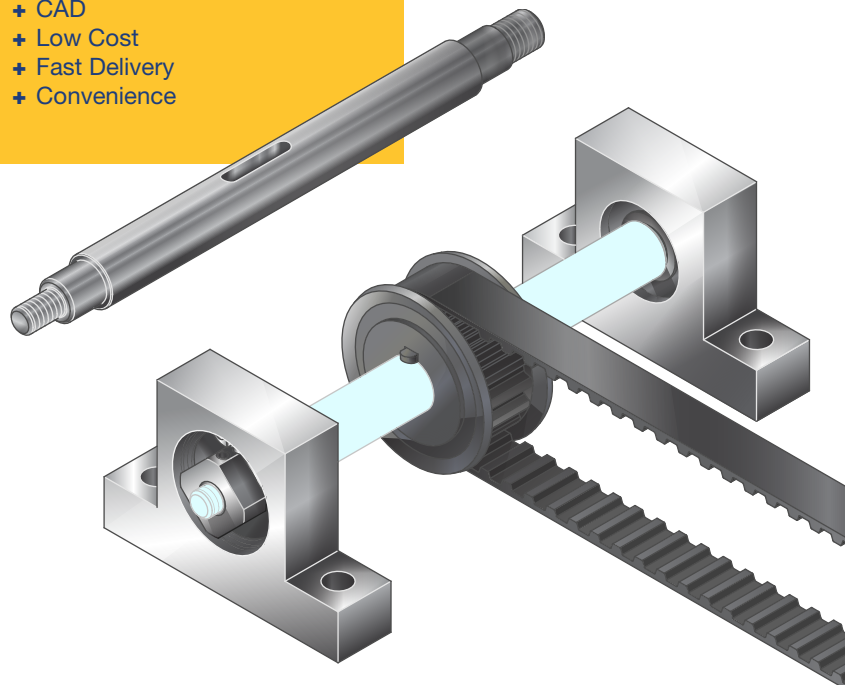
Only MISUMI offers:

- + Flexibility
- + Unlimited Selection
- + Uncompromised Design
- + Smart Universal Part Number
- + CAD
- + Low Cost
- + Fast Delivery
- + Convenience



3 →

Add Features
& Refine

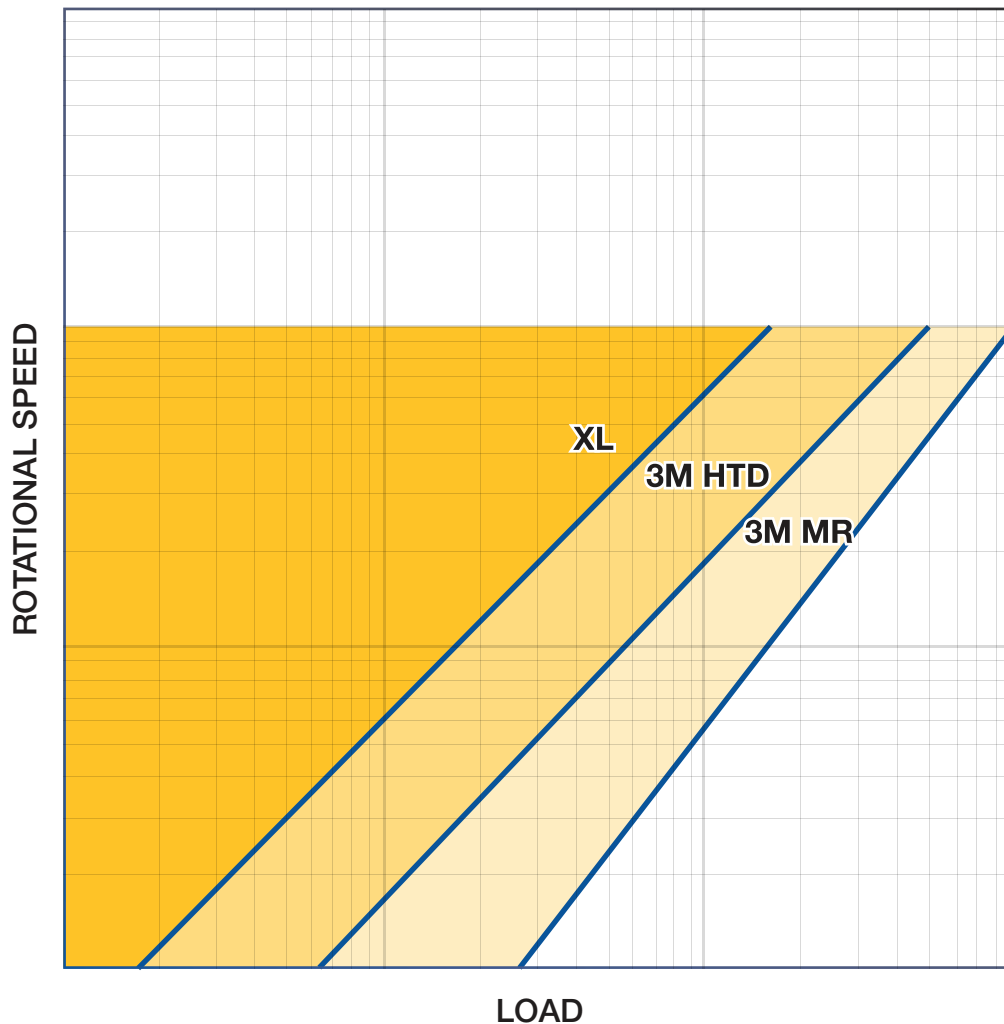




What's New

MISUMI USA launched an expanded product line up of our timing pulleys series. This newly expanded product line includes:

- ⚙️ New pitch sizes – 2 mm, 3 mm, 5 mm in our MR timing pulley line
- ⚙️ 50% more product selection in inch bore sizes
- ⚙️ New pulleys are compatible with Gates PowerGrip® GT3® below, the highest performing belt in the industry for precision and power



Coming Soon!

New 8 mm and 14 mm pitches

Increased timing pulley
sizes for bushings

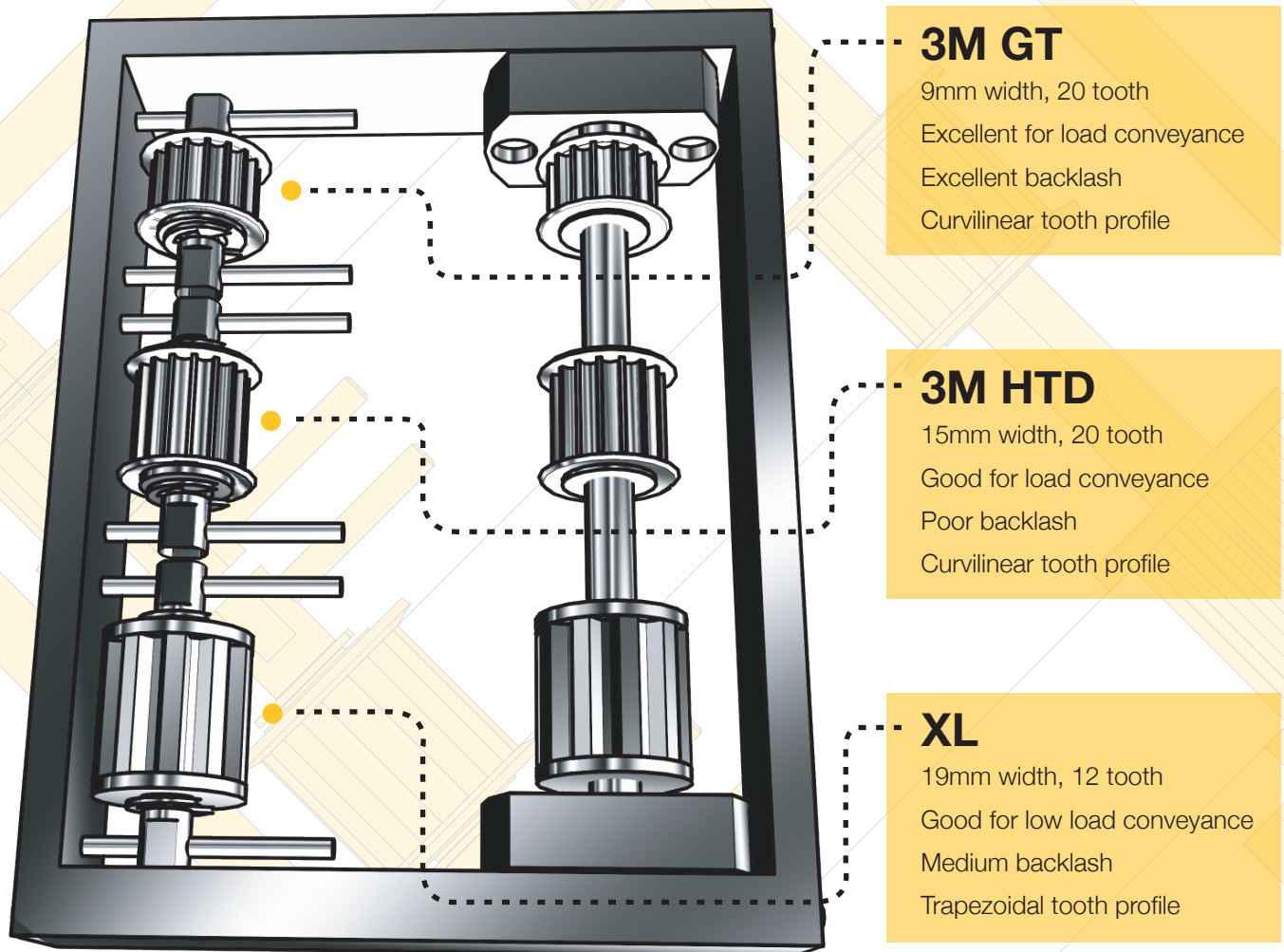
Configuration software
to help you design and
select components faster



Comparison of Synchronous Drives

Synchronous drive systems use positive engagement of meshing teeth between a timing pulley and timing belt, maintaining a consistent speed ratio with no relative loss of motion between the pulley and belt. These drives can transmit large amounts of torque and can withstand large accelerations. These systems work well in applications with envelope constraints that require design flexibility.

Below is a comparison of three different synchronous drive systems with varying load carrying capabilities, backlash, and tooth profiles.



System requirements: .2 kW, 1750 RPM, 72mm center distance. Similar pulley diameters are used.



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PRODUCT GROUPS



NEW

GT Profile Products

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S Profile Products

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P Profile Products

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YU Profile Products

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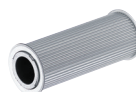
Trapezoidal Profile Products

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T Profile Products

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Wide Timing Pulleys

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Bar Stock

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Idlers

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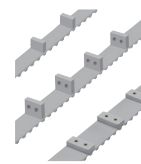
Metal Fittings

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Timing Belt Guides

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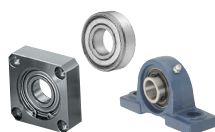
Timing Belts with Attachments

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Linear Shafts

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Housed Bearings / Bearings / Cam Followers

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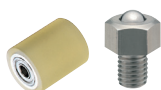
Shaft Couplings

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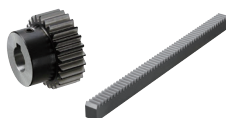
Flat Belts / Round Belts / Pulleys / Idlers

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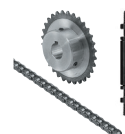
Rollers / Conveyor Components

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Gears

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Sprockets / Chains

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TIMING PULLEYS AND BELTS

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High Torque Timing Pulleys

2 mm PowerGrip® Type

NEW

RoHS

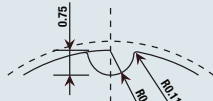


Type	Part Number		Material ①		Surface Treatment	Attachment Setscrews ②
	6 mm	9 mm	Pulley	Flange		
	MR2060	MR2090				
GPA	•	•	Aluminum Alloy	Aluminum Alloy	Clear Anodize Black Anodize Hard Clear Anodize*	Stainless Steel
GPB	•	•				
GPB	•	•				
GPT	•	•	1045 Carbon Steel	Low Carbon Steel	Black Oxide Electroless Nickel Plating	Steel (Black Oxide)
GPM	•	•				
GPP	•	•				

① GPP installed. Set screws are included with P, PU, N, NU & C bore hole specification.

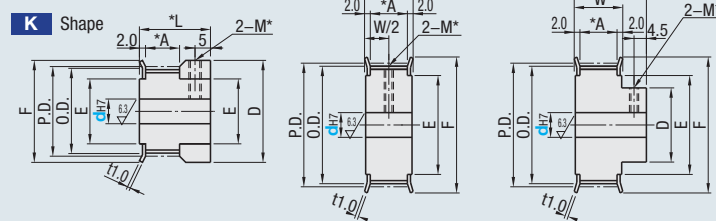
*Hard Anodize Treatment: Film Hardness 300HV~

Standard Tooth Profile



Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 2.0 mm)

Pulley Shape



*For Shaft Bore Specifications H, HU (Round Hole), F, V (Stepped Hole) and Y (Both Sides Stepped Hole), no tapped hole is machined.

Tapped Hole Dimensions (Shaft Bore: P / N / C)

d _{H7} Shaft Bore Inner Dia.	M (Coarse)	Accessory Set Screw
3-5	M3	M3 x 3
6-24	M4	M4 x 3
25-30	M5	M5 x 4

Shaft Bore Specs.

① The shaft bore may not have surface treatment.

H Round Hole

P Round Hole+Tap

N New JIS Keywayed Bore + Tap

NU Inch New JIS Key Groove Hole + Tap

F Stepped Hole

(counterbored holes on the hub side)

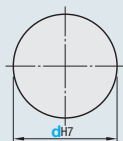
Y Both Ends Stepped Hole

HU Inch Round Hole

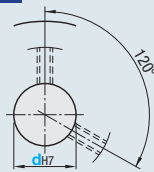
PU Inch Round Hole+Tap

C Old JIS Keywayed Bore + Tap

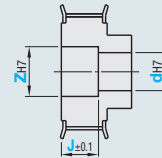
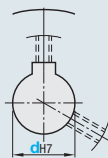
V Stepped Hole



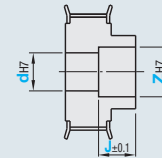
*No tapped holes and set screws.



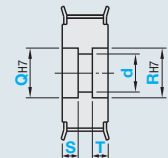
*For A Shape pulley, the set screw hole is set at around 120° to keep away from peaks.



✗ Not applicable to K Shape.
*No tapped holes and set screws.



*Applicable to B Shape only.
*No tapped holes and set screws.



*Applicable to A Shape only.
*Shaft Bore Dia. d is general tolerance.
*No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Spec. (1mm Increment)																				P.D.	O.D.	D	F	E		
Type	Teeth	Type Nominal Width		H		P		N / C		HU		PU		NU		V				V / F		Y								
				A	B-K	A	B-K	A	B	A	B-K	A	B-K	A	B	d _{H7}	Z _{H7}	J (0.1mm Increment)	d _{H7}	Z _{H7}	J (0.1mm Increment)	d	Q _{H7} / R _{H7}						S / T	
Al GPA GPB GPK	13	MR2060 *A : 7.4 *W : 11.4 *L : 19.0	A K	3	3																			8.28	7.77	12	12	6		
	14			3	3																				8.91	8.40	12	12	6	
	15			3	3																				9.55	9.04	12	12	6	
	16			3-5	3-5		3-5			A, B	A, B					3	5						3	5		10.19	9.68	14	14	8
	17			3-5	3-5		3-5			A, B	A, B					3	5						3	5		10.82	10.31	14	14	8
	18			3-5	3-5		3-5			A, B	A, B					3	5						3	5		11.46	10.95	14	14	8
	19			3-5	3-5		3-5			A, B	A, B					3	5						3	5		12.10	11.59	14	14	8
	20			3-6	3-6		3-6			A, B	A, B					3-4	5-6						3-4	5-6		12.73	12.22	16	16	10
	21			3-6	3-6		3-6			A, B	A, B					3-4	5-6						3-4	5-6		13.37	12.86	16	16	10
	22			3-7	3-6		3-6			A, B	A, B					3-5	5-7						3-5	5-7		14.01	13.50	18	18	11
Fe GPT GPM	24	MR2090 *A : 10.4 *W : 14.4 *L : 23.0	A B	3-9	3-7		3-7			A-D	A-C		A-C								3-7	5-9		15.28	14.77	20	20	13		
	25			3-9	3-7		3-7			A-D	A-C		A-C								3-7	5-9		15.92	15.41	20	20	13		
	26			3-10	3-8		3-8			A-D	A-C		A-C								3-8	5-10		16.55	16.04	22	22	14		
	28			3-10	3-8		3-8			A-D	A-C		A-C								3-8	5-10		17.83	17.32	22	22	14		
	30			3-10	3-8		3-8			A-D	A-C		A-C								3-8	5-10		19.10	18.59	22	22	14		
Fe GPT GPM	32	MR2090 *A : 10.4 *W : 14.4 *L : 23.0	A B	4-12	4-8	4-10	4-6	8		B-E	B-D	B-E	B-D	D		4-10	6-12	2.0≤J≤W-2.0	4-6	6-8		4-10	6-12	3-6 S+T≤W-3	20.37	19.86	12	25	16	
	34			4-12	4-10	4-10	4-8	8, 10, NK10		B-E	B-D	B-E	B-D	D-E		4-10	6-12		4-8	6-10		4-10	6-12		21.65	21.14	14	25	16	
	36			4-14	4-10	4-10	4-8	8, 10, NK10		B-F	B-D	B-E	B-D	D-E		4-12	6-14		4-8	6-10		4-12	6-14	22.92	22.41	14	28	18		
	40			4-16	4-14	4-12	4-10	8-12	8	B-G	B-E	B-E	B-E	D-E	D	4-14	6-16		4-12	6-14		4-14	6-16	25.46	24.96	18	30	20		
	42			4-16	4-14	4-12	4-10	8-12	8	B-G	B-E	B-E	B-E	D-E	D	4-14	6-16		4-12	6-14		4-14	6-16	26.74	26.23	20	32	23		
	44			5-19	5-16	5-17	5-15	8-13	8-11	C-G	C-G	C-F	C-E	D-F	D-E	5-17	7-19		5-14	7-16		5-17	7-19	28.01	27.50	20	32	23		
	45			5-19	5-16	5-15	5-12	8-13	8-11	C-G	C-G	C-F	C-E	D-F	D-E	5-17	7-19		5-14	7-16		5-17	7-19	28.65	28.14	20	32	23		
	48			5-21	5-16	5-17	5-12	8-16	8-11	C-H	C-G	C-G	C-E	D-G	D-E	5-19	7-21		5-14	7-16		5-19	7-21	30.56	30.05	20	35	25		
	50			5-21	5-16	5-17	5-12	8-16	8-11	C-H	C-G	C-G	C-E	D-G	D-E	5-19	7-24		5-14	7-16		5-19	7-24	31.83	31.32	20	35	25		
	56			5-21	5-16	5-17	5-12	8-16	8-11	C-H	C-G	C-G	C-E	D-G	D-E	5-19	7-24		5-14	7-16		5-19	7-24	35.65	35.14	30	44	32		
60	5-28	5-26	5-24	5-22	8-22	8-17	C-K	C-K	C-K	C-H	D-H	D-G	5-26	7-28		5-24	7-26		5-26	7-28	38.20	37.69	30	44	32					
62	5-28	5-26	5-24	5-22	8-22	8-17	C-K	C-K	C-K	C-H	D-H	D-G	5-26	7-28		5-24	7-26		5-26	7-28	39.47	38.96	30	44	32					
68	5-28	5-26	5-24	5-22	8-22	8-17	C-K	C-K	C-K	C-H	D-H	D-G	5-26	7-28		5-24	7-26		5-26	7-28	43.29	42.78	34	50	38					
72	5-34	5-30	5-30	5-26	8-26	8-20	C-L	C-K	C-K	C-K	D-J	D-H	5-32	7-34		5-28	7-30		5-32	7-34	45.84	45.33	34	50	38					

① Shaft Bore Dia. 9 is not available for Shaft Bore specification N. ② Shaft Bore Dia. 4.5, 6.35 are selectable for Shaft Bore specifications H, P, V.

③ Shaft Bore Dia. 8, 9, 11, 13, 14, 17, 21~26 are not available for Shaft Bore specification C. C-K Shaft Bore Dia J-K are not available for MR2060



High Torque Timing Pulleys

2 mm PowerGrip® Type

NEW



Ordering Example

	Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T
(Shaft Bore: H / HU / P / PU / N / NU / C)	GPA20MR2060	A	H6						
(Shaft Bore: V / F)	GPA40MR2090	B	V6	Z10	J5				
(Shaft Bore: Y)	GPA60MR2090	B	Y8			Q12	R12	S3	T3

Conveying	•
Positioning	•
Power Transmission	•
High Speed	•

Inch Hole Specifications

No.	Nominal	Dimension (in)	No.	Nominal	Dimension (in)
A	1/8	0.125	KLA	1 1/16	1.063
B	3/16	0.188	KLB	1 1/8	1.125
C	1/4	0.250	KLC	1 3/16	1.188
D	5/16	0.313	L	1 1/4	1.250
E	3/8	0.375	LM	1 5/16	1.313
EF	7/16	0.438	M	1 3/8	1.375
F	1/2	0.500	MN	1 7/16	1.438
FG	9/16	0.563	N	1 1/2	1.500
G	5/8	0.625	P	1 5/8	1.625
GH	11/16	0.688	PQ	1 11/16	1.688
H	3/4	0.750	Q	1 3/4	1.750
HJ	13/16	0.813	QR	1 13/16	1.813
J	7/8	0.875	R	1 7/8	1.875
JK	15/16	0.938	RS	1 15/16	1.938
K	1	1.000	S	2	2.000



Days to Ship

GPA / GPT / GPM / GPP

4 Days

Ⓢ Non-Returnable

GPB / GPK

7 Days

Ⓢ Non-Returnable

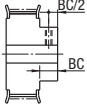

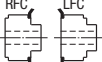



Alterations



	Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	(KC90 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC / TPC / SLH)
(Shaft Bore: H / HU / P / PU / N / NU / C)	GPA20MR2060	A	H6							NFC

Alterations	Set Screw Angle	Side Tapped Hole	Side Through Hole
Code	KC90	QSC / QFC / QTC	KSC / KFC / KTC
Spec.	<p>Changes an angle of set screw to 90°.</p> <p>Ⓢ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.</p> <p>Ⓢ For P, PU, N, NU and C shaft bore specs.</p>	<p>Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 0.5 mm Increment)</p> <p>Ⓢ Thickness required: minimum 2mm</p> <p>A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$</p> <p>B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$</p> <p>Ⓢ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>Ⓢ Specify KC90 when selecting QFC for Shaft Bore specifications P, PU, HU, N, and C.</p> <p>Ⓢ The pilot hole for tapping may go through.</p> <p>Ⓢ Not applicable to Shaft Bore Specifications F or Y.</p> <p>Ⓢ When the Shaft Bore Specifications are P, PU, HU, N or C, QSC is not applicable.</p> <p>Ⓢ Not applicable to K Shape.</p> <p>M Selection M3, M4, M5, M6, M8 Ordering Code QFC28-M4</p>	<p>Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 0.5 mm Increment)</p> <p>Ⓢ Thickness required: minimum 2mm</p> <p>A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$</p> <p>B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$</p> <p>Ⓢ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>Ⓢ Specify KC90 when selecting KFC for Shaft Bore Specifications P, PU, HU, N and C.</p> <p>Ⓢ Not applicable to K Shape.</p> <p>Ⓢ Not applicable to Shaft Bore Specifications F or Y.</p> <p>Ⓢ When the Shaft Bore Specifications are P, PU, HU, N or C, KSC is not applicable.</p> <p>K (Through Hole Dia.) Selection K4.0~K13.0 (0.5mm Increment) Ordering Code KSC20-K5</p>

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length																
Code	BC	NFC	RFC / LFC	FC	TPC	SLH																
Spec.	<p>Cuts the hub length in 0.5mm increment.</p> <p>① Shaft Bore specification: H, V, F: 3≤BC≤L-W</p> <p>① Shaft Bore specification: P, N, C: M+3≤BC≤L-W</p>  <p>Ordering Code BC6.5</p> <p>① Clear anodized products may not have surface treatment on the embossed plane.</p> <p>⊗ Not applicable to K and A Shape.</p>	<p>Flange is not installed. (Flange included)</p> 	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p> <p>① Same on A Shape</p> <p>⊗ Not applicable to K Shape.</p> 	<p>Lowers flange by cutting. FC: 0.5 mm Increment</p> <p>① No surface treatment applied on flange circumference.</p>  <p>① FC≥(O.D.)+2</p> <p>① FC≤F-2</p> <p>Ordering Code FC17</p>	<p>Changes the tapped hole dimension.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><thead><tr><th>M</th><th>TPC</th></tr></thead><tbody><tr><td>M3</td><td>M4</td></tr><tr><td>M4</td><td>M3, M5</td></tr><tr><td>M5</td><td>M4</td></tr></tbody></table> <p>Ordering Code TPC4</p>	M	TPC	M3	M4	M4	M3, M5	M5	M4	<p>Changes the length of the included set screws.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><thead><tr><th>Set Screw</th><th>SLH</th></tr></thead><tbody><tr><td>M3 x 3</td><td>6</td></tr><tr><td>M4 x 3</td><td>5, 8</td></tr><tr><td>M5 x 4</td><td>6, 10</td></tr></tbody></table> <p>Ordering Code SLH8</p>	Set Screw	SLH	M3 x 3	6	M4 x 3	5, 8	M5 x 4	6, 10
	M	TPC																				
	M3	M4																				
M4	M3, M5																					
M5	M4																					
Set Screw	SLH																					
M3 x 3	6																					
M4 x 3	5, 8																					
M5 x 4	6, 10																					

Ⓢ BC, TPC, and SLH alterations are not available for inch bores.



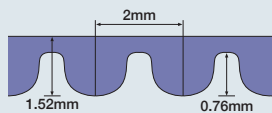
High Torque Timing Belts

2 mm PowerGrip® GT3® Type

NEW

■ **Features:** Suitable for linear motion drives since circular-arc tooth profile has less backlash than standard types.

RoHS



① Operating Temp. -10~80°C (Reference Value)

Type	Material
GBN	(1) Back Rubber
	(2) Tooth Rubber
	(3) Core Wire
	(4) Tooth Fabric
	Neoprene
	Tensile Member
	Nylon Cloth



Part Number		-	Belt Nominal Width
Type	Belt No.		
GBN	200MR2	-	060



6 Days Non-Returnable

• Six days to ship.
* All other lengths quote.

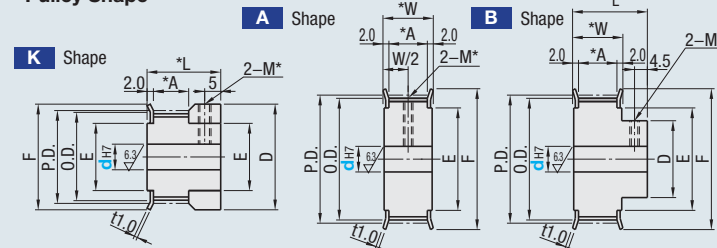
Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
GBN (Rubber)	74 MR2		37	74
	76 MR2		38	76
	•100 MR2		50	100
	•112 MR2		56	112
	•124 MR2		62	124
	•126 MR2		63	126
	•130 MR2		65	130
	•132 MR2		66	132
	•134 MR2		67	134
	•136 MR2		68	136
	•140 MR2		70	140
	142 MR2		71	142
	•152 MR2		76	152
	•158 MR2		79	158
	•160 MR2		80	160
	•164 MR2		82	164
	•166 MR2	040 (4 mm)	83	166
	•168 MR2		84	168
	•172 MR2	060 (6 mm)	86	172
	•180 MR2		90	180
	•186 MR2	090 (9 mm)	93	186
	•192 MR2		96	192
	•200 MR2		100	200
	•202 MR2		101	202
	208 MR2		104	208
	•210 MR2		105	210
	•212 MR2		106	212
	•216 MR2		108	216
	•220 MR2		110	220
	224 MR2		112	224
	•232 MR2		116	232
	•236 MR2		118	236
	•240 MR2		120	240
	242 MR2		121	242
	•250 MR2		125	250
	•252 MR2		126	252
	•258 MR2		129	258
	264 MR2		132	264
	•278 MR2		139	278

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
GBN (Rubber)	•280 MR2		140	280
	286 MR2		143	286
	288 MR2		144	288
	•300 MR2		150	300
	318 MR2		159	318
	•320 MR2		160	320
	•322 MR2		161	322
	•332 MR2		166	332
	•346 MR2		173	346
	•350 MR2		175	350
	356 MR2		178	356
	•364 MR2		182	364
	•370 MR2		185	370
	•380 MR2		190	380
	•386 MR2		193	386
	392 MR2	040 (4 mm)	196	392
	•400 MR2		200	400
	•406 MR2	060 (6 mm)	203	406
	•420 MR2		210	420
	428 MR2	090 (9 mm)	214	428
	430 MR2		215	430
	•456 MR2		228	456
	•470 MR2		235	470
	•474 MR2		237	474
	•488 MR2		244	488
	502 MR2		251	502
	•504 MR2		252	504
	•528 MR2		264	528
	544 MR2		272	544
	•552 MR2		276	552
	•576 MR2		288	576
	•600 MR2		300	600
	•640 MR2		320	640
	660 MR2		330	660
	•696 MR2		348	696
	•744 MR2		372	744
	•848 MR2		424	848
	•1164 MR2		582	1164
	1700 MR2		850	1700

Type	Part Number			Material ⓘ		Surface Treatment	Attachment Setscrews ⓘ
	6 mm MR3060	9 mm MR3090	15 mm MR3150	Pulley	Flange		
GPA	•	•	•	Aluminum Alloy	Aluminum Alloy	Clear Anodize	Stainless Steel
GPB	•	•	•			Black Anodize	
GPK	•	•	•			Hard Clear Anodize*	
GPT	•	•	•	1045 Carbon Steel	Low Carbon Steel	—	Steel (Black Oxide)
GPM	•	•	•			Black Oxide	
GPP	•	•	•			Electroless Nickel Plating	

*Hard Anodize Treatment: Film Hardness 300HV~

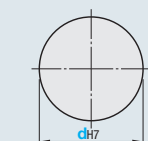
■ Pulley Shape



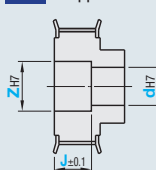
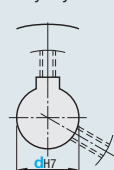
*For Shaft Bore Specifications H, HU (Round Hole), F, V (Stepped Hole) and Y (Both Sides Stepped Hole), no tapped hole is machined.

❗ The shaft bore may not have surface treatment.

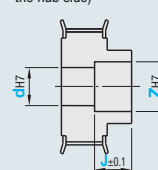
Y Both Ends Stepped Hole



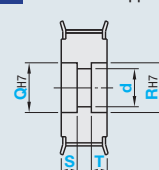
*For A Shape pulley, the set screw hole is set at around 120° to keep away from peaks.



⊗ Not applicable to K Shape.
*No tapped holes and set screws



*Applicable to B Shape only.
*No tapped holes and set screws.



*Applicable to A Shape only.
*Shaft Bore Dia. d is general tolerance.
*No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Spec. (1mm increment)																				P.D.	O.D.	D	F	E								
Type	Teeth	Type Nominal Width		H		P		N / C		HU		PU		NU		V			V / F		Y															
				d _{H7}										d _{H7}		Z _{H7}		J		d _{H7}		Z _{H7}							J		d		Q _{H7 / R_{H7}}		S / T	
				A	B-K	A	B-K	A	B	A	B-K	A	B-K	A	B	A	B	d _{H7}	Z _{H7}	(0.1mm Increment)	d _{H7}	Z _{H7}	(0.1mm Increment)						B	B	A	A	A	A	A	A
AI GPA GPB GPK	16	MR3060 "A :7.1 "W :11.1 "L :19.0	4-7	4-7	4-5	4-7			B, C	B, C		B			4-5	6-7								4-5	6-7		15.28	14.52	18	18	1					
	17		4-7	4-7	4-5	4-7			B, C	B, C		B			4-5	6-7								4-5	6-7		16.23	15.47	18	18	11					
	18		4-9	4-8	4-6	4-8			B-D	B-D		B			4-7	6-9								4-7	6-9		17.19	16.43	20	20	13					
	19		4-10	4-8	4-6	4-8			B-E	B-D		B			4-8	6-10								4-8	6-10		18.14	17.38	22	22	14					
	20		4-10	4-8	4-6	4-8	—	—	B-E	B-D		B			4-8	6-10								4-8	6-10		19.10	18.34	22	22	14					
	21		4-10	4-8	4-6	4-8			B-E	B-D		B			4-8	6-10								4-8	6-10		20.05	19.29	25	25	16					
	22		4-12	4-10	4-8	4-10			B-E	B-E		B-E			4-10	6-12								4-10	6-12		21.01	20.25	25	25	16					
	24		4-12	4-10	4-10	4-8			B-E	B-E		B-E			4-10	6-12							4-8	6-10		4-10	6-12		22.92	22.16	14	25	16			
	25		4-14	4-12	4-11	4-10	8-11	8	B-F	B-E	B-E	B-E	D, E	D	4-12	6-14							4-10	6-12		4-12	6-14		23.87	23.11	16	28	18			
	26		5-14	5-12	5-11	5-10	8-11	8	C-F	C-E	C-E	C-E	D, E	D	5-12	7-14							5-10	7-12		5-12	7-14		24.83	24.07	16	28	18			
Fe GPT GPM GPP	28	5-16	5-14	5-13	5-10	8-13	8	C-G	C-E	C-E	C-E	D, F	D	5-14	7-16							5-12	7-14		5-14	7-16		26.74	25.98	18	30	20				
	30	6-19	6-16	6-15	6-12	8-14	8-11	C-G	C-G	C-F	C-E	D, F	D, E	6-17	8-19							6-14	8-16		6-17	8-19		28.65	27.89	20	32	23				
	32	"A :10.2	6-21	6-16	6-17	6-12	8-17	8-11	C-H	C-G	C-G	C-E	D, F	D, E	6-19	8-21	2.0-JsJ5-W-2.0					6-14	8-16		6-19	8-21		30.56	29.80	20	35	25				
	34	"W :14.2	6-24	6-22	6-18	6-18	8-18	8-15	C-J	C-H	C-G	C-G	D-G	D-F	6-22	8-24					2.0-JsJ5-L-2.0		6-20	8-23		6-22	8-24	S+T≤W-3	32.47	31.71	26	40	28			
	36	"L :23.0	6-24	6-22	6-18	6-18	8-19	8-15	C-J	C-H	C-G	C-G	D-G	D-F	6-22	8-24							6-20	8-23		6-22	8-24		34.38	33.62	26	40	28			
	38		6-24	6-22	6-18	6-18	8-19	8-15	C-J	C-H	C-G	C-G	D-G	D-F	6-22	8-24							6-20	8-23		6-22	8-24		36.29	35.53	30	44	32			
	40	MR3150	8-28	8-26	8-23	8-21	8-23	8-17	E-K	E-K	E-J	E-H	E-J	E-G	8-26	10-28							8-24	10-26		8-26	10-28		38.20	37.44	30	44	32			
	44	"A :16.7	8-32	8-28	8-26	8-23	8-25	8-18	E-L	E-K	E-J	E-H	E-J	E-G	8-30	10-32							8-26	10-28		8-30	10-32		42.02	41.26	32	48	36			
	45	"W :20.7	8-32	8-28	8-26	8-23	8-25	8-18	E-L	E-K	E-J	E-H	E-J	E-G	8-30	10-32							8-26	10-28		8-30	10-32		42.97	42.21	32	48	36			
	48	"L :29.0	8-34	8-30	8-28	8-25	8-27	8-20	E-L	E-K	E-J	E-H	E-J	E-G	8-32	10-34							8-28	10-30		8-32	10-34		45.84	45.08	34	50	38			
50		8-36	8-30	8-30	8-25	8-29	8-20	E-M	E-K	E-K	E-J	E-K	E-H	8-34	10-36							8-28	10-30		8-34	10-36		47.75	46.99	34	52	40				
56		8-36	8-30	8-30	8-25	8-29	8-20	E-M	E-K	E-K	E-J	E-K	E-H	8-34	10-36							8-28	10-30		8-34	10-36		53.48	52.72	39	61	46				
60		8-42	8-35	8-35	8-30	8-35	8-22	E-P	E-M	E-M	E-K	E-L	E-H	8-40	10-42							8-33	10-35		8-40	10-42		57.30	56.54	39	61	46				
62		8-42	8-35	8-35	8-30	8-35	8-22	E-P	E-M	E-M	E-K	E-L	E-H	8-40	10-42							8-33	10-35		8-40	10-42		59.21	58.45	39	61	46				
68		8-42	8-35	8-35	8-30	8-35	8-22	E-P	E-M	E-M	E-K	E-L	E-H	8-40	10-42							8-33	10-35		8-40	10-42		64.94	64.18	50	74	58				
72		8-54	8-46	8-46	8-38	8-45	8-33	E-S	E-Q	E-Q	E-L	E-Q	E-L	8-52	10-54							8-44	10-46		8-52	10-54		68.75	67.99	50	74	58				

① Shaft Bore Dia. 4.5, 6.35 are selectable for Shaft Bore specifications H, P, V. ① Shaft bore specification P is not selectable for A Shape with 22 or less teeth and nominal width 060. ① Shaft Bore Dia. 9 is not available for Shaft Bore specification N. ① Shaft Bore Dia. 8, 9, 11, 13, 14, 17, 21–45 are not available for Shaft Bore specification C. ① Shaft Bore Dia. J–Q are not available for MR3060 ① Shaft Bore Dia. J–N are not available for MR3060 and MR3150 and M–N are not available for MR3090



High Torque Timing Pulleys

3 mm PowerGrip® Type

NEW



Ordering Example

	Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T
(Shaft Bore : H / HU / P / PU / N / NU / C)	GPA20MR2060	A	H6						
(Shaft Bore: V / F)	GPA40MR2090	B	V6	Z10	J5				
(Shaft Bore: Y)	GPA60MR2090	B	Y8			Q12	R12	S3	T3

Conveying	•
Positioning	•
Power Transmission	•
High Speed	•

Inch Hole Specifications

No.	Nominal	Dimension (in)	No.	Nominal	Dimension (in)
A	1/8	0.125	KLA	1 1/16	1.063
B	3/16	0.188	KLB	1 1/8	1.125
C	1/4	0.250	KLC	1 3/16	1.188
D	5/16	0.313	L	1 1/4	1.250
E	3/8	0.375	LM	1 5/16	1.313
EF	7/16	0.438	M	1 5/8	1.375
F	1/2	0.500	MN	1 7/16	1.438
FG	9/16	0.563	N	1 1/2	1.500
G	5/8	0.625	P	1 5/8	1.625
GH	11/16	0.688	PQ	1 11/16	1.688
H	3/4	0.750	Q	1 3/4	1.750
HJ	13/16	0.813	QR	1 13/16	1.813
J	7/8	0.875	R	1 7/8	1.875
JK	15/16	0.938	RS	1 15/16	1.938
K	1	1.000	S	2	2.000



Days to Ship

GPA / GPT / GPM / GPP

4 Days

Ⓜ Non-Returnable

GPB / GPK

7 Days

Ⓜ Non-Returnable

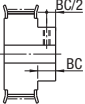

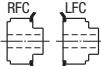



Alterations



Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	(KC90 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC / TPC / SLH)
(Shaft Bore : H / HU / P / PU / N / NU / C)	GPA20MR2060	A	H6						NFC

Alterations	Set Screw Angle	Side Tapped Hole	Side Through Hole
Code	KC90	QSC / QFC / QTC	KSC / KFC / KTC
Spec.	<p>Changes an angle of set screw to 90°.</p> <p>Ⓜ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.</p> <p>Ⓜ For P, PU, N, NU and C shaft bore specs.</p>	<p>Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 0.5 mm Increment)</p> <p>Ⓜ Thickness required: minimum 2mm</p> <p>A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$ B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$</p> <p>Ⓜ d=Z when the Shaft Bore Specifications is V.</p> <p>Ⓜ Specify KC90 when selecting QFC for Shaft Bore specifications P, PU, HU, N and C.</p> <p>Ⓜ The pilot hole for tapping may go through.</p> <p>Ⓜ Not applicable to Shaft Bore Specifications F or Y.</p> <p>Ⓜ When the Shaft Bore Specifications are P, PU, HU, N or C, QSC is not applicable.</p> <p>Ⓜ Not applicable to K Shape.</p> <p>M Selection M3, M4, M5, M6, M8 Ordering Code QFC28-M4</p>	<p>Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 0.5 mm Increment)</p> <p>Ⓜ Thickness required: minimum 2mm</p> <p>A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$ B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$</p> <p>Ⓜ d=Z when the Shaft Bore Specifications is V.</p> <p>Ⓜ Specify KC90 when selecting KFC for Shaft Bore Specifications P, PU, HU, N and C.</p> <p>Ⓜ Not applicable to K Shape.</p> <p>Ⓜ Not applicable to Shaft Bore Specifications F or Y.</p> <p>Ⓜ When the Shaft Bore Specifications are P, PU, HU, N or C, KSC is not applicable.</p> <p>K (Through Hole Dia.) Selection K4.0~K13.0 (0.5 mm Increment) Ordering Code KSC20-K5</p>

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length																				
Code	BC	NFC	RFC / LFC	FC	TPC	SLH																				
Spec.	<p>Cuts the hub length in 0.5mm increment.</p> <p>① Shaft Bore specification: H, V, F: 3≤BC≤L-W</p> <p>① Shaft Bore specification: P, N, C: M+3≤BC≤L-W</p>  <p>Ordering Code BC6.5</p> <p>① Clear anodized products may not have surface treatment on the embossed plane.</p> <p>⊗ Not applicable to K and A Shape.</p>	<p>Flange is not installed. (Flange included)</p> 	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p> <p>① Same on A Shape</p> 	<p>Low flange by cutting.</p> <p>FC: 0.5 mm Increment</p> <p>① No surface treatment applied on flange circumference.</p>  <p>① FC≥(O.D.)+2</p> <p>① FC≤F-2</p> <p>Ordering Code FC17</p>	<p>Changes the tapped hole dimension.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><tr><th>M</th><th>TPC</th></tr><tr><td>M3</td><td>M4</td></tr><tr><td>M4</td><td>M3, M5</td></tr><tr><td>M5</td><td>M4, M6</td></tr><tr><td>M6</td><td>M5</td></tr></table> <p>Ordering Code TPC4</p>	M	TPC	M3	M4	M4	M3, M5	M5	M4, M6	M6	M5	<p>Changes the length of the included set screws.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><tr><th>Set Screw</th><th>SLH</th></tr><tr><td>M3 x 3</td><td>6</td></tr><tr><td>M4 x 3</td><td>5, 8</td></tr><tr><td>M5 x 4</td><td>6, 10</td></tr><tr><td>M6 x 5</td><td>10</td></tr></table> <p>Ordering Code SLH8</p>	Set Screw	SLH	M3 x 3	6	M4 x 3	5, 8	M5 x 4	6, 10	M6 x 5	10
	M	TPC																								
M3	M4																									
M4	M3, M5																									
M5	M4, M6																									
M6	M5																									
Set Screw	SLH																									
M3 x 3	6																									
M4 x 3	5, 8																									
M5 x 4	6, 10																									
M6 x 5	10																									

Ⓜ BC, TPC, and SLH alterations are not available for inch bores.



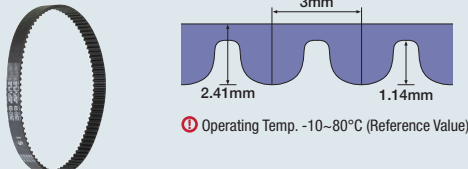
High Torque Timing Belts

3 mm PowerGrip® GT3® Type

NEW

GT Profile Products

■ **Features:** Suitable for linear motion drives since circular-arc tooth profile has less backlash than standard types.



Type	Material	
GBN	(1) Back Rubber	Neoprene
	(2) Tooth Rubber	Neoprene
	(3) Core Wire	Tensile Member
	(4) Tooth Fabric	Nylon Cloth



Ordering Example

Part Number			Belt Nominal Width
Type	Belt No.		
GBN	219MR3	-	060



Days to Ship

6 Days Non-Returnable

- Six days to ship.
- * All other lengths quote.

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
GBN (Rubber)	•99 MR3	060 (6 mm) 090 (9 mm) 150 (15 mm)	33	99
	•111 MR3		37	111
	•123 MR3		41	123
	•129 MR3		43	129
	•159 MR3		53	159
	•165 MR3		55	165
	•180 MR3		60	180
	•183 MR3		61	183
	•189 MR3		63	189
	195 MR3		65	195
	•201 MR3		67	201
	•219 MR3		73	219
	•225 MR3		75	225
	•240 MR3		80	240
	•243 MR3		81	243
	252 MR3		84	252
	•255 MR3		85	255
	•267 MR3		89	267
	•282 MR3		94	282
	285 MR3		95	285
	•291 MR3		97	291
	•300 MR3		100	300
	•339 MR3		113	339
	•348 MR3		116	348
	•357 MR3		119	357
	•360 MR3		120	360
	363 MR3		121	363
	•375 MR3		125	375
	390 MR3		130	390
	•393 MR3		131	393
	408 MR3		136	408
	•414 MR3		138	414
	•420 MR3		140	420
	•447 MR3		149	447
	•450 MR3		150	450
	•474 MR3		158	474
	•480 MR3		160	480
	•483 MR3		161	483
	•489 MR3		163	489

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
GBN (Rubber)	495 MR3	060 (6 mm) 090 (9 mm) 150 (15 mm)	165	495
	501 MR3		167	501
	•504 MR3		168	504
	510 MR3		170	510
	513 MR3		171	513
	•537 MR3		179	537
	•552 MR3		184	552
	•564 MR3		188	564
	•600 MR3		200	600
	•630 MR3		210	630
	•684 MR3		228	684
	•735 MR3		245	735
	•750 MR3		250	750
	•786 MR3		262	786
	•840 MR3		280	840
	•945 MR3		315	945
	•1050 MR3		350	1050
	•1080 MR3		360	1080
	•1536 MR3		512	1536
	•1587 MR3		529	1587
	•2061 MR3		687	2061



High Torque Timing Pulleys

5 mm PowerGrip® Type

NEW

RoHS

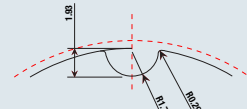


Type	Part Number		Material ①		Surface Treatment	Attachment Setscrews ①
	15 mm MR5150	25 mm MR5250	Pulley	Flange		
GPA	•	•	Aluminum Alloy	Aluminum Alloy	Clear Anodize Black Anodize Hard Clear Anodize*	Stainless Steel
GPB	•	•				
GPK	•	•				
GPT	•	•	1045 Carbon Steel	Low Carbon Steel	Black Oxide Electroless Nickel Plating	Steel (Black Oxide)
GPM	•	•				
GPP	•	•				

① GPP installed. Set screws are included with P, PU, N, NU & C bore hole specification.

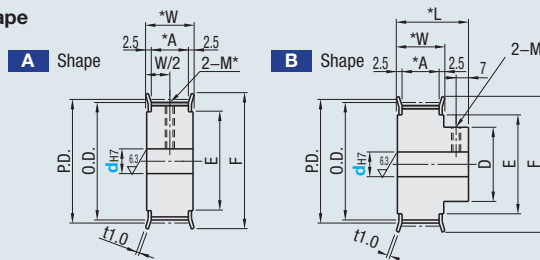
*Hard Anodize Treatment: Film Hardness 300HV~

Standard Tooth Profile



Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 5.0 mm)

Pulley Shape



*For Shaft Bore Specifications H, HU (Round Hole), F, V (Stepped Hole) and Y (Both Sides Stepped Hole), no tapped hole is machined.

Shaft Bore Specs.

① The shaft bore may not have surface treatment.

H Round Hole

P Round Hole+Tap

N New JIS Keywayed Bore + Tap

NU Inch New JIS Key Groove Hole + Tap

HU Inch Round Hole

PU Inch Round Hole+Tap

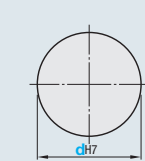
C Old JIS Keywayed Bore + Tap

V Stepped Hole

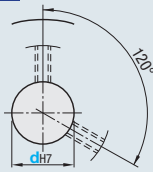
F Stepped Hole

(counterbored holes on the hub side)

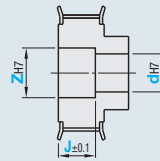
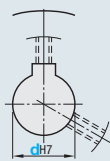
Y Both Ends Stepped Hole



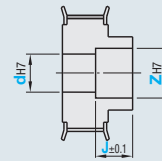
*No tapped holes and set screws.



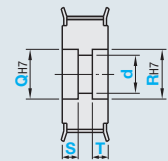
*For A Shape pulley, the set screw hole is set at around 120° to keep away from peaks.



*No tapped holes and set screws.



*Applicable to B Shape only.
*No tapped holes and set screws.



*Applicable to A Shape only.
*Shaft Bore Dia. d is general tolerance.
*No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Spec. (1mm Increment)																				P.D.	O.D.	D	F	E
Type	Teeth	Type Nominal Width		H		P		N / C		HU		PU		NU		V		V / F		Y		S / T						
				d _{H7}	d _{H7}	d _{H7}	d _{H7}	d _{H7}	d _{H7}	d _{H7}	d _{H7}	d _{H7}	d _{H7}	d _{H7}	d _{H7}	d _{H7}	d _{H7}	d _{H7}	d _{H7}	d _{H7}	d _{H7}		d _{H7}					
Al GPT GBA GPK	18	MR5150 *A :18.0 *W :23.0 *L :35.0	A	6-18	6-15	6-12	6-11	8-12	8-10, NK10	C-G	C-F	C-E	D, E	D, E	6-16	8-18		6-13	8-15	6-16	8-18	28.65	27.51	19	33	22		
	19			6-20	6-15	6-16	6-11	8-16	8-10, NK10	C-H	C-F	C-G	C-E	D-G	D, E	6-18	8-20		6-13	8-15	6-18	8-20	30.24	29.10	19	36	24	
	20			6-20	6-15	6-16	6-11	8-16	8-10, NK10	C-H	C-F	C-G	C-E	D-G	D, E	6-18	8-20		6-13	8-15	6-18	8-20	31.83	30.69	19	36	24	
	21			6-20	6-15	6-16	6-11	8-16	8-10, NK10	C-H	C-F	C-G	C-E	D-G	D, E	6-18	8-20		6-13	8-15	6-18	8-20	33.42	32.28	24	40	27	
	22			7-23	7-20	7-18	7-16	8-18	8-12	D-J	D-H	D-G	D-G	D, E	7-21	9-23		7-18	9-20	7-21	9-23	35.01	33.87	24	40	27		
	23			7-23	7-20	7-18	7-16	8-18	8-12	D-J	D-H	D-G	D-G	D, E	7-21	9-23		7-18	9-20	7-21	9-23	36.61	35.47	27	45	30		
	24			7-26	7-23	7-20	7-17	8-20	8-13	D-K	D-J	D-H	D-G	D-H	D-F	7-24	9-26		7-21	9-23	7-24	9-26	38.20	37.06	27	45	30	
	25			7-26	7-23	7-20	7-17	8-20	8-15	D-K	D-J	D-H	D-G	D-H	D-F	7-24	9-26		7-21	9-23	7-24	9-26	39.79	38.65	27	45	30	
	26			8-31	8-27	8-23	8-21	8-22	8-17	E-L	E-K	E-J	E-H	E-J	E-G	8-29	10-31		8-25	10-27	8-29	10-31	41.38	40.24	31	48	35	
	28			8-31	8-28	8-24	8-22	8-24	8-18	E-L	E-K	E-J	E-H	E-K	E-G	8-29	10-31		8-26	10-28	8-29	10-31	44.56	43.42	32	48	35	
Fe GPT GPM GPP	30	MR5250 *A :28.0 *W :33.0 *L :45.0	B	10-32	10-29	10-26	10-23	10-26	10-18	F-L	F-K	F-K	F-J	F-K	F-G	10-30	12-32	2.0sJsW-2.0	10-27	12-29	10-30	12-32	47.75	46.61	33	52	36	
	32			10-36	10-33	10-28	10-27	10-28	10-22	F-L	F-L	F-K	F-K	F-F	F-H	10-34	12-36		10-31	12-33	10-34	12-36	50.93	49.79	37	55	40	
	34			10-41	10-36	10-33	10-30	10-33	10-25	F-N	F-M	F-L	F-K	F-L	F-K	10-39	12-41		10-34	12-36	10-39	12-41	54.11	52.97	40	61	45	
	36			10-41	10-36	10-33	10-30	10-33	10-25	F-N	F-M	F-L	F-K	F-L	F-K	10-39	12-41		10-34	12-36	10-39	12-41	57.30	56.16	40	61	45	
	38			10-41	10-36	10-33	10-30	10-33	10-25	F-N	F-M	F-L	F-K	F-L	F-K	10-39	12-41		10-34	12-36	10-39	12-41	60.48	59.34	47	67	50	
	40			10-46	10-43	10-38	10-35	10-38	10-28	F-Q	F-P	F-M	F-M	F-M	F-K	10-44	12-46		10-41	12-43	10-44	12-46	63.66	62.52	47	67	50	
	44			12-54	12-46	12-42	12-38	12-40	12-32	F-N	F-Q	F-P	E-M	F-N	F-L	12-52	14-54		12-44	14-46	12-52	14-54	70.03	68.89	50	74	58	
	45			12-54	12-46	12-42	12-38	12-40	12-32	F-N	F-Q	F-P	E-M	F-N	F-L	12-52	14-54		12-44	14-46	12-52	14-54	71.62	70.48	50	74	58	
	48			12-59	12-56	12-45	12-45	12-40	12-40	F-S	F-S	F-Q	F-Q	F-N	F-N	12-57	14-59		12-54	14-56	12-57	14-59	76.39	75.25	60	83	63	
	50			12-63	12-59	12-50	12-47	12-43	12-43	F-S	F-S	F-R	F-Q	F-P	F-P	12-61	14-63		12-57	14-59	12-61	14-63	79.58	78.44	63	87	67	
GPT	52	12-63	12-59	12-50	12-47	12-43	12-43	F-S	F-S	F-R	F-Q	F-P	F-P	12-61	14-63		12-57	14-59	12-61	14-63	82.76	81.62	63	87	67			
	56	12-63	12-59	12-50	12-47	12-43	12-43	F-S	F-S	F-R	F-Q	F-P	F-P	12-61	14-63		12-57	14-59	12-61	14-63	89.13	87.99	75	99	80			
	60	12-76	12-71	12-50	12-50	12-50	12-50	F-S	F-S	F-R	F-Q	F-R	F-R	12-74	14-76		12-69	14-71	12-74	14-76	95.49	94.35	75	99	80			
	64	12-76	12-71	12-50	12-50	12-50	12-50	F-S	F-S	F-R	F-Q	F-R	F-R	12-74	14-76		12-69	14-71	12-74	14-76	101.86	100.72	75	104	84			
	68	12-76	12-71	12-50	12-50	12-50	12-50	F-S	F-S	F-R	F-Q	F-R	F-R	12-74	14-76		12-69	14-71	12-74	14-76	108.23	107.09	90	119	100			
	72	12-85	12-80	12-70	12-70	12-55	12-55	F-S	F-S	F-S	F-S	F-S	F-S	12-83	14-92		12-84	14-86	12-83	14-92	114.59	113.45	90	119	100			

① Shaft Bore Dia. 9, 51~54 are not available for Shaft Bore specification N. ① Shaft Bore Dia. 6.35 are selectable for Shaft Bore specifications H, P, V.

① Shaft Bore Dia. 8, 9, 11, 13, 14, 17, 21~55 are not available for Shaft Bore specification C.



High Torque Timing Pulleys

5 mm PowerGrip® Type

NEW



Ordering Example

	Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T
(Shaft Bore: H / HU / P / PU / N / NU / C)	GPA20MR2060	A	H6						
(Shaft Bore: V / F)	GPA40MR2090	B	V6	Z10	J5				
(Shaft Bore: Y)	GPA60MR2090	B	Y8			Q12	R12	S3	T3

Conveying	•
Positioning	•
Power Transmission	•
High Speed	•

Inch Hole Specifications

No.	Nominal	Dimension (in)	No.	Nominal	Dimension (in)
A	1/8	0.125	KLA	1 1/16	1.063
B	3/16	0.188	KLB	1 1/8	1.125
C	1/4	0.250	KLC	1 3/16	1.188
D	5/16	0.313	L	1 1/4	1.250
E	3/8	0.375	LM	1 5/16	1.313
EF	7/16	0.438	M	1 3/8	1.375
F	1/2	0.500	MN	1 7/16	1.438
FG	9/16	0.563	N	1 1/2	1.500
G	5/8	0.625	P	1 5/8	1.625
GH	11/16	0.688	PQ	1 11/16	1.688
H	3/4	0.750	Q	1 3/4	1.750
HJ	13/16	0.813	QR	1 13/16	1.813
J	7/8	0.875	R	1 7/8	1.875
JK	15/16	0.938	RS	1 15/16	1.938
K	1	1.000	S	2	2.000



Days to Ship

GPA / GPT / GPM / GPP

4 Days

Ⓢ Non-Returnable

GPB / GPK

7 Days

Ⓢ Non-Returnable

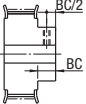

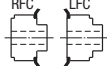



Alterations



	Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	(KC90 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC / TPC / SLH)
(Shaft Bore: H / HU / P / PU / N / NU / C)	GPA20MR2060	A	H6							NFC

Alterations	Set Screw Angle	Side Tapped Hole	Side Through Hole
Code	KC90	QSC / QFC / QTC	KSC / KFC / KTC
Spec.	<p>Changes an angle of set screw to 90°.</p> <p>Ⓢ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.</p> <p>Ⓢ For P, PU, N, NU and C shaft bore specs.</p>	<p>Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 0.5 mm Increment)</p> <p>Ⓢ Thickness required: minimum 2mm</p> <p>A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$</p> <p>B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$</p> <p>Ⓢ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>Ⓢ Specify KC90 when selecting QFC for Shaft Bore specifications P, PU, HU, N and C.</p> <p>Ⓢ The pilot hole for tapping may go through.</p> <p>Ⓢ Not applicable to Shaft Bore Specifications F or Y.</p> <p>Ⓢ When the Shaft Bore Specifications are P, PU, HU, N or C, QSC is not applicable.</p> <p>M Selection M3, M4, M5, M6, M8 Ordering Code QFC28-M4</p>	<p>Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 0.5 mm Increment)</p> <p>Ⓢ Thickness required: minimum 2mm</p> <p>A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$</p> <p>B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$</p> <p>Ⓢ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>Ⓢ Specify KC90 when selecting KFC for Shaft Bore Specifications P, PU, HU, N and C.</p> <p>Ⓢ Not applicable to Shaft Bore Specifications F or Y.</p> <p>Ⓢ When the Shaft Bore Specifications are P, PU, HU, N or C, KSC is not applicable.</p> <p>K (Through Hole Dia.) Selection K4.0~K13.0 (0.5mm Increment) Ordering Code KSC20-K5</p>

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length																								
Code	BC	NFC	RFC / LFC	FC	TPC	SLH																								
Spec.	<p>Cuts the hub length in 0.5mm increment.</p> <p>① Shaft Bore specification: H, V, F: 3≤BC≤L-W</p> <p>① Shaft Bore specification: P, N, C: M+3≤BC≤L-W</p>  <p>Ordering Code BC6.5</p> <p>① Clear anodized products may not have surface treatment on the embossed plane.</p> <p>⊗ Not applicable to K and A Shape.</p>	<p>Flange is not installed. (Flange included)</p> 	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p> <p>① Same on A Shape</p> 	<p>Lowers flange by cutting.</p> <p>FC: 0.5 mm Increment</p> <p>① No surface treatment applied on flange circumference.</p>  <p>① FC≥(O.D.)+2</p> <p>① FC≤F-2</p> <p>Ordering Code FC17</p>	<p>Changes the tapped hole dimension.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><thead><tr><th>M</th><th>TPC</th></tr></thead><tbody><tr><td>M4</td><td>M3, M5</td></tr><tr><td>M5</td><td>M4, M6</td></tr><tr><td>M6</td><td>M5, M8</td></tr><tr><td>M8</td><td>M6, M10</td></tr><tr><td>M10</td><td>M8</td></tr></tbody></table> <p>Ordering Code TPC4</p>	M	TPC	M4	M3, M5	M5	M4, M6	M6	M5, M8	M8	M6, M10	M10	M8	<p>Changes the length of the included set screws.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><thead><tr><th>Set Screw</th><th>SLH</th></tr></thead><tbody><tr><td>M4 x 3</td><td>5, 8</td></tr><tr><td>M5 x 4</td><td>6, 10</td></tr><tr><td>M6 x 5</td><td>10</td></tr><tr><td>M8 x 6</td><td>10, 12</td></tr><tr><td>M10 x 8</td><td>12, 15</td></tr></tbody></table> <p>Ordering Code SLH8</p>	Set Screw	SLH	M4 x 3	5, 8	M5 x 4	6, 10	M6 x 5	10	M8 x 6	10, 12	M10 x 8	12, 15
	M	TPC																												
M4	M3, M5																													
M5	M4, M6																													
M6	M5, M8																													
M8	M6, M10																													
M10	M8																													
Set Screw	SLH																													
M4 x 3	5, 8																													
M5 x 4	6, 10																													
M6 x 5	10																													
M8 x 6	10, 12																													
M10 x 8	12, 15																													

Ⓢ BC, TPC, and SLH alterations are not available for inch bores.



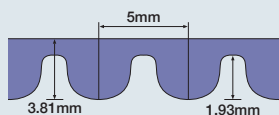
High Torque Timing Belts

5 mm PowerGrip® GT3® Type

NEW

■ **Features:** Suitable for linear motion drives since circular-arc tooth profile has less backlash than standard types.

RoHS



① Operating Temp. -10~80°C (Reference Value)

Type	Material	
GBN	(1) Back Rubber	Neoprene
	(2) Tooth Rubber	Neoprene
	(3) Core Wire	Tensile Member
	(4) Tooth Fabric	Nylon Cloth



Ordering Example

Part Number			Belt Nominal Width
Type	Belt No.		
GBN	225MR5	-	090



Days to Ship

6 Days Non-Returnable

• Six days to ship.
* All other lengths quote.

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
GBN (Rubber)	225 MR5	090 (9 mm) 150 (15 mm) 250 (25 mm)	45	225
	250 MR5		50	250
	265 MR5		53	265
	275 MR5		55	275
	285 MR5		57	285
	•300 MR5		60	300
	325 MR5		65	325
	330 MR5		66	330
	340 MR5		68	340
	350 MR5		70	350
	•355 MR5		71	355
	360 MR5		72	360
	•375 MR5		75	375
	•400 MR5		80	400
	•405 MR5		81	405
	410 MR5		82	410
	•425 MR5		85	425
	•450 MR5		90	450
	460 MR5		92	460
	475 MR5		95	475
	•500 MR5		100	500
	525 MR5		105	525
	•535 MR5		107	535
	540 MR5		108	540
	550 MR5		110	550
	•565 MR5		113	565
	•575 MR5		115	575
	•580 MR5		116	580
	•600 MR5		120	600
	•625 MR5		125	625
	•650 MR5		130	650
	•700 MR5		140	700

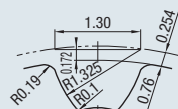
Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
GBN (Rubber)	•750 MR5	090 (9 mm) 150 (15 mm) 250 (25 mm)	150	750
	•800 MR5		160	800
	•815 MR5		163	815
	•850 MR5		170	850
	•900 MR5		180	900
	950 MR5		190	950
	•1000 MR5		200	1000
	1050 MR5		210	1050
	•1150 MR5		230	1150
	•1300 MR5		260	1300
	•1450 MR5		290	1450
	•1600 MR5		320	1600
	•1720 MR5		344	1720
	•1755 MR5		351	1755
	•2100 MR5		420	2100
	2440 MR5		488	2440



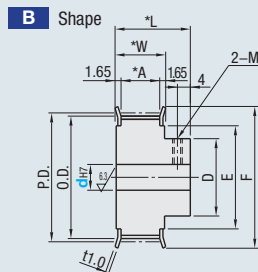
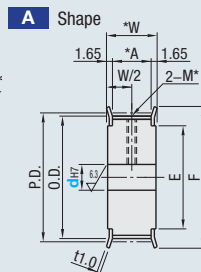
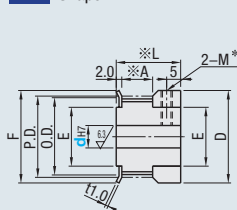
Part Number			Material		Surface Treatment
Belt Width 4mm A: 5 W: 9 L: 17	Belt Width 6mm A: 7 W: 11 L: 19	Belt Width 10mm A: 11 W: 15 L: 23	Pulley	Flange	
HTPA _S2M040	HTPA _S2M060	HTPA _S2M100	2017 Aluminum Alloy (Duralumin)	5052 Aluminum Alloy	Clear Anodize
HTPB _S2M040	HTPB _S2M060	HTPB _S2M100			Black Anodize
HTPK _S2M040	HTPK _S2M060	HTPK _S2M100			Hard Clear Anodize*
HTPN _S2M040	HTPN _S2M060	HTPN _S2M100			Electroless Nickel Plating
HTPT _S2M040	HTPT _S2M060	—	1045 Carbon Steel	Low Carbon Steel	—
HTPM _S2M040	HTPM _S2M060	—			Black Oxide
HTPP _S2M040	HTPP _S2M060	—			Electroless Nickel Plating
HTPS _S2M040	HTPS _S2M060	—			—
			304 Stainless Steel		

*Hard Anodize Treatment: Film Hardness 300HV~

■ Pulley Shape



K Shape

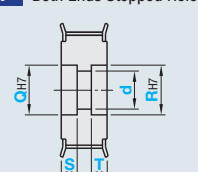
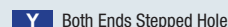
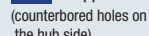
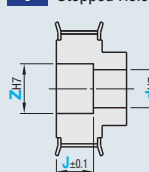
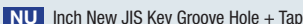
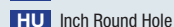


■ Tapped Hole Dimensions (Shaft Bore: P / N / C)

d _{H7} Shaft Bore Inner Dia.	M (Coarse)	Accessory Set Screw
3~5	M3	M3 x 3
6~24	M4	M4 x 3

*For Shaft Bore Specifications H (Round Hole), V (Stepped Hole) and Y (Both Sides Stepped Hole), no tapped hole is machined.

⚠ The shaft bore may not have surface treatment.



*For A Shape pulley, the set screw hole is set at around 120° to keep away from peaks.

⊗ Not applicable to K Shape.
*No tapped holes and set screws

*Applicable to B Shape only.
*No tapped holes and
set screws.

*Applicable to A Shape only.
*Shaft Bore Dia. D is general tolerance.
*No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Specs	Shaft Bore Spec. (1mm Increment)																			P.D.	O.D.	D	F	E
		H			P		N / C		HU		PU		NU		V / F				Y									
Type	Teeth	Type Nominal Width			d _{H7}						d _{H7}				Z _{H7}		J (0.1mm Increment)	d	Q _{H7} / R _{H7}	S / T								
			A	B-K	A	B-K	A	B	A	B-K	A	B-K	A	B	A	B	A / B	A	A	A								
(2017 Aluminum Alloy) HTPA HTPB HTPK HTPN	14	S2M040 *A :.5 *W :.9 *L :.17	A	H	HU	3,4	3,4		3,4			A	A	—	A	—	—	—	—	—								
	15					3,4	3,4		3,4			A	A	—	A	—	—	—	—	—	—	—						
	16*					3,4,5	3,4,5		3,4,5	—	—	A,B	A,B	—	A,B	—	—	3	—	5	—	3	5					
	18*					3,4,5	3,4,5		3,4,5			A,B	A,B	—	A,B	—	—	3	—	5	—	3	5					
	20*					3-6	3-6		3-6			A,B	A,B	—	A,B	—	—	3,4	—	5,6	—	3,4	5,6					
	22*					3-6	3-6		3-6			A,B	A,B	—	A,B	—	—	3,4	—	5,6	—	3,4	5,6					
	23					3-6	3-6		3-6			A,B	A,B	—	A,B	—	—	3,4	—	5,6	—	3,4	5,6					
	24*					3-7	3-7		3-7	—	—	A-C	A-C	—	A-C	—	—	3,4,5	—	5,6,7	—	3-5	5-7					
25*	3-7	3-7		3-7	—	—	A-C	A-C	—	A-C	—	—	3,4,5	—	5,6,7	—	3-5	5-7										
(1045 Carbon Steel) HTPT HTPM HTPP	26	S2M060 *A :.7 *W :.11 *L :.19	K	P	PU	3-8	3-8		3-8			A-D	A-D	—	A-D	—	—	3-6	—	5-8								
	28					3-8	3-8		3-8			A-D	A-D	—	A-D	—	—	3-6	—	5-8	—	3-6	5-8					
	30*					3-8	3-8		3-8			A-D	A-D	—	A-D	—	—	3-6	—	5-8	—	3-6	5-8					
	32*					4-10	4-8	4-10	4,5,6	8		B-E	B-D	D,E	B	D	—	4-7	4-6	6-10	6-8	4-7	6-10					
(304 Stainless Steel) HTPS	34	S2M100 *A :.11 *W :.15 *L :.23	A	F	Y	4-10	4-10	4-10	4-8	8,10	—	B-E	B-E	D,E	B-D	D,E	—	4-7	4-6	6-10	6-8							
	36*					4-10	4-10	4-10	4-8	8,10		B-E	B-E	D,E	B-D	D,E	—	4-8	4-8	6-11	6-10	4-7	6-10					
	40*					4-12	4-13	4-12	4-10	8-12	8	B-E	D-F	D,E	B-E	D,E	D	4-10	4-10	6-12	6-12	4-7	6-10					
	44					5-15	5-15	5-13	5-12	8-13	8-11	C-F	C-F	D-F	C-E	D-F	D,E	5-13	5-13	7-15	7-15	5-13	7-15					
	48					5-17	5-16	5-15	5-12	8-15	8-11	C-F	C-G	D-F	C-E	D-F	D,E	5-15	5-14	7-17	7-16	5-15	7-17					
	50*					5-17	5-16	5-16	5-12	8-16	8-11	C-F	C-G	D-G	C-E	D-G	D,E	5-15	5-14	7-24	7-16	5-15	7-24					
	60					5-24	5-25	5-22	5-22	8-22	8-16	C-J	C-G	D-H	C-F	D-H	D-G	5-22	5-22	7-24	7-24	5-22	7-24					
	72					5-30	5-30	5-24	5-24	8-22	8-17	C-K	C-K	D-C	C-J	D-H	D-G	5-28	5-28	7-30	7-26	7-28	7-30					

① For inch hole dimensions detail information refer to next page. ② Shaft Bore Dia. 6.35 is selectable for Shaft Bore specifications H, P, V and F. ③ (R)-d≥2 for shaft bore specification Y. ④ HTFS is available for * marked No. of teeth only. ⑤ Shaft Bore Dia. 8, 9, 11, 13, 14, 17, 21, 22 are not available for Shaft Bore specification C. ⑥ Z=d-2 for shaft bore specification V and F. ⑦ Shaft Bore Dia. 9 is not available for Shaft Bore specification N. ⑧ Q(R)-d≥3 for shaft bore specification Y. ⑨ Select NK10 when New JIS Keypad Bore + Tap with shaft bore diameter of 10 and keyway width 4.0mm (height 1.8mm) is requested.



High Torque Timing Pulleys

S2M Type



Ordering Example

Part Number																	
Material Type	Tooth No.	Belt Type	Belt Width														
HTPA	48	Y6	040														
	Part Number	–	Pulley Shape	–	Shaft Bore Spec. / Inner Dia.	–	Z	–	J	–	Q	–	R	–	S	–	T
(Shaft Bore : H / P / N / C)	HTPA48S2M040	–	B	–	N10												
(Shaft Bore : V / F)	HTPA60S2M060	–	B	–	V10	–	Z17	–	J14.2								
(Shaft Bore : Y)	HTPA36S2M100	–	A	–	Y6						Q10	–	R10	–	S3	–	T3

Conveying	—
Positioning	•
Power Transmission	•
High Speed	•

■ Inch Hole Specifications

No.	Nominal	Dimension (mm)
A	1/8	3.175
B	3/16	4.763
C	1/4	6.350
D	5/16	7.938
E	3/8	9.525
F	1/2	12.700
G	5/8	15.875
H	3/4	19.050
J	7/8	22.225
K	1	25.400



Days to Ship

HTPA / HTPT / HTPM / HTPP / HTPS

4 Days

ⓘ Non-Returnable

HTPB / HTPK / HTPN

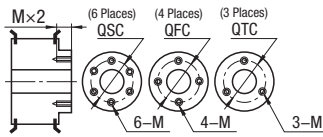
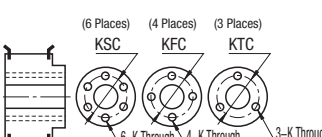
7 Days

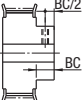



ⓘ Non-Returnable



Alterations

Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	(KC90 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC / TPC / SLH)
HTPM48S2M040	B	H10							NFC

Alterations	Set Screw Angle	Side Tapped Hole	Side Through Hole
Code	KC90	QSC / QFC / QTC	KSC / KFC / KTC
Spec.	Changes an angle of set screw to 90°. ⓘ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.	Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 1mm Increment) ⓘ Thickness required: minimum 2mm A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$ B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$ ⓘ $d=Z$ when the Shaft Bore Specifications is V. 	Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 1mm Increment) ⓘ Thickness required: minimum 2mm A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$ B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$ ⓘ $d=Z$ when the Shaft Bore Specifications is V. 
		ⓘ Specify KC90 when selecting QFC for Shaft Bore specifications P, N and C. ⓘ The pilot hole for tapping may go through. ⓧ Not applicable to Shaft Bore Specifications F or Y. ⓧ When the Shaft Bore Specifications are P, N or C, QSC is not applicable. ⓧ Not applicable to K Shape. M Selection M3, M4, M5, M6, M8 Ordering Code QFC28-M4	ⓘ Specify KC90 when selecting KFC for Shaft Bore Specifications P, N and C. ⓧ Not applicable to K Shape. ⓧ Not applicable to Shaft Bore Specifications F or Y. ⓧ When the Shaft Bore Specifications are P, N or C, KSC is not applicable. K (Through Hole Dia.) Selection K4.0~K13.0 (0.5mm Increment) Ordering Code KSC20-K5

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length												
Code	BC	NFC	RFC / LFC	FC	TPC	SLH												
Spec.	<p>Cuts the hub length in 0.5mm increment.</p> <p>① Shaft Bore specification: H, V, F: 3≤BC≤L-W</p> <p>① Shaft Bore specification: P, N, C: M+3≤BC≤L-W</p> <div></div> <p>Ordering Code BC6.5</p> <p>① Clear anodized products may not have surface treatment on the embossed plane.</p> <p>⊗ Not applicable to K and A Shape.</p>	<p>Flange is not installed. (Flange included)</p> <div></div>	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p> <p>① Same on A Shape</p> <p>⊗ Not applicable to K Shape.</p> <div></div>	<p>Lowers flange by cutting.</p> <p>FC: 0.5mm Increment</p> <p>⊗ Not available for Stainless Steel Type.</p> <p>① No surface treatment applied on flange circumference.</p> <div></div> <p>① FC≥(O.D.)+2</p> <p>① FC≤F-2</p> <p>Ordering Code FC17</p>	<p>Changes the tapped hole dimension.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><tr><th>M</th><th>TPC</th></tr><tr><td>M3</td><td>M4</td></tr><tr><td>M4</td><td>M3</td></tr></table> <p>Ordering Code TPC4</p>	M	TPC	M3	M4	M4	M3	<p>Changes the length of the included set screws.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><tr><th>Set Screw</th><th>SLH</th></tr><tr><td>M3 x 3</td><td>6</td></tr><tr><td>M4 x 3</td><td>5, 8</td></tr></table> <p>Ordering Code SLH8</p>	Set Screw	SLH	M3 x 3	6	M4 x 3	5, 8
	M	TPC																
M3	M4																	
M4	M3																	
Set Screw	SLH																	
M3 x 3	6																	
M4 x 3	5, 8																	



High Torque Timing Belts

S2M Type

① Although some tooth fabrics for MXL and XL rubber belts (TBN) are change from black to brown to prevent rubber-dust generation. However, it does not affect the performance.

RoHS

① Operating Temp.
Rubber: -30~90°C
Polyurethane: 0~80°C

*HTBN has no groove between teeth.

Type	Material	
HTBN	(1) Back Rubber	Chloroprene Rubber
	(2) Tooth Rubber	Chloroprene Rubber
	(3) Core Wire	Glass Fiber Cord S and Z Twist Alternative Series
	(4) Base Cloth	Nylon Cloth
HTUN	(1) (2) (4) Body	Polyurethane
	(3) Core Wire	Aramid Fiber

Type	Pitch	Ra	Lr	H	h	i	PLD	Unit Mass g/m (Width: 10 mm)
S2M	2	1.3	1.3	1.36	0.76	0.6	0.254	13.0 (11.0)

① Values in () are the unit mass of polyurethane.

Part Number		Teeth	Belt Circum. Length (mm)
Type	Belt No.		
HTBN (Rubber)	76 S2M	38	76
	78 S2M	39	78
	80 S2M	40	80
	88 S2M	44	88
	90 S2M	45	90
	100 S2M	50	100
	112 S2M	56	112
	116 S2M	58	116
	118 S2M	59	118
	122 S2M	61	122
	124 S2M	62	124
	126 S2M	63	126
	128 S2M	64	128
	130 S2M	65	130
	132 S2M	66	132
	134 S2M	67	134
	138 S2M	69	138
	140 S2M	70	140
	142 S2M	71	142
	144 S2M	72	144
	152 S2M	76	152
	160 S2M	80	160
	164 S2M	82	164
HTUN (Polyurethane)	166 S2M	83	166
	172 S2M	86	172
	176 S2M	88	176
	180 S2M	90	180
	186 S2M	93	186
	190 S2M	95	190
	194 S2M	97	194
	200 S2M	100	200
	204 S2M	102	204
	210 S2M	105	210
	212 S2M	106	212
	214 S2M	107	214
	218 S2M	109	218
	220 S2M	110	220
	224 S2M	112	224
	230 S2M	115	230
	234 S2M	117	234
	236 S2M	118	236
	240 S2M	120	240
	242 S2M	121	242
	244 S2M	122	244
	246 S2M	123	246

Part Number		Teeth	Belt Circum. Length (mm)
Type	Belt No.		
HTBN (Rubber)	250 S2M	125	250
	256 S2M	128	256
	260 S2M	130	260
	266 S2M	133	266
	280 S2M	140	280
	290 S2M	145	290
	300 S2M	150	300
	320 S2M	160	320
	324 S2M	162	324
	328 S2M	164	328
	330 S2M	165	330
	340 S2M	170	340
	360 S2M	180	360
	370 S2M	185	370
	380 S2M	190	380
	396 S2M	198	396
	400 S2M	200	400
	436 S2M	218	436
	448 S2M	224	448
	486 S2M	243	486
	488 S2M	244	488
	500 S2M	250	500
	520 S2M	260	520
	560 S2M	280	560
	572 S2M	286	572
HTUN (Polyurethane)	580 S2M	290	580
	600 S2M	300	600
	630 S2M	315	630
	710 S2M	355	710
	800 S2M	400	800
	900 S2M	450	900
	984 S2M	492	984
	1196 S2M	598	1196
	1250 S2M	625	1250
	1274 S2M	637	1274
	1290 S2M	645	1290



Ordering Example

Part Number		Belt Nominal Width
Type	Belt No.	
HTBN	2800 S14M	400
HTUN	225 S3M	100



Days to Ship

S2M / S3M / S5M / S8M

6

Days Ⓢ Non-Returnable



High Torque Timing Pulleys

S3M Type

RoHS

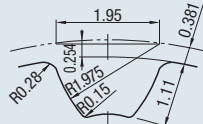


Part Number			Material		Surface Treatment
Belt Width 6mm	Belt Width 10mm	Belt Width 15mm	Pulley	Flange	
A: 7 W: 11 L: 19	A: 11 W: 15 L: 23	A: 17 W: 21 L: 29			
HTPA_S3M060	HTPA_S3M100	HTPA_S3M150	2017 Aluminum Alloy (Duralumin)	5052 Aluminum Alloy	Clear Anodize
HTPB_S3M060	HTPB_S3M100	HTPB_S3M150			Black Anodize
HTPK_S3M060	HTPK_S3M100	HTPK_S3M150			Hard Clear Anodize*
HTPN_S3M060	HTPN_S3M100	HTPN_S3M150			Electroless Nickel Plating
HTPT_S3M060	HTPT_S3M100	HTPT_S3M150			—
HTPM_S3M060	HTPM_S3M100	HTPM_S3M150	1045 Carbon Steel	Low Carbon Steel	Black Oxide
HTPP_S3M060	HTPP_S3M100	HTPP_S3M150			Electroless Nickel Plating
HTPS_S3M060	HTPS_S3M100	—	304 Stainless Steel		—

① Flanges are installed. Set screws are included with P, N & C bore hole specification.

*Hard Anodize Treatment: Film Hardness 300HV~

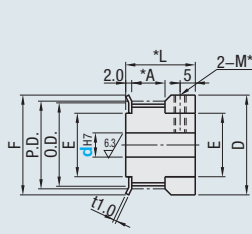
Standard Tooth Profile



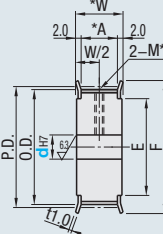
Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 3.0 mm)

Pulley Shape

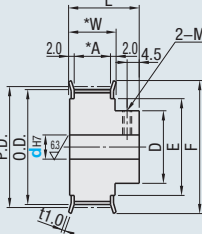
K Shape



A Shape



B Shape



*For Shaft Bore Specifications H (Round Hole), V (Stepped Hole) and Y (Both Sides Stepped Hole), no tapped hole is machined.

Tapped Hole Dimensions (Shaft Bore: P / N / C)

d _{H7} Shaft Bore Inner Dia.	M (Coarse)	Accessory Set Screw
4-5	M3	M3 x 3
6-17	M4	M4 x 3
18-33	M5	M5 x 4
34-42	M6	M6 x 5

Shaft Bore Specs.

① The shaft bore may not have surface treatment.

H Round Hole

P Round Hole+Tap

N New JIS Keywayed Bore + Tap

NU Inch New JIS Key Groove Hole + Tap

F Stepped Hole

(counterbored holes on the hub side)

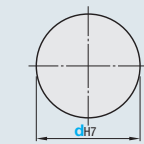
Y Both Ends Stepped Hole

HU Inch Round Hole

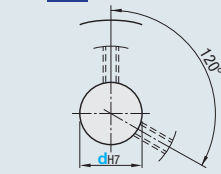
PU Inch Round Hole+Tap

C Old JIS Keywayed Bore + Tap

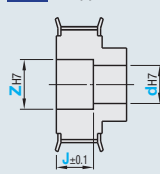
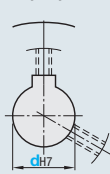
V Stepped Hole



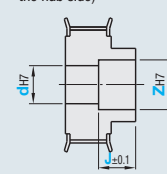
*No tapped holes and set screws.



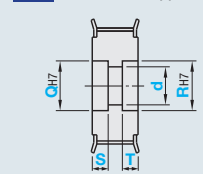
*For A Shape pulley, the set screw hole is set at around 120° to keep away from peaks.
⊗ Shaft bore specification P is not selectable for A Shape with 22 or less teeth and nominal width 060.



⊗ Not applicable to K Shape.
*No tapped holes and set screws.



*Applicable to A Shape only.
*No tapped holes and set screws.



*Applicable to A Shape only.
*Shaft Bore Dia. D is general tolerance.
*No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Specs	Shaft Bore Spec. (1mm Increment)																				P.D.	O.D.	D	F	E																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
Type	Teeth	Type Nominal Width			H	P		N / C		HU		PU		NU		V / F				Y																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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① For inch hole dimensions detail information refer to next page. ⊗ Shaft Bore Dia. 9 is not available for Shaft Bore specification N. ① HTPS is available for * marked No. of teeth only. ⊗ Shaft Bore Dia. 8, 9, 11, 13, 14, 17, 21 ~ 32 are not available for Shaft Bore specification C. ① Z-d≥2 for shaft bore specification V and F. ⊗ Shaft bore specification P is not selectable for A Shape with 22 or less teeth and nominal width 060. ① Q(R)-d≥2 for shaft bore specification Y. ① Shaft Bore Dia. 6.35 is selectable for Shaft Bore specifications H, P, V and F.Q (R)-d≥2 for shaft bore specification Y. ① Select NK10 when New JIS Keywayed Bore + Tap with shaft bore diameter of 10 and keyway width 4.0mm (height 1.8mm) is requested.



High Torque Timing Pulleys

S3M Type



Ordering Example

Part Number			
Material Type	Tooth No.	Belt Type	Belt Width
HTPA	48	Y6	040

Conveying	—
Positioning	•
Power Transmission	•
High Speed	•

	Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T
(Shaft Bore: H / P / N / C)	HTPA32S3M100	A	C16						
(Shaft Bore: V / F)	HTPA48S3M150	A	V12	Z26	J17.0				
(Shaft Bore: Y)	HTPA36S3M100	A	Y10			Q19	R15	S5	T4

Inch Hole Specifications

No.	Nominal	Dimension (mm)
A	1/8	3.175
B	3/16	4.763
C	1/4	6.350
D	5/16	7.938
E	3/8	9.525
F	1/2	12.700
G	5/8	15.875
H	3/4	19.050
J	7/8	22.225
K	1	25.400



Days to Ship

HTPA / HTPT / HTPM / HTPP / HTPS

4 Days

ⓘ Non-Returnable

HTPB / HTPK / HTPN

7 Days

ⓘ Non-Returnable

HTPA

(Applicable for A Shape and K Shape with No. of teeth from 14 to 72)

5 Days

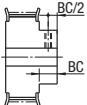



ⓘ Non-Returnable



Alterations

Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	KC90 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC / TPC / SLH
HTPA60S3M100	A	H16							KSC25

Alterations	Set Screw Angle	Side Tapped Hole	Side Through Hole
Code	KC90	QSC / QFC / QTC	KSC / KFC / KTC
Spec.	<p>Changes an angle of set screw to 90°.</p> <p>ⓘ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.</p>	<p>Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 1mm Increment)</p> <p>ⓘ Thickness required: minimum 2mm</p> <p>A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$</p> <p>B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$</p> <p>ⓘ d=Z when the Shaft Bore Specifications is V.</p> <p>ⓘ Specify KC90 when selecting QFC for Shaft Bore specifications P, N and C.</p> <p>ⓘ The pilot hole for tapping may go through.</p> <p>⊗ Not applicable to Shaft Bore Specifications F or Y.</p> <p>⊗ When the Shaft Bore Specifications are P, N or C, QSC is not applicable.</p> <p>⊗ Not applicable to K Shape.</p> <p>M Selection M3, M4, M5, M6, M8 Ordering Code QFC28-M4</p>	<p>Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 1mm Increment)</p> <p>ⓘ Thickness required: minimum 2mm</p> <p>A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$</p> <p>B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$</p> <p>ⓘ d=Z when the Shaft Bore Specifications is V.</p> <p>ⓘ Specify KC90 when selecting KFC for Shaft Bore Specifications P, N and C.</p> <p>⊗ Not applicable to K Shape.</p> <p>⊗ Not applicable to Shaft Bore Specifications F or Y.</p> <p>⊗ When the Shaft Bore Specifications are P, N or C, KSC is not applicable.</p> <p>K (Through Hole Dia.) Selection K4.0~K13.0 (0.5mm Increment) Ordering Code KSC20-K5</p>

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length																		
Code	BC	NFC	RFC / LFC	FC	TPC	SLH																		
Spec.	<p>Cuts the hub length in 0.5mm increment.</p> <p>① Shaft Bore specification: H, V, F: 3≤BC≤L-W</p> <p>① Shaft Bore specification: P, N, C: M+3≤BC≤L-W</p>  <p>Ordering Code BC6.5</p> <p>① Clear anodized products may not have surface treatment on the embossed plane.</p> <p>⊗ Not applicable to K and A Shape.</p>	<p>Flange is not installed. (Flange included)</p> 	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p> <p>① Same on A Shape</p> <p>⊗ Not applicable to K Shape.</p> 	<p>Lowers flange by cutting. FC: 0.5mm Increment</p> <p>⊗ Not available for Stainless Steel Type.</p> <p>① No surface treatment applied on flange circumference.</p>  <p>① FC≥(O.D.)÷2</p> <p>① FC≤F-2</p> <p>Ordering Code FC35</p>	<p>Changes the tapped hole dimension.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><tr><th>M</th><th>TPC</th></tr><tr><td>M3</td><td>M4</td></tr><tr><td>M4</td><td>M3 / M5</td></tr><tr><td>M5</td><td>M4</td></tr></table> <p>Ordering Code TPC5</p>	M	TPC	M3	M4	M4	M3 / M5	M5	M4	<p>Changes the length of the included set screws.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><tr><th>Set Screw</th><th>SLH</th></tr><tr><td>M3 x 3</td><td>6</td></tr><tr><td>M4 x 3</td><td>5, 8</td></tr><tr><td>M5 x 4</td><td>6, 10</td></tr><tr><td>M6 x 5</td><td>10</td></tr></table> <p>Ordering Code SLH10</p>	Set Screw	SLH	M3 x 3	6	M4 x 3	5, 8	M5 x 4	6, 10	M6 x 5	10
	M	TPC																						
M3	M4																							
M4	M3 / M5																							
M5	M4																							
Set Screw	SLH																							
M3 x 3	6																							
M4 x 3	5, 8																							
M5 x 4	6, 10																							
M6 x 5	10																							



Keyless High Torque Timing Pulleys

S3M Type

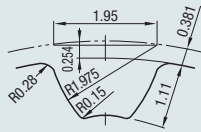
RoHS



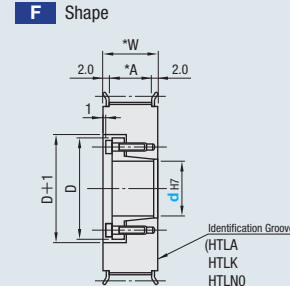
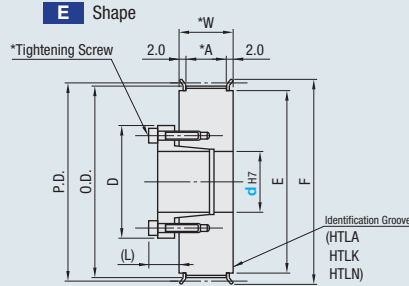
Part Number				Material			Surface Treatment		
Belt Width 10mm A: 11 W: 15		Belt Width 15mm A: 17 W: 21		Pulley	Flange	Bushing	Pulley	Flange	Bushing
HTLA_S3M100	HTLA_S3M150	HTLK_S3M100	HTLK_S3M150	7075 Aluminum Alloy	5052 Aluminum Alloy	1045 Carbon Steel	Clear Anodize		—
HTLN_S3M100	HTLN_S3M150	HTPL_S3M100	HTPL_S3M150				Hard Clear Anodize		—
HTLG_S3M100	HTLG_S3M150			1045 Carbon Steel	Low Carbon Steel	1045 Carbon Steel	Electroless Nickel Plating		—
							Black Oxide		
							Electroless Nickel Plating		

Pulley Shape

Standard Tooth Profile



Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 3.0 mm)



① The shaft bore may not have surface treatment.

② Two types of bushings are available: Standard Type (ST Bushings) and Short Type (SH Bushings).

*For quantity and size of tightening screws with Flange attached.

Part Number			Pulley Shape	d _{H7} Range (Select Shaft Bore Dia. from Table 1)				P.D.	O.D.	F	E
Type	Teeth	Type, Nominal Width		S3M100		S3M150					
				E (ST Bushing)	F (SH Bushing)	E (ST Bushing)	F (SH Bushing)				
HTLA HTLK HTLN HTPL HTLG	34	S3M100 *A :11 *W :15	E	8	6	8	6	32.47	31.71	40	28
	36			8	6	8	6	34.38	33.62	40	28
	40			8, 10, 11	8	8, 10, 11	8	38.20	37.44	44	32
	44			8~14	8	8~14	8~12	42.02	41.25	48	36
	48	S3M150 *A :17 *W :21	F	8~16	8	8~16	8~12	45.84	45.07	50	38
	50			8~17	8	8~17	8~12	47.75	46.98	52	40
	60			8~19	8	8~19	8~12	57.30	56.53	61	46
	72			8~25	8	8~25	8~12	68.75	67.99	74	58

Table 1: Select Shaft Bore Diameter

dH7	Max. Allowable Torque Nm		D		(L)
	ST Bushing	SH Bushing	ST Bushing	SH Bushing	
6	—	5.6	—	22.5	—
8	16	8.5	25.5	24.5	8.5
10	39	18	30	29	
11	43	20	31	30	10.5
12	48	23	32	31	
14	73		35		12
15	78		36		
16	83		37		13
17	88		38		
18	154	—	43	—	
19	163		45		14
20	171		46		
22	186		48		
24	206	—	50	—	14
25	216		52		

① Electroless nickel plated bushing decreases maximum allowable torque and allowable thrust load by 20~30%

Alterations Code	Surface Treatment
	BMC / BMR
Spec.	Applies electroless nickel plating on a bushing. (Anti-rusting treatment applied to screws). ① Electroless nickel plated bushing decreases allowable torque by 20~30%. BMC: Non-RoHS-compliant (Screw: Dacrotized treatment applied 4137 Alloy Steel) BMR: RoHS-compliant (Screw: GeoMet coating applied 4137 Alloy Steel)



Ordering Example

Part Number	—	Pulley Shape	—	Shaft Bore Dia.
HTPL 60S3M100	—	E	—	18



Days to Ship

HTLA / HTPL / HTLG

7 Days

① Non-Returnable

HTLK / HTLN

7 Days

① Non-Returnable



Alterations

Part Number	—	Pulley Shape	—	Shaft Bore Dia.	—	(BMC / BMR / FC / NFC / LFC / RFC)
HTLA 60S3M100	—	E	—	18	—	FC59

Alterations Code	Flange Cut	No Flange	Single Flange
	FC	NFC	LFC / RFC
Spec.	Lowers flange by cutting. FC: 0.5mm Increment ① No surface treatment applied on flange circumference. ① FC ≥ (O.D.) ÷ 2 ① FC ≤ F ÷ 2 Ordering Code FC35	Flange is not installed. (Flange included) ① FC ≥ (O.D.) ÷ 2 ① FC ≤ F ÷ 2	Flange installed on the bushing side (LFC) or the opposite side (RFC) only prior to shipping. ① FC ≥ (O.D.) ÷ 2 ① FC ≤ F ÷ 2




Keyless High Torque Timing Pulleys

S3M Type – Keyless Bushing with Centering Function –

■ **Features:** Keyless Bushing with Centering Function: It tolerates an average of 1.2 times and 2.5 times greater torque compared to the conventional ST bushing and SH bushing respectively.

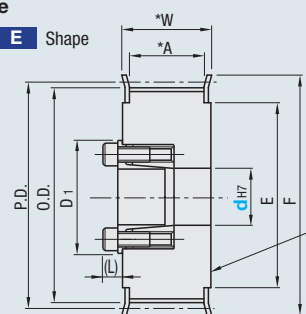
RoHS



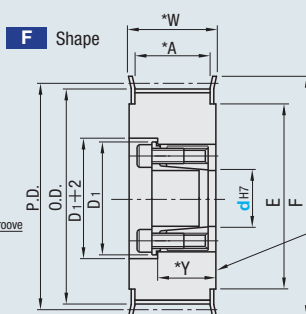
Part Number		Material			Surface Treatment		
Belt Width 10mm	Belt Width 15mm	Pulley	Flange	Bushing	Pulley	Flange	Bushing
A: 11 W: 15	A: 17W: 21Y: 14						
HHTA_S3M100	HHTA_S3M150	7075 Aluminum Alloy	5052 Aluminum Alloy	1045 Carbon Steel	Clear Anodize		—
HHTK_S3M100	HHTK_S3M150				Hard Clear Anodize		—

■ **Pulley Shape**

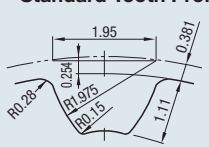
E Shape



F Shape



■ **Standard Tooth Profile**



Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 3.0 mm)

ⓘ The shaft bore may not have surface treatment.

Part Number			Pulley Shape	d _{H7} Range (Select Shaft Bore Dia. from Table 1)			P.D.	O.D.	F	E
				S3M100	S3M150					
Type	Teeth	Type, Nominal Width		E (ST Bushing)	E (ST Bushing)	F (SH Bushing)				
HHTA HHTK	34	S3M100 *A :11 *W :15	E	6	6	6	32.47	31.71	40	28
	36			6	6	6	34.38	33.62	40	28
	40			8	8	8	38.20	37.44	44	32
	44			8, 10	8, 10	8, 10	42.02	41.25	48	36
	48	S3M150 *A :17 *W :21	F	8, 10	8-12	8, 10	45.84	45.07	50	38
	50			8, 10	8-14	8, 10	47.75	46.98	52	40
	60			8, 10	8-17	8, 10	57.30	56.53	61	46
	72			8-10	8-19	8-10	68.75	67.99	74	58

Table 1: Select Shaft Bore Diameter

d _{H7}	Max. Allowable Torque (Nm) HHTA / HHTK	D ₁	(L)
6	12.7	21.5	6
8	19.6	23.5	
10	27.5	25.5	
12	44.1	28.5	
14	63.7	30.5	6.5
15	80.4	31.5	
16	83.3	33.0	
17	92.2	33.5	
18	95.1	34.5	
19	98.1	35.5	

Alterations	Surface Treatment
Code	BMC / BMR
Spec.	Applies electroless nickel plating on a bushing. (Anti-rusting treatment applied to screws). ⓘ Electroless nickel plated bushing decreases allowable torque by 20~30%. BMC: Non-RoHS-compliant (Screw: Dacrotized treatment applied 4137 Alloy Steel) BMR: RoHS-compliant (Screw: GeoMet coating applied 4137 Alloy Steel)



Ordering Example

Part Number	Pulley Shape	Shaft Bore Dia.
HHTA60S3M150	E	15



Days to Ship

HHTA

7 Days

ⓘ Non-Returnable

HHTK

7 Days

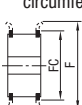
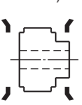
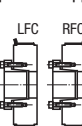
ⓘ Non-Returnable



Alterations



Part Number	Pulley Shape	Shaft Bore Dia.	(BMC / BMR / FC / NFC / LFC / RFC)
HHTA34S3M150	F	6	BMC

Alterations	Flange Cut	No Flange	Single Flange
Code	FC	NFC	LFC / RFC
Spec.	<p>Low flange by cutting. FC: 0.5mm Increment ⓘ No surface treatment applied on flange circumference.</p>  <p>ⓘ FC ≥ (O.D.) + 2 ⓘ FC ≤ F - 2 Ordering Code FC35</p>	<p>Flange is not installed. (Flange included)</p> 	<p>Flange installed on the bushing side (LFC) or the opposite side (RFC) only prior to shipping.</p> 



Clamping High Torque Timing Pulleys

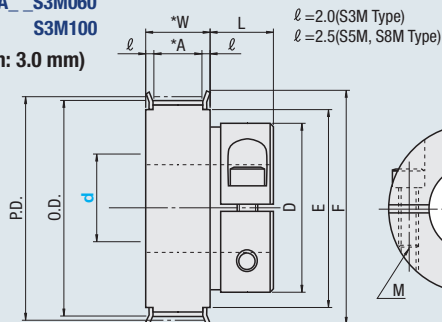
S3M Type

■ **Features:** Can be connected with a shaft by bolting. Easy positioning.

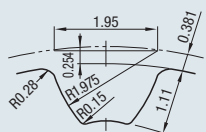
RoHS



HTCPA _ S3M060
S3M100
(Pitch: 3.0 mm)



■ **Standard Tooth Profile**
(Pitch: 3.0 mm)



■ **Recommended Shaft Tolerance h7(g6)**

① Finish surface roughness: Ra = 3.2a or less.

Type	Material		Surface Treatment
	Pulley	Flange	
HTCPA	7075 Aluminum Alloy	5052 Aluminum Alloy	Clear Anodize

*Flange attached. Hexagon socket head cap screws are included.

① Surface treatment may not be applied to shaft bores.
The tooth groove slightly changes according to No. of teeth.

Part Number			d Selection	P.D.	O.D.	D	F	E	L	Clamp Screws	
Type	Teeth	Type, Nominal Width								M	Tightening Torque (Nm)
HTCPA	24	S3M060 *A :7 *W :11	4	22.92	22.16	13	25	16	9	2	0.4
	26		4	24.83	24.07		28	18			
	28		4	26.74	25.98		30	20			
	30		6 8	28.65	27.89	20	32	23			
	32		6 8	30.56	29.80		35	25			
	36		6 8	34.38	33.62	26	40	28	12.5	3	1.5
	40	S3M100 *A :11 *W :15	8 10	38.20	37.44		44	32			
	44		8 10	42.02	41.25	31	48	36	14	4	3.5
	48		8 10 11 12	45.84	45.07	33	50	38			
	50		8 10 11 12 13 14	47.75	46.98	36	52	40			
	60		8 10 11 12 13 14 15 16	57.30	56.53	41	61	46	15.5	5	6

■ **Allowable Torque**

Type	Teeth	Shaft Diameter	Allowable Torque (Nm)
S3M	24 26 28	4	0.16
	30 32	6	0.95
		8	2.6
	36	6	0.95
		8	2.6
	40	8	2.6
		10	2.6
	44	8	2.6
		10	2.6
		12	2.6
	48	8	2.6
		10	2.6
		11	2.6
		12	2.6
	50	8	2.6
		10	2.6
		11	2.6
		12	2.6
	60	13	7.6
		14	7.6
		15	7.6
		16	7.6



Ordering Example

Part Number				Shaft Bore Dia.
Type	Teeth	Type, Nominal Width		
HTCPA40	-	S3M060	-	10



Days to Ship

5 Days

① Non-Returnable

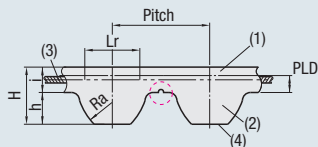


High Torque Timing Belts

S3M Type

ⓘ Although some tooth fabrics for MXL and XL rubber belts (TBN) are change from black to brown to prevent rubber-dust generation. However, it does not affect the performance.

RoHS



*HTBN has no groove between teeth.

ⓘ Operating Temp.
Rubber: -30~90°C
Polyurethane: 0~80°C

Type	Material
HTBN	(1) Back Rubber
	(2) Tooth Rubber
	(3) Core Wire
	(4) Base Cloth
HTUN	(1) (2) (4) Body
	(3) Core Wire

Type	Pitch	Ra	Lr	H	h	i	PLD	Unit Mass g/m (Width: 10 mm)
S3M	3	1.95	1.95	1.94	1.14	0.8	0.381	19.0 (15.0)

ⓘ Values in () are the unit mass of polyurethane.

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
HTBN (Rubber)	120 S3M	60 (6 mm)	40	120
	123 S3M		41	123
	129 S3M		43	129
	141 S3M		47	141
	144 S3M		48	144
	150 S3M		50	150
	162 S3M		54	162
	171 S3M		57	171
	174 S3M		58	174
	177 S3M		59	177
	180 S3M	100 (10 mm)	60	180
	186 S3M		62	186
	189 S3M		63	189
	192 S3M		64	192
	195 S3M		65	195
	201 S3M		67	201
	207 S3M		69	207
	210 S3M		70	210
	213 S3M		71	213
	219 S3M		73	219
HTUN (Polyurethane)	222 S3M	100 (10 mm)	74	222
	225 S3M		75	225
	234 S3M		78	234
	237 S3M		79	237
	246 S3M	150 (15 mm)	82	246
	249 S3M		83	249
	252 S3M		84	252
	255 S3M		85	255
	264 S3M		88	264
	273 S3M		91	273
	276 S3M		92	276
	279 S3M		93	279
	285 S3M		95	285
	288 S3M		96	288
	291 S3M		97	291
	300 S3M		100	300
	312 S3M		104	312
	318 S3M		106	318
	327 S3M		109	327
	339 S3M		113	339
	345 S3M		115	345
	354 S3M		118	354
	360 S3M		120	360
	363 S3M		121	363
	369 S3M		123	369

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
HTBN (Rubber)	375 S3M	60 (6 mm)	125	375
	384 S3M		128	384
	387 S3M		129	387
	396 S3M		132	396
	402 S3M		134	402
	405 S3M		135	405
	408 S3M		136	408
	420 S3M		140	420
	423 S3M		141	423
	432 S3M	100 (10 mm)	144	432
	453 S3M		151	453
	456 S3M		152	456
	459 S3M		153	459
	474 S3M		158	474
	480 S3M		160	480
	483 S3M		161	483
	486 S3M		162	486
	501 S3M		167	501
	507 S3M		169	507
HTUN (Polyurethane)	519 S3M	60 (6 mm)	173	519
	525 S3M		175	525
	537 S3M		179	537
	540 S3M		180	540
	564 S3M	100 (10 mm)	188	564
	591 S3M		197	591
	600 S3M		200	600
	612 S3M		204	612
	633 S3M		211	633
	645 S3M		215	645
	660 S3M		220	660
	681 S3M		227	681
	741 S3M	150 (15 mm)	247	741
	750 S3M		250	750
	804 S3M		268	804
	810 S3M		270	810
	852 S3M		284	852
	900 S3M		300	900
	918 S3M		306	918
	1050 S3M		350	1050
	1080 S3M		360	1080
	1119 S3M		373	1119
	1170 S3M		390	1170
	1203 S3M		401	1203
	1221 S3M		407	1221
	1236 S3M		412	1236

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
HTBN (Rubber)	1245 S3M	60 (6 mm)	415	1245
	1260 S3M		420	1260
	1290 S3M		430	1290
	1299 S3M	100 (10 mm)	433	1299
	1332 S3M		444	1332
HTUN (Polyurethane)	1401 S3M	150 (15 mm)	467	1401
	1596 S3M		532	1596
	1680 S3M		560	1680
	1788 S3M		596	1788
	2100 S3M		700	2100



Ordering Example

Part Number		-	Belt Nominal Width
Type	Belt No.		
HTBN	2800 S14M	-	400
HTUN	225 S3M	-	100



Days to Ship

S3M / S5M

1 Day

S2M / S3M / S5M / S8M

6 Days

ⓘ Non-Returnable



High Torque Timing Pulleys

S5M Type

RoHS

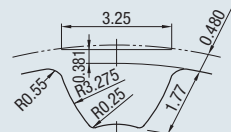


Part Number			Material		Surface Treatment
Belt Width 6mm	Belt Width 10mm	Belt Width 15mm	Pulley	Flange	
A: 7 W: 11 L: 19	A: 11 W: 15 L: 23	A: 17 W: 21 L: 29	2017 Aluminum Alloy (Duralumin)	5052 Aluminum Alloy	Clear Anodize Black Anodize Hard Clear Anodize* Electroless Nickel Plating —
HTPA_S5M100	HTPA_S5M150	HTPA_S5M250			
HTPB_S5M100	HTPB_S5M150	HTPB_S5M250			
HTPK_S5M100	HTPK_S5M150	HTPK_S5M250			
HTPN_S5M100	HTPN_S5M150	HTPN_S5M250			
HTPT_S5M100	HTPT_S5M150	HTPT_S5M250	1045 Carbon Steel	Low Carbon Steel	Black Oxide Electroless Nickel Plating —
HTPM_S5M100	HTPM_S5M150	HTPM_S5M250			
HTPP_S5M100	HTPP_S5M150	HTPP_S5M250			
HTPS_S5M100	HTPS_S5M150	—			
			304 Stainless Steel		

① Flanges are installed. Set screws are included with P, N & C bore hole specification.

*Hard Anodize Treatment: Film Hardness 300HV~

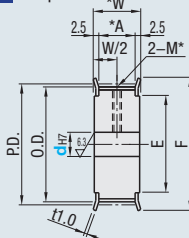
Standard Tooth Profile



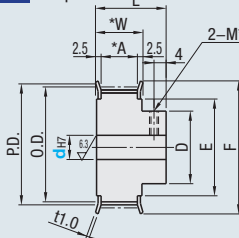
Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 5.0 mm)

Pulley Shape

A Shape



B Shape



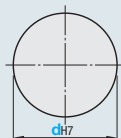
*For Shaft Bore Specifications H (Round Hole), V (Stepped Hole) and Y (Both Sides Stepped Hole), no tapped hole is machined.

Shaft Bore Specs.

① The shaft bore may not have surface treatment.

H Round Hole

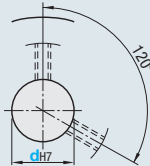
HU Inch Round Hole



*No tapped holes and set screws.

P Round Hole+Tap

PU Inch Round Hole+Tap

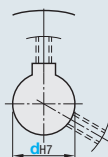


*For A Shape pulley, the set screw hole is set at around 120° to keep away from peaks.

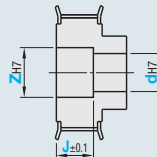
N New JIS Keywayed Bore + Tap

NU Inch New JIS Key Groove Hole + Tap

C Old JIS Keywayed Bore + Tap



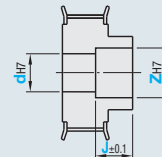
V Stepped Hole



*No tapped holes and set screws.

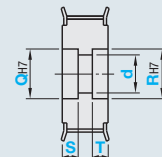
F Stepped Hole

(counterbored holes on the hub side)



*Applicable to B Shape only.
*No tapped holes and set screws.

Y Both Ends Stepped Hole



*Applicable to A Shape only.
*Shaft Bore Dia. D is general tolerance.
*No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Specs	Shaft Bore Spec. (1mm Increment)																				P.D.	O.D.	D	F	E		
Type	Teeth	Type Nominal Width			H				P		N / C		HU		PU		NU		V / F				Y								
					d _{H7}								d _{H7}				Z _{H7}		J (0.1mm Increment)		d		Q _{H7} / R _{H7}							S / T	
			A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B							
Aluminum (2017 Alloy) HTPA HTPB HTPK HTPN	14	S5M100	A	H	5-10	5-10	5-10	5-8	8, 10	—	C-E	C-E	C-E	C, D	D, E	—	5, 6	5, 6	7, 8	7, 8	(For A Shape) 2.0≤J≤W-2.0	5, 6	7, 8	3-14 S±T≤W-3	22.28	21.32	14	26	16		
	15				5-10	5-10	5-10	5-8	8, 10	—	C-E	C-E	C-E	C, D	D, E	—	5-8	5-8	7-10	7-10		5-8	7-10		23.87	22.91	15	28	18		
	16				5-12	5-12	5-12	5-10	8-12	8	C-E	C-E	C-E	C-E	D, E	D	5-10	5-10	7-12	7-12		5-10	7-12		25.46	24.50	17	32	20		
	18				6-14	6-14	6-12	6-11	8-12	8, 10	C-F	C-F	C-E	C-E	D, E	D, E	6-12	6-12	8-14	8-14		6-12	8-14		28.65	27.69	19	33	22		
	19				*A :11	6-16	6-15	6-16	6-11	8-16	8, 10	C-G	C-F	C-G	C-E	D-G	D, E	6-14	6-13	8-16		8-15	6-14		8-16	30.24	29.28	19	36	24	
	20*	*W :16			6-16	6-15	6-16	6-11	8-16	8, 10	C-G	C-G	C-E	C-E	D-G	D, E	6-14	6-13	8-16	8-15	6-14	8-16	31.83	30.87	19	36	24				
	22*	*L :28			7-19	7-19	7-18	7-15	8-18	8-12	D-G	D-G	D-G	D-F	D-G	D, E	7-17	7-17	9-19	9-19	7-17	9-19	35.01	34.05	24	40	27				
	24*	S5M150			7-22	7-22	7-20	7-17	8-20	8-13	D-H	D-H	D-H	D-G	D-H	D-F	7-20	7-20	9-23	9-23	7-20	9-22	38.20	37.24	27	45	30				
	25*				7-22	7-22	7-20	7-17	8-20	8-15	D-H	D-H	D-H	D-G	D-H	D-F	7-20	7-20	9-23	9-23	7-20	9-22	39.79	38.83	27	45	30				
	26				8-27	8-27	8-22	8-21	8-22	8-17	E-K	E-K	E-H	E-H	E-G	8-25	8-25	10-27	10-27	8-25	10-27	41.38	40.42	31	48	35					
28*	*A :17		8-27	8-27	8-24	8-22	8-24	8-18	E-K	E-K	E-J	E-H	E-J	E-G	8-25	8-25	10-27	10-27	8-25	10-27	44.56	43.60	32	48	35						
30*	*W :22		10-28	10-28	10-26	10-23	10-26	10-18	F-K	F-K	F-K	F-J	F-K	F-G	10-26	10-26	12-28	12-28	10-26	12-28	47.75	46.79	33	52	36						
32*	*L :34	10-32	10-32	10-28	10-27	10-28	10-22	F-L	F-L	F-K	F-K	F-K	F-H	10-30	10-30	12-32	12-32	10-30	12-32	50.93	49.97	37	55	40							
34	S5M250	10-37	10-36	10-30	10-30	10-30	10-25	F-M	F-M	F-K	F-K	F-K	F-J	10-35	10-34	12-37	12-36	10-35	12-37	54.11	53.15	40	61	45							
36*		10-37	10-36	10-30	10-30	10-30	10-25	F-M	F-M	F-K	F-K	F-K	F-J	10-35	10-34	12-37	12-36	10-35	12-37	57.30	56.34	40	61	45							
40*		*A :27	10-42	10-42	10-38	10-35	10-38	10-28	F-P	F-P	F-M	F-M	F-M	F-K	10-40	10-40	12-42	12-42	10-40	12-42	63.66	62.70	47	67	50						
44		*W :32	12-50	12-46	12-42	12-38	12-40	12-32	F-R	F-R	F-P	F-M	F-N	F-L	12-48	12-44	14-50	14-46	12-48	14-50	70.03	69.07	50	74	58						
48		*L :44	12-55	12-55	12-45	12-45	12-40	12-40	F-S	F-S	F-Q	F-Q	F-Q	F-N	12-53	12-53	14-55	14-55	12-53	14-55	76.39	75.43	60	83	63						
50	S5M300	12-59	12-59	12-45	12-45	12-43	12-43	F-S	F-S	F-Q	F-Q	F-Q	F-P	12-57	12-57	14-59	14-59	12-57	14-59	79.58	78.62	63	87	67							
60		12-72	12-71	12-45	12-45	12-45	12-45	F-S	F-S	F-Q	F-Q	F-Q	F-Q	12-70	12-69	14-72	14-71	12-70	14-72	95.49	94.53	75	99	80							
72		12-80	12-80	12-65	12-65	12-50	12-50	F-S	F-S	F-S	F-S	F-R	F-R	12-80	12-80	14-92	14-86	12-75	14-92	114.59	113.63	90	119	100							

① For inch hole dimensions detail information refer to next page. ② Shaft Bore Dia. 9 is not available for Shaft Bore specification N. ③ HTPS is available for * marked No. of teeth only. ④ Shaft Bore Dia. 8, 9, 11, 13, 14, 17, 21 ~ 45 are not available for Shaft Bore specification C. ⑤ Z-d≥2 for shaft bore specification V and F.E.Q(R)-d≥2 for shaft bore specification Y. ⑥ Shaft Bore Dia. 6.35 is selectable for Shaft Bore specifications H, P, V and F.Q (R)-d≥2 for shaft bore specification Y. ⑦ Select NK10 when New JIS Keywayed Bore + Tap with shaft bore diameter of 10 and keyway width 4.0mm (height 1.8mm) is requested.



High Torque Timing Pulleys

S5M Type



Ordering Example

Part Number										
Material Type	Tooth No.	Belt Type	Belt Width							
HTPA	48	Y6	040							
	Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	
(Shaft Bore : H / P / N / C)	HTPA20S5M150	B	NK10							
(Shaft Bore : V / F)	HTPA26S5M150	A	V10	Z23	J16.0					
(Shaft Bore : Y)	HTPA40S5M250	A	Y17			Q35	R35	S10	T10	

Conveying	—
Positioning	•
Power Transmission	•
High Speed	•

Inch Hole Specifications

No.	Nominal	Dimension (mm)
A	1/8	3.175
B	3/16	4.763
C	1/4	6.350
D	5/16	7.938
E	3/8	9.525
F	1/2	12.700
G	5/8	15.875
H	3/4	19.050
J	7/8	22.225
K	1	25.400



Days to Ship

HTPA / HTP / HTPM / HTPP / HTPS

4 Days

ⓘ Non-Returnable

HTPB / HTPK / HTPN

7 Days

ⓘ Non-Returnable

HTPA (Applicable for A Shape with No. of teeth from 14 to 40)

5 Days

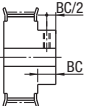

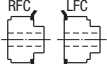

ⓘ Non-Returnable



Alterations

Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	(KC90 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC / TPC / SLH)
HTPM60S5M150	A	H30							KSC25 - K12

Alterations	Set Screw Angle	Side Tapped Hole	Side Through Hole
Code	KC90	QSC / QFC / QTC	KSC / KFC / KTC
Spec.	<p>Changes an angle of set screw to 90°.</p> <p>ⓘ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.</p>	<p>Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 1mm Increment)</p> <p>ⓘ Thickness required: minimum 2mm</p> <p>A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$</p> <p>B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$</p> <p>ⓘ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>ⓘ Specify KC90 when selecting QFC for Shaft Bore specifications P, N and C.</p> <p>ⓘ The pilot hole for tapping may go through.</p> <p>⊗ Not applicable to Shaft Bore Specifications F or Y.</p> <p>⊗ When the Shaft Bore Specifications are P, N or C, QSC is not applicable.</p> <p>⊗ Not applicable to K Shape.</p> <p>M Selection M3, M4, M5, M6, M8</p> <p>Ordering Code QFC28-M4</p>	<p>Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 1mm Increment)</p> <p>ⓘ Thickness required: minimum 2mm</p> <p>A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$</p> <p>B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$</p> <p>ⓘ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>ⓘ Specify KC90 when selecting KFC for Shaft Bore Specifications P, N and C.</p> <p>⊗ Not applicable to K Shape.</p> <p>⊗ Not applicable to Shaft Bore Specifications F or Y.</p> <p>⊗ When the Shaft Bore Specifications are P, N or C, KSC is not applicable.</p> <p>K (Through Hole Dia.) Selection K4.0~K13.0 (0.5mm Increment)</p> <p>Ordering Code KSC20-K5</p>

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length																										
Code	BC	NFC	RFC / LFC	FC	TPC	SLH																										
Spec.	<p>Cuts the hub length in 0.5mm increment.</p> <p>① Shaft Bore specification: H, V, F: $3 \leq BC \leq L-W$</p> <p>① Shaft Bore specification: P, N, C: $M+3 \leq BC \leq L-W$</p>  <p>Ordering Code BC6.5</p> <p>① Clear anodized products may not have surface treatment on the embossed plane.</p> <p>⊗ Not applicable to A Shape.</p>	<p>Flange is not installed. (Flange included)</p> 	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p> <p>① Same on A Shape</p> 	<p>Low flange by cutting.</p> <p>FC: 0.5mm Increment</p> <p>⊗ Not available for Stainless Steel Type.</p> <p>① No surface treatment applied on flange circumference.</p>  <p>① $FC \geq (O.D.) + 2$</p> <p>① $FC \leq F-2$</p> <p>Ordering Code FC33</p>	<p>Changes the tapped hole dimension.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><thead><tr><th>M</th><th>TPC</th></tr></thead><tbody><tr><td>M3</td><td>M4</td></tr><tr><td>M4</td><td>M3 / M5</td></tr><tr><td>M5</td><td>M4 / M6</td></tr><tr><td>M6</td><td>M5 / M8</td></tr><tr><td>M8</td><td>M6</td></tr></tbody></table> <p>Ordering Code TPC5</p>	M	TPC	M3	M4	M4	M3 / M5	M5	M4 / M6	M6	M5 / M8	M8	M6	<p>Changes the length of the included set screws.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><thead><tr><th>Set Screw</th><th>SLH</th></tr></thead><tbody><tr><td>M3 x 3</td><td>6</td></tr><tr><td>M4 x 3</td><td>5, 8</td></tr><tr><td>M5 x 4</td><td>6, 10</td></tr><tr><td>M6 x 5</td><td>10</td></tr><tr><td>M8 x 6</td><td>10, 12</td></tr><tr><td>M10 x 8</td><td>12, 15</td></tr></tbody></table> <p>Ordering Code SLH10</p>	Set Screw	SLH	M3 x 3	6	M4 x 3	5, 8	M5 x 4	6, 10	M6 x 5	10	M8 x 6	10, 12	M10 x 8	12, 15
	M	TPC																														
M3	M4																															
M4	M3 / M5																															
M5	M4 / M6																															
M6	M5 / M8																															
M8	M6																															
Set Screw	SLH																															
M3 x 3	6																															
M4 x 3	5, 8																															
M5 x 4	6, 10																															
M6 x 5	10																															
M8 x 6	10, 12																															
M10 x 8	12, 15																															



Keyless High Torque Timing Pulleys

S5M Type

RoHS

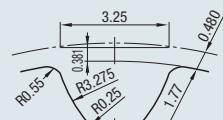


Part Number			Material			Surface Treatment		
Belt Width 10mm	Belt Width 15mm	Belt Width 25mm	Pulley	Flange	Bushing	Pulley	Flange	Bushing
A: 11 W: 16	A: 17 W: 22	A: 27 W: 32	7075 Aluminum Alloy	5052 Aluminum Alloy	1045 Carbon Steel	Clear Anodize	—	—
HTLA_S5M100	HTLA_S5M150	HTLA_S5M250	Aluminum Alloy	Aluminum Alloy	1045 Carbon Steel	Hard Clear Anodize*	—	—
HTLK_S5M100	HTLK_S5M150	HTLK_S5M250	Aluminum Alloy	Aluminum Alloy	1045 Carbon Steel	Electroless Nickel Plating	—	—
HTLN_S5M100	HTLN_S5M150	HTLN_S5M250	Aluminum Alloy	Aluminum Alloy	1045 Carbon Steel	Black Oxide	—	—
HTPL_S5M100	HTPL_S5M150	HTPL_S5M250	1045 Carbon Steel	Low Carbon Steel	1045 Carbon Steel	Electroless Nickel Plating	—	—
HTLG_S5M100	HTLG_S5M150	HTLG_S5M250	1045 Carbon Steel	Low Carbon Steel	1045 Carbon Steel	Electroless Nickel Plating	—	—

*Hard Anodize Treatment: Film Hardness 300HV~

Pulley Shape

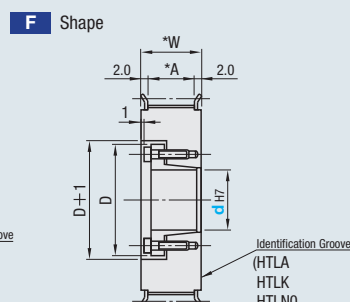
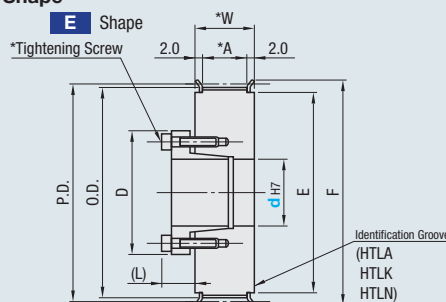
Standard Tooth Profile



Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 5.0 mm)

① The shaft bore may not have surface treatment.

② Two types of bushings are available: Standard Type (ST Bushings) and Short Type (SH Bushings).



Part Number			Pulley Shape	d _{H7} Range (Select Shaft Bore Dia. from Table 1)						P.D.	O.D.	F	E
				S5M100		S5M150		S5M250					
Type	Teeth	Type, Nominal Width		E (ST Bushing)	F (SH Bushing)	E (ST Bushing)	F (SH Bushing)	E (ST Bushing)	F (SH Bushing)				
HTLA HTLK HTLN HTPL HTLG	22	S5M100	E	8	—	—	—	—	—	35.01	34.05	40	27
	24			8, 10	8	10	8	10	8	38.20	37.24	45	30
	25			8, 10	8	10	8	10	8	39.79	38.83	45	30
	26			*A :11	8~12	8	10, 11, 12	8~12	10, 11, 12	8~12	41.38	40.42	48
	28	*W :16		8~12	8	10, 11, 12	8~12	10, 11, 12	8~12	44.56	43.60	48	35
	30			10~15		10~15	10, 11, 12	10~15	10, 11, 12	47.75	46.79	52	36
	32	S5M150		10~17		10~17	10, 11, 12	10~17	10, 11, 12	50.93	49.97	55	40
	34	*A :17		10~17		10~17	10, 11, 12	10~17	10~17	54.11	53.15	61	45
	36	*W :22		10~17	—	10~17	10, 11, 12	10~17	10~17	57.30	56.34	61	45
	40			10~17		10~17	10, 11, 12	10~17	10~17	63.66	62.70	67	50
	44	S5M250		12~25		12~25	12	12~25	12~25	70.03	69.07	74	58
	48	*A :27		12~28		12~28	12	12~28	12~28	76.39	75.43	83	63
	50	*W :32		12~32		12~32	12	12~32	12~32	79.58	78.62	87	67
	60			12~32	—	12~40	12	12~40	12~35	95.49	94.53	99	80
	72			12~32		12~42	12	12~42	12~35	114.59	113.63	119	100

Table 1: Select Shaft Bore Diameter

d _{H7}	Max. Allowable Torque Nm		D		(L)
	ST Bushing	SH Bushing	ST Bushing	SH Bushing	
8	16	8.5	25.5	24.5	8.5
10	39	18	30	29	—
11	43	20	31	30	10.5
12	48	23	32	31	—
14	73	37	35	36	—
15	78	39	36	37	12
16	83	42	37	38	—
17	88	45	38	39	13
18	154	48	43	40	—
19	163	49	45	42	—
20	171	97	46	46	14
22	186	110	48	47	—
24	206	121	50	49	—
25	216	124	52	51	—
28	353	141	54	53	15.5
30	382	149	57	56	—
32	412	163	59	58	16.5
35	451	173	63	61	—
38	686	—	70	—	19
40	725	—	71	—	—
42	757	—	74	—	20

① Electroless nickel plated bushing decreases maximum allowable torque and allowable thrust load by 20~30%

Alterations	Surface Treatment
Code	BMC / BMR
Spec.	Applies electroless nickel plating on a bushing. (Anti-rusting treatment applied to screws). ① Electroless nickel plated bushing decreases allowable torque by 20~30%. BMC: Non-RoHS-compliant (Screw: Dacrotized treatment applied 4137 Alloy Steel) BMR: RoHS-compliant (Screw: GeoMet coating applied 4137 Alloy Steel)

Alterations	Flange Cut	No Flange	Single Flange
Code	FC	NFC	LFC / RFC
Spec.	Low flange by cutting. FC: 0.5mm Increment ① No surface treatment applied on flange circumference. ① FC ≥ (O.D.) ÷ 2 ② FC ≤ F-2 Ordering Code FC35	Flange is not installed. (Flange included) 	Flange installed on the bushing side (LFC) or the opposite side (RFC) only prior to shipping.



Ordering Example

Part Number	—	Pulley Shape	—	Shaft Bore Dia.
HTPL 60S5M100	—	E	—	32



Days to Ship

HTLA / HTPL ("E" Shape only)

7 Days

① Non-Returnable

5 Days

① Non-Returnable



Alterations

Part Number	—	Pulley Shape	—	Shaft Bore Dia.	—	(BMC / BMR / FC / NFC / LFC / RFC)
HTLA 45S5M150	—	F	—	12	—	FC72

Elf alterations for HTLA / HTPL ("E" shape) are specified, 5th Day Shipping will be applied for this product.




Keyless High Torque Timing Pulleys

S5M Type – Keyless Bushing with Centering Function –

■ **Features:** Keyless Bushing with Centering Function: It tolerates on average of 1.2 times and 2.5 times greater torque compared to the conventional ST bushing and SH bushing respectively.

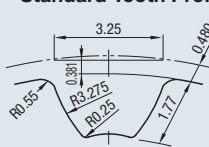
RoHS



Part Number			Material			Surface Treatment		
Belt Width 10mm A: 11 W: 16	Belt Width 15mm A: 17W: 22Y: 14	Belt Width 25mm A: 27W: 32Y: 14 (22*23.5)	Pulley	Flange	Bushing	Pulley	Flange	Bushing
HHTA_S5M100	HHTA_S5M150	HHTA_S5M250	7075 Aluminum Alloy	5052 Aluminum Alloy	1045 Carbon Steel	Clear Anodize Hard Clear Anodize* Electroless Nickel Plating	—	—
HHTK_S5M100	HHTK_S5M150	HHTK_S5M250						
HHTN_S5M100	HHTN_S5M150	HHTN_S5M250						
HHTT_S5M100	HHTT_S5M150	HHTT_S5M250	1045 Carbon Steel	Low Carbon Steel	1045 Carbon Steel	Black Oxide Electroless Nickel Plating	—	—
HHTM_S5M100	HHTM_S5M150	HHTM_S5M250						
HHTP_S5M100	HHTP_S5M150	HHTP_S5M250						

*Hard Anodize Treatment: Film Hardness 300HV~

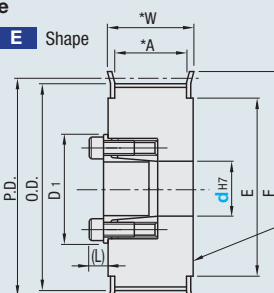
■ **Standard Tooth Profile**



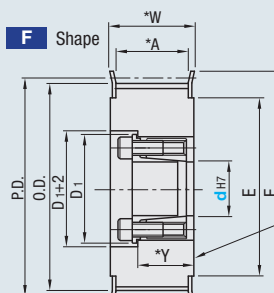
Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 5.0 mm)

■ **Pulley Shape**

E Shape



F Shape



① The shaft bore may not have surface treatment.

① Flange attached
① Y dimensions in () require the shaft bore diameter of 12 and above.

Part Number			Pulley Shape	d _{H7} Range (Select Shaft Bore Dia. from Table 1)					P.D.	O.D.	F	E
Type	Teeth	Type, Nominal Width		S5M100	S5M150		S5M250					
				E	E	F	E	F				
HHTA HHTK HHTN HHTT HHTM HHTP	24	S5M100	E F	8	8	8	8	8	38.20	37.24	45	30
	25	*A :11		8	8	8	8	8	39.79	38.83	45	30
	26	*W :16		8, 10	8, 10	8, 10	8, 10	8, 10	41.38	40.42	48	35
	28			8, 10	8, 10	8, 10	8, 10	8, 10	44.56	43.60	48	35
	30	S5M150		10	10	10	10	10	47.75	46.79	52	36
	32	*A :17		10~14	10~14	10	10~14	10~14	50.93	49.97	55	40
	34	*W :22		10~14	10~16	10	10~16	10~16	54.11	53.15	61	45
	36	*Y :14		10~14	10~16	10	10~16	10~16	57.30	56.34	61	45
	40			10~14	10~19	10	10~19	10~19	63.66	62.70	67	50
	44	S5M250		12~14	12~22		12~22	12~22	70.03	69.07	74	58
	48	*A :27		12~14	12~22		12~24	12~24	76.39	75.43	83	63
	50	*W :32		12~14	12~22	—	12~28	12~28	79.58	78.62	87	67
	60	*Y :14		12~14	12~22		12~30	12~30	95.49	94.53	99	80
	72	(d12~22: Y=22) (d24~: Y=23.5)		12~14	12~22		12~35	12~30	114.59	113.63	119	100

Table 1: Select Shaft Bore Diameter

d _{H7}	Max. Allowable Torque (Nm)		D _i	(L)
	HHTA / HHTK / HHTN / HHTT / HHTM	HHTP		
8	19.6	16.6	23.5	6
10	27.5	19.6	25.5	
12	44.1	36.2	28.5	
14	63.7	50.9	30.5	
15	80.4	54.8	31.5	
16	83.3	58.8	33.0	
17	92.2	76.4	33.5	6.5
18	95.1	80.3	34.5	
19	98.1	85.2	35.5	
20	216.0	183.0	42.0	
22	255.0	201.0	44.0	
24	363.0	252.0	46.0	8
25	392.0	264.0	47.0	
28	441.0	295.0	50.0	
30	500.0	396.0	52.0	
32	530.0	423.0	54.0	
35	883.0	548.0	62.0	10

Alterations	Surface Treatment
Code	BMC / BMR
Spec.	Applies electroless nickel plating on a bushing. (Anti-rusting treatment applied to screws). ① Electroless nickel plated bushing decreases allowable torque by 20~30%. BMC : Non-RoHS-compliant (Screw: Dacrotized treatment applied 4137 Alloy Steel) BMR : RoHS-compliant (Screw: GeoMet coating applied 4137 Alloy Steel)



Ordering Example

Part Number	Pulley Shape	Shaft Bore Dia.
HHTA 60S5M250	F	30



Days to Ship

HHTA / HHTT / HHTM / HHTP

7 Days

① Non-Returnable

① A flat charge of \$21.60 for 3 or more identical pieces

HHTK / HHTN

7 Days

① Non-Returnable

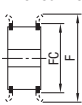
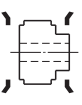
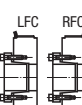
① Express service is not available.



Alterations



Part Number	Pulley Shape	Shaft Bore Dia.	(BMC / BMR / FC / NFC / LFC / RFC)
HHTA 60S5M250	E	25	BMC

Alterations	Flange Cut	No Flange	Single Flange
Code	FC	NFC	LFC / RFC
Spec.	<p>Low flange by cutting. FC: 0.5mm Increment ① No surface treatment applied on flange circumference.</p>  <p>① FC ≥ (O.D.) ÷ 2 ① FC ≤ F-2 [Ordering Code] FC35</p>	<p>Flange is not installed. (Flange included)</p> 	<p>Flange installed on the bushing side (LFC) or the opposite side (RFC) only prior to shipping.</p> 



Clamping High Torque Timing Pulleys

S5M Type

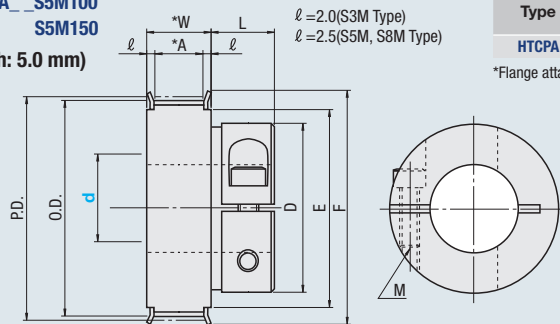
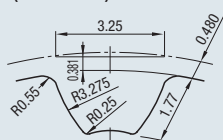
■ **Features:** Can be connected with a shaft by bolting. Easy positioning.

RoHS



HTCPA _ S5M100
S5M150
(Pitch: 5.0 mm)

■ **Standard Tooth Profile**
(Pitch: 5.0 mm)



① Surface treatment may not be applied to shaft bores.
The tooth groove slightly changes according to No. of teeth.

■ **Recommended Shaft Tolerance h7(g6)**

① Finish surface roughness: Ra = 3.2a or less.

Type	Material		Surface Treatment
	Pulley	Flange	
HTCPA	7075 Aluminum Alloy	5052 Aluminum Alloy	Clear Anodize

*Flange attached. Hexagon socket head cap screws are included.

Part Number			d Selection	P.D.	O.D.	D	F	E	L	Clamp Screws	
Type	Teeth	Type, Nominal Width								M	Tightening Torque (Nm)
HTCPA	24	S5M100 *A :11 *W :16	8 10	38.20	37.24	26	45	30	12.5	3	1.5
	25		8 10	39.79	38.83						
	26		8 10	41.38	40.42						
	28		8 10	44.56	43.60	31	48	35		4	3.5
	30		10	47.75	46.79		52	36	14		
	32		10 11 12 13 14	50.93	49.97	36	55	40			
	34	S5M150 *A :17 *W :22	10 11 12 13 14 15 16	54.11	53.15						
	36		10 11 12 13 14 15 16	57.30	56.34	41	61	45	15.5	5	6
	40		10 11 12 13 14 15 16 17 18 19	63.66	62.70	46	67	50			
	44		12 13 14 15 16 17 18 19	70.03	69.07	46	74	58	15.5	5	6
			20 21 22 23 24			55			16.5	6	12
			12 13 14 15 16 17 18 19			46			15.5	5	6
	48		20 21 22 23 24 25	76.39	75.43	55	83	63	16.5	6	12
			12 13 14 15 16 17 18 19			46			15.5	5	6
			20 21 22 23 24 25	79.58	78.62	55		67	16.5	6	12
	50		12 13 14 15 16 17 18 19			46			15.5	5	6
			20 21 22 23 24 25			55			16.5	6	12
	60		12 13 14 15 16 17 18 19	95.49	94.53	46	99	80	15.5	5	6
			20 21 22 23 24 25			55			16.5	6	12

■ **Allowable Torque**

Type	Teeth	Shaft Diameter	Allowable Torque (Nm)
S5M	24 25	8	2.6
		10	
	26 28	8	2.6
		10	
	30	10	
	32	10	
		11	2.6
		12	
		13	
	34 36	14	7.6
		10	
		11	2.6
		12	
	40	13	
		14	7.6
		15	
		16	
		10	2.6
		11	
		12	
		13	7.6
		14	
		15	
		16	
		17	
		18	
		19	

Type	Teeth	Shaft Diameter	Allowable Torque (Nm)
S5M	44 48 50 60	12	2.6
		13	
		14	
		15	
		16	7.6
		17	
		18	
		19	
		20	
		21	48
		22	
		23	66
		24	
		25	95



Ordering Example

Part Number				Shaft Bore Dia.
Type	Teeth	Type, Nominal Width		
HTCPA40	-	S3M060	-	10



Days to Ship

5 Days

① Non-Returnable



High Torque Timing Belts

S5M Type

ⓘ Although some tooth fabrics for MXL and XL rubber belts (TBN) are change from black to brown to prevent rubber-dust generation. However, it does not affect the performance.

RoHS

ⓘ Operating Temp.
Rubber: -30~90°C
Polyurethane: 0~80°C

*HTBN has no groove between teeth.

Type	Material	
HTBN	(1) Back Rubber	Chloroprene Rubber
	(2) Tooth Rubber	Chloroprene Rubber
	(3) Core Wire	Glass Fiber Cord S and Z Twist Alternative Series
	(4) Base Cloth	Nylon Cloth
HTUN	(1) (2) (4) Body	Polyurethane
	(3) Core Wire	Aramid Fiber

Type	Pitch	Ra	Lr	H	h	i	PLD	Unit Mass g/m (Width: 10 mm)
S5M	5	3.25	3.25	3.41	1.91	1.5	0.480	34.0

ⓘ Values in () are the unit mass of polyurethane.

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
HTBN (Rubber)	225 S5M	100 (10 mm)	45	225
	230 S5M		46	230
	255 S5M		51	255
	260 S5M		52	260
	295 S5M		59	295
	300 S5M		60	300
	305 S5M		61	305
	320 S5M		64	320
	325 S5M		65	325
	340 S5M		68	340
	350 S5M		70	350
	360 S5M		72	360
	370 S5M		74	370
	375 S5M		75	375
	380 S5M		76	380
	390 S5M		78	390
	400 S5M		80	400
	415 S5M		83	415
	425 S5M		85	425
	435 S5M		87	435
	440 S5M		88	440
	450 S5M		90	450
	475 S5M	150 (15 mm)	95	475
	490 S5M		98	490
	500 S5M	250 (25 mm)	100	500
	520 S5M		104	520
	525 S5M		105	525
	530 S5M		106	530
	545 S5M		109	545
	550 S5M		110	550
	560 S5M		112	560
	575 S5M		115	575
	590 S5M		118	590
	595 S5M		119	595
	600 S5M		120	600
	625 S5M		125	625
	640 S5M		128	640
	650 S5M		130	650
	665 S5M		133	665
	670 S5M		134	670
	675 S5M		135	675
	690 S5M		138	690
	695 S5M		139	695
	700 S5M		140	700
	710 S5M		142	710

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
HTBN (Rubber)	720 S5M	100 (10 mm)	144	720
	725 S5M		145	725
	730 S5M		146	730
	740 S5M		148	740
	750 S5M		150	750
	765 S5M		153	765
	780 S5M		156	780
	800 S5M		160	800
	810 S5M		162	810
	830 S5M		166	830
	845 S5M		169	845
	850 S5M		170	850
	870 S5M		174	870
	890 S5M		178	890
	900 S5M		180	900
	930 S5M		186	930
	950 S5M		190	950
	975 S5M		195	975
	1000 S5M	150 (15 mm)	200	1000
	1025 S5M		205	1025
	1050 S5M		210	1050
	1055 S5M		211	1055
	1085 S5M		217	1085
	1090 S5M		218	1090
	1100 S5M		220	1100
	1105 S5M		221	1105
	1115 S5M		223	1115
	1120 S5M		224	1120
	1125 S5M	250 (25 mm)	225	1125
	1135 S5M		227	1135
	1145 S5M		229	1145
	1160 S5M		232	1160
	1165 S5M		233	1165
	1195 S5M		239	1195
	1225 S5M		245	1225
	1250 S5M		250	1250
	1270 S5M		254	1270
	1295 S5M		259	1295
	1350 S5M		270	1350
	1420 S5M		284	1420
	1475 S5M		295	1475
	1500 S5M		300	1500
	1505 S5M		301	1505
	1530 S5M		306	1530
	1595 S5M		319	1595

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
HTBN (Rubber)	1605 S5M	100 (10 mm)	321	1605
	1680 S5M		336	1680
	1715 S5M		343	1715
	1800 S5M	150 (15 mm)	360	1800
	2000 S5M		400	2000
	2145 S5M	250 (25 mm)	429	2145
	2255 S5M		451	2255
	2480 S5M		496	2480



Ordering Example

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
HTBN	2800 S14M	—	400	—
HTUN	225 S3M	—	100	—



Days to Ship

S3M / S5M

1 Day

S2M / S3M / S5M / S8M

6 Days

ⓘ Non-Returnable



High Torque Timing Pulleys

S8M Type

RoHS

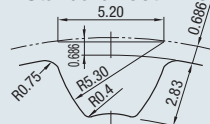


Part Number				M Material		S Surface Treatment
Belt Width 15mm	Belt Width 25mm	Belt Width 30mm	Belt Width 40mm	Pulley	Flange	
A: 17 W: 22 L: 37(42)	A: 28 W: 33 L: 48(53)	A: 33 W: 38 L: 53(58)	A: 44 W: 49 L: 64(69)			
HTPA_S8M150	HTPA_S8M250	HTPA_S8M300	HTPA_S8M400	7075 Aluminum Alloy (Extra Super Duralumin)	5052 Aluminum Alloy	Clear Anodize
HTPB_S8M150	HTPB_S8M250	HTPB_S8M300	HTPB_S8M400			Black Anodize
HTPK_S8M150	HTPK_S8M250	HTPK_S8M300	HTPK_S8M400			Hard Clear Anodize*
HTPN_S8M150	HTPN_S8M250	HTPN_S8M300	HTPN_S8M400			Electroless Nickel Plating
HTPT_S8M150	HTPT_S8M250	HTPT_S8M300	HTPT_S8M400	1045 Carbon Steel	Low Carbon Steel	—
HTPM_S8M150	HTPM_S8M250	HTPM_S8M300	HTPM_S8M400			Black Oxide
HTPP_S8M150	HTPP_S8M250	HTPP_S8M300	HTPP_S8M400			Electroless Nickel Plating

① Flanges are installed. Set screws are included with P, N & C bore hole specification.

*Hard Anodize Treatment: Film Hardness 300HV~

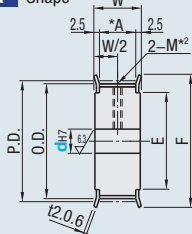
Standard Tooth Profile



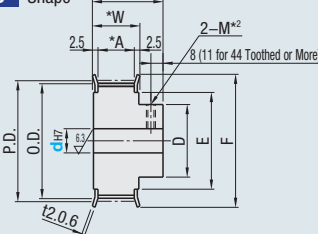
Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 8.0 mm)

Pulley Shape

A Shape



B Shape



*1 t=2.0 for 72 toothed pulleys (Cut Flange).

*2 Shaft Bore Specifications H (Round Hole), V/F (Stepped Hole) and Y (Both Sides Stepped Hole), do not have tapped holes.

Tapped Hole Dimensions (Shaft Bore: P / N / C)

dH7 Shaft Bore Inner Dia.	M (Coarse)	Accessory Set Screw
12	M4	M4 x 3
13~17	M5	M5 x 4
18~30	M6	M6 x 5
31~45	M8	M8 x 6
46~65	M10	M10 x 8
46~65	M10	M10 x 8

Shaft Bore Specs.

① The shaft bore may not have surface treatment.

H Round Hole

HU Inch Round Hole

P Round Hole+Tap

PU Inch Round Hole+Tap

N New JIS Keywayed Bore + Tap

NU Inch New JIS Key Groove Hole + Tap

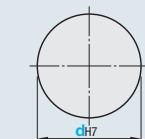
C Old JIS Keywayed Bore + Tap

V Stepped Hole

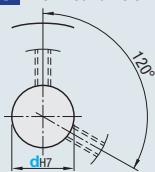
F Stepped Hole

(counterbored holes on the hub side)

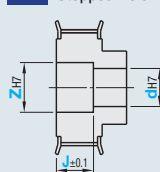
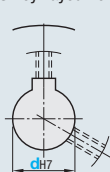
Y Both Ends Stepped Hole



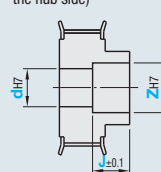
*No tapped holes and set screws.



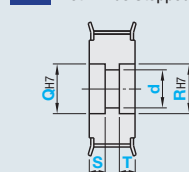
*For A Shape pulley, the set screw hole is set at around 120° to keep away from peaks.



*No tapped holes and set screws.



*Applicable to B Shape only.
*No tapped holes and set screws.



*Applicable to A Shape only.
*Shaft Bore Dia. D is general tolerance.
*No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Specs	Shaft Bore Spec. (1mm Increment)																		P.D.	O.D.	D	F	E			
Type	Teeth	Type Nominal Width			H				P		N / C		HU		PU		NU		V / F									Y		
					d _{H7}								d _{H7}		Z _{H7}		J A / B		d		Q _{H7} / R _{H7}							S / T		
			A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	A								
7075 Aluminum Alloy	18		A	H	12-28	12-28	12-26	12-22	12-26	12-20	F-K	F-K	F-K	F-H	F-K	F-H	12-26	12-26	14-28	14-28			12-26	14-28		45.84	44.46	32	52	36
	19	S8M150			12-32	12-31	12-28	12-25	12-28	12-20	F-L	F-K	F-K	F-J	F-K	F-H	12-30	12-29	14-32	14-31			12-30	14-32		48.38	47.01	35	55	40
	20	*A :17			12-32	12-32	12-30	12-26	12-30	12-22	F-L	F-L	F-K	F-K	F-K	F-H	12-30	12-30	14-32	14-32			12-30	14-32		50.93	49.56	36	58	40
	21	*W :22			12-37	12-36	12-32	12-30	12-32	12-24	F-M	F-M	F-L	F-K	F-L	F-J	12-35	12-34	14-37	14-36			12-35	14-37		53.48	52.10	40	61	45
	22	*L :37			12-37	12-37	12-34	12-30	12-34	12-25	F-M	F-M	F-L	F-K	F-L	F-J	12-35	12-35	14-37	14-37			12-35	14-37		56.02	54.65	41	61	45
	24	(L: 42)		12-42	12-42	12-40	12-34	12-40	12-28	F-P	F-P	F-N	F-L	F-N	F-K	12-40	12-40	14-42	14-42			12-40	14-42		61.12	59.74	46	67	50	
	25	S8M250		12-48	12-44	12-40	12-36	12-40	12-28	F-R	F-P	F-N	F-M	F-N	F-K	12-46	12-42	14-48	14-44			12-46	14-48		63.66	62.29	48	70	56	
	26	*A :28		14-50	14-47	14-45	14-39	14-45	14-31	G-R	G-Q	G-Q	G-N	G-Q	G-K	14-48	14-45	16-50	16-47			14-48	16-50		66.21	64.84	51	74	58	
	28	*W :33		14-52	14-47	14-48	14-43	14-48	14-35	G-S	G-S	G-R	G-P	G-R	G-M	14-50	14-49	16-52	16-51			14-50	16-52		71.30	69.93	55	80	60	
	30	*L :53		14-59	14-56	14-50	14-46	14-50	14-38	G-S	G-S	G-R	G-Q	G-R	G-M	14-57	14-54	16-59	16-56			14-57	16-59		76.39	75.02	60	87	67	
1045 Carbon Steel	32	S8M300	14-59	14-59	14-55	14-49	14-50	14-45	G-S	G-S	G-S	G-S	G-R	G-Q	14-57	14-57	16-59	16-59			14-57	16-59		81.49	80.12	63	87	67		
	34	*A :33	16-67	16-66	16-60	16-56	16-50	16-48	H-S	H-S	H-S	H-S	H-R	H-R	16-65	16-64	18-67	18-66			16-65	18-67		86.58	85.21	70	95	75		
	36	*W :38	16-72	16-71	16-65	16-61	16-50	16-50	H-S	H-S	H-S	H-S	H-R	H-R	16-70	16-69	18-72	18-71			16-70	18-72		91.67	90.30	75	99	80		
	38	*L :53	16-76	16-76	16-65	16-65	16-50	16-50	H-S	H-S	H-S	H-S	H-R	H-R	16-74	16-74	18-76	18-76			16-74	18-76		96.77	95.39	80	104	84		
	40	(L: 58)	20-80	20-80	20-65	20-65	20-50	20-50	J-S	J-S	J-S	J-S	J-R	J-R	20-80	20-79	22-82	22-81			20-75	22-82		101.86	100.49	85	111	90		
	44	S8M400	20-80	20-80	20-65	20-65	20-50	20-50	J-S	J-S	J-S	J-S	J-R	J-R	20-80	20-80	22-82	22-86			20-75	22-92		112.05	110.67	90	119	100		
	48	*A :44	20-80	20-80	20-65	20-65	20-50	20-50	J-S	J-S	J-S	J-S	J-R	J-R	20-80	20-80	22-82	22-95			20-75	22-95		122.23	120.86	100	127	105		
	50	*W :49	20-80	20-80	20-65	20-65	20-50	20-50	J-S	J-S	J-S	J-S	J-R	J-R	20-80	20-80	22-82	22-95			20-75	22-95		127.32	125.95	100	135	115		
	60	*L :64	20-80	20-80	20-65	20-65	20-50	20-50	J-S	J-S	J-S	J-S	J-R	J-R	20-80	20-80	22-82	22-95			20-75	22-95		152.79	151.42	100	160	140		
	72	(L: 69)	20-80	20-80	20-65	20-65	20-50	20-50	J-S	J-S	J-S	J-S	J-R	J-R	20-80	20-80	22-82	22-95			20-75	22-95		183.35	181.97	100	190	170		



High Torque Timing Pulleys

S8M Type



Ordering Example

Part Number																			
Material Type	Tooth No.	Belt Type		Belt Width															
HTPA	48	Y6		040															
	Part Number		-	Pulley Shape	-	Shaft Bore Spec. / Inner Dia.		-	Z	-	J	-	Q	-	R	-	S	-	T
(Shaft Bore : H / P / N / C)	HTPA36S8M250	-	A	-	H65		-												
(Shaft Bore: V / F)	HTPA30S8M300	-	B	-	V20		-	Z38	-	J23.0									
(Shaft Bore: Y)	HTPA40S8M250	-	A	-	Y30		-						Q62	-	R47	-	S16	-	T9

Conveying	—
Positioning	•
Power Transmission	•
High Speed	•

■ Inch Hole Specifications

No.	Nominal	Dimension (mm)
A	1/8	3.175
B	3/16	4.763
C	1/4	6.350
D	5/16	7.938
E	3/8	9.525
F	1/2	12.700
G	5/8	15.875
H	3/4	19.050
J	7/8	22.225
K	1	25.400



Days to Ship

HTPA / HTPT / HTPM / HTTP

4 Days

ⓘ Non-Returnable

HTPB / HTPK / HTPN

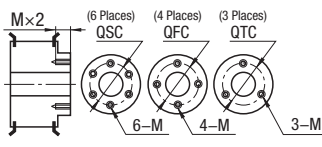
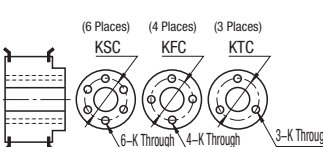

7 Days

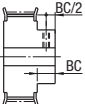



ⓘ Non-Returnable



Alterations

Part Number	-	Pulley Shape	-	Shaft Bore Spec. / Inner Dia.	-	Z	-	J	-	Q	-	R	-	S	-	T	-
HTPM60S8M250	-	A	-	H65	-												-
																	KSC80-K8

Alterations	Set Screw Angle	Side Tapped Hole	Side Through Hole
Code	KC90	QSC / QFC / QTC	KSC / KFC / KTC
Spec.	Changes an angle of set screw to 90°. ⓘ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.	Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 1mm Increment) ⓘ Thickness required: minimum 2mm A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$ B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$ ⓘ $d=Z$ when the Shaft Bore Specifications is V. 	Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 1mm Increment) ⓘ Thickness required: minimum 2mm A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$ B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$ ⓘ $d=Z$ when the Shaft Bore Specifications is V. 
		ⓘ Specify KC90 when selecting QFC for Shaft Bore specifications P, N and C. ⓘ The pilot hole for tapping may go through. ⓧ Not applicable to Shaft Bore Specifications F or Y. ⓧ When the Shaft Bore Specifications are P, N or C, QSC is not applicable. ⓧ Not applicable to K Shape. M Selection M3, M4, M5, M6, M8 Ordering Code QFC28-M4	ⓘ Specify KC90 when selecting KFC for Shaft Bore Specifications P, N and C. ⓧ Not applicable to K Shape. ⓧ Not applicable to Shaft Bore Specifications F or Y. ⓧ When the Shaft Bore Specifications are P, N or C, KSC is not applicable. K (Through Hole Dia.) Selection K4.0~K13.0 (0.5mm Increment) Ordering Code KSC20-K5

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length																				
Code	BC	NFC	RFC / LFC	FC	TPC	SLH																				
Spec.	<p>Cuts the hub length in 0.5mm increment. EShaft Bore specification: H, V, F: $3 \leq BC \leq L-W$</p> <p>① Shaft Bore specification: P, N, C: $M+3 \leq BC \leq L-W$</p> <div></div> <p>Ordering Code BC6.5</p> <p>① Clear anodized products may not have surface treatment on the embossed plane.</p> <p>⊗ Not applicable to A Shape.</p>	<p>Flange is not installed. (Flange included)</p> <div></div>	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p> <p>① Same on A Shape</p> <div></div>	<p>Lowers flange by cutting. FC: 0.5mm Increment</p> <p>⊗ Not available for Stainless Steel Type.</p> <p>① No surface treatment applied on flange circumference.</p> <div></div> <p>① $FC \geq (O.D.) + 2$</p> <p>① $FC \leq F-2$</p> <p>Ordering Code FC55</p>	<p>Changes the tapped hole dimension.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><tr><th>M</th><th>TPC</th></tr><tr><td>M4</td><td>M3 / M5</td></tr><tr><td>M5</td><td>M4 / M6</td></tr><tr><td>M6</td><td>M5 / M8</td></tr></table> <p>①</p> <p>Ordering Code TPC5</p>	M	TPC	M4	M3 / M5	M5	M4 / M6	M6	M5 / M8	<p>Changes the length of the included set screws.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><tr><th>Set Screw</th><th>SLH</th></tr><tr><td>M4 x 3</td><td>5, 8</td></tr><tr><td>M5 x 4</td><td>6, 10</td></tr><tr><td>M6 x 5</td><td>10</td></tr><tr><td>M8 x 6</td><td>10, 12</td></tr><tr><td>M10 x 8</td><td>12, 15</td></tr></table> <p>Ordering Code SLH12</p>	Set Screw	SLH	M4 x 3	5, 8	M5 x 4	6, 10	M6 x 5	10	M8 x 6	10, 12	M10 x 8	12, 15
	M	TPC																								
	M4	M3 / M5																								
M5	M4 / M6																									
M6	M5 / M8																									
Set Screw	SLH																									
M4 x 3	5, 8																									
M5 x 4	6, 10																									
M6 x 5	10																									
M8 x 6	10, 12																									
M10 x 8	12, 15																									



Keyless High Torque Timing Pulleys

S8M Type

RoHS

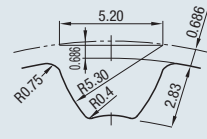


Part Number				Material			Surface Treatment		
Belt Width 15mm A: 17 W: 22	Belt Width 25mm A: 28 W: 33	Belt Width 30mm A: 33 W: 38	Belt Width 40mm A: 44 W: 49	Pulley	Flange	Bushing	Pulley	Flange	Bushing
HTLA_S8M150	HTLA_S8M250	HTLA_S8M300	HTLA_S8M400	7075 Aluminum Alloy	5052 Aluminum Alloy	1045 Carbon Steel	Clear Anodize	—	—
HTLK_S8M150	HTLK_S8M250	HTLK_S8M300	HTLK_S8M400	Aluminum Alloy	Aluminum Alloy	Carbon Steel	Hard Anodize*	—	—
HTPL_S8M150	HTPL_S8M250	HTPL_S8M300	HTPL_S8M400	1045 Carbon Steel	Low Carbon Steel	Carbon Steel	Black Oxide	—	—
HTLG_S8M150	HTLG_S8M250	HTLG_S8M300	HTLG_S8M400	Carbon Steel	Carbon Steel	Carbon Steel	Electroless Nickel Plating	—	—

*Hard Anodize Treatment: Film Hardness 300HV~

Pulley Shape

Standard Tooth Profile



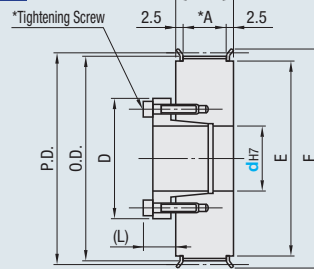
Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 8.0 mm)

① The shaft bore may not have surface treatment.

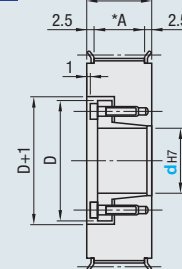
② Two types of bushings are available: Standard Type (ST Bushings) and Short Type (SH Bushings).

③ Cut Flange for 72 toothed pulleys.

E Shape



F Shape



Part Number			Pulley Shape	d _{H7} Range (Select Shaft Bore Dia. from Table 1)								P.D.	O.D.	F	E	
		S8M150		S8M250		S8M300		S8M400								
Type	Teeth	Type, Nominal Width		E (ST Bushing)	F (SH Bushing)	E (ST Bushing)	F (SH Bushing)	E (ST Bushing)	F (SH Bushing)	E (ST Bushing)	F (ST Bushing)					
HTLA HTLK HTPL HTLG	18	S8M150 *A :17 *W :22	E	12	—	12	12	—	—	—	—	45.84	44.46	52	36	
	19			12, 14, 15	12	12, 14, 15	12, 14, 15	15	15	—	—	48.38	47.01	55	40	
	20			12~17	12	12~17	12, 14, 15	15, 16, 17	15	—	—	50.93	49.56	58	40	
	21			12~17	12	12~17	12~17	15, 16, 17	15, 16, 17	16, 17	16, 17	53.48	52.10	61	45	
	22			12~17	12	12~17	12~17	15, 16, 17	15, 16, 17	16, 17	16, 17	56.02	54.65	61	45	
	24			12~17	12	12~17	12~17	15, 16, 17	15, 16, 17	16, 17	16, 17	61.12	59.74	67	50	
	25	S8M250 *A :28 *W :33		12~25	12	12~25	12~25	15~25	15~25	16~25	16~25	63.66	62.29	70	56	
	26			14~25	—	14~25	14~25	15~25	15~25	16~25	16~25	66.21	64.84	74	58	
	28			14~25	—	14~25	14~25	15~25	15~25	16~25	16~25	71.30	69.93	80	60	
	30			14~32	—	14~32	14~32	15~32	15~32	16~32	16~32	76.39	75.02	87	67	
	32	S8M300 *A :33 *W :38	F	14~32	—	14~32	14~32	15~32	15~32	16~32	16~32	81.49	80.12	87	67	
	34			16~35	—	16~35	16~35	16~35	16~35	16~35	16~35	86.58	85.21	95	75	
	36			16~38	—	16~38	16~35	16~38	16~35	16~38	16~38	91.67	90.30	99	80	
	38			16~42	—	16~42	16~35	16~42	16~35	16~42	16~42	96.77	95.39	104	84	
	40	S8M400 *A :44 *W :49		20~42	—	20~42	20~35	20~42	20~35	20~42	20~42	101.86	100.49	111	90	
	44			20~42	—	20~42	20~35	20~42	20~35	20~42	20~42	112.05	110.67	119	100	
	48			20~42	—	20~42	20~35	20~42	20~35	20~42	20~42	122.23	120.86	127	105	
	50			20~50	—	20~50	20~35	20~50	20~35	20~50	20~42	127.32	125.95	135	115	
72	60	—		20~50	—	20~50	20~35	20~50	20~35	20~50	20~42	152.79	151.42	160	140	
	72			20~50	—	20~50	20~35	20~50	20~35	20~50	20~50	183.35	181.97	190	170	

① For "F" shape of S8M250, ST bushing is applicable to shaft bore diameter of 12~30 and SH bushing is applicable to 32 and 35.

② For "F" shape of S8M300, ST bushing is applicable to shaft bore diameter of 15~32 and SH bushing is applicable to 35.

Table 1: Select Shaft Bore Diameter

dH7	Max. Allowable Torque Nm		D		(L)
	ST Bushing	SH Bushing	ST Bushing	SH Bushing	
12	48	23	32	31	10.5
14	73	—	35	—	12
15	78	—	36	—	—
16	83	—	37	—	13
17	88	—	38	—	—
18	154	—	43	—	—
19	163	—	45	—	14
20	171	—	46	—	—
22	186	—	48	—	—
24	206	—	50	—	—
25	216	—	52	—	—
28	353	—	54	—	15.5
30	382	—	57	—	—
32	412	163	59	58	16.5
35	451	173	63	61	—
38	686	—	70	—	19
40	725	—	71	—	—
42	757	—	74	—	20
45	1490	—	84	—	—
48	1600	—	87	—	24.5
50	1660	—	89	—	—

① Electroless nickel plated bushing decreases maximum allowable torque and allowable thrust load by 20~30%

Alterations	Surface Treatment
Code	BMC / BMR
Spec.	Applies electroless nickel plating on a bushing. (Anti-rusting treatment applied to screws).
	① Electroless nickel plated bushing decreases allowable torque by 20~30%.
	BMC: Non-RoHS-compliant (Screw: Dacrotized treatment applied 4137 Alloy Steel)
	BMR: RoHS-compliant (Screw: GeoMet coating applied 4137 Alloy Steel)



Ordering Example

Part Number	—	Pulley Shape	—	Shaft Bore Dia.
HTPL 60S8M300	—	E	—	40



Days to Ship

HTLA / HTPL ("F" Shape) / HTLG / HTLK

7 Days

① Non-Returnable

HTLA / HTPL ("E" Shape) only, excluding the No. of teeth 72.)

5 Days

① Non-Returnable



Alterations

Part Number	—	Pulley Shape	—	Shaft Bore Dia.	—	(BMC...etc.)
HTLA25S8M250	—	F	—	25	—	FC65

Elf alterations for HTLA / HTPL ("E" shape) are specified, 5th Day Shipping will be applied for this product.



Keyless High Torque Timing Pulleys

S8M Type – Keyless Bushing with Centering Function –

■ **Features:** Keyless Bushing with Centering Function: It tolerates on average of 1.2 times and 2.5 times greater torque compared to the conventional ST bushing and SH bushing respectively.

RoHS

Part Number				Material			Surface Treatment			
Belt Width 15mm		Belt Width 25mm		Belt Width 30mm		Belt Width 40mm		Pulley	Flange	Bushing
A: 17 W: 22		A: 28W: 33Y: 22 (24 / 24.5)		A: 33W: 38Y: 24 (25 / 28)		A: 44W: 49Y: 30 (31 / 34)				
HHTA_S8M150	HHTA_S8M250	HHTA_S8M300	HHTA_S8M400	7075	5052	1045	Clear Anodize	—		
HHTK_S8M150	HHTK_S8M250	HHTK_S8M300	HHTK_S8M400	Aluminum Alloy	Aluminum Alloy	Carbon Steel	Hard Clear Anodize*	—		
HHTN_S8M150	HHTN_S8M250	HHTN_S8M300	HHTN_S8M400				Electroless Nickel Plating	—		
HHTT_S8M150	HHTT_S8M250	HHTT_S8M300	HHTT_S8M400	1045	Low	1045	—			
HHTM_S8M150	HHTM_S8M250	HHTM_S8M300	HHTM_S8M400	Carbon Steel	Carbon Steel	Carbon Steel	Black Oxide	—		
HHTP_S8M150	HHTP_S8M250	HHTP_S8M300	HHTP_S8M400				Electroless Nickel Plating	—		

*Hard Anodize Treatment: Film Hardness 300HV~

■ **Pulley Shape**

■ **Standard Tooth Profile**

Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 8.0 mm)

E Shape

F Shape

① The shaft bore may not have surface treatment.

① Flange attached

① Y dimensions in () require the shaft bore diameter of 24 and above.

Part Number			Pulley Shape	d _{h7} Range (Select Shaft Bore Dia. from Table 1)								P.D.	O.D.	F	E
Type	Teeth	Type, Nominal Width		S8M150	S8M250			S8M300		S8M400					
				S	E	F	S	F	E	F					
HHTA HHTK HHTN HHTT HHTM HHTP	19	S8M150		12, 14	12, 14	12, 14	12, 14	12, 14	12, 14	12, 14	48.38	47.01	55	40	
	20	*A :17		12, 14	12, 14	12, 14	12, 14	12, 14	12, 14	12, 14	50.93	49.56	58	40	
	21	*W :22		12-16	12-16	12-16	12-16	12-16	12-16	12-16	53.48	52.10	61	45	
	22	S8M250		12-16	12-16	12-16	12-16	12-16	12-16	12-16	56.02	54.65	61	45	
	24	*A :28		12-19	12-19	12-19	12-19	12-19	12-19	12-19	61.12	59.74	67	50	
	25	*W :33		12-20	12-20	12-20	12-20	12-20	12-20	12-20	63.66	62.29	70	56	
	26	*Y :22		14-22	14-22	14-22	14-22	14-22	14-22	14-22	66.21	64.84	74	58	
	28	(d24-30: Y=24)	E	14-22	14-22	14-22	14-22	14-22	14-22	14-22	71.30	69.93	80	60	
	30	(d32-34: Y=24.5)		14-22	14-22	14-22	14-22	14-22	14-22	14-22	76.39	75.02	87	67	
	32	S8M300		14-22	14-28	14-28	14-28	14-28	14-28	14-28	81.49	80.12	87	67	
	34	*A :33		16-22	16-32	16-32	16-32	16-32	16-32	16-32	86.58	85.21	95	75	
	36	*W :38		16-22	16-32	16-32	16-32	16-32	16-32	16-32	91.67	90.30	99	80	
	38	*Y :24		16-22	16-32	16-32	16-32	16-32	16-32	16-32	96.77	95.39	104	84	
	40	(d24-32: Y=25)		20-22	20-35	20-32	20-35	20-35	20-35	20-35	101.86	100.49	111	90	
44	S8M400		20-22	20-35	20-32	20-35	20-35	20-35	20-35	112.05	110.67	119	100		
48	*A :44		20-22	20-45	20-32	20-45	20-45	20-45	20-45	122.23	120.86	127	105		
50	*W :49		20-22	20-50	20-32	20-50	20-45	20-50	20-50	127.32	125.95	135	115		
60	*Y :30		20-22	20-50	20-32	20-50	20-45	20-50	20-50	152.79	151.42	160	140		
72	(d24-32: Y=31)		20-22	20-50	20-32	20-50	20-45	20-50	20-50	183.35	181.97	190	170		
	(d35-38: Y=34)														

Table 1: Select Shaft Bore Diameter

d _{h7}	Max. Allowable Torque (Nm)		D ₁	(L)
	HHTA / HHTK HHTN / HHTT / HHTM	HHTP		
12	44.1	36.2	28.5	
14	63.7	50.9	30.5	
15	80.4	54.8	31.5	
16	83.3	58.8	33.0	6.5
17	92.2	76.4	33.5	
18	95.1	80.3	34.5	
19	98.1	85.2	35.5	
20	216.0	183.0	42.0	
22	255.0	201.0	44.0	8
24	363.0	252.0	46.0	
25	392.0	264.0	47.0	
28	441.0	295.0	50.0	
30	500.0	396.0	52.0	8.5
32	530.0	423.0	54.0	
35	883.0	548.0	62.0	
40	1079.0	779.0	67.0	10
45	1285.0	882.0	72.0	
50	1706.0	1362.0	77.0	10.5

Alterations	Surface Treatment	Flange Cut
Code	BMC / BMR	FC
Spec.	Applies electroless nickel plating on a bushing. (Anti-rusting treatment applied to screws).	Lowers flange by cutting.
	① Electroless nickel plated bushing decreases allowable torque by 20~30%.	FC: 0.5mm Increment
	BMC: Non-RoHS-compliant (Screw: Dacrotized treatment applied 4137 Alloy Steel)	① No surface treatment applied on flange circumference.
	BMR: RoHS-compliant (Screw: GeoMet coating applied 4137 Alloy Steel)	



Ordering Example

Part Number	Pulley Shape	Shaft Bore Dia.
HHTA 60S8M300	F	40



Days to Ship

HHTA / HHTT / HHTM / HHTP

7 Days

① Non-Returnable

HHTK / HHTN

7 Days

① Non-Returnable

② Express service is not available.



Alterations



Part Number	Pulley Shape	Shaft Bore Dia.	(BMC...etc.)
HHTA 60S8M300	E	40	BMC



Clamping High Torque Timing Pulleys

S8M Type

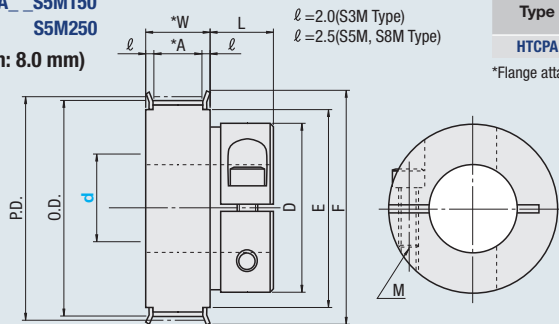
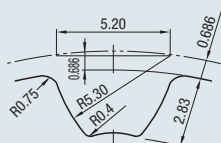
■ **Features:** Can be connected with a shaft by bolting. Easy positioning.

RoHS



HTCPA _ S5M150
S5M250
(Pitch: 8.0 mm)

■ **Standard Tooth Profile**
(Pitch: 8.0 mm)



① Surface treatment may not be applied to shaft bores.
The tooth groove slightly changes according to No. of teeth.

■ **Recommended Shaft Tolerance h7(g6)**

① Finish surface roughness: Ra = 3.2a or less.

Type	Material		Surface Treatment
	Pulley	Flange	
HTCPA	7075 Aluminum Alloy	5052 Aluminum Alloy	Clear Anodize

*Flange attached. Hexagon socket head cap screws are included.

Part Number			d Selection								P.D.	O.D.	D	F	E	L	Clamp Screws		
Type	Teeth	Type, Nominal Width															M	Tightening Torque (Nm)	
HTCPA	20	S8M150 *A :17 *W :22	12	13	14				50.93	49.56	36	58	40	14	4	3.5			
	22		12	13	14	15	16				56.02	54.65	41	61	45	16	5	6	
	24		12	13	14	15	16	17	18	19	61.12	59.74	46	67	50	16	5	6	
	25		12	13	14	15	16	17	18	19	63.66	62.29	46	70	56	16	5	6	
	28		15	16	17	18	19				71.30	69.93	46	80	60	16	5	6	
			20	21	22	23	24	25				71.30	69.93	55	80	60	17	6	12
			15	16	17	18	19				76.39	75.02	46	87	67	16	5	6	
	30		20	21	22	23	24	25				76.39	75.02	55	87	67	17	6	12
			18	19							81.49	80.12	46	87	67	16	5	6	
	32	20	21	22	23	24	25				81.49	80.12	55	87	67	17	6	12	
		18	19							86.58	85.21	46	95	75	16	5	6		
	34	20	21	22	23	24	25				86.58	85.21	55	95	75	17	6	12	
		18	19							91.67	90.30	46	99	80	16	5	6		
	36	20	21	22	23	24	25				91.67	90.30	55	99	80	17	6	12	

■ **Allowable Torque**

Type	Teeth	Shaft Diameter	Allowable Torque (Nm)
S8M	20	12	2.6
		13	7.6
		14	7.6
	22	12	2.6
		13	7.6
		14	7.6
		15	7.6
	24 25	16	7.6
		12	2.6
		13	7.6
		14	7.6
		15	7.6
		16	7.6
	28 30	17	7.6
		18	7.6
		19	7.6
		15	7.6
		16	7.6
		17	7.6
		18	7.6
		19	7.6
		20	48
		21	48
		22	66
		23	66
		24	95
		25	95

Type	Teeth	Shaft Diameter	Allowable Torque (Nm)
S8M	32 34 36	18	7.6
		19	7.6
		20	48
		21	48
		22	66
		23	66
		24	95
		25	95



Ordering Example

Part Number				Shaft Bore Dia.	
Type	Teeth	Type, Nominal Width			
HTCPA40	-	S3M060	-	10	



Days to Ship

5 Days

① Non-Returnable




High Torque Timing Belts

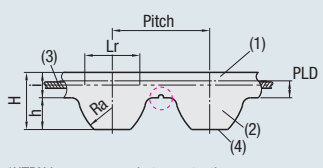
S8M Type

① Although some tooth fabrics for MXL and XL rubber belts (TBN) are change from black to brown to prevent rubber-dust generation. However, it does not affect the performance.

RoHS



① Operating Temp.
Rubber: -30~90°C
Polyurethane: 0~80°C



*HTBN has no groove between teeth.

Type	Material	
HTBN	(1) Back Rubber	Chloroprene Rubber
	(2) Tooth Rubber	Chloroprene Rubber
	(3) Core Wire	Glass Fiber Cord S and Z Twist Alternative Series
	(4) Base Cloth	Nylon Cloth
HTUN	(1) (2) (4) Body	Polyurethane
	(3) Core Wire	Aramid Fiber

Type	Pitch	Ra	Lr	H	h	i	PLD	Unit Mass g/m (Width: 10 mm)
S8M	8	5.2	5.2	5.3	3.05	2.25	0.686	52.0

① Values in () are the unit mass of polyurethane.

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
HTBN (Rubber)	480 S8M	150 (15 mm)	60	480
	520 S8M		65	520
	560 S8M		70	560
	584 S8M		73	584
	600 S8M		75	600
	632 S8M		79	632
	656 S8M		82	656
	712 S8M		89	712
	720 S8M		90	720
	760 S8M		95	760
	800 S8M	250 (25 mm)	100	800
	824 S8M		103	824
	848 S8M		106	848
	880 S8M		110	880
	896 S8M		112	896
	920 S8M		115	920
	944 S8M		118	944
	960 S8M		120	960
	976 S8M		122	976
	1000 S8M		125	1000
	1040 S8M	400 (40 mm)	130	1040
	1056 S8M		132	1056
	1080 S8M		135	1080
	1120 S8M		140	1120
	1136 S8M		142	1136
	1160 S8M		145	1160

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
HTBN (Rubber)	1200 S8M	150 (15 mm)	150	1200
	1248 S8M		156	1248
	1280 S8M		160	1280
	1304 S8M		163	1304
	1360 S8M		170	1360
	1400 S8M		175	1400
	1440 S8M		180	1440
	1480 S8M		185	1480
	1520 S8M		190	1520
	1600 S8M		200	1600
	1680 S8M	250 (25 mm)	210	1680
	1760 S8M		220	1760
	1776 S8M		222	1776
	1800 S8M		225	1800
	1912 S8M		239	1912
	2000 S8M		250	2000
	2240 S8M		280	2240
	2304 S8M		288	2304
	2400 S8M		300	2400
	2496 S8M		312	2496
	2600 S8M	400 (40 mm)	325	2600
	2800 S8M		350	2800
	3200 S8M		400	3200
	3680 S8M		460	3680
	4400 S8M		550	4400



Ordering Example

Part Number		Belt Nominal Width
Type	Belt No.	
HTBN	2800 S14M	400
HTUN	225 S3M	100



Days to Ship

S3M / S5M

1 Day

S2M / S3M / S5M / S8M

6 Days

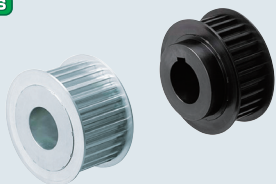
① Non-Returnable



High Torque Timing Pulleys

S14M Type

RoHS

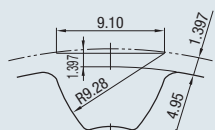


Part Number		Material		Surface Treatment
Belt Width 40mm	Belt Width 60mm	Pulley	Flange	
A:46 W:53 L:73 (78)	A:67 W:74 L:94 (99)	1045 Carbon Steel	Low Carbon Steel	—
HTPT_ S14M400	HTPT_ S14M600			Black Oxide
HTPM_ S14M400	HTPM_ S14M600			

① Flanges are installed.

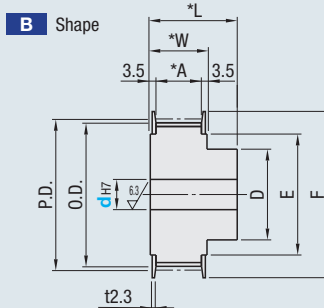
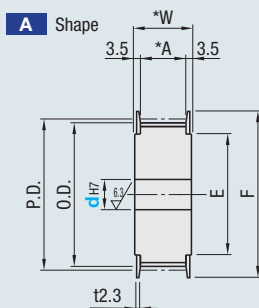
② L Dimensions in () are for 44~56 toothed pulleys.

Standard Tooth Profile



Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 14.0 mm)

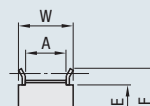
Pulley Shape



Flange Shape

① Flanges are normally machined but may be substituted with pressed products in some cases.

② Pressed flange shape shown below.



Shaft Bore Specs.

① The shaft bore may not have surface treatment.

N New JIS Keywayed Bore + Tap

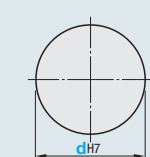
C Old JIS Keywayed Bore + Tap

G New JIS Keywayed Bore and + Stepped Hole

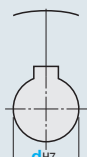
V Stepped Hole

F Stepped Hole
(counterbored holes on the hub side)

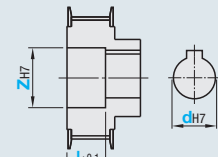
Y Both Ends Stepped Hole



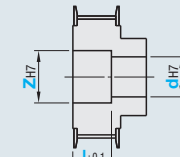
*No tapped holes and set screws.
① Specify TP as alteration when tapped hole is required.



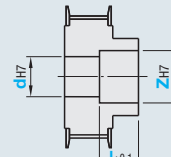
*No tapped holes and set screws.
*For Keyway Dimension Details
① Specify TP as alteration when tapped hole is required.



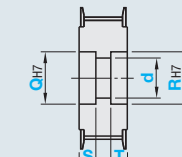
*No tapped holes and set screws.
① Specify TP as alteration when tapped hole is required.



*No tapped holes and set screws.



*Applicable to B Shape only.
*No tapped holes and set screws.



*Applicable to A Shape only.
*Shaft Bore Dia. D is general tolerance.
*No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Specs	Shaft Bore Spec. (1mm Increment)											P.D.	O.D.	D	F	E	
Type	Teeth	Type Nominal Width			H		N / C / G		V / F					Y							
					d _{H7}				d _{H7}		Z _{H7}		J (0.1mm Increment)	d	Q _{H7} / R _{H7}						S / T
					A	B	A	B	A	B	A	B									
HTPT	28	S14M400 *A :46 *W :53 *L :73 (L: 78)	A	H N C G V F Y	30~70	30~60	30~70	30~60	30~66	30~56	30~70	30~60	(For A Shape) 5.0≤J≤W-5.0	30~66	35~75	5-23 S+T≤W-5	124.78	121.98	90	136	101
	30				30~80	30~70	30~70	30~70	30~76	30~66	30~80	30~70		30~76	35~85		133.69	130.90	100	144	111
	32				30~85	30~75	30~70	30~70	30~81	30~71	30~85	30~75		30~81	35~90		142.60	139.81	110	152	121
	34				30~90	30~85	30~70	30~70	30~86	30~81	30~90	30~85		30~86	35~95		151.52	148.72	120	161	131
	36				30~95	30~85	30~70	30~70	30~91	30~81	30~95	30~85		30~91	35~100		160.43	157.63	120	172	141
HTPM	40	S14M600 *A :67 *W :74 *L :94 (L: 99)			35~105	35~95	35~70	35~70	35~101	35~91	35~105	35~95	(For B Shape) 5.0≤J≤L-5.0	35~101	40~110		178.25	175.46	135	190	161
	42				35~110	35~100	35~70	35~70	35~106	35~96	35~110	35~100		35~106	40~115		187.17	184.37	145	200	164
	44				35~115	35~100	35~70	35~70	35~111	35~96	35~115	35~100		35~111	40~120		196.08	193.28	155	208	173
	48				40~120	40~110	40~70	40~70	40~116	40~106	40~120	40~110		40~116	45~125		213.90	211.11	160	224	190
	50				40~130	40~110	40~70	40~70	40~126	40~106	40~130	40~110		40~126	45~135		222.82	220.02	160	235	200
56	40~150	40~110			40~70	40~70	40~146	40~106	40~150	40~110	40~146	45~155	249.55	246.76	160		260	224			

① Z-d≥4 for shaft bore specification G, V and F. ② Q(R)-d≥4 for shaft bore specification Y. ③ When Z≤d+ key height for shaft bore specification G, keyway is added to the Z dimension part. ④ L Dimensions in () are for 44~56 toothed pulleys. ⑤ Shaft Bore Dia. 31, 32, 46~49, 51~54, 56~59 are not available for Shaft Bore Specification N, C and G. L Dimensions in () are for 44~56 toothed pulleys. ⑥ Shaft Bore Dia. 31, 32, 46~49, 51~54, 56~59 are not available for Shaft Bore Specification N, C and G.

S Profile Products



Conveying	—
Positioning	•
Power Transmission	•
High Speed	•



Days
to Ship

Days

Days

 Non-Returnable

[illegible]

Alterations	Side Tapped Hole	Side Through Hole										
Code	QSC / QFC / QTC	KSC / KFC / KTC										
Spec.	<p>Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 1mm Increment)</p> <p>① Thickness required: minimum 4mm</p> <p>A Shape: $d+M+8 \leq QSC(QFC, QTC) \leq E-(M+8)$</p> <p>B Shape: $d+M+8 \leq QSC(QFC, QTC) \leq D-(M+8)$</p> <p>① $d=Z$ when the Shaft Bore Specifications is V.</p> <div></div> <div><p>① The pilot hole for tapping may go through.</p><p>⊗ When shaft bore specification is V, the pilot holes for tapping may bore through the step part.</p><p>⊗ Not applicable to Shaft Bore Specifications F or Y.</p><table><tr><td>M Selection</td><td>M5, M6, M8</td></tr><tr><td>Ordering Code</td><td>QTC120-M8</td></tr></table></div>	M Selection	M5, M6, M8	Ordering Code	QTC120-M8	<p>Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 1mm Increment)</p> <p>① Thickness required: minimum 4mm</p> <p>A Shape: $d+K+8 \leq KSC(KFC, KTC) \leq E-(K+8)$</p> <p>B Shape: $d+K+8 \leq KSC(KFC, KTC) \leq D-(K+8)$</p> <p>① $d=Z$ when the Shaft Bore Specifications is V.</p> <div></div> <div><p>① When shaft bore specification is V, through holes may bore through the step part.</p><p>⊗ Not applicable to Shaft Bore Specifications F or Y.</p><table><tr><td>K (Through Hole Dia.) Section</td><td>K12~K17</td></tr><tr><td>(1mm Increment)</td><td></td></tr><tr><td>Ordering Code</td><td>KSC80-K12</td></tr></table></div>	K (Through Hole Dia.) Section	K12~K17	(1mm Increment)		Ordering Code	KSC80-K12
	M Selection	M5, M6, M8										
Ordering Code	QTC120-M8											
K (Through Hole Dia.) Section	K12~K17											
(1mm Increment)												
Ordering Code	KSC80-K12											



High Torque Timing Belts

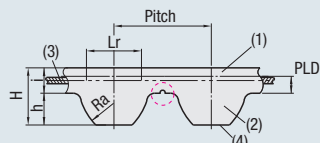
S14M Type

ⓘ Although some tooth fabrics for MXL and XL rubber belts (TBN) are change from black to brown to prevent rubber-dust generation. However, it does not affect the performance.

RoHS



ⓘ Operating Temp.
Rubber: -30~90°C
Polyurethane: 0~80°C



*HTBN has no groove between teeth.

Type	Material	
HTBN	(1) Back Rubber	Chloroprene Rubber
	(2) Tooth Rubber	Chloroprene Rubber
	(3) Core Wire	Glass Fiber Cord S and Z Twist Alternative Series
	(4) Base Cloth	Nylon Cloth
HTUN	(1) (2) (4) Body	Polyurethane
	(3) Core Wire	Aramid Fiber

Type	Pitch	Ra	Lr	H	h	i	PLD	Unit Mass g/m (Width: 10 mm)
S14M	14	9.1	9.1	10.2	5.3	4.9	1.397	100.0

ⓘ Values in () are the unit mass of polyurethane.

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
HTBN (Rubber)	1008 S14M	400 (40 mm)	72	1008
	1120 S14M		80	1120
	1190 S14M		85	1190
	1246 S14M		89	1246
	1400 S14M		100	1400
	1540 S14M		110	1540
	1610 S14M	600 (60 mm)	115	1610
	1652 S14M		118	1652
	1778 S14M		127	1778
	1806 S14M		129	1806
	1890 S14M		135	1890
	2002 S14M		143	2002
	2100 S14M		150	2100
	2240 S14M		160	2240

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
HTBN (Rubber)	2310 S14M	400 (40 mm)	165	2310
	2380 S14M		170	2380
	2450 S14M		175	2450
	2506 S14M		179	2506
	2590 S14M		185	2590
	2660 S14M		190	2660
	2800 S14M	600 (60 mm)	200	2800
	3150 S14M		225	3150
	3500 S14M		250	3500
	3556 S14M		254	3556
	3850 S14M		275	3850
	4004 S14M		286	4004
	4508 S14M		322	4508
	5012 S14M		358	5012



Ordering Example

Part Number		-	Belt Nominal Width
Type	Belt No.		
HTBN	2800 S14M	-	400
HTUN	225 S3M	-	100



Days to Ship

S14M

8 Days

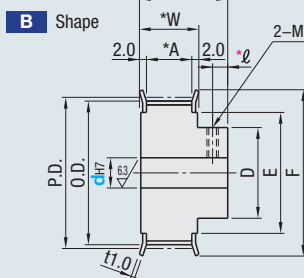
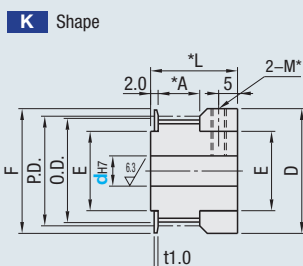
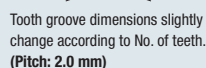
ⓘ Non-Returnable

P Profile Products



*ℓ=4.5 (P2M Type)

K Shape



d_{H7} Shaft Bore Inner Dia.	M (Coarse)	Accessory Set Screw
3~6.35	M3	M3 x 3
7~19	M4	M4 x 3

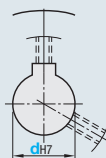
*For 28 Toothed Type of P2M, flanges are straight.

❗ The shaft bore may not have surface treatment.

*No tapped holes and set screws.

Figure 10 shows a technical drawing of a circular part. A vertical centerline is shown. A horizontal dashed line passes through the center. A curved line with an arrow indicates a 120-degree arc. A dimension line labeled d_{H7} is shown at the bottom left, indicating a diameter.

C Old JIS Keywayed Bore + Tap



*No tapped holes and set screws.

① For Shaft Bore Specifications H and P, min. shaft bore dia. tolerance (* marked): H9 (H10 for 18 toothed or less) ❌ Shaft Bore Dia. 9 is not available for Shaft Bore specification N. ① Z- ≥ 2 for Shaft Bore Specification V. ❌ Shaft Bore Dia. 11, 13, 14, 17 are not available for Shaft Bore Specification C. ① Shaft Bore Dia. 6.35 is selectable for shaft bore specifications H and P only. ① Select NK10 when New JIS Keywayed Bore + Tap with shaft bore diameter of 10 and keyway width 4.0mm (height 1.8mm) is requested.



High Torque Timing Pulleys

P2M Type



Ordering Example

Part Number									
Material Type	Tooth No.	Belt Type	Belt Width						
HTPA	48	Y6	040						
	Part Number	-	Pulley Shape	-	Shaft Bore Spec. / Inner Dia.	-	Z	-	J
(Shaft Bore : H / P / N / C)	PTPA48P2M060	-	B	-	NK10				
(Shaft Bore: V)	PTPM32P3M100	-	B	-	V7	-	Z10	-	J6

Conveying	—
Positioning	•
Power Transmission	•
High Speed	•



Days to Ship

4 Days


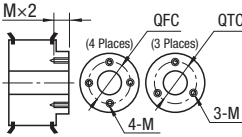
⊘ Non-Returnable

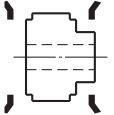
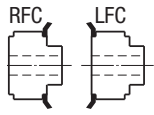


Alterations



Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	(KC120 / QFC / QTC / NFC / RFC / LFC)
PTPA48P2M060	B	N10			NFC

Alterations	Set Screw Angle	Side Tapped Hole
Code	KC120	QFC / QTC
Spec.	<p>Changes an angle of set screw to 90°.</p> <p>⊘ Not applicable to K Shape.</p> 	<p>Machines tapped hole on the side surface of hub side. (QFC, QTC: 1mm Increment)</p> <p>⊘ Thickness required: minimum 2mm $d+M+4 \leq QFC(QTC) \leq D-(M+4)$</p> <p>⊘ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>⊘ Specify KC120, when selecting QTC for Shaft Bore Specifications P, N and C.</p> <p>⊘ The pilot hole for tapping may go through.</p> <p>⊘ Not applicable to K Shape.</p> <p>M Selection M3, M4, M5 Ordering Code QFC28-M4</p> 

Alterations	No Flange	Single Flange
Code	NFC	RFC / LFC
Spec.	<p>Flange is not installed. (Flange included)</p> 	<p>Shipped with a flange installed only on the hub side (RFC) or the opposite side (LFC).</p> <p>⊘ Not applicable to K Shape.</p> 



High Torque Timing Belts

P2M Type

RoHS

PTBN

Type	Material	
PTBN	Main Body	Chloroprene Rubber (Tooth Surface: Nylon Tooth Cloth)
	Core Wire	Glass Fiber

ⓘ Operating Temperature: -25~80°C

Type	Pitch	l	H	h	PLD	r	Unit Mass g/m (Width: 10mm)
P2M	2	1.30	1.3	0.73	0.254	0.2	14.0

Part Number		Teeth	Belt Circum. Length (mm)
Type	Belt No.		
PTBN	80 P2M	40	80
	84 P2M	42	84
	88 P2M	44	88
	98 P2M	49	98
	100 P2M	50	100
	112 P2M	56	112
	116 P2M	58	116
	118 P2M	59	118
	124 P2M	62	124
	126 P2M	63	126
	132 P2M	66	132
	134 P2M	67	134
	136 P2M	68	136
	140 P2M	70	140
	142 P2M	71	142
	144 P2M	72	144
	146 P2M	73	146
	152 P2M	76	152
	154 P2M	77	154
	160 P2M	80	160
	162 P2M	81	162
	166 P2M	83	166
	170 P2M	85	170
	172 P2M	86	172
	176 P2M	88	176
	180 P2M	90	180
	186 P2M	93	186
	190 P2M	95	190
	196 P2M	98	196
	200 P2M	100	200
	204 P2M	102	204
	208 P2M	104	208
	212 P2M	106	212
	214 P2M	107	214
	216 P2M	108	216
	220 P2M	110	220
	224 P2M	112	224
	230 P2M	115	230
	234 P2M	117	234
	236 P2M	118	236
	240 P2M	120	240
	244 P2M	122	244
	246 P2M	123	246
	250 P2M	125	250
	258 P2M	129	258

Part Number		Teeth	Belt Circum. Length (mm)
Type	Belt No.		
PTBN	262 P2M	131	262
	266 P2M	133	266
	270 P2M	135	270
	274 P2M	137	274
	280 P2M	140	280
	284 P2M	142	284
	290 P2M	145	290
	300 P2M	150	300
	302 P2M	151	302
	310 P2M	155	310
	318 P2M	159	318
	320 P2M	160	320
	324 P2M	162	324
	328 P2M	164	328
	330 P2M	165	330
	334 P2M	167	334
	340 P2M	170	340
	348 P2M	174	348
	354 P2M	177	354
	360 P2M	180	360
	370 P2M	185	370
	378 P2M	189	378
	380 P2M	190	380
	390 P2M	195	390
	400 P2M	200	400
	408 P2M	204	408
	416 P2M	208	416
	420 P2M	210	420
	424 P2M	212	424
	426 P2M	213	426
	434 P2M	217	434
	440 P2M	220	440
	448 P2M	224	448
	464 P2M	232	464
	488 P2M	244	488
	490 P2M	245	490
	500 P2M	250	500
	516 P2M	258	516
	520 P2M	260	520
	530 P2M	265	530
	560 P2M	280	560
	576 P2M	288	576
	590 P2M	295	590
	600 P2M	300	600
	630 P2M	315	630

Part Number		Teeth	Belt Circum. Length (mm)
Type	Belt No.		
PTBN	638 P2M	319	638
	656 P2M	328	656
	676 P2M	338	676
	680 P2M	340	680
	704 P2M	352	704
	710 P2M	355	710
	754 P2M	377	754
	764 P2M	382	764
	774 P2M	387	774
	788 P2M	394	788
	800 P2M	400	800
	808 P2M	404	808
	824 P2M	412	824
	846 P2M	423	846
	866 P2M	433	866
	898 P2M	449	898
	900 P2M	450	900
	940 P2M	470	940
	956 P2M	478	956
	992 P2M	496	992
	1040 P2M	520	1040
	1242 P2M	641	1242



Ordering Example

Part Number		Belt Nominal Width
Type	Belt No.	
PTBN	200 P2M	060



Days to Ship

6 Days

ⓘ Non-Returnable



High Torque Timing Pulleys

P3M Type

RoHS

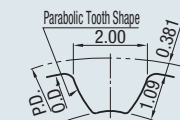


Part Number		Material		Surface Treatment
Belt Width 10mm	Belt Width 15mm	Pulley	Flange	
A: 12 W: 16 L: 23 (A=11 when 20 toothed or less)	A: 17 W: 21 L: 29			
PTPA_P3M100	PTPA_P3M150	High Strength Aluminum Alloy	Aluminum Alloy	Clear Anodize
PTPM_P3M100	PTPM_P3M150	1035 Carbon Steel	Low Carbon Steel	Black Oxide
PTPP_P3M100	PTPP_P3M150			Electroless Nickel Plating

① Flanges are installed. Set screws are included with P, N & C bore hole specification.

*ℓ=4 (P3M Type)

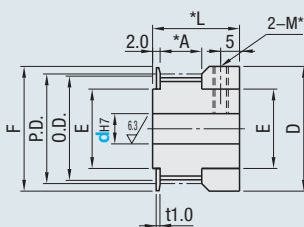
Standard Tooth Profile



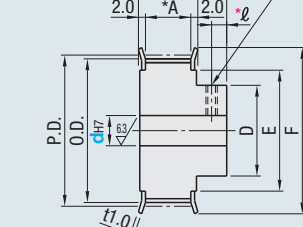
Parabolic Tooth Shape
Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 3.0 mm)

Pulley Shape

K Shape



B Shape



Tapped Hole Dimensions (Shaft Bore: P / N / C)

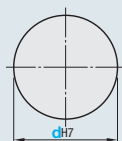
d _{H7} Shaft Bore Inner Dia.	M (Coarse)	Accessory Set Screw
4~6.35	M3	M3 x 3
7~12	M4	M4 x 3
13~18	M5	M5 x 4

*Shaft Bore Specifications H (Round Hole), V, F (Stepped Hole) do not have tapped holes. It may have a relief in the tapped hole depending on the size.
*For 28 Toothed Type of P2M, flanges are straight.

Shaft Bore Specs.

① The shaft bore may not have surface treatment.

H Round Hole



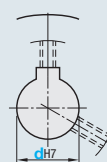
*No tapped holes and set screws.

P Round Hole+Tap

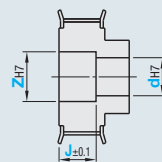


N New JIS Keywayed Bore + Tap

C Old JIS Keywayed Bore + Tap



V Stepped Hole



*No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Specs	Shaft Bore Spec. (1mm Increment)						P.D.	O.D.	D	F	E				
Type	Teeth	Type, Nominal Width			H	P	N	C	V										
					d _{H7}			d _{H7}	Z _{H7}	J (0.1mm Increment)									
PTPM PTPP	10	P3M100 *A :12 *W :16 *L :23 (A=11 when 20 toothed or less) A=11)	K	H	—	—	—	—	—	—	9.55	8.79	12	12	5.5				
	12										*4, 5	11.46	10.70	15	15	8			
	14										*4~6.35	13.37	12.61	17	17	10			
	15										*4~6.35	14.32	13.56	17	17	10			
	16										*4~6.35	15.28	14.52	17	17	10			
	18										*4~6.35	17.19	16.43	21	21	13.3			
	20										*4~6.35	19.10	18.34	25	25	15			
PTPA PTPM PTPP	22	P3M150 *A :17 *W :21 *L :29	B	N	*5~8	*5~8	—	—	—	—	21.01	20.25	12	28	16				
	24				*5~9	*5~9					6	9	22.92	22.16	14	29	18		
	25				*5~9	*5~9					6	9	23.87	23.11	14	31	19		
	26				*6~10	*6~10					8	7	10	24.83	24.07	16	31	19	
	28				*6~12	*6~12					8, 10	10	7, 8, 9	10~12	26.74	25.98	18	32	21.2
	30				*6~12	*6~12					8, 10	10	7, 8, 9	10~12	28.65	27.89	18	34	23
	32				*6~12	*6~12					8, 10	10	7, 8, 9	10~12	30.56	29.80	18	36	22.4
PTPA	36	V	*6~16	*6~16	8~14	10~15	7~13	10~16	34.38	33.62	24	43	30						
	40		*6~18	*6~18	8~15	10~16	7~14	10~18	38.20	37.44	26	45	33.5						

① For Shaft Bore Specifications H and P, min. shaft bore dia. tolerance (* marked): H9 (H10 for 18 toothed or less)XShaft Bore Dia. 9 is not available for Shaft Bore specification N. ② Z-d≥2 for Shaft Bore Specification V. XShaft Bore Dia. 11, 13, 14, 17 are not available for Shaft Bore Specification C. ③ Shaft Bore Dia. 6.35 is selectable for shaft bore specifications H and P only. ④ Select NK10 when New JIS Keywayed Bore + Tap with shaft bore diameter of 10 and keyway width 4.0mm (height 1.8mm) is requested.



High Torque Timing Pulleys

P3M Type



Ordering Example

Part Number					
Material Type	Tooth No.	Belt Type	Belt Width		
HTPA	48	Y6	040		
Part Number		Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J
(Shaft Bore : H / P / N / C)		PTPA48P2M060	B	NK10	
(Shaft Bore: V)		PTPM32P3M100	B	V7	Z10 J6

Conveying	—
Positioning	•
Power Transmission	•
High Speed	•



Days to Ship **4** Days

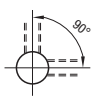
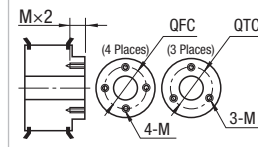
⚠ Non-Returnable

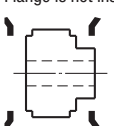
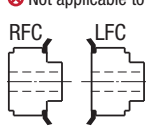


Alterations



Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	(KC120 / QFC / QTC / NFC / RFC / LFC)
PTPA48P2M060	B	N10			NFC

Alterations	Set Screw Angle	Side Tapped Hole
Code	KC120	QFC / QTC
Spec.	<p>Changes an angle of set screw to 90°.</p> <p>⊗ Not applicable to K Shape.</p> 	<p>Machines tapped hole on the side surface of hub side. (QFC, QTC: 1mm Increment)</p> <p>⚠ Thickness required: minimum 2mm $d+M+4 \leq QFC(QTC) \leq D-(M+4)$</p> <p>⚠ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>⚠ Specify KC120, when selecting QTC for Shaft Bore Specifications P, N and C.</p> <p>⚠ The pilot hole for tapping may go through.</p> <p>⊗ Not applicable to K Shape.</p> <p>M Selection M3, M4, M5 Ordering Code QFC28-M4</p> 

Alterations	No Flange	Single Flange
Code	NFC	RFC / LFC
Spec.	<p>Flange is not installed. (Flange included)</p> 	<p>Shipped with a flange installed only on the hub side (RFC) or the opposite side (LFC).</p> <p>⊗ Not applicable to K Shape.</p> 



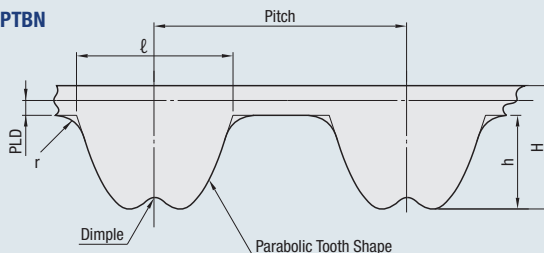
High Torque Timing Belts

P3M Type

RoHS



PTBN



Type	Material
PTBN	Main Body Chloroprene Rubber (Tooth Surface: Nylon Tooth Cloth)
	Core Wire Glass Fiber

Operating Temperature: -25~80°C

Type	Pitch	l	H	h	PLD	r	Unit Mass g/m (Width: 10mm)
P3M	3	1.95	2.1	1.09	0.381	0.3	22.0

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
PTBN	120 P3M	100 (10 mm)	40	120
	123 P3M		41	123
	138 P3M		46	138
	141 P3M		47	141
	144 P3M		48	144
	147 P3M		49	147
	150 P3M		50	150
	153 P3M		51	153
	159 P3M		53	159
	162 P3M		54	162
	171 P3M		57	171
	174 P3M		58	174
	177 P3M		59	177
	183 P3M		61	183
	186 P3M		62	186
	192 P3M		64	192
	195 P3M		65	195
	198 P3M		66	198
	201 P3M		67	201
	207 P3M		69	207
	210 P3M		70	210
	213 P3M	150 (15 mm)	71	213
	219 P3M		73	219
	222 P3M		74	222
	225 P3M		75	225
	231 P3M		77	231
	234 P3M		78	234
	237 P3M		79	237
	240 P3M		80	240
	243 P3M		81	243
	246 P3M		82	246
	252 P3M		84	252
	255 P3M		85	255
	264 P3M		88	264
	270 P3M		90	270
	273 P3M		91	273
	276 P3M		92	276
	279 P3M		93	279
	285 P3M		95	285
	288 P3M		96	288
	291 P3M		97	291
	294 P3M		98	294
	300 P3M		100	300
	303 P3M		101	303
	306 P3M		102	306

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
PTBN	309 P3M	100 (10 mm)	103	309
	312 P3M		104	312
	318 P3M		106	318
	330 P3M		110	330
	339 P3M		113	339
	345 P3M		115	345
	354 P3M		118	354
	360 P3M		120	360
	363 P3M		121	363
	369 P3M		123	369
	372 P3M		124	372
	384 P3M		128	384
	387 P3M		129	387
	393 P3M		131	393
	399 P3M		133	399
	402 P3M		134	402
	411 P3M		137	411
	420 P3M		140	420
	423 P3M	150 (15 mm)	141	423
	432 P3M		144	432
	447 P3M		149	447
	450 P3M		150	450
	453 P3M		151	453
	459 P3M		153	459
	477 P3M		159	477
	483 P3M		161	483
	486 P3M		162	486
	489 P3M		163	489
	501 P3M		167	501
	504 P3M		168	504
	507 P3M		169	507
	510 P3M		170	510
	525 P3M		175	525
	537 P3M		179	537
	552 P3M		184	552
	561 P3M		187	561
	588 P3M		196	588
	600 P3M		200	600
	633 P3M		211	633
	660 P3M		220	660
	675 P3M		225	675
	681 P3M		227	681
	693 P3M		231	693
	699 P3M		233	699
	738 P3M		246	738

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
PTBN	753 P3M	100 (10 mm)	251	753
	756 P3M		252	756
	789 P3M		263	789
	804 P3M		268	804
	852 P3M		284	852
	861 P3M		287	861
	879 P3M		293	879
	891 P3M		297	891
	918 P3M	150 (15 mm)	306	918
	933 P3M		311	933
	948 P3M		316	948
	957 P3M		319	957
	1005 P3M		335	1005
	1023 P3M		341	1023
	1041 P3M		347	1041
	1050 P3M		350	1050
	1191 P3M		397	1191



Ordering Example

Part Number		-	Belt Nominal Width
Type	Belt No.		
PTBN	200 P2M	-	060



Days to Ship

6

Days

Non-Returnable



High Torque Timing Pulleys

P5M Type

RoHS

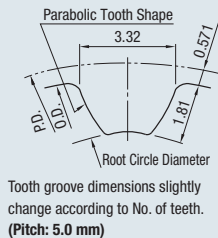


Part Number		Material		Surface Treatment
Belt Width 10mm	Belt Width 15mm	Pulley	Flange	
A: 11.6W: 16L: 28	A: 16.6 W: 21 L: 33	2017 Aluminum Alloy (Duralumin)	5052 Aluminum Alloy	Clear Anodize
PTPA_P5M100	PTPA_P5M150			Black Anodize
PTPB_P5M100	PTPB_P5M150			Hard Clear Anodize*
PTPK_P5M100	PTPK_P5M150			Electroless Nickel Plating
PTPN_P5M100	PTPN_P5M150			Black Oxide
PTPM_P5M100	PTPM_P5M150	1035 Carbon Steel	Low Carbon Steel	Electroless Nickel Plating
PTPP_P5M100	PTPP_P5M150			

ⓘ Flanges are installed. Set screws are included with P, N & C bore hole specification.

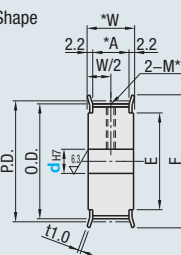
*ℓ=4.5 (P2M Type)

Standard Tooth Profile

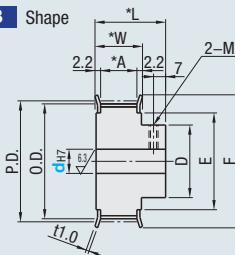


Pulley Shape

A Shape



B Shape



Tapped Hole Dimensions (Shaft Bore: P / N / C)

d _{H7} Shaft Bore Inner Dia.	M (Coarse)	Accessory Set Screw
5-12	M4	M4 x 3
13-17	M5	M5 x 4
18-30	M6	M6 x 5
31-45	M8	M8 x 6
46-65	M10	M10 x 8

*Shaft Bore Specifications H (Round Hole), V, F (Stepped Hole) do not have tapped holes. It may have a relief in the tapped hole depending on the size.

Shaft Bore Specs.

ⓘ The shaft bore may not have surface treatment.

N New JIS Keywayed Bore + Tap

C Old JIS Keywayed Bore + Tap

H Round Hole

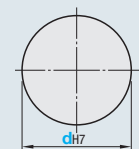
P Round Hole+Tap

V Stepped Hole

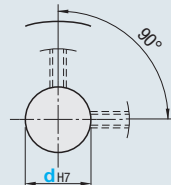
F Stepped Hole

(counterbored holes on the hub side)

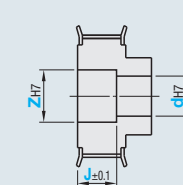
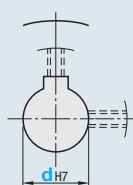
Y Both Ends Stepped Hole



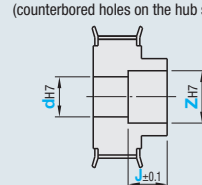
*No tapped holes and set screws.



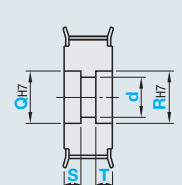
*For A Shape pulley, the set screw hole is set at around 120° to keep away from peaks. For A Shape the set screws are placed at around 90° to keep away from the tooth peaks.



*No tapped holes and set screws.



⊗ Not applicable to PTPM, PTPP.
*Applicable to B Shape only.
*No tapped holes and set screws.



⊗ Not applicable to PTPM, PTPP.
*Applicable to A Shape only.
*Shaft Bore Dia. D is general tolerance.
*No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Specs	Shaft Bore Spec. (1mm Increment)										P.D.	O.D.	D	F		E		
Type	Teeth	Type, Nominal Width			H	P	N	C	V / F			Y						Aluminum	Steel	Aluminum	Steel	
					d _{H7}		d _{H7}	Z _{H7}	J (0.1mm Increment)		d	Q _{H7} / R _{H7}	S / T									
(2017 Aluminum Alloy)	12	P5M100 *A :11.6 *W :16 *L :28	A B	H	5,6	5,6	—	—	—	—	—	—	—	—	19.10	17.96	11	22	23	14	13	
	14				5,6	5,6	—	—	—	—	—	—	—	—	—	22.28	21.14	13	25	28	16	16
	15			5~10	5~8	8	—	—	—	—	—	—	—	—	—	23.87	22.73	15	28	—	18	—
	16			5~10	5~10	8	—	—	—	—	—	—	—	—	—	25.46	24.32	17	30	31	20	19
	18			6~12	6~12	8~11	10	6~7	9,10	7~10	12,13	28.65	27.51	19	32	36	23	22.4				
	20			6~12	6~12	8~11	10	6~7	9,10	7~12	12~15	31.83	30.69	19	35	36	25	22.4				
	22			8~17	8~17	8~15	10~15	8,9,10	11~14	7~14	12~18	35.01	33.87	25	40	43	28	30				
	PTPA			8~17	8~17	8~15	10~15	8,9,10	11~14	7~16	12~20	38.20	37.06	25	44	44	32	31				
	PTPB			10~20	10~20	10~18	10~19	10~13	13~16	7~16	12~20	39.79	38.65	30	44	45	32	33.5				
	PTPK			10~20	10~20	10~18	10~19	10~13	13~16	8~20	12~25	41.38	40.24	30	48	47	36	35.5				
(1035 Carbon Steel Equivalent)	PTPN	10~22		10~22	10~20	10~20	10~14	13~18	(For A Shape) 3≤J≤W-3	8~20	12~25	44.56	43.42	32	50	52	38	37.5				
	30	P5M150 *A :16.6 *W :21 *L :33		V	12~24	12~24	12~22	12~20	12~16	15~20	10~20	15~25	47.75	46.60	35	55	55	40	42.5			
	32	12~26			12~26	12~25	12~20	12~17	15~21	10~24	15~29	50.93	49.79	38	55	55	40	42.5				
	34	12~30		12~30	12~25	12~20	12~20	15~25	10~28	15~32	54.11	52.97	42	61	—	46	—					
	36	12~30		12~30	12~30	12~20	12~20	15~25	(For B Shape) 2≤J≤L-3	10~28	15~32	57.30	56.15	44	67	64	50	50				
	40	12~32		12~32	12~32	12~20	12~22	15~26	10~30	15~35	63.66	62.52	48	67	67	50	56					
	PTPM	15~38		15~38	15~38	15~20	15~28	19~32	12~30	19~45	70.03	68.89	56	74	74	58	63					
	PTPP	15~38		15~38	15~38	15~20	15~28	19~32	12~30	19~46	76.39	75.25	58	83	82	63	67					
	48	15~42		15~40	15~40	15~20	15~30	19~35	12~35	19~50	79.58	78.44	64	87	86	67	71					
	60	15~52		15~40	15~40	15~20	15~30	19~43	12~38	19~60	95.49	94.35	80	104	103	84	85					
72	15~80	15~65		15~50	15~20	15~80	19~86	12~75	19~92	114.59	113.45	90	119	—	100	—						

ⓘ Z-d≥2 for shaft bore specification V and F. ⊗ Shaft Bore Dia. 9, 27, 36 and 39 are not available for Shaft Bore Specification N. ⓘ Q(R)-d≥2 for shaft bore specification Y. ⊗ Shaft Bore Dia. 11, 13, 14, 17 are not available for Shaft Bore Specification C. ⓘ Shaft Bore Dia. 6.35 is selectable for shaft bore specifications H and P only. ⊗ Shaft bore specifications F and Y are not applicable to PTPM and PTPP. ⓘ Select NK10 when New JIS Keywayed Bore + Tap with shaft bore diameter of 10 and keyway width 4.0mm (height 1.8mm) is requested.



High Torque Timing Pulleys

P5M Type



Ordering Example

Part Number												
Material Type	Tooth No.	Belt Type	Belt Width									
HTPA	48	Y6	040									
	Part Number	– Pulley Shape –	Shaft Bore Spec. / Inner Dia.									
(Shaft Bore : H / P / N / C)	PTPA20P5M150	– A –	NK10	– Z –	J –	Q –	R –	S –	T			
(Shaft Bore: V / F)	PTPA60P5M100	– B –	V20	– Z29 –	J22							
(Shaft Bore: Y)	PTPA36P5M150	– A –	Y17			– Q30 –	R30 –	S7 –	T7			

Conveying	—
Positioning	•
Power Transmission	•
High Speed	•



Days to Ship

PTPA / PTPM

4 Days

Ⓢ Non-Returnable

PTPB / PTPK / PTPN

7 Days

Ⓢ Non-Returnable

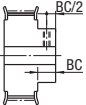





Alterations



Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	(KC120 / QSC / QFC / QTC / KSC / KFC / KTC / BG / NFG / RFG / LFG / FC / TPC / SLH)
PTPA60P5M150	B	H40							NFCBC8.5

Alterations	Set Screw Angle	Side Tapped Hole	Side Through Hole
Code	KC120	QSC / QFC / QTC	KSC / KFC / KTC
Spec.	<p>Changes an angle of set screw to 90°.</p> <p>Ⓢ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.</p>	<p>Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 1mm Increment)</p> <p>Ⓢ Thickness required: minimum 2mm</p> <p>A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$</p> <p>B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$</p> <p>Ⓢ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>Ⓢ Specify KC120 when selecting QFC for Shaft Bore specifications P, N and C.</p> <p>Ⓢ The pilot hole for tapping may go through.</p> <p>Ⓢ Not applicable to Shaft Bore Specifications F or Y.</p> <p>Ⓢ When the Shaft Bore Specifications are P, N or C, QSC is not applicable to PTPM, PTPP.</p> <p>Ⓢ M6, M8 are not applicable to PTPM, PTPP.</p> <p>M Selection M3, M4, M5, M6, M8 Ordering Code QFC28-M4</p>	<p>Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 1mm Increment)</p> <p>Ⓢ Thickness required: minimum 2mm</p> <p>A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$</p> <p>B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$</p> <p>Ⓢ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>Ⓢ Specify KC120 when selecting KTC for Shaft Bore specifications P, N and C.</p> <p>Ⓢ Not applicable to PTPM, PTPP.</p> <p>Ⓢ Not applicable to Shaft Bore Specifications F or Y.</p> <p>Ⓢ When the Shaft Bore Specifications are P, N or C, KSC is not applicable.</p> <p>K (Through Hole Dia.) Selection K4.0~K13.0 (0.5mm Increment) Ordering Code KSC20-K5</p>

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length																								
Code	BC	NFC	RFC / LFC	FC	TPC	SLH																								
Spec.	<p>Cuts the hub length in 0.5mm increment.</p> <p>① Shaft Bore specification: H, V, F: 3≤BC≤L-W</p> <p>① Shaft Bore specification: P, N, C: M+3≤BC≤L-W</p>  <p>Ordering Code BC6.5</p> <p>① Clear anodized products may not have surface treatment on the embossed plane.</p> <p>⊗ Not available for A Shape.</p> <p>⊗ Not applicable to PTPM, PTPP.</p>	<p>Flange is not installed. (Flange included)</p> 	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p> <p>① Same on A Shape</p> 	<p>Lowers flange by cutting. FC: 0.5mm Increment</p> <p>⊗ Not applicable to PTPM, PTPP.</p> <p>① No surface treatment applied on flange circumference.</p>  <p>① FC≥(O.D.)+2</p> <p>① FC≤F-2</p> <p>Ordering Code FC45</p>	<p>Changes the tapped hole dimension.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <p>⊗ Not applicable to PTPM, PTPP.</p> <table><thead><tr><th>M</th><th>TPC</th></tr></thead><tbody><tr><td>M4</td><td>M5</td></tr><tr><td>M5</td><td>M4 / M6</td></tr><tr><td>M6</td><td>M5 / M8</td></tr><tr><td>M8</td><td>M6</td></tr><tr><td>M10</td><td>M8</td></tr></tbody></table> <p>Ordering Code TPC5</p>	M	TPC	M4	M5	M5	M4 / M6	M6	M5 / M8	M8	M6	M10	M8	<p>Changes the length of the included set screws.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><thead><tr><th>Set Screw</th><th>SLH</th></tr></thead><tbody><tr><td>M4 x 3</td><td>5, 8</td></tr><tr><td>M5 x 4</td><td>6, 10</td></tr><tr><td>M6 x 5</td><td>10</td></tr><tr><td>M8 x 6</td><td>10, 12</td></tr><tr><td>M10 x 8</td><td>12, 15</td></tr></tbody></table> <p>Ordering Code SLH10</p>	Set Screw	SLH	M4 x 3	5, 8	M5 x 4	6, 10	M6 x 5	10	M8 x 6	10, 12	M10 x 8	12, 15
	M	TPC																												
M4	M5																													
M5	M4 / M6																													
M6	M5 / M8																													
M8	M6																													
M10	M8																													
Set Screw	SLH																													
M4 x 3	5, 8																													
M5 x 4	6, 10																													
M6 x 5	10																													
M8 x 6	10, 12																													
M10 x 8	12, 15																													



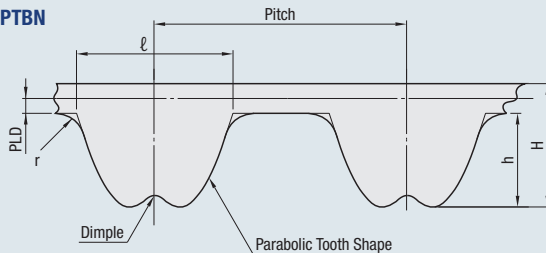
High Torque Timing Belts

P5M Type

RoHS



PTBN



Type	Material
PTBN	Main Body
	Chloroprene Rubber (Tooth Surface: Nylon Tooth Cloth)
	Core Wire
	Glass Fiber

ⓘ Operating Temperature: -25~80°C

Type	Pitch	l	H	h	PLD	r	Unit Mass g/m (Width: 10mm)
P5M	5	3.25	3.6	1.81	0.571	0.5	41.0

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
PTBN	215 P5M	100 (10 mm)	43	215
	225 P5M		45	225
	255 P5M		51	255
	260 P5M		52	260
	275 P5M		55	275
	295 P5M		59	295
	300 P5M		60	300
	310 P5M		62	310
	320 P5M		64	320
	325 P5M		65	325
	340 P5M		68	340
	350 P5M		70	350
	370 P5M		74	370
	375 P5M		75	375
	400 P5M		80	400
	420 P5M		84	420
	425 P5M		85	425
	430 P5M		86	430
	440 P5M		88	440
	450 P5M		90	450
	475 P5M		95	475
	490 P5M		98	490
	500 P5M	150 (15 mm)	100	500
	515 P5M		103	515
	520 P5M		104	520
	525 P5M		105	525
	530 P5M		106	530
	550 P5M		110	550
	555 P5M		111	555
	560 P5M		112	560
	565 P5M		113	565
	570 P5M		114	570
	575 P5M		115	575
	595 P5M		119	595
	600 P5M		120	600
	605 P5M		121	605
	625 P5M		125	625
	635 P5M		127	635
	645 P5M		129	645
	650 P5M		130	650
	670 P5M		134	670
	675 P5M		135	675
	690 P5M		138	690
	695 P5M		139	695

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
PTBN	700 P5M	100 (10 mm)	140	700
	710 P5M		142	710
	725 P5M		145	725
	730 P5M		146	730
	740 P5M		148	740
	750 P5M		150	750
	765 P5M		153	765
	780 P5M		156	780
	800 P5M		160	800
	810 P5M		162	810
	830 P5M	150 (15 mm)	166	830
	835 P5M		167	835
	850 P5M		170	850
	865 P5M		173	865
	900 P5M		180	900
	905 P5M		181	905
	940 P5M		188	940
	950 P5M		190	950
	965 P5M		193	965
	985 P5M		197	985
	1000 P5M		200	1000
	1025 P5M		205	1025
	1050 P5M		210	1050



Ordering Example

Part Number		Belt Nominal Width
Type	Belt No.	
PTBN	200 P2M	060



Days to Ship

6 Days

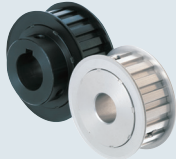
ⓘ Non-Returnable



High Torque Timing Pulleys

P8M Type

RoHS



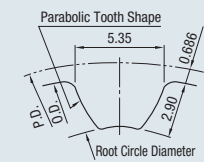
Part Number		Material		Surface Treatment
Belt Width 15 mm	Belt Width 25 mm	Pulley	Flange	
A:16.8 W:22 L:39 (44)	A:27.8 W:33 L:50 (55)			
PTPA_P8M150	PTPA_P8M250	7075 Aluminum Alloy (Extra Super Duralumin)	5052 Aluminum Alloy	Clear Anodize
PTPK_P8M150	PTPK_P8M250			Hard Clear Anodize*
PTPN_P8M150	PTPN_P8M250			Electroless Nickel Plating
PTPM_P8M150	PTPM_P8M250	1035 Carbon Steel	Low Carbon Steel	Black Oxide
PTPP_P8M150	PTPP_P8M250			Electroless Nickel Plating

① Flanges are installed. Set screws are included with P, N & C bore hole specification.

*Hard Anodize Treatment: Film Hardness 300HV~

② L Dimensions in () are for 44~60 toothed pulleys.

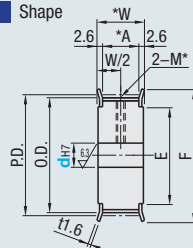
Standard Tooth Profile



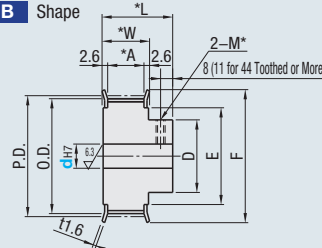
Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 8.0 mm)

Pulley Shape

A Shape



B Shape



Tapped Hole Dimensions (Shaft Bore: P / N / C)

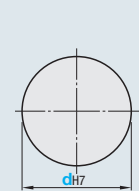
dH7 Shaft Bore Inner Dia.	M (Coarse)	Accessory Set Screw
12	M4	M4 x 3
13~17	M5	M5 x 4
18~30	M6	M6 x 5
31~45	M8	M8 x 6
46~65	M10	M10 x 8

*Shaft Bore Specifications H (Round Hole), V, F (Stepped Hole) do not have tapped holes. It may have a relief in the tapped hole depending on the size.

Shaft Bore Specs.

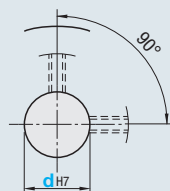
③ The shaft bore may not have surface treatment.

H Round Hole



*No tapped holes and set screws.

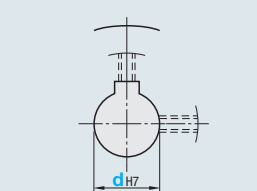
P Round Hole+Tap



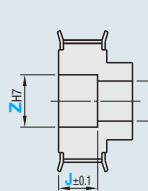
*For A Shape pulley, the set screw hole is set at around 120° to keep away from peaks.
For A Shape the set screws are placed at around 90° to keep away from the tooth peaks.

N New JIS Keywayed Bore + Tap

C Old JIS Keywayed Bore + Tap



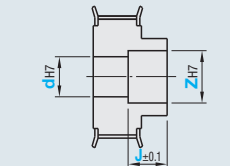
V Stepped Hole



*No tapped holes and set screws.

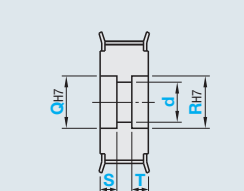
F Stepped Hole

(counterbored holes on the hub side)



④ Not applicable to PTPM, PTPP.
*Applicable to B Shape only.
*No tapped holes and set screws.

Y Both Ends Stepped Hole



④ Not applicable to PTPM, PTPP.
*Applicable to A Shape only.
*Shaft Bore Dia. D is general tolerance.
*No tapped holes and set screws.

Part Number		Pulley Shape	Shaft Bore Specs	Shaft Bore Spec. (1mm Increment)										P.D.	O.D.	D	F		E	
Type	Teeth	Type, Nominal Width		H	P	N	C	V / F		Y							Aluminum	Steel	Aluminum	Steel
(7075 Aluminum Alloy) PTPA PTPK PTPN	20	P8M150 *A :16.8 *W :22 *L :39 (L: 44)	H	12~22	12~22	12~22	12~20	12~14	12~18	12~22	18~26	3~23 S+T≤W-3		50.93	49.56	36	55	55	40	42.5
	22			12~25	12~25	12~25	12~20	12~17	12~21	12~25	18~30			56.02	54.65	41	61	62	45	45
	24			12~28	12~28	12~28	12~20	12~18	12~23	12~30	18~35			61.12	59.74	46	67	66	50	50
	26			16~30	16~30	16~30	16~20	16~20	16~25	16~30	21~40			66.21	64.84	51	74	73	58	56
	28			16~34	16~34	16~34	16~20	16~24	16~29	16~30	21~42			71.30	69.93	55	80	79	60	63
	30			16~35	16~35	16~35	16~20	16~25	16~30	16~35	21~50			76.39	75.02	60	83	82	63	67
(1035 Carbon Steel Equivalent) PTPM PTPP	32	P8M250 *A :27.8 *W :33 *L :50 (L: 55)	C	16~38	16~38	16~38	16~20	16~28	16~32	16~35	21~50	3~23 S+T≤W-3		81.49	80.12	65	87	86	67	71
	34			16~42	16~42	16~42	16~20	16~30	16~35	16~35	26~55			86.58	85.21	70	95	91	75	77
	36			16~45	16~45	16~45	16~20	16~30	16~38	16~38	26~60			91.67	90.30	75	99	97	80	80
	40			20~50	20~50	20~50	20	20~30	20~40	20~42	27~65			101.86	100.49	85	111	107	90	90
	44			20~55	20~55	20~50	20	20~30	20~43	20~50	27~72			112.05	110.67	90	119	119	100	102
	48			20~62	20~62	20~50	20	20~35	20~50	20~50	27~80			122.23	120.86	100	127	127	105	112
	50			20~62	20~62	20~50	20	20~35	20~50	20~50	27~80			127.32	125.95	100	135	135	115	120
	60			20~62	20~62	20~50	20	20~35	20~50	20~50	27~80			152.79	151.42	100	160	158	140	140

① Z-d≥2 for shaft bore specification V and F. ② Shaft Bore Dia. 27, 36, 39, 41, 49 are not available for Shaft Bore specification N. ③ Q(R)-d≥2 for shaft bore specification Y. ④ Shaft Bore Dia. 13, 14, 17 are not available for Shaft Bore specification C. ⑤ L Dimensions in () are for 44~60 toothed pulleys. ⑥ Shaft bore specifications F and Y are not applicable to PTPM and PTPP.



High Torque Timing Pulleys

P8M Type



Ordering Example

Part Number											
Material Type	Tooth No.	Belt Type	Belt Width								
HTPA	48	Y6	040								
Part Number			Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	
(Shaft Bore: H / P / N / C)			PTPA50P8M250	A	H50						
(Shaft Bore: V / F)			PTPA48P8M250	B	V25	Z43	J25				
(Shaft Bore: Y)			PTPA36P8M150	A	Y20			Q32	R37	S7	T9

Conveying	—
Positioning	•
Power Transmission	•
High Speed	•



Days to Ship

4

Days

PTPK / PTPN

7

Days

Ⓜ Non-Returnable

ⓧ Express service is not available.

Ⓜ Non-Returnable

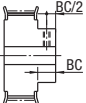





Alterations



Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	(KC120 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC / TPC / SLH)
PTPA50P8M250	A	H60							QSC80 — M8

Alterations	Set Screw Angle	Side Tapped Hole	Side Through Hole
Code	KC120	QSC / QFC / QTC	KSC / KFC / KTC
Spec.	<p>Changes an angle of set screw to 90°.</p> <p>Ⓜ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.</p>	<p>Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 1mm Increment)</p> <p>Ⓜ Thickness required: minimum 2mm</p> <p>A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$</p> <p>B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$</p> <p>Ⓜ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>Ⓜ Specify KC120 when selecting QFC for Shaft Bore specifications P, N and C.</p> <p>Ⓜ The pilot hole for tapping may go through.</p> <p>ⓧ Not applicable to Shaft Bore Specifications F or Y.</p> <p>ⓧ When the Shaft Bore Specifications are P, N or C, QSC is not applicable.</p> <p>ⓧ QSC is not applicable to PTPM, PTPP.</p> <p>ⓧ M6, M8 are not applicable to PTPM, PTPP.</p> <p>M Selection M3, M4, M5, M6, M8</p> <p>Ordering Code QFC28-M4</p>	<p>Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 1mm Increment)</p> <p>Ⓜ Thickness required: minimum 2mm</p> <p>A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$</p> <p>B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$</p> <p>Ⓜ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>Ⓜ Specify KC120 when selecting KTC for Shaft Bore specifications P, N and C.</p> <p>ⓧ Not applicable to PTPM, PTPP.</p> <p>ⓧ Not applicable to Shaft Bore Specifications F or Y.</p> <p>ⓧ When the Shaft Bore Specifications are P, N or C, KSC is not applicable.</p> <p>K (Through Hole Dia.) Selection K4.0~K13.0 (0.5mm Increment)</p> <p>Ordering Code KSC20-K5</p>

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length																								
Code	BC	NFC	RFC / LFC	FC	TPC	SLH																								
Spec.	<p>Cuts the hub length in 0.5mm increment.</p> <p>① Shaft Bore specification: H, V, F: 3≤BC≤L-W</p> <p>① Shaft Bore specification: P, N, C: M+3≤BC≤L-W</p>  <p>Ordering Code BC6.5</p> <p>① Clear anodized products may not have surface treatment on the embossed plane.</p> <p>⊗ Not available for A Shape.</p> <p>⊗ Not applicable to PTPM, PTPP.</p>	<p>Flange is not installed. (Flange included)</p> 	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p> <p>① Same on A Shape</p> 	<p>Lowers flange by cutting.</p> <p>FC: 0.5mm Increment</p> <p>⊗ Not applicable to PTPM, PTPP.</p> <p>① No surface treatment applied on flange circumference.</p>  <p>① FC≥(O.D.)+2</p> <p>① FC≤F-2</p> <p>Ordering Code FC45</p>	<p>Changes the tapped hole dimension.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <p>⊗ Not applicable to PTPM, PTPP.</p> <table><thead><tr><th>M</th><th>TPC</th></tr></thead><tbody><tr><td>M4</td><td>M5</td></tr><tr><td>M5</td><td>M4 / M6</td></tr><tr><td>M6</td><td>M5 / M8</td></tr><tr><td>M8</td><td>M6 / M10</td></tr><tr><td>M10</td><td>M8</td></tr></tbody></table> <p>Ordering Code TPC5</p>	M	TPC	M4	M5	M5	M4 / M6	M6	M5 / M8	M8	M6 / M10	M10	M8	<p>Changes the length of the included set screws.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><thead><tr><th>Set Screw</th><th>SLH</th></tr></thead><tbody><tr><td>M4 x 3</td><td>5, 8</td></tr><tr><td>M5 x 4</td><td>6, 10</td></tr><tr><td>M6 x 5</td><td>10</td></tr><tr><td>M8 x 6</td><td>10, 12</td></tr><tr><td>M10 x 8</td><td>12, 15</td></tr></tbody></table> <p>Ordering Code SLH10</p>	Set Screw	SLH	M4 x 3	5, 8	M5 x 4	6, 10	M6 x 5	10	M8 x 6	10, 12	M10 x 8	12, 15
	M	TPC																												
M4	M5																													
M5	M4 / M6																													
M6	M5 / M8																													
M8	M6 / M10																													
M10	M8																													
Set Screw	SLH																													
M4 x 3	5, 8																													
M5 x 4	6, 10																													
M6 x 5	10																													
M8 x 6	10, 12																													
M10 x 8	12, 15																													



Keyless High Torque Timing Pulleys

P8M Type

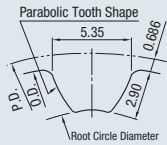
RoHS



Part Number		Material			Surface Treatment		
Belt Width 15mm	Belt Width 5mm	Pulley	Flange	Bushing	Pulley	Flange	Bushing
A: 16.8 W: 22	A: 27.8 W: 33						
PTLA_P8M150	PTLA_P8M250	7075 Aluminum Alloy	5052 Aluminum Alloy	1045 Carbon Steel	Clear Anodize		—
PTLK_P8M150	PTLK_P8M250				Hard Clear Anodize*		—
PTLN_P8M150	PTLN_P8M250				Electroless Nickel Plating		—
—	PTLM_P8M250	1035 Carbon Steel	Low Carbon Steel	1045 Carbon Steel	Black Oxide		
—	PTLG_P8M250				Electroless Nickel Plating		

*Hard Anodize Treatment: Film Hardness 300HV~

Standard Tooth Profile

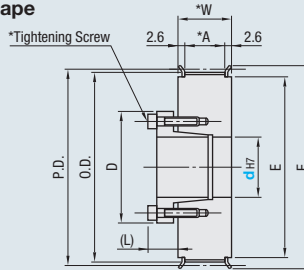


Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 8.0 mm)

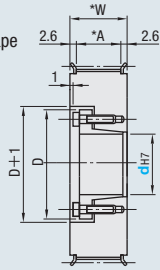
- ① The shaft bore may not have surface treatment.
- ② Two types of bushings are available: Standard Type (ST Bushings) and Short Type (SH Bushings).

Pulley Shape

E Shape



F Shape



Part Number			Pulley Shape	d _{H7} Range (Select Shaft Bore Dia. from Table 1)				P.D.	O.D.	F	E
Type	Teeth	Type, Nominal Width		P5M150		P5M250					
				E (ST Bushing)	F (SH Bushing)	E (ST Bushing)	F (SH Bushing)				
PTLA PTLK PTLN	20	P5M150 *A :16.8 *W :22	E	12-17	12	12-17	12	50.93	49.56	55	40
	22			12-17	12	12-17	12-17	56.02	54.65	61	45
	24			12-22	12	12-22	12-18	61.12	59.74	67	50
	26			16-25		16-25	16-24	66.21	64.84	74	58
	28			16-25		16-25	16-25	71.30	69.93	80	60
	30			16-25		16-25	16-25	76.39	75.02	83	63
	32	P5M150 *A :27.8 *W :33	F	16-35		16-35	16-32	81.49	80.12	87	67
	34			16-35		16-35	16-35	86.58	85.21	95	75
	36			16-35	—	16-35	16-35	91.67	90.30	99	80
	40			20-42		20-42	20-35	101.86	100.49	111	90
	44			20-42		20-42	20-35	112.05	110.67	119	100
	48			20-42		20-45	20-35	122.23	120.86	127	105
50			20-42		20-50	20-35	127.32	125.95	135	115	
60			20-42		20-50	20-35	152.79	151.42	160	140	

Table 1: Select Shaft Bore Diameter

d _{H7}	Max. Allowable Torque Nm		D		(L)
	ST Bushing	SH Bushing	ST Bushing	SH Bushing	
12	48	23	32	31	10.5
14	73		35		12
15	78		36		
16	83		37		13
17	88		38		
18	154		43		
19	163		45		
20	171		46		14
22	186		48		
24	206		50		
25	216		52		
28	353		54		
30	382		57		15.5
32	412		59		
35	451		63		16.5
38	686		70		
40	725		71		19
42	757		74		20
45	1490		84		
48	1600		87		24.5
50	1660		89		

① Electroless nickel plated bushing decreases maximum allowable torque and allowable thrust load by 20~30%

Alterations	Surface Treatment	
Code	BMC / BMR	
	OP	
Spec.	<p>Applies electroless nickel plating on a bushing. (Antirusting treatment applied to screws).</p> <p>① Electroless nickel plated bushing decreases allowable torque by 20~30%.</p> <p>BMC: Non-RoHS-compliant (Screw: Dacrotized treatment applied 4137 Alloy Steel)</p> <p>BMR: RoHS-compliant (Screw: GeoMet coating applied 4137 Alloy Steel)</p> <p>⊗ Not applicable to PTLM / PTLG</p>	
	<p>Pulleys will be shipped individually (No bushings).</p>	



Ordering Example

Part Number	—	Pulley Shape	—	Shaft Bore Dia.
PTLA24P8M250	—	F	—	16



Days to Ship

PTLG
5 Days

① Non-Returnable

PTLN / PTLN
7 Days

⊗ Express service is not available.
① Non-Returnable

PTLA / PTLM
7 Days

① Non-Returnable



Alterations



Part Number	—	Pulley Shape	—	Shaft Bore Dia.	—	(BMC / BMR / OP / FC / NFC / LFC / RFC)
PTLA30P8M250	—	F	—	20	—	BMC

Alterations	Flange Cut	No Flange	Single Flange
Code	FC	NFC	LFC / RFC
Spec.	<p>Low flange by cutting.</p> <p>FC: 0.5mm Increment</p> <p>⊗ Not applicable to PTLM / PTLG</p> <p>⊗ No surface treatment applied on flange circumference.</p> <p>① FC ≥ (O.D.) ÷ 2</p> <p>① FC ≤ F ÷ 2</p> <p>Ordering Code FC35</p>	<p>Flange is not installed. (Flange included)</p>	<p>Flange installed on the bushing side (LFC) or the opposite side (RFC) only prior to shipping.</p>

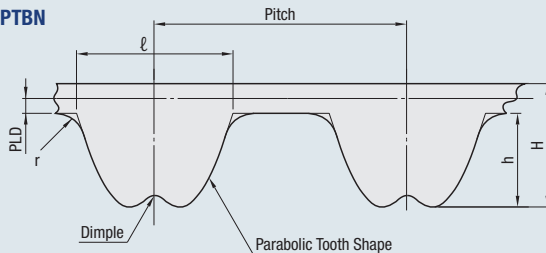


High Torque Timing Belts

P8M Type

RoHS

PTBN



Type	Material	
PTBN	Main Body	Chloroprene Rubber (Tooth Surface: Nylon Tooth Cloth)
	Core Wire	Glass Fiber

ⓘ Operating Temperature: -25~80°C

Type	Pitch	l	H	h	PLD	r	Unit Mass g/m (Width: 10mm)
P8 M	8	5.20	5.5	2.90	0.686	0.8	56.0

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
PTBN	376 P8M	150 (15 mm)	47	376
	392 P8M		49	392
	440 P8M		55	440
	480 P8M		60	480
	512 P8M		64	512
	520 P8M		65	520
	536 P8M		67	536
	560 P8M		70	560
	584 P8M		73	584
	600 P8M		75	600
	632 P8M	250 (25 mm)	79	632
	640 P8M		80	640
	656 P8M		82	656
	680 P8M		85	680
	712 P8M		89	712
	720 P8M		90	720
	752 P8M		94	752
	760 P8M		95	760
	800 P8M		100	800
	832 P8M		104	832
	840 P8M		105	840
	848 P8M		106	848

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
PTBN	856 P8M	150 (15 mm)	107	856
	880 P8M		110	880
	896 P8M		112	896
	912 P8M		114	912
	920 P8M		115	920
	936 P8M		117	936
	944 P8M		118	944
	960 P8M		120	960
	984 P8M		123	984
	1000 P8M		125	1000
	1040 P8M	250 (25 mm)	130	1040
	1056 P8M		132	1056
	1080 P8M		135	1080
	1192 P8M		149	1192
	1440 P8M		180	1440
	2064 P8M		258	2064
	2496 P8M		312	2496
	2600 P8M		325	2600
	2800 P8M		350	2800
	3048 P8M		381	3048
	3200 P8M		400	3200



Ordering Example

Part Number		-	Belt Nominal Width
Type	Belt No.		
PTBN	200 P2M	-	060



Days to Ship

6 Days

ⓘ Non-Returnable

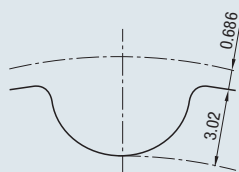
YU Profile Products

RoHS

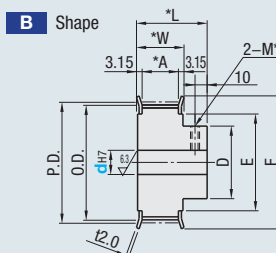
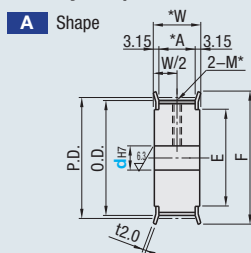


Part Number			Material		Surface Treatment
Belt Width 15mm A:16.7 W:23.0 L:43.0	Belt Width 20mm A:21.7 W:28.0 L:48.0	Belt Width 25mm A:26.7 W:33.0 L:53.0	Pulley	Flange	
GPA_YU8150	GPA_YU8200	GPA_YU8250	2017 Aluminum Alloy (Duralumin)	5052 Aluminum Alloy	Clear Anodize
GPT_YU8150	GPT_YU8200	GPT_YU8250	1045 Carbon Steel	Low Carbon Steel	—
GPM_YU8150	GPM_YU8200	GPM_YU8250			Black Oxide

■ Standard Tooth Profile



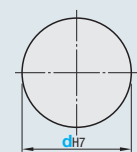
■ Pulley Shape



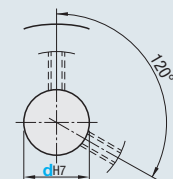
dH7 Shaft Bore Inner Dia.	M (Coarse)	Accessory Set Screw
16~17	M5	M5 x 4
18~30	M6	M6 x 5
31~45	M8	M8 x 6
46~65	M10	M10 x 8

■ Shaft Bore Specs.

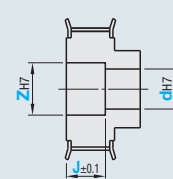
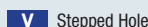
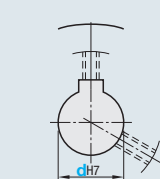
H Round Hole



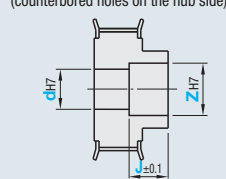
P Round Hole+Tap



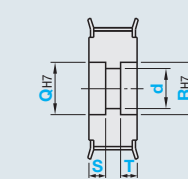
N New JIS Keywayed Bore + Tap



F Stepped Hole



Y Both Ends Stepped Hole

[illegible]

59



High Torque Timing Pulleys

8YU Type



Ordering Example

Part Number																	
Material Type	Tooth No.	Belt Type	Belt Width														
HTPA	48	Y6	040														
	Part Number	–	Pulley Shape	–	Shaft Bore Spec. / Inner Dia.	–	Z	–	J	–	Q	–	R	–	S	–	T
(Shaft Bore : H / P / N)	GPA30YU8150	–	A	–	P25												
(Shaft Bore : V / F)	GPT36YU8200	–	B	–	V20		Z24	–	J20.0								
(Shaft Bore : Y)	GPM40YU8250	–	A	–	Y30						Q34	–	R38	–	S10	–	T15

Conveying	—
Positioning	•
Power Transmission	•
High Speed	•



Days to Ship

5 Days

Ⓢ Non-Returnable



Alterations



Part Number	—	Pulley Shape	—	Shaft Bore Spec. / Inner Dia.	—	Z	—	J	—	Q	—	R	—	S	—	T	—
GPA30YU8150	—	A	—	P25	—	—	—	—	—	—	—	—	—	—	—	—	—

(KC90 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC)
KC90-QFC40-M4

Alterations	Set Screw Angle	Side Tapped Hole	Side Through Hole
Code	KC90	QSC / QFC / QTC	KSC / KFC / KTC
Spec.	Changes an angle of set screw to 90°. Ⓢ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks. 	Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 1mm Increment) Ⓢ Thickness required: minimum 2mm A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$ B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$ Ⓢ Specify KC90 when selecting QFC for the Shaft Bore specifications P and N. Ⓢ The pilot hole for tapping may go through. Ⓢ Not applicable to Shaft Bore Specifications F or Y. Ⓢ QSC is not applicable to the Shaft Bore Specification P and N. <div>M Selection M3, M4, M5, M6, M8 Ordering Code QFC28-M4</div>	Machines through hole on the side surface. (KSC, KFC, KTC: 1mm Increment) Ⓢ Thickness required: minimum 2mm A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$ B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$ Ⓢ Specify KC90 when selecting KFC for the Shaft Bore specifications P and N. Ⓢ Not applicable to Shaft Bore Specifications F or Y. Ⓢ KSC is not applicable to the Shaft Bore Specification P and N. <div>K (Through Hole Dia.) Selection K4.0-K13.0 (0.5mm Increment) Ordering Code KSC20-K5</div>

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut
Code	BC	NFC	RFC / LFC	FC
Spec.	Cuts the hub length in 0.5mm increment. Ⓢ Shaft Bore specification: H, V, F: $3 \leq BC \leq L-W$ Ⓢ Shaft Bore specification: P, N, C: $M+3 \leq BC \leq L-W$ Ordering Code BC6.5 Ⓢ Clear anodized products may not have surface treatment on the embossed plane. Ⓢ Not available for A Shape.	Flange is not installed. (Flange included) 	Flange installed on the hub side (RFC) or the opposite side (LFC) only. Ⓢ Same on A Shape 	Low flange by cutting. FC: 0.5mm Increment Ⓢ No surface treatment applied on flange circumference. Ⓢ $FC \geq (0.D.)+2$ Ⓢ $FC \leq F-2$ Ordering Code FC55



Super High Torque Timing Belts

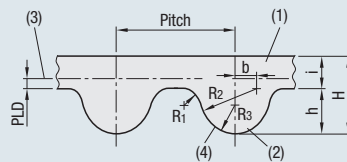
EV8YU Type

■ Features: Suitable for linear motion drives since circular-arc tooth profile has less backlash than standard types.

RoHS



GBN



Type	Material
GBN	(1) Back Rubber
	(2) Tooth Rubber
	(3) Core Wire
	(4) Tooth Fabric
	High Modulus Rubber
	Glass Fiber Cord
	Nylon Cloth

ⓘ Operating Temperature -10~80°C (Reference Value)

Type	Pitch	R ₁	R ₂	R ₃	b	H	h	i	PLD	Unit Mass g/m (Width: 10mm)
EV8YU	8	1.08	3.80	2.10	1.43	5.0	3.02	1.98	0.686	51.0

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
GBN (High Modulus Rubber)	408 EV8YU	150 (15 mm)	51	408
	416 EV8YU		52	416
	432 EV8YU		54	432
	440 EV8YU		55	440
	464 EV8YU		58	464
	472 EV8YU		59	472
	480 EV8YU		60	480
	488 EV8YU		61	488
	504 EV8YU		63	504
	512 EV8YU		64	512
	520 EV8YU		65	520
	536 EV8YU		67	536
	544 EV8YU		68	544
	552 EV8YU		69	552
	560 EV8YU		70	560
	576 EV8YU		72	576
	600 EV8YU		75	600
	608 EV8YU		76	608
	616 EV8YU		77	616
	624 EV8YU		78	624
	632 EV8YU		79	632
	640 EV8YU		80	640
	656 EV8YU		82	656
	664 EV8YU		83	664
	680 EV8YU		85	680
	704 EV8YU		88	704
	720 EV8YU		90	720
	728 EV8YU		91	728
	744 EV8YU		93	744
	752 EV8YU		94	752
	760 EV8YU		95	760
	768 EV8YU		96	768
	776 EV8YU		97	776
	784 EV8YU		98	784
	792 EV8YU		99	792
	800 EV8YU		100	800
	808 EV8YU		101	808
	816 EV8YU		102	816
	824 EV8YU		103	824
	832 EV8YU		104	832
	840 EV8YU		105	840
	848 EV8YU		106	848
	856 EV8YU		107	856
	864 EV8YU		108	864
	872 EV8YU		109	872
	880 EV8YU		110	880
	888 EV8YU		111	888
	896 EV8YU		112	896
	904 EV8YU		113	904
	912 EV8YU		114	912
	920 EV8YU		115	920
	928 EV8YU		116	928
	936 EV8YU		117	936
	944 EV8YU		118	944
	952 EV8YU		119	952
	960 EV8YU		120	960
	968 EV8YU		121	968
	976 EV8YU		122	976
	984 EV8YU		123	984
	992 EV8YU		124	992
	1000 EV8YU		125	1000
	1008 EV8YU		126	1008
	1016 EV8YU		127	1016
	1032 EV8YU		129	1032
	1040 EV8YU		130	1040

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
GBN (High Modulus Rubber)	1064 EV8YU	150 (15 mm)	133	1064
	1072 EV8YU		134	1072
	1080 EV8YU		135	1080
	1088 EV8YU		136	1088
	1096 EV8YU		137	1096
	1112 EV8YU		139	1112
	1120 EV8YU		140	1120
	1128 EV8YU		141	1128
	1136 EV8YU		142	1136
	1144 EV8YU		143	1144
	1152 EV8YU		144	1152
	1160 EV8YU		145	1160
	1168 EV8YU		146	1168
	1176 EV8YU		147	1176
	1184 EV8YU		148	1184
	1192 EV8YU		149	1192
	1200 EV8YU		150	1200
	1208 EV8YU		151	1208
	1216 EV8YU		152	1216
	1224 EV8YU		153	1224
	1232 EV8YU		154	1232
	1240 EV8YU		155	1240
	1248 EV8YU		156	1248
	1256 EV8YU		157	1256
	1264 EV8YU		158	1264
	1272 EV8YU		159	1272
	1280 EV8YU		160	1280
	1288 EV8YU		161	1288
	1296 EV8YU		162	1296
	1304 EV8YU		163	1304
	1312 EV8YU		164	1312
	1320 EV8YU		165	1320
	1328 EV8YU		166	1328
	1336 EV8YU		167	1336
	1344 EV8YU		168	1344
	1352 EV8YU		169	1352
	1360 EV8YU		170	1360
	1376 EV8YU		172	1376
	1384 EV8YU		173	1384
	1392 EV8YU		174	1392
	1400 EV8YU		175	1400
	1408 EV8YU		176	1408
	1416 EV8YU		177	1416
	1424 EV8YU		178	1424
	1432 EV8YU		179	1432
	1440 EV8YU		180	1440
	1448 EV8YU		181	1448
	1456 EV8YU		182	1456
	1464 EV8YU		183	1464
	1480 EV8YU		185	1480
	1496 EV8YU		187	1496
	1520 EV8YU		190	1520
	1544 EV8YU		193	1544
	1568 EV8YU		196	1568
	1576 EV8YU		197	1576
	1600 EV8YU		200	1600
	1608 EV8YU		201	1608
	1616 EV8YU		202	1616
	1640 EV8YU		205	1640
	1656 EV8YU		207	1656
	1680 EV8YU		210	1680
	1688 EV8YU		211	1688
	1696 EV8YU		212	1696
	1720 EV8YU		215	1720
	1728 EV8YU		216	1728

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
GBN (High Modulus Rubber)	1736 EV8YU	150 (15 mm)	217	1736
	1752 EV8YU		219	1752
	1760 EV8YU		220	1760
	1768 EV8YU		221	1768
	1776 EV8YU		222	1776
	1784 EV8YU		223	1784
	1808 EV8YU		226	1808
	1816 EV8YU		227	1816
	1824 EV8YU		228	1824
	1856 EV8YU		232	1856
	1864 EV8YU		233	1864
	1872 EV8YU		234	1872
	1888 EV8YU		236	1888
	1896 EV8YU		237	1896
	1912 EV8YU		239	1912
	1928 EV8YU		241	1928
	1944 EV8YU		243	1944
	1952 EV8YU		244	1952
	1976 EV8YU		247	1976
	2000 EV8YU		250	2000
	2056 EV8YU		257	2056
	2072 EV8YU		259	2072
	2120 EV8YU		265	2120
	2136 EV8YU		267	2136
	2160 EV8YU		270	2160
	2240 EV8YU		280	2240
	2248 EV8YU		281	2248
	2264 EV8YU		283	2264
	2280 EV8YU		285	2280
	2296 EV8YU		287	2296
	2304 EV8YU		288	2304
	2328 EV8YU		291	2328
	2400 EV8YU		300	2400
	2456 EV8YU		307	2456
	2600 EV8YU		325	2600
	2800 EV8YU		350	2800
	3200 EV8YU		400	3200
	3440 EV8YU		430	3440

ⓘ For larger quantity orders "Days to Ship" may differ from published catalog term.



Ordering Example

Part Number		Belt Nominal Width
Type	Belt No.	
GBN	300 EV5GT	120



Days to Ship

6 Days

ⓘ Non-Returnable



Timing Pulleys

MXL Type

RoHS

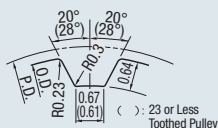


Part Number				Material		Surface Treatment
Belt Width 4.8 mm (0.1875 inch)	Belt Width 6.4 mm (0.25 inch)	Belt Width 9.5 mm (0.375 inch)	Belt Width 12.7 mm (0.5 inch)	Pulley	Flange	
A: 6 W:10 L:16.5	A: 7.5 W: 11.5 L: 18	A: 11 W: 15 L: 22	A: 14 W: 18 L: 25			
ATP_MXL019	ATP_MXL025	ATP_MXL037	ATP_MXL050	2017 Aluminum Alloy (Duralumin)	5052 Aluminum Alloy	Clear Anodize
BTP_MXL019	BTP_MXL025	BTP_MXL037	BTP_MXL050			Black Anodize
KTP_MXL019	KTP_MXL025	KTP_MXL037	KTP_MXL050			Hard Clear Anodize*
NTP_MXL019	NTP_MXL025	NTP_MXL037	NTP_MXL050	1045 Carbon Steel	Low Carbon Steel	Electroless Nickel Plating
—	MTP_MXL025	MTP_MXL037	—			—
—	MTPB_MXL025	MTPB_MXL037	—			Black Oxide
—	MTTP_MXL025	MTTP_MXL037	—	304 Stainless Steel	304 Stainless Steel	Electroless Nickel Plating
—	STP_MXL025	STP_MXL037	—			—

① Flanges are installed. Set screws are included with P, N & C bore hole specification (Not for shape A).

*Hard Anodize Treatment: Film Hardness 300HV~

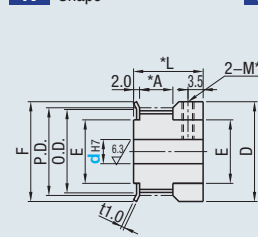
■ Tooth Profile (ISO Standard Rack)



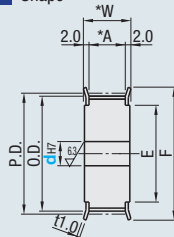
Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 2.032 mm)

■ Pulley Shape

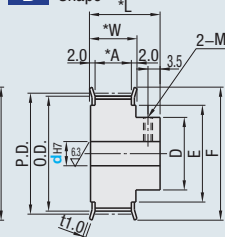
K Shape



A Shape



B Shape



■ Tapped Hole Dimensions (Shaft Bore: P / N / C)

dh7 Shaft Bore Inner Dia.	M (Coarse)	Accessory Set Screw
3-5	M3	M3 x 3
6-18	M4	M4 x 3
19-21	M5	M5 x 4

■ Shaft Bore Specs.

① The shaft bore may not have surface treatment.

H Round Hole

HU Inch Round Hole

P Round Hole+Tap

PU Inch Round Hole+Tap

N New JIS Keywayed Bore + Tap

NU Inch New JIS Key Groove Hole + Tap

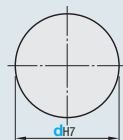
C Old JIS Keywayed Bore + Tap

V Stepped Hole

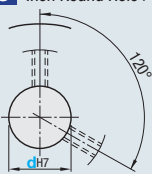
F Stepped Hole

(counterbored holes on the hub side)

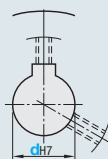
Y Both Ends Stepped Hole



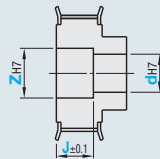
*No tapped holes and set screws.



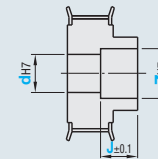
⊗ Not available for A Shape.



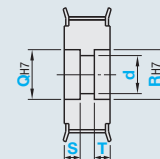
⊗ A Shape has keywayed bores only, not tapped holes.



⊗ Not applicable to K Shape.
*No tapped holes and set screws.



* Applicable to B Shape only.
* No tapped holes and set screws.



* Applicable to A Shape only.
* Shaft Bore Dia. D is general tolerance.
* No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Specs	Shaft Bore Spec. (1mm Increment)																	P.D.	O.D.	D	F	E	
Type	Teeth	Type Nominal Width			H	P	N / C	HU		PU	NU		V / F				J		Y								
					d _{H7}					d _{H7}					Z _{H7}	(0.1mm Increment)		d	Q _{H7} / R _{H7}	S / T							
			A	B-K	B-K	A	B	A	B-K	B-K	A	B	A	B	A	B	A / B	A	A	A							
(2017 Aluminum Alloy)	14	MXL019 *A :6 *W :10 *L :16.5	K	H	3,4	3,4	3,4				A	A	A	—	—	—	—	—	—	—	9.06	8.55	12	12	6		
	15				3,4	3,4	3,4				A	A	A	—	—	—	—	—	—	—	9.70	9.19	12	12	6		
	16*				3,4,5	3,4,5	3,4,5				A-B	A-B	A-B	—	—	3	—	5	—	3	5	10.35	9.84	14	14	8	
	17				3,4,5	3,4,5	3,4,5		—	—	A-B	A-B	A-B	—	—	3	—	5	—	3	5	11.00	10.49	14	14	8	
	18				3,4,5	3,4,5	3,4,5				A-B	A-B	A-B	—	—	3	—	5	—	3	5	11.64	11.14	14	14	8	
	19				3,4,5	3,4,5	3,4,5				A-B	A-B	A-B	—	—	3	—	5	—	3	5	12.29	11.78	14	14	8	
	20*				3,4,5	3,4,5	3,4,5				A-B	A-B	A-B	—	—	3	3	5	5	3,4	5,6	12.94	12.43	9	18	11	
	21				3-6	3-6	3,4,5				A-B	A-B	A-B	—	—	3,4	3	5,6	5	3,4	5,6	13.58	13.07	9	18	11	
	22*				3-6	3-6	3,4,5				A-B	A-B	A-B	—	—	3,4	3	5,6	5	3,4	5,6	14.23	13.72	9	18	11	
	ATP				23	MXL025 *A :7.5 *W :11.5 *L :18	P	H	3-8	3-7	3-7				A-D	A-C	A-C	—	—	3-6	3-5	5-8	5-7	3-6	5-8	14.88	14.37
BTP	24	3-8	3-7	3-7					—	—	A-D	A-C	A-C	—	—	3-6	3-5	5-8	5-7	3-6	5-8	15.52	15.02	11	20	13	
KTP	25*	3-8	3-7	3-7							A-D	A-C	A-C	—	—	3-6	3-5	5-8	5-7	3-6	5-8	16.17	15.66	11	20	13	
NTP	26	3-9	3-8	3-8							A-D	A-D	A-D	—	—	3-7	3-6	5-9	5-8	3-7	5-9	16.82	16.31	12	22	14	
(1045 Carbon Steel)	27	4-9	4-8	4-8							B-D	B-D	B-D	—	—	4-7	4-6	6-9	6-8	4-7	6-9	17.46	16.96	12	22	14	
	28	4-9	4-8	4-8							B-D	B-D	B-D	—	—	4-7	4-6	6-9	6-8	4-7	6-9	18.11	17.60	12	22	14	
	MTP	30*	4-11	4-10	4-8				8			B-E	B-E	B-D	D	—	4-9	4-8	6-11	6-10	4-9	6-11	19.40	18.90	14	25	16
	MTBP	32*	4-11	4-10	4-8				8	—		B-E	B-E	B-D	D	—	4-9	4-8	6-11	6-10	4-9	6-11	20.70	20.19	14	25	16
	MTPP	34	4-11	4-10	4-8				8			B-E	B-E	B-D	D	—	4-9	4-8	6-11	6-10	4-9	6-11	21.99	21.48	14	25	16
(304 Stainless Steel)	36*	MXL037 *A :11 *W :15 *L :22	A	V	5-13				5-12	5-10	8-11	8	C-F	C-E	C-E	D-E	D	5-11	5-10	7-13	7-12	5-11	7-13	23.29	22.78	16	28
	38*				5-13	5-12	5-10	8-11	8	C-F	C-E	C-E	D-E	D	5-11	5-10	7-13	7-12	5-11	7-13	24.58	24.07	16	28	18		
	40*				5-15	5-14	5-10	8-13	8,10	C-F	C-F	C-E	D-F	D-E	5-13	5-12	7-15	7-14	5-13	7-15	25.87	25.36	18	30	20		
	42				5-15	5-14	5-10	8-13	8,10	C-F	C-F	C-E	D-F	D-E	5-13	5-12	7-15	7-14	5-13	7-15	27.17	26.66	18	30	20		
	44				5-18	5-16	5-12	8-16	8-12	C-G	C-G	C-E	D-G	D-E	5-16	5-14	7-18	7-16	5-16	7-18	28.46	27.95	20	32	23		
	46				5-18	5-16	5-12	8-16	8-12	C-G	C-G	C-E	D-G	D-E	5-16	5-14	7-18	7-16	5-16	7-18	29.75	29.24	20	32	23		
	48				5-20	5-18	5-13	8-18	8-13	C-H	C-G	C-F	D-G	D-F	5-18	5-16	7-20	7-18	5-18	7-20	31.05	30.54	22	35	25		
	50*				5-20	5-18	5-13	8-18	8-13	C-H	C-G	C-F	D-G	D-F	5-18	5-16	7-20	7-18	5-18	7-20	32.34	31.84	22	35	25		
	60*				5-27	5-24	5-20	8-25	8-16	C-K	C-K	C-H	D-K	D-G	5-25	5-22	7-27	7-24	5-25	7-27	38.81	38.30	28	44	32		
	72				5-35	5-26	5-21	8-33	8-18	C-M	C-K	C-H	D-L	D-G	5-33	5-24	7-35	7-26	5-33	7-35	46.57	46.06	30	52	40		

① For inch hole dimensions detail information refer to next page. ⊗ Shaft Bore Dia. 9 is not available for Shaft Bore specification N. ⊗ STP is available for * marked No. of teeth only. ⊗ Shaft Bore Dia. 8, 9, 11, 13, 14, 17, 21~33 are not available for Shaft Bore Specification C. ⊗ Shaft hole specifications N and C for A Shape do not have tapped holes. ⊗ Shaft Bore Dia. 6.35 is selectable for Shaft Bore specifications H, P, V and F.Q (R)-d≥2 for shaft bore specification Y. ⊗ Z-d≥2 for shaft bore specification V and F. ⊗ Q(R)-d≥2 for shaft bore specification Y. ⊗ Select NK10 when New JIS Keywayed Bore + Tap with shaft bore diameter of 10 and keyway width 4.0mm (height 1.8mm) is requested.



Timing Pulleys

MXL Type



Ordering Example

Part Number												
Material Type	Tooth No.	Belt Type	Belt Width									
HTPA	48	Y6	040									
	Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T			
(Shaft Bore : H / P / N / C)	ATP40MXL025	B	N10									
(Shaft Bore: V / F)	ATP60MXL037	B	V8	Z14	J13.0							
(Shaft Bore: Y)	ATP48MXL050	A	Y8			Q16	R16	S5	T5			

Conveying	•
Positioning	—
Power Transmission	—
High Speed	•

Inch Hole Specifications

No.	Nominal	Dimension (mm)
A	1/8	3.175
B	3/16	4.763
C	1/4	6.350
D	5/16	7.938
E	3/8	9.525
F	1/2	12.700
G	5/8	15.875
H	3/4	19.050
J	7/8	22.225
K	1	25.400



Days to Ship

ATP / MTP / MTPB / MTPP / STP

4 Days

Ⓢ Non-Returnable

BTP / KTP / NTP

7 Days

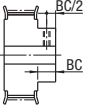

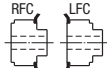

Ⓢ Non-Returnable



Alterations

Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	(KC90 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC / TPC / SLH)
ATP72MXL050	B	H12							KSC20
									K4

Alterations	Set Screw Angle	Side Tapped Hole	Side Through Hole
Code	KC90	QSC / QFC / QTC	KSC / KFC / KTC
Spec.	<p>Changes an angle of set screw to 90°.</p> <p>Ⓢ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.</p>	<p>Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 1mm Increment)</p> <p>Ⓢ Thickness required: minimum 2mm</p> <p>A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$</p> <p>B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$</p> <p>Ⓢ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>Ⓢ Specify KC90 when selecting QFC for Shaft Bore specifications P, N and C.</p> <p>Ⓢ The pilot hole for tapping may go through.</p> <p>Ⓢ Not applicable to K Shape.</p> <p>Ⓢ Not applicable to Shaft Bore Specifications F or Y.</p> <p>Ⓢ When the Shaft Bore Specifications are P, N or C, QSC is not applicable.</p> <p>M Selection M3, M4, M5, M6, M8 Ordering Code QFC28-M4</p>	<p>Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 1mm Increment)</p> <p>Ⓢ Thickness required: minimum 2mm</p> <p>A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$</p> <p>B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$</p> <p>Ⓢ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>Ⓢ Specify KC90 when selecting KFC for Shaft Bore Specifications P, N and C.</p> <p>Ⓢ Not applicable to K Shape.</p> <p>Ⓢ Not applicable to Shaft Bore Specifications F or Y.</p> <p>Ⓢ When the Shaft Bore Specifications are P, N or C, KSC is not applicable.</p> <p>K (Through Hole Dia.) Selection K4.0~K13.0 (0.5mm Increment) Ordering Code KSC20-K5</p>

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length																
Code	BC	NFC	RFC / LFC	FC	TPC	SLH																
Spec.	<p>Cuts the hub length in 0.5mm increment.</p> <p>① Shaft Bore specification: H, V, F: 3≤BC≤L-W</p> <p>① Shaft Bore specification: P, N, C: M+3≤BC≤L-W</p> <div></div> <p>Ordering Code BC6.5</p> <p>① Clear anodized products may not have surface treatment on the embossed plane.</p> <p>⊗ Not applicable to K and A Shape.</p>	<p>Flange is not installed. (Flange included)</p> <div></div>	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p> <p>① Same on A Shape</p> <p>⊗ Not applicable to K Shape.</p> <div></div>	<p>Lowers flange by cutting. FC: 0.5mm Increment</p> <p>⊗ Not available for Stainless Steel Type.</p> <p>① No surface treatment applied on flange circumference.</p> <div></div> <p>① FC≥(O.D.)+2</p> <p>① FC≤F-2</p> <p>Ordering Code FC22</p>	<p>Changes the tapped hole dimension.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><tr><th>M</th><th>TPC</th></tr><tr><td>M3</td><td>M4</td></tr><tr><td>M4</td><td>M3 / M5</td></tr><tr><td>M5</td><td>M4</td></tr></table> <p>Ordering Code TPC5</p>	M	TPC	M3	M4	M4	M3 / M5	M5	M4	<p>Changes the length of the included set screws.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><tr><th>Set Screw</th><th>SLH</th></tr><tr><td>M3 x 3</td><td>6</td></tr><tr><td>M4 x 3</td><td>5, 8</td></tr><tr><td>M5 x 4</td><td>6, 10</td></tr></table> <p>Ordering Code SLH8</p>	Set Screw	SLH	M3 x 3	6	M4 x 3	5, 8	M5 x 4	6, 10
	M	TPC																				
M3	M4																					
M4	M3 / M5																					
M5	M4																					
Set Screw	SLH																					
M3 x 3	6																					
M4 x 3	5, 8																					
M5 x 4	6, 10																					



Timing Belts

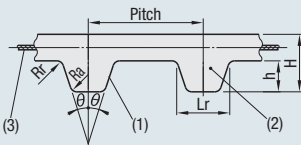
MXL Type

ⓘ Although some tooth fabrics for MXL and XL rubber belts (TBN) are change from black to brown to prevent rubber-dust generation, However, it does not affect the performance.

RoHS



TBN (Rubber)
TUN (Polyurethane)



ⓘ Operating Temp.
Rubber: -30~90°C
Polyurethane: 0~80°C

Type	Material	
TBN	(1) Tooth Cover	Nylon Cloth
	(2) Tooth Rubber	Chloroprene Rubber
	(3) Core Wire	Glass Fiber Cord S and Z Twist Alternative Series
TUN	(1) (2) Body	Polyurethane
	(3) Core Wire	MXL: Kevlar XL / L Steel Cord

Type	Pitch	2θ	Lr	h	H	Rr	Ra	Unit Mass g/m (Width: 10 mm)
MXL (Rubber)	2.032	40°	1.14	0.51	1.11	0.13	0.13	11.0
MXL (Polyurethane)	2.032	60°	—	0.46	1.22	—	—	10.0

■ Type MXL (Pitch: 2.032 mm)

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
TBN (Rubber)	45MXL	019 (4.8 mm)	45	91.44
	48MXL		48	97.54
	50MXL		50	101.60
	52MXL		52	105.66
	53MXL		53	107.70
	54MXL		54	109.73
	55MXL		55	111.76
	56MXL		56	113.79
	57MXL		57	115.82
	59MXL		59	119.89
	60MXL		60	121.92
	61MXL		61	123.95
	63MXL	025 (6.4 mm)	63	128.02
	65MXL		65	132.08
	67MXL		67	136.14
	68MXL		68	138.18
	70MXL		70	142.24
	71MXL		71	144.27
	72MXL		72	146.30
	73MXL		73	148.34
	75MXL		75	152.40
	76MXL		76	154.43
	77MXL		77	156.46
	78MXL	037 (9.5 mm)	78	158.50
	79MXL		79	160.53
	80MXL		80	162.56
	82MXL		82	166.62
	83MXL		83	168.66
	85MXL		85	172.72
	87MXL		87	176.78
	88MXL		88	178.82
	89MXL		89	180.85
	90MXL		90	182.88
	91MXL	050 (12.7 mm)	91	184.91
	92MXL		92	186.94
	93MXL		93	188.98
	94MXL		94	191.01
	95MXL		95	193.04
	96MXL		96	195.07
	97MXL		97	197.10
	98MXL		98	199.14
	99MXL		99	201.17
	100MXL		100	203.20
TUN (Polyurethane)	101MXL		101	205.23
	102MXL		102	207.26
	103MXL		103	209.30
	104MXL		104	211.33
	105MXL		105	213.36
	106MXL		106	215.39
	108MXL		108	219.46
	110MXL		110	223.52
	112MXL		112	227.58
	114MXL		114	231.65
	115MXL		115	233.68
	118MXL		118	239.78
	120MXL		120	243.84
	121MXL		121	245.87
	122MXL		122	247.90
	123MXL		123	249.94
	124MXL		124	251.97
	125MXL		125	254.00
	126MXL		126	256.03
	127MXL		127	258.06
	128MXL		128	260.10
	129MXL		129	262.13
	130MXL		130	264.16
	131MXL		131	266.19

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
TBN (Rubber)	132MXL	019 (4.8 mm)	132	268.22
	134MXL		134	272.29
	135MXL		135	274.32
	138MXL		138	280.42
	140MXL		140	284.48
	142MXL		142	288.54
	144MXL		144	292.61
	145MXL		145	294.64
	146MXL		146	296.67
	148MXL		148	300.74
	150MXL	025 (6.4 mm)	150	304.80
	155MXL		155	314.96
	158MXL		158	321.06
	160MXL		160	325.12
	162MXL		162	329.18
	165MXL		165	335.28
	170MXL		170	345.44
	175MXL		175	355.60
	180MXL		180	365.76
	184MXL		184	373.89
	190MXL	037 (9.5 mm)	190	386.08
	192MXL		192	390.14
	195MXL		195	396.24
	200MXL		200	406.40
	210MXL		210	426.72
	212MXL		212	430.78
	221MXL		221	449.07
	222MXL		222	451.10
	224MXL		224	455.17
	226MXL	050 (12.7 mm)	226	459.23
	228MXL		228	463.30
	230MXL		230	467.36
	232MXL		232	471.42
	235MXL		235	477.52
	236MXL		236	479.55
	239MXL		239	485.65
	240MXL		240	487.68
	245MXL		245	497.84
	248MXL		248	503.94
TUN (Polyurethane)	249MXL		249	505.97
	250MXL		250	508.00
	256MXL		256	520.19
	260MXL		260	528.32
	262MXL		262	532.38
	265MXL		265	538.48
	273MXL		273	554.74
	275MXL		275	558.80
	277MXL		277	562.86
	280MXL		280	568.96
	281MXL		281	570.99
	285MXL		285	579.12
	288MXL		288	585.22
	290MXL		290	589.28
	295MXL		295	599.44
	296MXL		296	601.47
	297MXL		297	603.50
	300MXL		300	609.60
	305MXL		305	619.76
	310MXL		310	629.92
	312MXL		312	633.98
	315MXL		315	640.08
	318MXL		318	646.18
	320MXL		320	650.24
	330MXL		330	670.56
	332MXL		332	674.62
	334MXL		334	678.69
	336MXL		336	682.75

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
TBN (Rubber)	337MXL	019 (4.8 mm)	337	684.78
	340MXL		340	690.88
	347MXL		347	705.10
	350MXL		350	711.20
	355MXL		355	721.36
	358MXL		358	727.46
	359MXL		359	729.49
	360MXL		360	731.52
	364MXL		364	739.65
	365MXL		365	741.68
	370MXL	025 (6.4 mm)	370	751.84
	372MXL		372	755.90
	380MXL		380	772.16
	390MXL		390	792.48
	397MXL		397	806.70
	400MXL		400	812.80
	405MXL		405	822.96
	420MXL		420	853.44
	434MXL		434	881.89
	435MXL		435	883.92
TUN (Polyurethane)	448MXL	037 (9.5 mm)	448	910.34
	453MXL		453	920.50
	464MXL		464	942.85
	487MXL		487	989.56
	498MXL		498	1011.94
	500MXL		500	1016.00
	516MXL		516	1048.51
	525MXL		525	1066.80
	535MXL		535	1087.12
	550MXL		550	1117.60



Ordering Example

Part Number		-	Belt Nominal Width
Type	Belt No.		
TBN	210MXL	—	025
TUN	210L	—	050



Days to Ship

TBN
6 Days

ⓘ Non-Returnable

TUN
8 Days

ⓘ Non-Returnable



Timing Pulleys

XL Type

RoHS



Part Number				Material		Surface Treatment
Belt Width 6.4 mm (0.25 inch)	Belt Width 7.9 mm (0.3125 inch)	Belt Width 9.5 mm (0.375 inch)	Belt Width 12.7 mm (0.5 inch)	Pulley	Flange	
A: 7.5 W: 12.5 L: 21	A: 9 W: 14 L: 23	A: 11 W: 16 L: 25	A: 14 W: 19 L: 28	2017 Aluminum Alloy (Duralumin)	5052 Aluminum Alloy	Clear Anodize Black Anodize Hard Clear Anodize* Electroless Nickel Plating
ATP_XL025	ATP_XL031	ATP_XL037	ATP_XL050	1045 Carbon Steel	Low Carbon Steel	Black Oxide Electroless Nickel Plating
BTP_XL025	BTP_XL031	BTP_XL037	BTP_XL050	304 Stainless Steel	304 Stainless Steel	—
KTP_XL025	KTP_XL031	KTP_XL037	KTP_XL050			
NTP_XL025	NTP_XL031	NTP_XL037	NTP_XL050			
MTP_XL025	—	MTP_XL037	MTP_XL050			
MTPB_XL025	—	MTPB_XL037	MTPB_XL050			
MTPP_XL025	—	MTPP_XL037	MTPP_XL050			
STP_XL025	—	STP_XL037	STP_XL050			

① Flanges are installed. Set screws are included with P, N & C bore hole

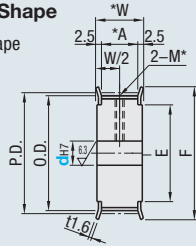
*Hard Anodize Treatment: Film Hardness 300HV~

■ Tooth Profile (ISO Standard Rack)

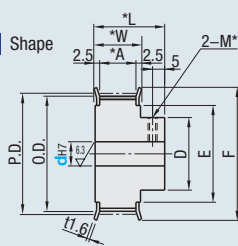


■ Pulley Shape

A Shape



B Shape



■ Tapped Hole Dimensions (Shaft Bore: P / N / C)

d _{H7} Shaft Bore Inner Dia.	M (Coarse)	Accessory Set Screw
4	M3	M3 x 3
5~12	M4	M4 x 3
13~17	M5	M5 x 4
18~30	M6	M6 x 5

*For Shaft Bore Specifications H (Round Hole), V and F (Stepped Hole) and Y (Both Sides Stepped Hole), no tapped hole is machined.

■ Shaft Bore Specs.

① The shaft bore may not have surface treatment.

H Round Hole

HU Inch Round Hole



*No tapped holes and set screws.

P Round Hole+Tap

PU Inch Round Hole+Tap

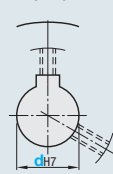


*For A Shape pulley, the screw holes are set at around 120° to keep away from peaks.
⊗ Not applicable to A Shape with 15 or less teeth and nominal width 025.

N New JIS Keywayed Bore + Tap

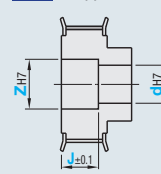
NU Inch New JIS Key Groove Hole + Tap

C Old JIS Keywayed Bore + Tap



⊗ A Shape with 15 or less teeth and nominal width 025 has keywayed bores only, not tapped holes.

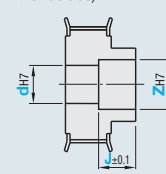
V Stepped Hole



*No tapped holes and set screws.

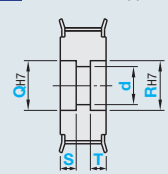
F Stepped Hole

(counterbored holes on the hub side)



* Applicable to B Shape only.
* No tapped holes and set screws.

Y Both Ends Stepped Hole



* Applicable to A Shape only.
* Shaft Bore Dia. D is general tolerance.
* No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Specs	Shaft Bore Spec. (1mm Increment)																			P.D.	O.D.	D	F	E
Type	Teeth	Type Nominal Width			H	P		N / C		HU		PU		NU		V / F				Y								
					d _{H7}										d _{H7}		Z _{H7}	J (0.1mm Increment)		d	Q _{H7} / R _{H7}	S / T						
					A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	A						
(2017 Aluminum Alloy) ATP BTP KTP NTP	10	XL025	H	4-7	4, 5, 6	—	4, 5, 6	—	—	B · C	B	—	B	—	—	4, 5	4	6, 7	6	4, 5	6, 7	—	16.17	15.66	10	24	12	
	11			4-7	4, 5, 6	—	4, 5, 6	—	—	B · C	B	—	B	—	—	4, 5	4	6, 7	6	4, 5	6, 7	—	17.79	17.28	10	24	12	
	12			4-10	4-8	4-6	4, 5, 6	—	—	B · E	B · D	B	—	—	—	4-8	4, 5, 6	6-10	6, 7, 8	4-8	6-10	—	19.40	18.90	12	25	15	
	14			5-13	5-11	5-9	5-8	8	8	C · F	C · E	C · D	C · D	D	D	5-11	5-9	7-13	7-11	5-11	7-13	—	22.64	22.13	15	28	18	
	15			5-13	5-13	5-11	5-10	8-10	8, 10	C · F	C · F	C · E	C · E	D · E	D · E	5-11	5-10	7-13	7-12	5-11	7-13	—	24.26	23.75	17	32	20	
	16*	*A : 7.5	5-13	5-13	5-13	5-10	8-13	8, 10	C · F	C · F	C · E	C · E	D · F	D · E	5-11	5-10	7-13	7-12	5-12	7-14	—	25.87	25.36	17	32	20		
	18*	*L : 21	6-16	6-16	6-15	6-13	8-15	8-13	C · G	C · G	C · F	C · F	D · F	D · F	6-14	6-14	8-16	8-16	6-14	8-17	—	29.11	28.60	21	36	24		
	19	6-16	6-16	6-15	6-15	8-15	8-13	C · G	C · G	C · F	C · F	D · F	D · F	6-14	6-14	8-16	8-16	6-14	8-17	—	30.72	30.22	21	36	24			
	20*		8-19	8-19	8-16	8-15	8-16	8-15	E · G	E · G	E · G	E · F	E · G	E · F	8-17	8-17	10-19	10-19	8-17	10-19	—	32.34	31.83	24	40	27		
	21	XL031	8-19	8-19	8-18	8-16	8-18	8-16	E · G	E · G	E · G	E · G	E · G	E · G	8-17	8-17	10-19	10-19	8-17	10-19	—	33.96	33.45	24	40	27		
22*	*A : 9		8-22	8-22	8-20	8-17	8-20	8-18	E · H	E · H	E · H	E · G	E · H	E · G	8-20	8-20	10-23	10-23	8-20	10-22	—	35.57	35.07	26	45	30		
24*	*W : 14		8-22	8-22	8-22	8-17	8-22	8-18	E · H	E · H	E · H	E · G	E · H	E · G	8-20	8-20	10-23	10-23	8-20	10-22	—	38.81	38.30	26	45	30		
25*	*L : 23		8-27	8-26	8-22	8-19	8-22	8-19	E · K	E · K	E · H	E · G	E · H	E · G	8-25	8-24	10-27	10-26	8-25	10-27	—	40.43	39.92	30	48	35		
26*			8-27	8-26	8-23	8-20	8-23	8-20	E · K	E · K	E · J	E · H	E · J	E · H	8-25	8-24	10-27	10-26	8-25	10-27	3-8	42.01	41.53	30	48	35		
(1045 Carbon Steel) MTP MTPB MTPP	28*	XL037	N	8-32	8-31	8-26	8-25	8-25	8-20	E · L	E · K	E · J	E · J	E · H	8-30	8-29	10-32	10-31	8-30	10-32	S+T≤W-3	45.28	44.77	35	55	40		
	30*			10-32	8-31	10-30	8-25	10-30	8-20	F · L	E · K	F · K	E · J	F · H	E · H	10-38	10-29	12-32	10-31	10-30	12-32	—	48.51	48.00	35	55	40	
	32*			10-37	10-36	10-30	10-30	10-30	10-25	F · M	F · M	F · K	F · K	F · J	F · J	10-35	10-34	12-37	12-36	10-35	12-37	—	51.74	51.24	40	61	45	
	34*			*A : 11	10-38	10-36	10-30	10-30	10-30	10-25	F · M	F · M	F · K	F · K	F · J	F · J	10-35	10-34	12-37	12-36	10-35	12-37	—	54.98	54.47	40	61	45
	36*			*W : 16	10-42	10-36	10-30	10-30	10-30	10-25	F · P	F · M	F · K	F · K	F · J	F · J	10-40	10-34	12-42	12-36	10-40	12-42	—	58.21	57.70	40	67	50
	38*	*L : 25	10-43	10-36	10-30	10-30	10-30	10-25	F · S	F · M	F · K	F · K	F · J	F · J	10-40	10-34	12-42	12-36	10-40	12-42	—	61.45	60.94	40	67	50		
	40*	XL050	10-50	10-36	10-30	10-30	10-30	10-25	F · S	F · M	F · K	F · K	F · J	F · J	10-48	10-34	12-50	12-36	10-48	12-50	—	64.68	64.17	40	74	58		
	42*		10-50	10-36	10-30	10-30	10-30	10-25	F · S	F · M	F · K	F · K	F · J	F · J	10-48	10-34	12-50	12-36	10-48	12-50	—	67.91	67.41	40	74	58		
	44		*A : 14	10-52	10-36	10-30	10-30	10-30	10-25	F · S	F · M	F · K	F · K	F · J	F · J	10-50	10-34	12-52	12-36	10-50	12-52	—	71.15	70.64	40	80	60	
	46		*W : 19	10-55	10-36	10-30	10-30	10-30	10-25	F · S	F · M	F · K	F · K	F · J	F · J	10-50	10-34	12-52	12-36	10-50	12-52	—	74.38	73.87	40	80	60	
48	*L : 28		10-59	10-36	10-30	10-30	10-30	10-25	F · S	F · M	F · K	F · K	F · J	F · J	10-57	10-34	12-59	12-36	10-57	12-59	—	77.62	77.11	40	87	67		
(304 Stainless Steel) STP	50	10-59	10-36	10-30	10-30	10-30	10-25	F · S	F · M	F · K	F · K	F · J	F · J	10-57	10-34	12-59	12-36	10-57	12-59	—	80.85	80.34	40	87	67			
	60	10-76	10-36	10-30	10-30	10-30	10-25	F · S	F · M	F · K	F · K	F · J	F · J	10-74	10-34	12-76	12-36	10-74	12-76	—	97.01	96.51	40	104	84			
	72	10-80	10-36	10-30	10-30	10-30	10-25	F · S	F · M	F · K	F · K	F · J	F · J	10-80	10-34	12-94	12-36	10-75	12-94	—	116.43	115.92	40	123	102			

① For inch hole dimensions detail information refer to next page. ⊗ Shaft Bore Dia. 8, 9, 11, 13, 14, 17, 20~30 are not available for Shaft Bore specification C. ① STP is available for * marked No. of teeth only. ⊗ Shaft Bore Dia. 9 is not available for Shaft Bore specification N. ① A Shape with 15 or less teeth and nominal width 025 is not available for shaft bore specification P, and no tapped holes for shaft bore specifications N and C. ① Z-d/2 for Shaft Bore Specification V. EQ(R)-d/2 for shaft bore specification Y. ① Shaft Bore Dia. 6.35 is selectable for Shaft Bore specifications H, P, V and FQ (R)-d/2 for shaft bore specification Y. ① Select NK10 when New JIS Keywayed Bore + Tap with shaft bore diameter of 10 and keyway width 4.0mm (height 1.8mm) is requested.



Timing Pulleys

XL Type



Ordering Example

Part Number										
Material Type	Tooth No.	Belt Type	Belt Width							
HTPA	48	Y6	040							
	Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	
(Shaft Bore: H / P / N / C)	ATP24XL037	B	N10							
(Shaft Bore: V / F)	ATP60XL050	A	V20	Z28	J16.0					
(Shaft Bore: Y)	ATP40XL050	A	Y20			Q32	R32	S7	T7	

Conveying	•
Positioning	—
Power Transmission	—
High Speed	•

Inch Hole Specifications

No.	Nominal	Dimension (mm)
A	1/8	3.175
B	3/16	4.763
C	1/4	6.350
D	5/16	7.938
E	3/8	9.525
F	1/2	12.700
G	5/8	15.875
H	3/4	19.050
J	7/8	22.225
K	1	25.400



Days to Ship

ATP / MTP / MTPB / MTPP / STP

4 Days

Ⓜ Non-Returnable

BTP / KTP / NTP

7 Days

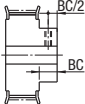

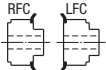

Ⓜ Non-Returnable



Alterations

Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	(KC90 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC / TPC / SLH)
ATP36XL037	B	H15							KSC25 - K5

Alterations	Set Screw Angle	Side Tapped Hole	Side Through Hole
Code	KC90	QSC / QFC / QTC	KSC / KFC / KTC
Spec.	<p>Changes an angle of set screw to 90°.</p> <p>Ⓜ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.</p>	<p>Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 1mm Increment)</p> <p>Ⓜ Thickness required: minimum 2mm</p> <p>A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$</p> <p>B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$</p> <p>Ⓜ d=Z when the Shaft Bore Specifications is V.</p> <p>Ⓜ Specify KC90 when selecting QFC for Shaft Bore specifications P, N and C.</p> <p>Ⓜ The pilot hole for tapping may go through.</p> <p>Ⓜ Not applicable to Shaft Bore Specifications F or Y.</p> <p>Ⓜ When the Shaft Bore Specifications are P, N or C, QSC is not applicable.</p> <p>M Selection M3, M4, M5, M6, M8 Ordering Code QFC28-M4</p>	<p>Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 1mm Increment)</p> <p>Ⓜ Thickness required: minimum 2mm</p> <p>A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$</p> <p>B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$</p> <p>Ⓜ d=Z when the Shaft Bore Specifications is V.</p> <p>Ⓜ Specify KC90 when selecting KFC for Shaft Bore Specifications P, N and C.</p> <p>Ⓜ Not applicable to Shaft Bore Specifications F or Y.</p> <p>Ⓜ When the Shaft Bore Specifications are P, N or C, KSC is not applicable.</p> <p>K (Through Hole Dia.) Selection K4.0~K13.0 (0.5mm Increment) Ordering Code KSC20-K5</p>

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length																				
Code	BC	NFC	RFC / LFC	FC	TPC	SLH																				
Spec.	<p>Cuts the hub length in 0.5mm increment.</p> <p>① Shaft Bore specification: H, V, F: 3≤BC≤L-W</p> <p>① Shaft Bore specification: P, N, C: M+3≤BC≤L-W</p> <div></div> <p>Ordering Code BC6.5</p> <p>① Clear anodized products may not have surface treatment on the embossed plane.</p> <p>⊗ Not applicable for A Shape.</p>	<p>Flange is not installed. (Flange included)</p> <div></div>	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p> <p>① Same on A Shape</p> <div></div>	<p>Lowers flange by cutting.</p> <p>FC: 0.5mm Increment</p> <p>⊗ Not available for Stainless Steel Type.</p> <p>① No surface treatment applied on flange circumference.</p> <div></div> <p>① FC≥(O.D.)+2</p> <p>① FC≤F-2</p> <p>Ordering Code FC35</p>	<p>Changes the tapped hole dimension.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><tr><th>M</th><th>TPC</th></tr><tr><td>M3</td><td>M4</td></tr><tr><td>M4</td><td>M3 / M5</td></tr><tr><td>M5</td><td>M4 / M6</td></tr><tr><td>M6</td><td>M5</td></tr></table> <p>Ordering Code TPC5</p>	M	TPC	M3	M4	M4	M3 / M5	M5	M4 / M6	M6	M5	<p>Changes the length of the included set screws.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><tr><th>Set Screw</th><th>SLH</th></tr><tr><td>M3 x 3</td><td>6</td></tr><tr><td>M4 x 3</td><td>5, 8</td></tr><tr><td>M5 x 4</td><td>6, 10</td></tr><tr><td>M6 x 5</td><td>10</td></tr></table> <p>Ordering Code SLH10</p>	Set Screw	SLH	M3 x 3	6	M4 x 3	5, 8	M5 x 4	6, 10	M6 x 5	10
	M	TPC																								
M3	M4																									
M4	M3 / M5																									
M5	M4 / M6																									
M6	M5																									
Set Screw	SLH																									
M3 x 3	6																									
M4 x 3	5, 8																									
M5 x 4	6, 10																									
M6 x 5	10																									



Keyless Timing Pulley

Overview

■ Features of Keyless Timing Pulleys

- Machining on shafts such as keyway is not required.
- Easy positioning.

■ Installation

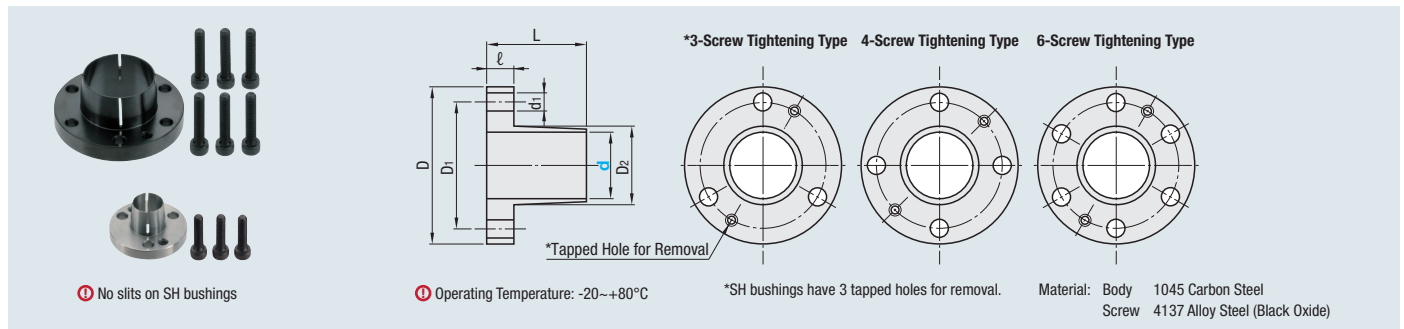
- (1) Wipe off the shaft surface and apply oil or grease. *Do not use any oil or grease containing molybdenum disulfide agent.*
- (2) Wipe off and apply oil or grease on mating surfaces of pulley and bushing as well. Apply to the threads and seat of tightening screws as well.
- (3) Temporarily assemble the pulley and bushing, then insert the shaft. *Do not tighten the bushing before inserting the shaft.*
- (4) After locating, tighten the clamping screws using a torque wrench in the diagonal line order, beginning lightly (approx. 1/4 of the predetermined tightening torque).
- (5) Tighten the screws further to an increased torque (approximately 1/2 specified torque).
- (6) Tighten the screws up to specified torque.
- (7) Finally, tighten the screws to the listed torque values in a circumferential order.

■ Note on Installation

- Be sure to apply oil or grease before installation.
- Screw tighten the bushing after inserting the shaft. *Bushing deforms if the screw is tightened before inserting the shaft.*
- Use a torque wrench to tighten the screws.
- Do not use screws other than the included tightening screws.

■ Removal

- Be sure to work after the system is completely shut down.
- Loosen the tightening screws in circumferential order.
- Insert a screw in a hole for removal and tighten evenly.
- Repeat "Installation" process for re-installation.



■ Bushing Dimension Table

Standard Type "E" Shape (ST Bushings)

Shaft Bore Dia. d	Qty	Screw Size	Tapped Hole for Removal	Max. Allowable Torque Nm	Allowable Thrust Load kN	Screw Tightening Torque Nm	D	D ₁	D ₂	d ₁	L	ℓ
8	4	M3 x 12	M3 x 2	16	4.0	2.0	25.5	19	10	3.3	15.5	4
10				39			30	22	12			
11	3	M4 x 16	M4 x 2	43	5.34	4.0	31	23	13	4.5	16.5	5
12				48			32	24	14			
14				73			35	27	16.6		22	6
15				78			36	28	17.6			
16				83	5.34	4.0	37	29	18.6	4.5		
17				88			38	30	19.6			
18				154			43	33	20.6			
19	4	M4 x 18	M4 x 2	163			45	35	22.4			
20				171			46	36	23.4		23	7
22				186	8.74	8.3	48	38	24.6	5.5		
24				206			50	40	26.6			
25				216			52	42	28.4			
28				353			54	44	30.6			
30				382			57	47	33.4		24	8
32				412	8.74	8.3	59	49	34.7	5.5	25	9
35				451			63	53	38.4		26.5	
38				686			70	58	42		28	10
40	6	M5 x 25	M5 x 2	725	12.3	13.7	71	59	43.5	6.6	30.5	11
42				757			74	62	46		31.5	
45				1490			84	69	49.5			
48				1600	22.7	34.3	87	72	52.5	8.8	38.5	13
50				1660			89	74	54.5			

kgf=Nx0.101972

- Shaft tolerance g6, shaft surface roughness Ra6.3 are standard.
- When there are keyway and D cut on the installation shaft, transmitting torque is reduced by approximately more than 15%.

Short Type "F" Shape (SH Bushings)

Shaft Bore Dia. d	Qty	Screw Size	Tapped Hole for Removal	Max. Allowable Torque Nm	Allowable Thrust Load kN	Screw Tightening Torque Nm	D	D ₁	D ₂	d ₁	L	ℓ
6				5.6	1.87		22.5	16	8.5			
8				8.5	2.12	1.9	24.5	18	10.5	3.3	10.5	3
10	3	M3 x 10	M3 x 3	18	3.59		29	21	12.75			
11				20	3.63	3.9	30	22	13.75	4.4	13	4
12				23	3.76		31	23	14.75			
14				37	5.21		36	26	17.65			
15				39	5.10		37	27	18.65			
16				42	5.17		38	28	19.65			
17	4	M4 x 12	M4 x 3	45	5.23	3.9	39	29	20.65	4.4	17	5
18				48	5.28		40	30	21.85			
19				49	5.12		42	32	22.85			
20				97	9.68		46	36	24.1			
22				110	9.98		47	37	25.75			
24				121	10.00		49	39	27.75			
25	4	M4 x 18	M4 x 2	124	9.90	7.8	51	41	28.75	5.5	19	6
28				141	10.00		53	43	31.75			
30				149	9.89		56	46	33.75			
32				163	10.12		58	47	35.75			
35				173	9.88		61	50	39.1		20	

kgf=Nx0.101972

■ Mechanical Lock Standard Type Incorporated

- In addition to the above bushings, Misumi offers keyless bushing with centering function
- It tolerates on average 1.2 times and 2.5 times greater torque against ST bushing and SH bushing respectively.



Keyless Timing Pulleys

XL Type

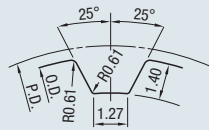
RoHS



Catalog No.	Material			Surface Treatment		
Belt Width 12.7 mm (0.5 inch)	Pulley	Flange	Bushing	Pulley	Flange	Bushing
A: 14 W: 19						
MTPLA_XL050	7075 Aluminum Alloy	5052 Aluminum Alloy	1045 Carbon Steel	Clear Anodize		—
MTPL_XL050	1045 Carbon Steel	Low Carbon Steel	1045 Carbon Steel	Black Oxide		

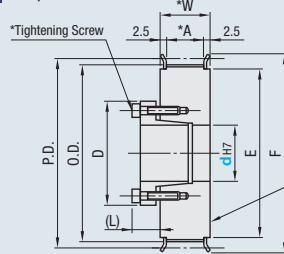
■ Pulley Shape

■ Tooth Profile (ISO Standard Rack)

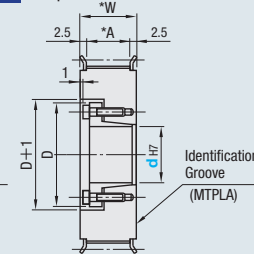


Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 5.08 mm)

E Shape



F Shape



① The shaft bore may not have surface treatment.

② Two types of bushings are available: Standard Type (ST Bushings) and Short Type (SH Bushings).

Part Number		Pulley Shape	d _{H7} Range (Select Shaft Bore Dia. from Table 1)		P.D.	O.D.	F	E
Type	Teeth		E (ST Bushing)	F (SH Bushing)				
MTPLA MTPL	20	XL050 *A :14 *W :19	E	8	32.34	31.83	40	27
	21			—	33.96	33.45	40	27
	22			8	35.57	35.07	45	30
	24			8	38.81	38.30	45	30
	25			8~12	40.43	39.92	48	35
	26			8~12	42.04	41.53	48	35
	28			8~17	45.28	44.77	55	55
	30			10~17	48.51	48.00	48	48
	32			10~18	51.74	51.24	61	45
	34			10~18	54.98	54.47	61	45
	36		F	10~22	58.21	57.70	67	50
	38			10~22	61.45	60.94	67	50
	40			10~30	64.68	64.17	74	58
	42			10~30	67.91	67.41	74	58
	44			10~32	71.15	70.64	80	60
	46			10~32	74.38	73.87	80	60
	48			10~32	77.62	77.11	87	67
	50			10~32	80.85	80.34	87	67
	60			10~32	97.02	96.51	104	84
	72			10~32	116.43	115.92	123	102

Table 1: Select Shaft Bore Diameter

d _{H7}	Max. Allowable Torque Nm		D		(L)
	ST Bushing	SH Bushing	ST Bushing	SH Bushing	
8	16	8.5	25.5	24.5	8.5
10	39	18	30	29	
11	43	20	31	30	10.5
12	48	23	32	31	
14	73		35		12
15	78		36		
16	83		37		13
17	88		38		
18	154		43		14
19	163		45		
20	171		46		14
22	186		48		
24	206		50		
25	216		52		
28	353		54		15.5
30	382		57		
32	412		59		16.5

① Electroless nickel plated bushing decreases maximum allowable torque and allowable thrust load by 20~30%

Alterations	Surface Treatment
Code	BMC / BMR
Spec.	Applies electroless nickel plating on a bushing. (Anti-rusting treatment applied to screws). ① Electroless nickel plated bushing decreases allowable torque by 20~30%. BMC: Non-RoHS-compliant (Screw: Dacrotized treatment applied 4137 Alloy Steel) BMR: RoHS-compliant (Screw: GeoMet coating applied 4137 Alloy Steel)



Ordering Example

Part Number	-	Pulley Shape	-	Shaft Bore Dia.
MTPL30XL050	-	E	-	17



Days to Ship

7 Days

① Non-Returnable



Alterations

Part Number	-	Pulley Shape	-	Shaft Bore Dia.	-	(FC / NFC / LFC / RFC / BMC / BMR)
MTPLA30XL050	-	E	-	17	-	FC52.5

Alterations	Flange Cut	No Flange	Single Flange
Code	FC	NFC	LFC / RFC
Spec.	Low flange by cutting. FC: 0.5mm Increment ① No surface treatment applied on flange circumference. ① FC ≥ (O.D.) ÷ 2 ① FC ≤ F - 2 Ordering Code FC35	Flange is not installed. (Flange included) 	Flange installed on the bushing side (LFC) or the opposite side (RFC) only prior to shipping.




Timing Belts

XL Type

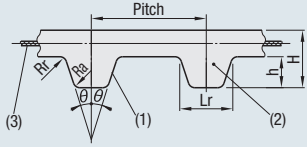
ⓘ Although some tooth fabrics for MXL and XL rubber belts (TBN) are change from black to brown to prevent rubber-dust generation, However, it does not affect the performance.

RoHS



ⓘ Operating Temp.
Rubber: -30~90°C
Polyurethane: 0~80°C

TBN (Rubber)
TUN (Polyurethane)



Type	Material		
TBN	(1) Tooth Cover	Nylon Cloth	
	(2) Tooth Rubber	Chloroprene Rubber	
	(3) Core Wire	Glass Fiber Cord S and Z Twist Alternative Series	
TUN	(1) (2) Body	Polyurethane	
	(3) Core Wire	MXL: Kevlar XL / L Steel Cord	

Type	Pitch	2θ	Lr	h	H	Rr	Ra	Unit Mass g/m (Width: 10 mm)
XL	5.08	50°	2.57	1.27	2.27	0.38	0.38	22.0 (20.0)

■ Type XL (Pitch: 5.08 mm)

Part Number				
Type	Belt No.	Belt Nominal Width	Teeth	Belt Circum. Length (mm)
TBN (Rubber)	60XL	025 (6.4 mm)	30	152.40
	68XL		34	172.72
	70XL		35	177.80
	76XL		38	193.04
	78XL		39	198.12
	80XL		40	203.20
	84XL		42	213.36
	88XL		44	223.52
	90XL		45	228.60
	92XL		46	233.68
	94XL		47	238.76
	96XL		48	243.84
	98XL		49	248.92
	100XL		50	254.00
	102XL		51	259.08
	104XL		52	264.16
	108XL		54	274.32
	110XL		55	279.40
	112XL		56	284.48
	114XL		57	289.56
	116XL		58	294.64
	118XL		59	299.72
	120XL		60	304.80
	122XL		61	309.88
	124XL		62	314.96
	126XL		63	320.04
	128XL		64	325.12
	130XL		65	330.20
	134XL		67	340.36
	136XL		68	345.44
	138XL		69	350.52
	140XL		70	355.60
	142XL		71	360.68
	144XL		72	365.76
	146XL		73	370.84
	148XL		74	375.92
	150XL		75	381.00
	152XL		76	386.08
	154XL		77	391.16
	156XL		78	396.24
	158XL		79	401.32
	160XL		80	406.40
	162XL		81	411.48
	164XL		82	416.56
	166XL		83	421.64
	168XL		84	426.72
	170XL		85	431.80
	172XL		86	436.88
	174XL		87	441.96
	176XL		88	447.04
	178XL		89	452.12
	180XL		90	457.20
	182XL		91	462.28
	184XL		92	467.36
	188XL		94	477.52
	190XL		95	482.60
	194XL		97	492.76
	196XL		98	497.84
	198XL		99	502.92
	200XL		100	508.00
TUN (Polyurethane)				

Part Number				
Type	Belt No.	Belt Nominal Width	Teeth	Belt Circum. Length (mm)
TBN (Rubber)	202XL	025 (6.4 mm)	101	513.08
	206XL		103	523.24
	210XL		105	533.40
	212XL		106	538.48
	220XL		110	558.80
	228XL		114	579.12
	230XL		115	584.20
	234XL		117	594.36
	240XL		120	609.60
	250XL		125	635.00
	260XL		130	660.40
	270XL		135	685.80
	276XL		138	701.04
	280XL		140	711.20
	282XL		141	716.28
	290XL		145	736.60
	300XL		150	762.00
	310XL		155	787.40
	314XL		157	797.56
	320XL		160	812.80
	330XL		165	838.20
	340XL		170	863.60
	348XL		174	883.92
	352XL		176	894.08
	360XL		180	914.40
	370XL		185	939.80
	376XL		188	955.04
	384XL		192	975.36
	388XL		194	985.52
	390XL		195	990.60
	396XL		198	1005.84
	424XL		212	1076.96
	460XL		230	1168.40
	490XL		245	1244.60
	564XL		282	1432.56
	592XL		296	1503.68
	630XL		315	1600.20
	828XL		414	2103.12
	860XL		430	2184.40
TUN (Polyurethane)				

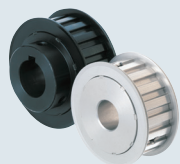


Part Number		
Type	Belt No.	Belt Nominal Width
TBN	210MXL	025
TUN	210L	050



TBN	6 Days	ⓘ Non-Returnable	TUN	8 Days	ⓘ Non-Returnable
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L Type



Part Number				Material		Surface Treatment
Belt Width 12.7 mm (0.5 inch)	Belt Width 19.1 mm (0.75 inch)	Belt Width 25.4 mm (1 inch)	Belt Width 38.1 mm (1.5 inch)	Pulley	Flange	
A:14 W:19 L:31 (39)	A:21 W:26 L:38 (46)	A:27 W:32 L:44 (53)	A:40 W:45 L:57			
ATPA_L050	ATPA_L075	ATPA_L100	ATPA_L150	2017 Aluminum Alloy (Duralumin)	5052 Aluminum Alloy	Clear Anodize
ATPB_L050	ATPB_L075	ATPB_L100	ATPB_L150			Black Anodize
ATPK_L050	ATPK_L075	ATPK_L100	ATPK_L150			Hard Clear Anodize*
ATPN_L050	ATPN_L075	ATPN_L100	ATPN_L150			Electroless Nickel Plating
ATPT_L050	ATPT_L075	ATPT_L100	ATPT_L150			
ATP_L050	ATP_L075	ATP_L100	ATP_L150	1045 Carbon Steel	Low Carbon Steel	Black Oxide
ATPP_L050	ATPP_L075	ATPP_L100	ATPP_L150			Electroless Nickel Plating

*Hard Anodize Treatment: Film Hardness 300HV~

■ Pulley Shape



*2 Shaft Bore Specifications H (Round Hole), V,F (Stepped Hole) and Y (Both Sides Stepped Hole), do not have tapped holes

❗ The shaft bore may not have surface treatment.

(counterbored holes on the hub side)

*For A Shape pulley, the set screw hole is set at around 120° to keep away from peaks.

*No tapped holes and set screws.

- * Applicable to B Shape only.
- * No tapped holes and set screws.

- * Applicable to A Shape only.
- * Shaft Bore Dia. D is general tolerance.
- * No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Specs	Shaft Bore Spec. (1mm Increment)																				P.D.	O.D.	D	F	E				
Type	Teeth	Type Nominal Width			H	P	N / C		HU		PU		NU		V / F				Y														
					d _{H7}										d _{H7}				Z _{H7}	J (0.1mm Increment)	d									Q _{H7} / R _{H7}	S / T		
			A	B-D	A	B-D	A	B-D	A	B-D	A	B-D	A	B-D	A	B	A	B	A	B	A	B	A	B	A	A							
7075 Aluminum	10	L050	6-16	6-16	6-14	6-14	8-14	8-14	C-G	C-G	C-F	C-F	D-F	D-F	6-14	6-14	8-16	8-16					6-14	8-16				30.32	29.56	22	36	24	
	12	L050 / L075	8-22	8-22	8-18	8-18	8-18	8-18	E-H	E-H	E-G	E-G	F-G	F-G	8-20	8-20	8-20	8-20					8-20	10-22				36.38	35.62	27	45	30	
	14		8-27	8-26	8-21	8-20	8-21	8-20	E-K	E-K	E-H	E-H	E-H	E-H	8-25	8-24	10-27	10-26					8-25	10-27				42.45	41.68	30	48	35	
	15		8-27	8-26	8-23	8-20	8-23	8-20	E-K	E-K	E-J	E-H	E-J	E-H	8-25	8-24	10-27	10-26					8-25	10-27				45.48	44.72	30	48	35	
	16		10-32	10-28	10-26	10-22	10-23	10-22	F-L	F-K	F-K	F-H	F-J	F-H	10-30	10-26	12-32	12-28					10-30	12-32				48.51	47.75	32	55	40	
	17	L050	10-32	10-30	10-26	10-24	10-26	10-23	F-L	F-K	F-K	F-H	F-K	F-J	10-30	10-28	12-32	12-28					10-30	12-32				51.54	50.78	34	55	40	
	18	*A :14	10-37	10-32	10-29	10-26	10-29	10-23	F-M	F-L	F-K	F-K	F-K	F-J	10-35	10-30	12-37	12-32					12-35	12-37				54.57	53.81	36	61	45	
	19	*W :19	12-42	12-36	12-34	12-30	12-30	12-26	F-P	F-M	F-L	F-L	F-K	F-K	F-J	12-40	12-32	14-42	14-34					12-40	14-42				57.61	56.84	38	67	50
	20	*L :31	12-48	12-38	12-34	12-30	12-32	12-26	F-R	F-M	F-M	F-K	F-L	F-K	12-46	12-36	14-48	14-38					12-46	14-48				63.67	62.91	42	70	56	
	21	(60, 72 = L: 39)	12-52	12-41	12-42	12-33	12-34	12-30	F-R	F-M	F-P	F-L	F-L	F-K	12-50	12-39	14-52	14-41					12-50	14-52				66.70	65.94	45	80	60	
(1045 Carbon Steel)	22	L075	12-59	12-46	12-49	12-38	12-41	12-30	F-S	F-Q	F-R	F-M	F-N	F-K	12-57	12-44	14-59	14-46					12-57	14-59				72.77	72.00	50	87	67	
	ATPA	*A :21	12-59	12-46	12-49	12-38	12-41	12-30	F-S	F-Q	F-R	F-M	F-N	F-K	12-57	12-44	14-59	14-46					12-57	14-59				75.80	75.04	50	87	67	
	ATPN	*W :26	12-59	12-46	12-49	12-38	12-41	12-30	F-S	F-Q	F-R	F-M	F-N	F-K	12-57	12-44	14-59	14-46					12-57	14-59				78.83	78.07	50	87	67	
	ATPK	*L :38	12-67	12-46	12-57	12-38	12-41	12-30	F-S	F-Q	F-R	F-M	F-N	F-K	12-65	12-44	14-67	14-46					12-65	14-67				84.89	84.13	50	95	75	
	ATPF	(60, 72 = L: 46)	12-72	12-52	12-62	12-42	12-50	12-34	F-S	F-S	F-S	F-P	F-S	F-L	12-70	12-50	14-72	14-52					12-70	14-72				90.96	90.20	56	99	80	
	ATTP	L100	14-76	14-52	14-65	14-42	14-50	14-34	G-S	G-S	G-S	G-P	G-S	G-L	14-74	14-50	16-76	16-52					14-74	16-76				97.02	96.26	56	104	84	
	ATTP	*A :27	14-80	14-59	14-65	14-49	14-50	14-41	G-S	G-S	G-S	G-R	G-S	G-N	14-80	14-57	16-82	16-59					14-75	16-82				103.08	102.32	63	111	90	
	34	*W :32	14-80	14-59	14-65	14-49	14-50	14-41	G-S	G-S	G-S	G-R	G-S	G-N	14-80	14-57	16-94	16-59					14-75	16-94				109.15	108.39	63	123	102	
	38	*L :44	15-80	15-59	15-65	15-49	15-50	15-41	G-S	G-S	G-S	G-R	G-S	G-N	15-80	15-57	17-95	17-59					15-75	17-95				115.21	114.45	63	127	105	
	40	(60, 72 = L: 53)	15-80	15-59	15-65	15-49	15-50	15-41	G-S	G-S	G-S	G-R	G-S	G-N	15-80	15-57	17-95	17-59					15-75	17-95				121.28	120.51	63	131	110	
ATTP ATP ATPP	42		16-80	16-67	16-65	16-57	16-50	16-49	H-S	H-S	H-S	H-R	H-R	16-80	16-65	18-95	18-67					16-75	18-95				127.34	126.58	71	135	115		
	44	L150	16-80	16-67	16-65	16-57	16-50	16-49	H-S	H-S	H-S	H-R	H-R	16-80	16-65	18-95	18-67					16-75	18-95				133.40	132.64	71	140	120		
	46	*A :40	16-80	16-67	16-65	16-57	16-50	16-49	H-S	H-S	H-S	H-R	H-R	16-80	16-65	18-95	18-67					16-75	18-95				139.47	137.71	71	144	125		
	48	*W :45	16-80	16-67	16-65	16-57	16-50	16-49	H-S	H-S	H-S	H-R	H-R	16-80	16-65	18-95	18-67					16-75	18-95				145.53	144.77	71	152	130		
	50	*L :57	16-80	16-67	16-65	16-57	16-50	16-49	H-S	H-S	H-S	H-R	H-R	16-80	16-65	18-95	18-67					16-75	18-95				151.60	150.83	71	160	140		
	ATTP ATP ATPP	60		16-100	16-67	16-65	16-57	16-50	16-49	H-S	H-S	H-S	H-R	H-R	16-100	—	18-125	—					16-100	18-125				181.91	181.15	71	190	170 (160/200)	
	72		16-100	16-67	16-65	16-57	16-50	16-49	H-S	H-S	H-S	H-S	H-S	H-S	H-R	16-100	18-125					16-100	18-125				218.30	217.53	71	225	193 (189)		

① For inch hole dimensions detail information refer to next page. ② *E dimensions in () are for "D" shape. ③ Z-d≥2 for Shaft Bore Specification V, EQ(R)-d≥2 for shaft bore specification Y. ④ Shaft Bore Dia. 8, 9, 11, 13, 14, 17, 21 ~ 50 are not available for Shaft Bore specification C. ⑤ Shaft Bore Dia. 6.35 is selectable for Shaft Bore specifications H, P, V and F.Q (R)-d≥2 for shaft bore specification Y. ⑥ Shaft Bore Dia. 9 is not available for Shaft Bore specification N. ⑦ Select NK10 when New JS Keyslaved Bore + Tap with shaft bore diameter of 10 and keyway width 4.0mm (height 1.8mm) is requested.



Timing Pulleys

L Type



Ordering Example

Part Number											
Material Type	Tooth No.	Belt Type	Belt Width								
HTPA	48	Y6	040								
		Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	
(Shaft Bore : H / P / N / C)		ATP14L075	A	N10							
(Shaft Bore: V / F)		ATP36L100	A	V15	Z29	J18.0					
(Shaft Bore: Y)		ATP50L150	A	Y25			Q47	R47	S12	T12	

Conveying	—
Positioning	—
Power Transmission	•
High Speed	•

Inch Hole Specifications

No.	Nominal	Dimension (mm)
A	1/8	3.175
B	3/16	4.763
C	1/4	6.350
D	5/16	7.938
E	3/8	9.525
F	1/2	12.700
G	5/8	15.875
H	3/4	19.050
J	7/8	22.225
K	1	25.400



Days to Ship

ATPA / ATPT / ATP / ATPP

4 Days

Ⓢ Non-Returnable

ATPB / ATPK / ATPN

7 Days

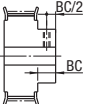

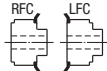

Ⓢ Non-Returnable



Alterations

Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	KC90 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC / TPC / SLH		
ATP20L075	A	H25							KSC36		K5

Alterations	Set Screw Angle	Side Tapped Hole		Side Through Hole
Code	KC90	QSC / QFC / QTC		KSC / KFC / KTC
Spec.	Changes an angle of set screw to 90°. Ⓢ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.	Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 1mm Increment) Ⓢ Thickness required: minimum 2mm A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$ B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$ Ⓢ $d=Z$ when the Shaft Bore Specifications is V.		Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 1mm Increment) Ⓢ Thickness required: minimum 2mm A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$ B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$ Ⓢ $d=Z$ when the Shaft Bore Specifications is V.
		 Ⓢ Selection M3, M4, M5, M6, M8 Ordering Code QFC28-M4		 Ⓢ (Through Hole Dia.) Selection K4.0~K13.0 (0.5mm Increment) Ordering Code KSC20-K5

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length																								
Code	BC	NFC	RFC / LFC	FC	TPC	SLH																								
Spec.	<p>Cuts the hub length in 0.5mm increment.</p> <p>① Shaft Bore specification: H, V, F: 3≤BC≤L-W</p> <p>① Shaft Bore specification: P, N, C: M+3≤BC≤L-W</p>  <p>Ordering Code BC6.5</p> <p>① Clear anodized products may not have surface treatment on the embossed plane.</p> <p>⊗ Not applicable to A / D Shape.</p>	<p>Flange is not installed. (Flange included)</p> 	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p> <p>① Same on A Shape</p> 	<p>Lowers flange by cutting.</p> <p>FC: 0.5mm Increment</p> <p>① No surface treatment applied on flange circumference.</p>  <p>① FC≥(O.D.)+2</p> <p>① FC≤F-2</p> <p>Ordering Code FC38</p>	<p>Changes the tapped hole dimension.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><thead><tr><th>M</th><th>TPC</th></tr></thead><tbody><tr><td>M4</td><td>M5</td></tr><tr><td>M5</td><td>M4 / M6</td></tr><tr><td>M6</td><td>M5 / M8</td></tr><tr><td>M8</td><td>M6 / M10</td></tr><tr><td>M10</td><td>M8</td></tr></tbody></table> <p>Ordering Code TPC5</p>	M	TPC	M4	M5	M5	M4 / M6	M6	M5 / M8	M8	M6 / M10	M10	M8	<p>Changes the length of the included set screws.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><thead><tr><th>Set Screw</th><th>SLH</th></tr></thead><tbody><tr><td>M4 x 3</td><td>5, 8</td></tr><tr><td>M5 x 4</td><td>6, 10</td></tr><tr><td>M6 x 5</td><td>10</td></tr><tr><td>M8 x 6</td><td>10, 12</td></tr><tr><td>M10 x 8</td><td>12, 15</td></tr></tbody></table> <p>Ordering Code SLH12</p>	Set Screw	SLH	M4 x 3	5, 8	M5 x 4	6, 10	M6 x 5	10	M8 x 6	10, 12	M10 x 8	12, 15
	M	TPC																												
	M4	M5																												
M5	M4 / M6																													
M6	M5 / M8																													
M8	M6 / M10																													
M10	M8																													
Set Screw	SLH																													
M4 x 3	5, 8																													
M5 x 4	6, 10																													
M6 x 5	10																													
M8 x 6	10, 12																													
M10 x 8	12, 15																													



Keyless Timing Pulleys

L Type

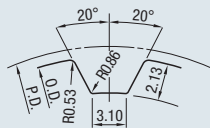
RoHS



Part Number				Material			Surface Treatment		
Belt Width 12.7 mm (0.5 inch)	Belt Width 19.1 mm (0.75 inch)	Belt Width 25.4 mm (1 inch)	Belt Width 38.1 mm (1.5 inch)	Pulley	Flange	Bushing	Pulley	Flange	Bushing
A: 14 W: 19	A: 21 W: 26	A: 27 W: 32	A: 40 W: 45						
MTPLA_L050	MTPLA_L075	MTPLA_L100	MTPLA_L150	7075 Aluminum Alloy	5052 Aluminum Alloy	1045 Carbon Steel	Clear Anodize		—
MTPLK_L050	MTPLK_L075	MTPLK_L100	MTPLK_L150				Hard Clear Anodize*		—
MTPLN_L050	MTPLN_L075	MTPLN_L100	MTPLN_L150				Electroless Nickel Plating		—
MTPL_L050	MTPL_L075	MTPL_L100	MTPL_L150	1045 Carbon Steel	Low Carbon Steel	1045 Carbon Steel	Black Oxide		
MTPLP_L050	MTPLP_L075	MTPLP_L100	MTPLP_L150				Electroless Nickel Plating		

*Hard Anodize Treatment: Film Hardness 300HV~

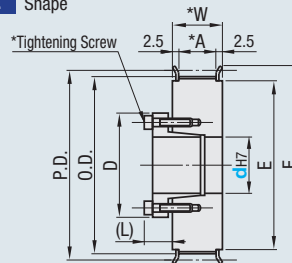
■ Tooth Profile (ISO Standard Rack)



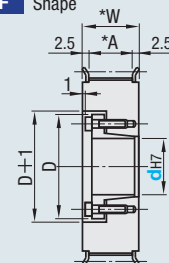
Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 9.525 mm)

■ Pulley Shape

E Shape



F Shape



① The shaft bore may not have surface treatment.

① Two types of bushings are available: Standard Type (ST Bushings) and Short Type (SH Bushings).

Part Number			Pulley Shape	d _{HT} Range (Select Shaft Bore Dia. from Table 1)								P.D.	O.D.	F	E
		L050		L075		L100		L150							
Type	Teeth	Type, Nominal Width	E (ST Bushing)	F (SH Bushing)	E (ST Bushing)	F (SH Bushing)	E (ST Bushing)	F (ST Bushing) (SH Bushing)	E (ST Bushing)	F (SH Bushing)					
MTPLA MTPLK MTPLN MTPL MTPLP	14	L050 "A :14 "W :19	8-12	8, 10	10, 11, 12	8, 10	10, 11, 12	—	11, 12	—	42.45	41.68	48	35	
	15		8-12	8, 10	10, 11, 12	8, 10	10, 11, 12	10, 11	11, 12	11, 12	45.48	44.72	48	35	
	16		10-17	10, 11, 12	10-17	10-15	10-17	10-15	11-17	11-15	48.51	47.75	55	40	
	17		10-17	10, 11, 12	10-17	10-15	10-17	10-15	11-17	11-15	51.54	50.78	55	40	
	18		10-17	10, 11, 12	10-17	10-17	10-17	10-17	11-17	11-17	54.57	53.81	61	45	
	19		12-17	12	12-17	12-17	12-17	12-17	12-17	12-17	57.61	56.84	67	50	
	20		12-17	12	12-17	12-17	12-17	12-17	12-17	12-17	60.64	59.88	67	50	
	21		12-25	12	12-25	12-25	12-25	12-25	12-25	12-25	63.67	62.91	70	56	
	22		12-25	12	12-25	12-25	12-25	12-25	12-25	12-25	66.70	65.94	80	60	
	24		12-30	12	12-30	12-30	12-30	12-30	12-30	12-30	72.77	72.00	87	67	
	25	L075 "A :21 "W :26	12-32	12	12-32	12-32	12-32	12-32	12-32	12-32	75.80	75.04	87	67	
	26		12-32	12	12-32	12-32	12-32	12-32	12-32	12-32	78.83	78.07	87	67	
	28		12-32	12	12-35	12-32	12-35	12-35	12-35	12-35	84.89	84.13	95	75	
	29		12-32	12	12-42	12-32	12-42	12-35	12-42	12-35	90.96	90.20	99	80	
	30	L100 "A :27 "W :32	12-32	12	12-42	12-32	12-42	12-35	12-42	12-35	97.02	96.26	104	84	
	32		12-32	12	12-42	12-32	12-42	12-35	12-42	12-35	103.08	102.32	111	90	
	34		15-32	—	15-42	15-32	15-42	15-35	15-42	15-35	109.15	108.39	123	102	
	36		15-32	—	15-42	15-32	15-42	15-35	15-42	15-35	115.21	114.45	127	105	
	38	L150 "A :40 "W :45	15-32	—	15-42	15-32	15-42	15-35	15-42	15-35	121.28	120.51	131	110	
	40		15-32	—	15-42	15-32	15-42	15-35	15-42	15-35	127.34	126.58	135	115	
	42		16-38	—	16-50	16-32	16-50	16-35	—	—	133.40	132.64	140	120	
	44		16-38	—	16-50	16-32	16-50	16-35	—	—	145.53	144.77	152	130	
	46		16-38	—	16-50	16-32	16-50	16-35	—	—	151.60	150.83	160	140	
	50		16-38	—	16-50	16-32	16-50	16-35	—	—	181.91	181.15	190	170	
	60		16-38	—	16-50	16-32	16-50	16-35	—	—	218.30	217.53	225	200	
	72		16-38	—	16-50	16-32	16-50	16-35	—	—					

① For "F" shape of S8M250, ST bushing is applicable to shaft bore diameter of 10~25 and SH bushing is applicable to 28~35.

Table 1: Select Shaft Bore Diameter

d _{HT}	Max. Allowable Torque Nm		D		(L)
	ST Bushing	SH Bushing	ST Bushing	SH Bushing	
8	16	8.5	25.5	24.5	8.5
10	39	18	30	29	10.5
11	43	20	31	30	
12	48	23	32	31	
14	73	37	35	36	12
15	78	39	36	37	13
16	83	42	37	38	
17	88	45	38	39	
18	154	48	43	40	14
19	163	49	45	42	
20	171	97	46	46	
22	186	110	48	47	
24	206	121	50	49	
25	216	124	52	51	15.5
28	353	141	54	53	
30	382	149	57	56	
32	412	163	59	58	16.5
35	451	173	63	61	
38	686		70		
40	725		71		19
42	757		74		20
45	1490	—	84	—	24.5
48	1600		87		
50	1660		89		

① Electroless nickel plated bushing decreases maximum allowable torque and allowable thrust load by 20~30%

Alterations	Surface Treatment
Code	BMC / BMR
Spec.	Applies electroless nickel plating on a bushing. (Anti-rusting treatment applied to screws). ① Electroless nickel plated bushing decreases allowable torque by 20~30%. BMC: Non-RoHS-compliant (Screw: Dacrotized treatment applied 4137 Alloy Steel) BMR: RoHS-compliant (Screw: GeoMet coating applied 4137 Alloy Steel)

Alterations	Flange Cut	No Flange	Single Flange
Code	FC	NFC	LFC / RFC
Spec.			



Ordering Example

Part Number	-	Pulley Shape	-	Shaft Bore Dia.
MTPL20L075	-	E	-	17



Days to Ship

7 Days

① Non-Returnable



Alterations



Part Number	-	Pulley Shape	-	Shaft Bore Dia.	-	(BMC... etc.)
MTPLA20L075	-	E	-	17	-	FC63



Keyless Timing Pulleys

L Type – Keyless Bushing with Centering Function –

■ **Features:** It tolerates on average of 1.2 times and 2.5 times greater torque compared to the conventional ST bushing and SH bushing respectively.

RoHS



Part Number				Material			Surface Treatment		
Belt Width 12.7 mm (0.5 inch)	Belt Width 19.1 mm (0.75 inch)	Belt Width 25.4 mm (1 inch)	Belt Width 38.1 mm (1.5 inch)	Pulley	Flange	Bushing	Pulley	Flange	Bushing
A: 14 W: 19 Y: 13	A: 21 W: 26 Y: 14 (18)	A: 27 W: 32 Y: 14 (22 + 23.5)	A: 40 W: 45 Y: 19 (28 + 32)	7075 Aluminum Alloy	5052 Aluminum Alloy	1045 Carbon Steel	Clear Anodize Hard Clear Anodize* Electroless Nickel Plating	—	—
HPLA_L050 HPLK_L050 HPLN_L050 HPLT_L050 HPLM_L050 HPLP_L050	HPLA_L075 HPLK_L075 HPLN_L075 HPLT_L075 HPLM_L075 HPLP_L075	HPLA_L100 HPLK_L100 HPLN_L100 HPLT_L100 HPLM_L100 HPLP_L100	HPLA_L150 HPLK_L150 HPLN_L150 HPLT_L150 HPLM_L150 HPLP_L150	1045 Carbon Steel	Low Carbon Steel	1045 Carbon Steel	Black Oxide Electroless Nickel Plating	—	—

*Hard Anodize Treatment: Film Hardness 300HV~

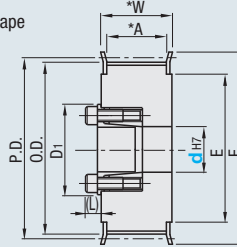
■ Tooth Profile (ISO Standard Rack)



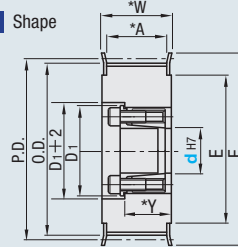
Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 9.525 mm)

■ Pulley Shape

E Shape



F Shape



- ① The shaft bore may not have surface treatment. ① Cut Flange for 60 and 72 toothed pulleys.
- ① Flange attached ① Y dimensions in () require the shaft bore diameter of 12 and above.

Part Number			Pulley Shape	d _{H7} Range (Select Shaft Bore Dia. from Table 1)								P.D.	O.D.	F	E	
Type	Teeth	Type, Nominal Width		L050		L075		L100		L150						
				E	F	E	F	E	F	E	F					
HPLA HPLK HPLN HPLT HPLM HPLP	14		E	8, 10	8, 10	8, 10	8, 10	8, 10	8, 10	8, 10	8, 10	42.45	41.68	48	35	
	15	L050		8, 10	8, 10	8, 10	8, 10	8, 10	8, 10	8, 10	8, 10	45.48	44.72	48	35	
	16	*A: 14		10-14	10	10-14	10-14	10-14	10-14	10-14	10-14	10-14	48.51	47.75	55	40
	17	*W: 19		10-14	10	10-14	10-14	10-14	10-14	10-14	10-14	10-14	51.54	50.78	55	40
	18	*Y: 13		10-16	10	10-16	10-16	10-16	10-16	10-16	10-16	10-16	54.57	53.81	61	45
	19			12-19	—	12-19	12-19	12-19	12-19	12-19	12-19	12-19	57.61	56.84	67	50
	20	L075		12-19	—	12-19	12-19	12-19	12-19	12-19	12-19	12-19	60.64	59.88	67	50
	21	*A: 21		12-19	—	12-20	12-19	12-20	12-20	12-20	12-20	12-20	63.67	62.91	70	56
	22	*W: 26		12-19	—	12-22	12-19	12-22	12-22	12-22	12-22	12-22	66.70	65.94	80	60
	24	*Y: 14		12-19	—	12-28	12-19	12-28	12-28	12-28	12-28	12-28	72.77	72.00	87	67
	25	(d12-; Y=18)		12-19	—	12-28	12-19	12-28	12-28	12-28	12-28	12-28	75.80	75.04	87	67
	26			12-19	—	12-28	12-19	12-28	12-28	12-28	12-28	12-28	78.83	78.07	87	67
	28	L100		12-19	—	12-32	12-19	12-32	12-30	12-32	12-32	12-32	84.89	84.13	95	75
	30	*A: 27		12-19	—	12-32	12-19	12-32	12-30	12-32	12-32	12-32	90.96	90.20	99	80
	32	*W: 32		12-19	—	12-32	12-19	12-32	12-30	12-32	12-32	12-32	97.02	96.26	104	84
	34	*Y: 14		12-19	—	12-32	12-19	12-35	12-30	12-35	12-35	12-35	103.08	102.32	111	90
	36	(d12-22; Y=22)		15-19	—	15-32	15-19	15-40	15-30	15-40	15-40	15-40	109.15	108.39	123	102
	38	(d24-; Y=23.5)		15-19	—	15-32	15-19	15-45	15-30	15-45	15-45	15-45	115.21	114.45	127	105
	40			15-19	—	15-32	15-19	15-45	15-30	15-45	15-45	15-45	121.28	120.51	131	110
	42	L150		16-19	—	16-32	16-19	16-50	16-30	16-50	16-50	16-45	127.34	126.58	135	115
	44	*A: 40		16-19	—	16-32	16-19	16-50	16-30	16-50	16-50	16-45	133.40	132.64	140	120
	46	*W: 45		16-19	—	16-32	16-19	16-50	16-30	16-50	16-50	16-45	145.53	144.77	152	130
	48	*Y: 19		16-19	—	16-32	16-19	16-50	16-30	16-50	16-50	16-45	151.60	150.83	160	140
	50	(d12-32; Y=28)		16-19	—	16-32	16-19	16-50	16-30	16-50	16-50	16-45	181.91	181.15	190	170
	60	(d35-; Y=32)		16-19	—	16-32	16-19	16-50	16-30	16-50	16-50	16-45	218.30	217.53	225	200
	72			16-19	—	16-32	16-19	16-50	16-30	16-50	16-50	16-45				

Table 1: Select Shaft Bore Diameter

d _{H7}	Max. Allowable Torque (Nm)		D ₁	(L)
	HPLA / HPLK / HPLN / HPLT / HPLM	HPLP		
8	19.6	16.6	23.5	6
10	27.5	19.6	25.5	
12	44.1	36.2	28.5	
14	63.7	50.9	30.5	
15	80.4	54.8	31.5	6.5
16	83.3	58.8	33.0	
17	92.2	76.4	33.5	
18	95.1	80.3	34.5	
19	98.1	85.2	35.5	8
20	216.0	183.0	42.0	
22	255.0	201.0	44.0	
24	363.0	252.0	46.0	
25	392.0	264.0	47.0	8.5
28	441.0	295.0	50.0	
30	500.0	396.0	52.0	
32	530.0	423.0	54.0	
35	883.0	548.0	62.0	10
40	1079.0	779.0	67.0	
45	1285.0	882.0	72.0	
50	1706.0	1362.0	77.0	

Alterations	Surface Treatment	
Code	BMC / BMR	FC
Spec.	Applies electroless nickel plating on a bushing. (Anti-rusting treatment applied to screws). ① Electroless nickel plated bushing decreases allowable torque by 20~30%. BMC: Non-RoHS-compliant (Screw: Dacrotized treatment applied 4137 Alloy Steel) BMR: RoHS-compliant (Screw: GeoMet coating applied 4137 Alloy Steel)	Lowers flange by cutting. FC: 0.5mm Increment ① No surface treatment applied on flange circumference. ① FC ≥ (O.D.) ÷ 2 ① FC ≤ F-2 Ordering Code FC35



Ordering Example

Part Number	—	Pulley Shape	—	Shaft Bore Dia.
HPLA20L075	—	F	—	15



Days to Ship

7 Days

① Non-Returnable



Alterations



Part Number	—	Pulley Shape	—	Shaft Bore Dia.	—	(BMC... etc.)
HPLA20L075	—	F	—	15	—	BMC



Timing Belts

L Type

ⓘ Although some tooth fabrics for MXL and XL rubber belts (TBN) are change from black to brown to prevent rubber-dust generation, However, it does not affect the performance.

RoHS

TBN (Rubber)
TUN (Polyurethane)

ⓘ Operating Temp.
Rubber: -30~90°C
Polyurethane: 0~80°C

Type	Material	
TBN	(1) Tooth Cover	Nylon Cloth
	(2) Tooth Rubber	Chloroprene Rubber
	(3) Core Wire	Glass Fiber Cord S and Z Twist Alternative Series
TUN	(1) (2) Body	Polyurethane
	(3) Core Wire	MXL: Kevlar XL / L Steel Cord

Type	Pitch	2θ	Lr	h	H	Rr	Ra	Unit Mass g/m (Width: 10 mm)
L	9.525	40°	4.65	1.91	3.61	0.51	0.51	32.0 (30.0)

ⓘ Values in () are the unit mass of polyurethane.

■ Type L (Pitch: 9.525 mm)

Part Number		Teeth	Belt Circum. Length (mm)
Type	Belt No.		
TBN (Rubber) TUN (Polyurethane)	109L	29	276.23
	124L	33	314.33
	135L	36	342.90
	150L	40	381.00
	165L	44	419.10
	187L	50	476.25
	210L	56	533.40
	225L	60	571.50
	240L	64	609.60
	255L	68	647.70
	270L	72	685.80
	277L	74	704.85
	285L	76	723.90
	300L	80	762.00
	320L	85	809.63
	322L	86	819.15
	334L	89	847.73
	337L	90	857.25
	345L	92	876.30
	360L	96	914.40

Part Number		Teeth	Belt Circum. Length (mm)
Type	Belt No.		
TBN (Rubber) TUN (Polyurethane)	367L	98	933.45
	375L	100	952.50
	382L	102	971.55
	390L	104	990.60
	394L	105	1000.13
	420L	112	1066.80
	427L	114	1085.85
	450L	120	1143.00
	480L	128	1219.20
	510L	136	1295.40
	525L	140	1333.50
	540L	144	1371.60
	548L	146	1390.65
	581L	155	1476.38
	600L	160	1524.00
	630L	168	1600.20
	653L	174	1657.35
	660L	176	1676.40
	697L	186	1771.65
	731L	195	1857.38



Ordering Example

Part Number		Belt Nominal Width
Type	Belt No.	
TBN	210MXL	025
TUN	210L	050



Days to Ship

TBN

6 Days

ⓘ Non-Returnable

TUN

8 Days

ⓘ Non-Returnable



H Type



Part Number				Material		Surface Treatment
Belt Width 19.1 mm (0.75 inch)	Belt Width 25.4 mm (1 inch)	Belt Width 38.1 mm (1.5 inch)	Belt Width 50.8 mm (2 inch)	Pulley	Flange	
A: 21 W: 26 L: 41	A: 27 W: 32 L: 47	A: 40 W: 45 L: 60	A: 54 W: 59 L: 74			
ATPA_H075	ATPA_H100	ATPA_H150	ATPA_H200	7075 Aluminum Alloy (Extra Super Duralumin)	5052 Aluminum Alloy	Clear Anodize
ATPB_H075	ATPB_H100	ATPB_H150	ATPB_H200			Black Anodize
ATPK_H075	ATPK_H100	ATPK_H150	ATPK_H200			Hard Clear Anodize*
ATPN_H075	ATPN_H100	ATPN_H150	ATPN_H200			Electroless Nickel Plating
ATPT_H075	ATPT_H100	ATPT_H150	ATPT_H200			—
ATP_H075	ATP_H100	ATP_H150	ATP_H200	1045 Carbon Steel	Low Carbon Steel	Black Oxide
ATPP_H075	ATPP_H100	ATPP_H150	ATPP_H200			Electroless Nickel Plating

⚠ Flanges are installed. Set screws are included with P, N & C bore hole specification.

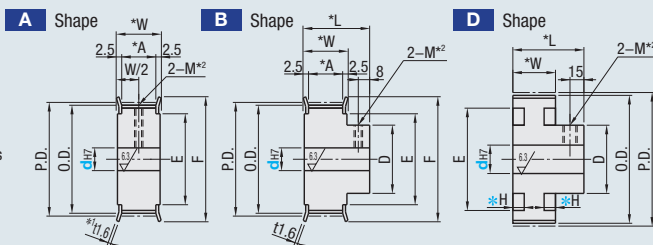
*Hard Anodize Treatment: Film Hardness 300HV~

- **Tooth Profile**
(ISO Standard Rack)



Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 12.7 mm)

■ Pulley Shape



*1 t=2.0 for 40~50 toothed pulleys (Cut Flange).

*2 Shaft Bore Specifications H (Round Hole), V, F (Stepped Hole) and Y (Both Sides Stepped Hole), do not have tapped holes.

■ Tapped Hole Dimensions (Shaft Bore: P / N / C)

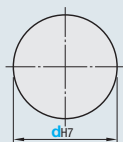
d_{H7} Shaft Bore Inner Dia.	M (Coarse)	Accessory Set Screw
12	M4	M4 x 3
13~17	M5	M5 x 4
18~30	M6	M6 x 5
31~45	M8	M8 x 6
46~65	M10	M10 x 8

*H Dimension
H100=11
H150=14

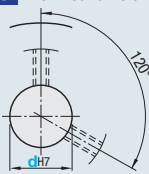
■ Shaft Bore Specs.

❗ The shaft bore may not have surface treatment.

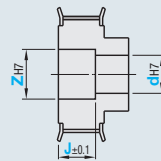
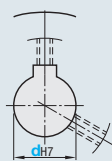
H Round Hole	P Round Hole+Tap	NU Inch New JIS Key Groove Hole + Tap
HU Inch Round Hole	PU Inch Round Hole+Tap	C Old JIS Keywayed Bore + Tap



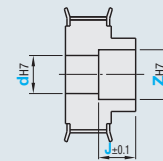
*No tapped holes and set screws.



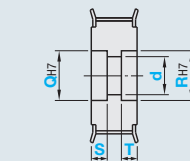
*For A Shape pulley, the set screw hole is set at around 120° to keep away from peaks.



⊗ Not applicable to D Shape.
*No tapped holes and set screws.



- * Applicable to B Shape only.
- * No tapped holes and set screws.



- * Applicable to A Shape only.
- * Shaft Bore Dia. D is general tolerance.
- * No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Specs	Shaft Bore Spec. (1mm Increment)																				P.D.	O.D.	D	F	E																				
Type	Teeth	Type Nominal Width			H					P					N / C					HU										PU					NU					V / F					Y				
					d _{H7}										d _{H7}															Z _{H7}					J (0.1mm Increment)					d					Q _{H7} / R _{H7}				
			A	B-D	A	B-D	A	B-D	A	B-D	A	B-D	A	B-D	A	B-D	A	B	A	B	A	B	A	B	A	B	A	B	A	A	A	A																	
(7075 Aluminum Alloy) ATPA ATPB ATPK ATPN	14	H075 "A :.21 "W :.26 "L :.41	12-37	12-35	12-30	12-29	12-29	12-25	F-M	F-M	F-K	F-K	F-K	F-K	F-J	12-35	12-33	14-37	14-35					12-35	14-37					56.60	55.22	39	61	45															
	15		12-42	12-41	12-34	12-33	12-30	12-29	F-P	F-P	F-L	F-L	F-L	F-K	F-K	F-K	12-40	12-39	14-42	14-41					12-40	14-42					60.64	59.27	45	67	50														
	16		12-48	12-44	12-40	12-36	12-35	12-30	F-R	F-P	F-N	F-M	F-M	F-K	12-46	12-42	14-48	14-44					12-46	14-48					64.68	63.31	48	70	56																
	17		12-52	12-44	12-44	12-36	12-40	12-30	F-S	F-P	F-P	F-M	F-P	F-K	12-50	12-42	14-52	14-44					12-50	14-52					68.72	67.35	48	80	60																
	18		12-52	12-46	12-44	12-38	12-43	12-35	F-S	F-Q	F-P	F-M	F-P	F-M	12-50	12-44	14-52	14-46					12-50	14-52					72.77	71.39	50	80	60																
	19		14-59	14-46	14-49	12-38	14-47	14-35	G-S	G-Q	G-R	F-M	G-Q	G-M	14-57	14-44	16-59	16-46					14-57	16-59					76.81	75.44	50	87	67																
	20		14-59	14-54	14-50	14-46	14-50	14-38	G-S	G-S	G-S	G-Q	G-S	G-M	14-57	14-52	16-59	16-54					14-57	16-59					80.85	79.48	58	87	67																
	21		H100	14-67	14-54	14-57	14-46	14-50	14-38	G-S	G-S	G-S	G-Q	G-S	G-M	14-65	14-52	16-67	16-54					14-65	16-67					84.89	83.52	58	95	75															
(1045 Carbon Steel) ATPT ATP ATPP	22	38=U: 53 72=L: 58	14-67	14-54	14-57	14-46	14-50	14-38	G-S	G-S	G-S	G-Q	G-S	G-M	14-65	14-52	16-67	16-54					14-65	16-67					88.94	87.56	58	95	75																
	24		16-76	16-54	16-65	16-46	16-50	16-38	H-S	H-S	H-S	H-Q	H-S	H-M	16-74	16-52	18-76	18-54					16-74	18-76					97.01	95.65	58	104	84																
	25		16-80	16-59	16-65	16-49	16-50	16-41	H-S	H-S	H-S	H-R	H-S	H-N	16-80	16-57	18-82	18-59					16-75	18-82					101.06	99.69	63	111	90																
	26		20-80	20-59	20-65	20-49	20-50	20-41	J-S	J-S	J-S	J-R	J-R	J-N	20-80	20-57	22-82	22-59					(For A Shape) 3.0≤J≤W-3.0	20-75	22-82					105.11	103.73	63	111	90															
	28		20-80	20-59	20-65	20-49	20-50	20-41	J-S	J-S	J-S	J-R	J-R	J-N	20-80	20-57	22-94	22-59					(For B Shape) 3.0≤J≤L-3.0	20-75	22-94					113.19	111.82	63	123	102															
	30		20-80	20-59	20-65	20-49	20-50	20-41	J-S	J-S	J-S	J-R	J-R	J-N	20-80	20-57	22-95	22-59					20-75	22-95					121.28	119.90	63	127	105																
	32		H150	20-80	20-59	20-65	20-49	20-50	20-43	J-S	J-S	J-S	J-R	J-R	J-P	20-80	20-57	22-95	22-59					20-75	22-95					129.36	127.99	63	135	115															
	34		38=U: 65 72=L: 70	20-80	20-67	20-65	20-57	20-50	20-49	J-S	J-S	J-S	J-R	J-R	J-R	20-80	20-65	22-95	22-67					20-75	22-95					137.45	136.07	71	144	125															
(1045 Carbon Steel) ATPT ATP ATPP	36	H200 "A :.54 "W :.59 "L :.74	20-80	20-67	20-65	20-57	20-50	20-49	J-S	J-S	J-S	J-R	J-R	J-R	20-80	20-65	22-95	22-67					20-75	22-95					145.53	144.16	71	152	130																
	38		20-80	20-67	20-65	20-57	20-50	20-49	J-S	J-S	J-S	J-R	J-R	J-R	20-80		22-95					20-75	22-95					153.62	152.24	88	165	140 (126)																	
	40		20-80	20-67	20-65	20-57	20-50	20-49	J-S	J-S	J-S	J-R	J-R	J-R	20-80		22-95					20-75	22-95					161.70	160.33	88	170	150 (135)																	
	42		20-80	20-67	20-65	20-57	20-50	20-49	J-S	J-S	J-S	J-R	J-R	J-R	20-80		22-95					20-75	22-95					169.79	168.41	88	180	155 (143)																	
	44		20-100	20-67	20-65	20-57	20-50	20-49	J-S	J-S	J-S	J-R	J-R	J-R	20-100	—	22-125	—				20-100	22-125					177.87	176.50	88	190	170 (152)																	
	46		20-100	20-67	20-65	20-57	20-50	20-49	J-S	J-S	J-S	J-R	J-R	J-R	20-100		22-125					20-100	22-125					194.04	192.67	88	205	180 (168)																	
	48		20-100	20-67	20-65	20-57	20-50	20-49	J-S	J-S	J-S	J-R	J-R	J-R	20-100		22-125					20-100	22-125					202.13	200.76	88	210	185 (175)																	
	50			20-100	20-67	20-65	20-57	20-50	20-49	J-S	J-S	J-S	J-R	J-R	J-R	20-100		22-125					20-100	22-125					242.55	241.18	88	—	216																
	60	D	—	25-67	—	25-57	—	25-49	—	J-S	—	J-R	—	J-R	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—														
	72		—	25-67	—	25-57	—	25-49	—	J-S	—	J-R	—	J-R	—	J-R	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—															

For inch hole dimensions detail information refer to next page. For inch hole dimensions detail information refer to next page. ① *E dimension in () are for D Shape with 38~48 teeth. ① Z-d \geq 2 for Shaft Bore Specification V.

① Shaft Bore Dia. 13, 14, 17, 21~50 are not available for Shaft Bore specification C. ② Q(R)-d≥2 for shaft bore specification Y. ③ Available number of teeth with nominal width H075 and H200 is up to 36



Timing Pulleys

H Type



Ordering Example

Part Number										
Material Type	Tooth No.	Belt Type	Belt Width							
HTPA	48	Y6	040							
	Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	
(Shaft Bore: H / P / N / C)	ATP18H150	B	N20							
(Shaft Bore: V / F)	ATP20H100	A	V20	Z38	J23.0					
(Shaft Bore: Y)	ATP30H150	A	Y25			Q42	R42	S9	T9	

Conveying	—
Positioning	—
Power Transmission	•
High Speed	•

Inch Hole Specifications

No.	Nominal	Dimension (mm)
A	1/8	3.175
B	3/16	4.763
C	1/4	6.350
D	5/16	7.938
E	3/8	9.525
F	1/2	12.700
G	5/8	15.875
H	3/4	19.050
J	7/8	22.225
K	1	25.400



Days to Ship

ATPA / ATP / ATP / ATP

4 Days

Ⓢ Non-Returnable

ATPB / ATPK / ATPN

7 Days

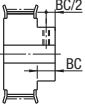

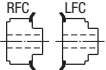

Ⓢ Non-Returnable



Alterations

Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	(KC90 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC / TPC / SLH)
ATP18H150	B	H20							KSC30 - K4

Alterations	Set Screw Angle	Side Tapped Hole	Side Through Hole
Code	KC90	QSC / QFC / QTC	KSC / KFC / KTC
Spec.	<p>Changes an angle of set screw to 90°.</p> <p>Ⓢ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.</p>	<p>Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 1mm Increment)</p> <p>Ⓢ Thickness required: minimum 2mm</p> <p>A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$</p> <p>B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$</p> <p>Ⓢ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>Ⓢ Specify KC90 when selecting QFC for Shaft Bore specifications P, N and C.</p> <p>Ⓢ The pilot hole for tapping may go through.</p> <p>Ⓢ Not applicable to Shaft Bore Specifications F or Y.</p> <p>Ⓢ When the Shaft Bore Specifications are P, N or C, QSC is not applicable.</p> <p>M Selection M3, M4, M5, M6, M8</p> <p>Ordering Code QFC28-M4</p>	<p>Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 1mm Increment)</p> <p>Ⓢ Thickness required: minimum 2mm</p> <p>A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$</p> <p>B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$</p> <p>Ⓢ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>Ⓢ Specify KC90 when selecting KFC for Shaft Bore Specifications P, N and C.</p> <p>Ⓢ Not applicable to Shaft Bore Specifications F or Y.</p> <p>Ⓢ When the Shaft Bore Specifications are P, N or C, KSC is not applicable.</p> <p>K (Through Hole Dia.) Selection K4.0~K13.0 (0.5mm Increment)</p> <p>Ordering Code KSC20-K5</p>

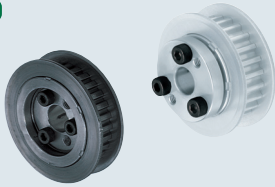
Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length																								
Code	BC	NFC	RFC / LFC	FC	TPC	SLH																								
Spec.	<p>Cuts the hub length in 0.5mm increment.</p> <p>① Shaft Bore specification: H, V, F: 3≤BC≤L-W</p> <p>① Shaft Bore specification: P, N, C: M+3≤BC≤L-W</p> <div></div> <p>Ordering Code BC6.5</p> <p>① Clear anodized products may not have surface treatment on the embossed plane.</p> <p>⊗ Not applicable for A / D Shape.</p>	<p>Flange is not installed. (Flange included)</p> <div></div>	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p> <p>① Same on A Shape</p> <div></div>	<p>Lowers flange by cutting.</p> <p>FC: 0.5mm Increment</p> <p>① No surface treatment applied on flange circumference.</p> <div></div> <p>① FC≥(O.D.)+2</p> <p>① FC≤F-2</p> <p>Ordering Code FC64</p>	<p>Changes the tapped hole dimension.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><thead><tr><th>M</th><th>TPC</th></tr></thead><tbody><tr><td>M4</td><td>M5</td></tr><tr><td>M5</td><td>M4 / M6</td></tr><tr><td>M6</td><td>M5 / M8</td></tr><tr><td>M8</td><td>M6 / M10</td></tr><tr><td>M10</td><td>M8</td></tr></tbody></table> <p>Ordering Code TPC5</p>	M	TPC	M4	M5	M5	M4 / M6	M6	M5 / M8	M8	M6 / M10	M10	M8	<p>Changes the length of the included set screws.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><thead><tr><th>Set Screw</th><th>SLH</th></tr></thead><tbody><tr><td>M4 x 3</td><td>5, 8</td></tr><tr><td>M5 x 4</td><td>6, 10</td></tr><tr><td>M6 x 5</td><td>10</td></tr><tr><td>M8 x 6</td><td>10, 12</td></tr><tr><td>M10 x 8</td><td>12, 15</td></tr></tbody></table> <p>Ordering Code SLH15</p>	Set Screw	SLH	M4 x 3	5, 8	M5 x 4	6, 10	M6 x 5	10	M8 x 6	10, 12	M10 x 8	12, 15
	M	TPC																												
M4	M5																													
M5	M4 / M6																													
M6	M5 / M8																													
M8	M6 / M10																													
M10	M8																													
Set Screw	SLH																													
M4 x 3	5, 8																													
M5 x 4	6, 10																													
M6 x 5	10																													
M8 x 6	10, 12																													
M10 x 8	12, 15																													



Keyless Timing Pulleys

H Type

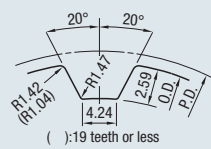
RoHS



Part Number				Material			Surface Treatment		
Belt Width 19.1 mm (¾ inch)	Belt Width 25.4 mm (1 inch)	Belt Width 38.1 mm (1.5 inch)	Belt Width 50.8 mm (2 inch)	Pulley	Flange	Bushing	Pulley	Flange	Bushing
A: 21 W: 26	A: 27 W: 32	A: 40 W: 45	A: 54 W: 59						
MTPLA_L075	MTPLA_H100	MTPLA_H150	MTPLA_H200	7075 Aluminum Alloy	5052 Aluminum Alloy	1045 Carbon Steel	Clear Anodize		—
MTPL_H075	MTPL_H100	MTPL_H150	MTPL_H200	1045 Carbon Steel	Low Carbon Steel	1045 Carbon Steel	Hard Clear Anodize*		
MTPLP_H075	MTPLP_H100	MTPLP_H150	MTPLP_H200				Electroless Nickel Plating		

*Hard Anodize Treatment: Film Hardness 300HV~

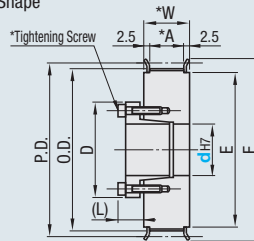
■ Tooth Profile (ISO Standard Rack)



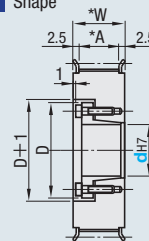
Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 12.7 mm)

■ Pulley Shape

E Shape



F Shape



- ① The shaft bore may not have surface treatment.
- ① Two types of bushings are available: Standard Type (ST Bushings) and Short Type (SH Bushings).
- ① Cut Flange for 40~50 toothed pulleys.

Part Number			Pulley Shape	d _{H7} Range (Select Shaft Bore Dia. from Table 1)								P.D.	O.D.	F	E
Type	Teeth	Type, Nominal Width		H075		H100		H150		H200					
MTPLA MTPL MTPLP	14	H075 *A :21 *W :26	E	12-17	12-17	12-17	12-17	15-17	15-17	16-17	16-17	56.60	55.22	61	45
	15			14-20	14-20	14-20	14-20	15-20	15-20	16-20	16-20	60.64	59.27	67	50
	16			14-25	14-25	14-25	14-25	15-25	15-25	16-25	16-25	64.68	63.31	70	56
	17			14-25	14-25	14-25	14-25	15-25	15-25	16-25	16-25	68.72	67.35	80	60
	18			14-25	14-25	14-25	14-25	15-25	15-25	16-25	16-25	72.77	71.39	80	60
	19	H100 *A :27 *W :32		14-32	14-32	14-32	14-32	15-32	15-32	16-32	16-32	76.81	75.44	87	67
	20			14-32	14-32	14-32	14-32	15-32	15-32	16-32	16-32	80.85	79.48	87	67
	21			14-35	14-32	14-35	14-32	15-35	15-35	16-35	16-35	84.89	83.52	95	75
	22			14-35	14-32	14-35	14-32	15-35	15-35	16-35	16-35	88.94	87.56	95	75
	24			19-35	19-32	19-35	19-32	19-35	19-35	19-35	19-35	97.02	95.65	104	84
	25	H150 *A :40 *W :45	F	19-42	19-32	19-42	19-32	19-42	19-42	19-42	19-42	101.06	99.69	111	90
	26			20-42	20-32	20-42	20-32	20-42	20-42	20-42	20-42	105.11	103.73	111	90
	28			20-42	20-32	20-42	20-32	20-42	20-42	20-42	20-42	113.19	111.82	123	102
	30			20-42	20-32	20-42	20-32	20-42	20-42	20-42	20-42	121.28	119.90	127	105
	32			20-42	20-32	20-48	20-32	20-48	20-42	20-48	20-48	129.36	127.99	135	115
	34	H200 *A :54 *W :59		20-42	20-32	20-50	20-32	20-50	20-42	20-50	20-50	137.45	136.07	144	125
	36			20-42	20-32	20-50	20-32	20-50	20-42	20-50	20-50	145.53	144.16	152	130
	38					25-50	25-32	25-50	25-42			153.62	152.24	165	140
	40					25-50	25-32	25-50	25-42			161.70	160.33	170	150
	42					25-50	25-32	25-50	25-42			169.79	168.41	180	155
	44					25-50	25-32	25-50	25-42			177.87	176.50	190	170
	48					25-50	25-32	25-50	25-42			194.04	192.67	205	180
	50					25-50	25-32	25-50	25-42			202.13	200.76	210	185

Table 1: Select Shaft Bore Diameter

d _{H7}	Max. Allowable Torque Nm		D		(L)
	ST Bushing	SH Bushing	ST Bushing	SH Bushing	
12	48	23	32	31	10.5
14	73	37	35	36	12
15	78	39	36	37	
16	83	42	37	38	13
17	88	45	38	39	
18	154	48	43	40	
19	163	49	45	42	
20	171	97	46	46	14
22	186	110	48	47	
24	206	121	50	49	
25	216	124	52	51	
28	353	141	54	53	15.5
30	382	149	57	56	
32	412	163	59	58	16.5
35	451		63		
38	686		70		19
40	725		71		
42	757		74		20
45	1490		84		
48	1600		87		24.5
50	1660		89		

① Electroless nickel plated bushing decreases maximum allowable torque and allowable thrust load by 20~30%

Alterations	Surface Treatment	
Code	BMC / BMR	FC
Spec.	Applies electroless nickel plating on a bushing. (Anti-rusting treatment applied to screws). ① Electroless nickel plated bushing decreases allowable torque by 20~30%. BMC: Non-RoHS-compliant (Screw: Dacrotized treatment applied 4137 Alloy Steel) BMR: RoHS-compliant (Screw: GeoMet coating applied 4137 Alloy Steel)	Lowers flange by cutting. FC: 0.5mm Increment ① No surface treatment applied on flange circumference. ① FC ≥ (O.D.) ÷ 2 ① FC ≤ F ÷ 2 Ordering Code FC35

Alterations	No Flange	Single Flange
Code	NFC	LFC / RFC
Spec.	Flange is not installed. (Flange included) 	Flange installed on the bushing side (LFC) or the opposite side (RFC) only prior to shipping.



Ordering Example

Part Number	—	Pulley Shape	—	Shaft Bore Dia.
MTPLP20H150	—	F	—	30



Days to Ship

MTPLA / MTPL / MTPLP

7 Days

① Non-Returnable



Alterations



Part Number	—	Pulley Shape	—	Shaft Bore Dia.	—	(BMC... etc.)
MTPLA20H100	—	E	—	17	—	FC84.5



Keyless Timing Pulleys

H Type – Keyless Bushing with Centering Function –

Features: It tolerates on average of 1.2 times and 2.5 times greater torque compared to the conventional ST bushing and SH bushing respectively.

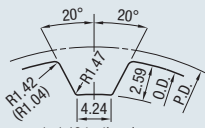
RoHS



Part Number				Material			Surface Treatment		
Belt Width 19.1 mm (0.75 inch)	Belt Width 25.4 mm (1 inch)	Belt Width 38.1 mm (1.5 inch)	Belt Width 50.8 mm (2 inch)	Pulley	Flange	Bushing	Pulley	Flange	Bushing
A: 21 W: 26 Y: 18	A: 27 W: 32 Y: 22(23.5)	A: 40 W: 45 Y: 28(32)	A: 54 W: 59 Y: 35(39)	7075 Aluminum Alloy	5052 Aluminum Alloy	1045 Carbon Steel	Clear Anodize	—	—
HPLA_L075	HPLA_H100	HPLA_H150	HPLA_H200	1045 Carbon Steel	Low Carbon Steel	1045 Carbon Steel	Black Oxide Electroless Nickel Plating	—	—
HPLT_H075	HPLT_H100	HPLT_H150	HPLT_H200						
HPLM_H075	HPLM_H100	HPLM_H150	HPLM_H200						
HPLP_H075	HPLP_H100	HPLP_H150	HPLP_H200						

*Hard Anodize Treatment: Film Hardness 300HV~

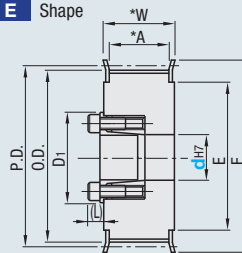
■ Tooth Profile (ISO Standard Rack)



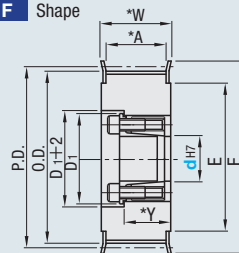
() : 19 teeth or less
Tooth groove dimensions slightly change according to No. of teeth. (Pitch: 12.7 mm)

■ Pulley Shape

E Shape



F Shape



- ① The shaft bore may not have surface treatment.
- ① Cut Flange for 40~50 toothed pulleys.
- ① Flange attached
- ① Y dimensions in () are for H100 with shaft bore diameter of 24 or above, and for H150 and 200 with shaft bore diameter of 35 or above.

Part Number			Pulley Shape	d _{H7} Range (Select Shaft Bore Dia. from Table 1)								P.D.	O.D.	F	E
Type	Teeth	Type, Nominal Width		H075		H100		H150		H200					
				E	F	E	F	E	F	E	F				
HPLA HPLT HPLM HPLP	14		E	12-16	12-16	12-16	12-16	12-16	12-16	12-16	12-16	56.60	55.22	61	45
	15			14-19	14-19	14-19	14-19	14-19	14-19	14-19	14-19	60.64	59.27	67	50
	16	H075		14-20	14-19	14-20	14-20	14-20	14-20	14-20	14-20	64.68	63.31	70	56
	17	*A :21		14-22	14-19	14-22	14-22	14-22	14-22	14-22	14-22	68.72	67.35	80	60
	18	*W :26		14-22	14-19	14-22	14-22	14-22	14-22	14-22	14-22	72.77	71.39	80	60
	19	*Y :18		14-28	14-19	14-28	14-28	14-28	14-28	14-28	14-28	76.81	75.44	87	67
	20	H100		14-28	14-19	14-28	14-28	14-28	14-28	14-28	14-28	80.85	79.48	87	67
	21	*A :27		14-32	14-19	14-32	14-30	14-32	14-32	14-32	14-32	84.89	83.52	95	75
	22	*W :32		14-32	14-19	14-32	14-30	14-32	14-32	14-32	14-32	88.94	87.56	95	75
	24	*Y :22		19-32	19	19-32	19-30	19-32	19-32	19-32	19-32	97.02	95.65	104	84
	25	(d24--:Y=23.5)		19-32	19	19-35	19-30	19-35	19-35	19-35	19-35	101.06	99.69	111	90
	26		F	20-32	20-35	20-30	20-35	20-35	20-35	20-35	20-35	105.11	103.73	111	90
	28	H150		20-32	20-40	20-30	20-40	20-40	20-40	20-40	20-40	113.19	111.82	123	102
	30	*A :40		20-32	20-45	20-30	20-45	20-45	20-45	20-45	20-45	121.28	119.90	127	105
	32	*W :45		20-32	20-50	20-30	20-50	20-50	20-50	20-50	20-50	129.36	127.99	135	115
	34	*Y :28		20-32	20-50	20-30	20-50	20-50	20-50	20-50	20-50	137.45	136.07	144	125
	36	(d35--:Y=32)		20-32	20-50	20-30	20-50	20-50	20-50	20-50	20-50	145.53	144.16	152	130
	38			20-32	20-50	20-30	20-50	20-50	20-50	20-50	20-50	153.62	152.24	165	140
	40	H200		20-50	20-50	20-30	20-50	20-50	20-50	20-50	20-50	161.70	160.33	170	150
	42	*A :54		20-50	20-50	20-30	20-50	20-50	20-50	20-50	20-50	169.79	168.41	180	155
	44	*W :59		20-50	20-50	20-30	20-50	20-50	20-50	20-50	20-50	177.87	176.50	190	170
	48	*Y :35		20-50	20-50	20-30	20-50	20-50	20-50	20-50	20-50	194.04	192.67	205	180
	50	(d35--:Y=39)		20-50	20-50	20-30	20-50	20-50	20-50	20-50	20-50	202.13	200.76	210	185

Table 1: Select Shaft Bore Diameter

d _{H7}	Max. Allowable Torque (Nm)		D _i	(L)
	HPLA / HPLT / HPLM	HPLP		
12	44.1	36.2	28.5	6.5
14	63.7	50.9	30.5	
15	80.4	54.8	31.5	
16	83.3	58.8	33.0	
17	92.2	76.4	33.5	
18	95.1	80.3	34.5	8
19	98.1	85.2	35.5	
20	216.0	183.0	42.0	
22	255.0	201.0	44.0	
24	363.0	252.0	46.0	
25	392.0	264.0	47.0	8.5
28	441.0	295.0	50.0	
30	500.0	396.0	52.0	
32	530.0	423.0	54.0	
35	883.0	548.0	62.0	
40	1079.0	779.0	67.0	10
45	1285.0	882.0	72.0	
50	1706.0	1362.0	77.0	

Alterations	Surface Treatment	
Code	BMC / BMR	FC
Spec.	Applies electroless nickel plating on a bushing. (Anti-rusting treatment applied to screws). ① Electroless nickel plated bushing decreases allowable torque by 20~30%. BMC: Non-RoHS-compliant (Screw: Dacrotized treatment applied 4137 Alloy Steel) BMR: RoHS-compliant (Screw: GeoMet coating applied 4137 Alloy Steel)	Lowers flange by cutting. FC: 0.5mm Increment ① No surface treatment applied on flange circumference. ① FC≥(O.D.)÷2 ① FC≤F-2 Ordering Code FC35



Ordering Example

Part Number	-	Pulley Shape	-	Shaft Bore Dia.
HPLA30H200	-	F	-	40



Days to Ship

7 Days

① Non-Returnable



Alterations



Part Number	-	Pulley Shape	-	Shaft Bore Dia.	-	(BMC... etc.)
HPLA30H100	-	E	-	35	-	BMC



Timing Belts

H Type

ⓘ Although some tooth fabrics for MXL and XL rubber belts (TBN) are change from black to brown to prevent rubber-dust generation, However, it does not affect the performance.

RoHS

ⓘ Operating Temp.
Rubber: -30~90°C
Polyurethane: 0~80°C

TBN (Rubber)
TUN (Polyurethane)

Type	Material
TBN	(1) Tooth Cover: Nylon Cloth
	(2) Tooth Rubber: Chloroprene Rubber
	(3) Core Wire: Glass Fiber Cord S and Z Twist Alternative Series
TUN	(1) (2) Body: Polyurethane
	(3) Core Wire: MXL: Kevlar XL / L Steel Cord

Type	Pitch	2θ	Lr	h	H	Rr	Ra	Unit Mass g/m (Width: 10 mm)
H	12.7	40°	6.12	2.29	4.59	1.00	1.00	40.0

ⓘ Values in () are the unit mass of polyurethane.

■ Type H (Pitch: 12.700 mm)

Part Number					Part Number				
Type	Belt No.	Belt Nominal Width	Teeth	Belt Circum. Length (mm)	Type	Belt No.	Belt Nominal Width	Teeth	Belt Circum. Length (mm)
TBN (Rubber)	225H	075 (19.1 mm)	45	571.50	TBN (Rubber)	560H	075 (19.1 mm)	112	1422.40
	230H		46	584.20		570H		114	1447.80
	240H		48	609.50		600H		120	1524.00
	245H		49	622.30		605H		121	1536.70
	270H		54	685.80		630H		126	1600.20
	280H		56	711.20		640H		128	1625.60
	300H		60	762.00		650H		130	1651.00
	310H		62	787.40		660H		132	1676.40
	315H		63	800.10		680H		136	1727.20
	320H		64	812.80		700H		140	1778.00
	330H		66	838.20		750H		150	1905.00
	340H		68	863.60		770H		154	1955.80
	350H		70	889.00		800H		160	2032.00
	360H		72	914.40		810H		162	2057.40
	370H		74	939.80		840H		168	2133.60
	375H		75	952.50		850H		170	2159.00
	390H		78	990.60		860H		172	2184.40
	400H		80	1016.00		880H		176	2235.20
	410H		82	1041.40		900H		180	2286.00
	420H		84	1066.80		950H		190	2413.00
	430H		86	1092.20		1000H		200	2540.00
	450H		90	1143.00		1100H		220	2794.00
	465H		93	1181.10		1130H		226	2870.20
	480H		96	1219.20		1250H		250	3175.00
	490H		98	1244.60		1325H		265	3365.50
	510H		102	1295.40		1350H		270	3429.00
	530H		106	1346.20		1400H		280	3556.00
	540H		108	1371.60		1700H		340	4318.00



Ordering Example

Part Number		Belt Nominal Width
Type	Belt No.	
TBN	210MXL	025
TUN	210L	050



Days to Ship

TBN

6 Days

ⓘ Non-Returnable

TUN

8 Days

ⓘ Non-Returnable



Timing Pulleys

T5 Type

RoHS

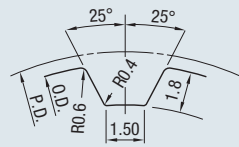


Part Number				Material		Surface Treatment
Belt Width 10 mm	Belt Width 15 mm	Belt Width 20 mm	Belt Width 25 mm	Pulley	Flange	
A: 11 W: 16 L: 28	A: 17 W: 22 L: 34	A: 22 W: 27 L: 39	A: 27 W: 32 L: 44	2017 Aluminum Alloy (Duralumin)	5052 Aluminum Alloy	Clear Anodize
TTPA_T5100	TTPA_T5150	TTPA_T5200	TTPA_T5250			Black Anodize
TTPB_T5100	TTPB_T5150	TTPB_T5200	TTPB_T5250			Hard Clear Anodize*
TTPK_T5100	TTPK_T5150	TTPK_T5200	TTPK_T5250			Electroless Nickel Plating
TTPN_T5100	TTPN_T5150	TTPN_T5200	TTPN_T5250	1045 Carbon Steel	Low Carbon Steel	—
TTPM_T5100	TTPM_T5150	TTPM_T5200	TTPM_T5250			Black Oxide
TTPP_T5100	TTPP_T5150	TTPP_T5200	TTPP_T5250			Electroless Nickel Plating
TTPQ_T5100	TTPQ_T5150	TTPQ_T5200	TTPQ_T5250			—

① Flanges are installed. Set screws are included with P, N & C bore hole specification (Not for shape A).

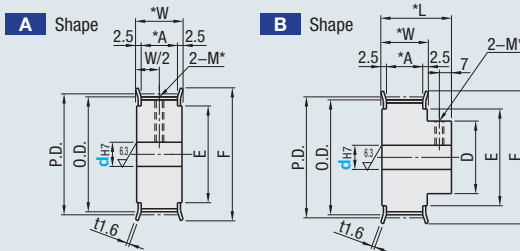
*Hard Anodize Treatment: Film Hardness 300HV~

Standard Tooth Profile



Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 5.0 mm)

Pulley Shape



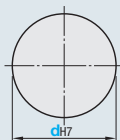
*Shaft Bore Specifications H (Round Hole), V and F (Stepped Holes) and Y (Both Sides Stepped Hole) do not have tapped holes.

Shaft Bore Specs.

① The shaft bore may not have surface treatment.

H Round Hole

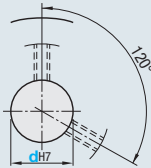
HU Inch Round Hole



*No tapped holes and set screws.

P Round Hole+Tap

PU Inch Round Hole+Tap

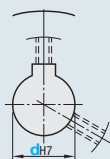


*For A Shape pulley, the set screw hole is set at around 120° to keep away from peaks.

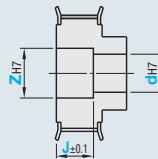
N New JIS Keywayed Bore + Tap

NU Inch New JIS Key Groove Hole + Tap

C Old JIS Keywayed Bore + Tap



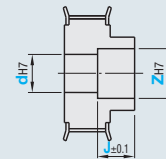
V Stepped Hole



*No tapped holes and set screws.

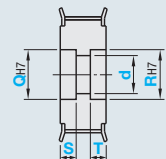
F Stepped Hole

(counterbored holes on the hub side)



*Applicable to B Shape only.
*No tapped holes and set screws.

Y Both Ends Stepped Hole



*Applicable to A Shape only.
*Shaft Bore Dia. D is general tolerance.
*No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Specs	Shaft Bore Spec. (1 mm Increment)																		P.D.	O.D.	D	F	E		
Type	Teeth	Type Nominal Width			H	P		N / C		HU		PU		NU		V / F				Y									
					d _{H7}								d _{H7}				Z _{H7}	(0.1mm Increment)		d	Q _{H7} / R _{H7}	S / T							
				A	B	A	B	A	B	A	B	A	B	A	B	A	B	A / B	A	A	A								
(2017 Aluminum Alloy) TPA TPB TPK TPN	12	T5100 *A :11 *W :16 *L :28	A	H	5-8	—	5-8	—	8	—	C, D	—	C, D	—	—	—	—	—	—	—	—	19.10	18.25	—	24	12			
	14				5-10	5-10	5-10	5-8	8, 10	—	C-E	C-E	C-E	C, D	E	—	5, 6	5, 6	7, 8	7, 8	—	5, 6	7, 8	22.28	21.45	14	26	16	
	15				5-10	5-10	5-10	5-8	8, 10	—	C-E	C-E	C-E	C, D	E	—	5-8	5-8	7-10	7-10	—	5-8	7-10	23.87	23.05	15	28	18	
	16				6-12	6-12	6-12	6-10	8-12	8	—	C-E	C-E	C-E	C-E	E	—	6-10	6-10	8-12	8-12	—	6-10	8-12	25.46	24.60	17	32	20
	18				6-14	6-14	6-12	6-11	8-12	8, 10	C-F	C-F	C-E	C-E	E	E	6-12	6-12	8-14	8-14	—	6-12	8-14	28.65	27.80	19	33	22	
	20	T5150 *A :17 *W :22 *L :34	H	HU	6-16	6-15	6-16	6-12	8-16	8, 10	C-G	C-F	C-G	C-E	E-G	E	6-14	6-13	8-16	8-15	—	6-14	8-16	31.83	31.00	19	36	24	
	22				7-19	7-19	7-18	7-15	8-18	8-12	D-G	D-G	D-G	D-F	E-G	E	7-17	7-17	9-19	9-19	—	7-17	9-19	35.01	34.25	24	40	27	
	24				7-22	7-22	7-20	7-17	8-20	8-13	D-H	D-H	D-H	D-G	E-H	E, F	7-20	7-20	9-23	9-23	—	7-20	9-22	38.20	37.40	27	45	30	
	25				7-22	7-22	7-20	7-18	8-20	8-15	D-H	D-H	D-H	D-G	E-H	E, F	7-20	7-20	9-23	9-23	—	7-20	9-22	39.79	39.00	27	45	30	
	26				(1045 Carbon Steel) TTP TTPM TTPP	B	N	8-27	8-27	8-22	8-21	8-22	8-17	E-K	E-K	E-H	E-H	E-H	E-G	8-25	8-25	10-27	10-27	(For A Shape) 2.0≤J≤W-2.0	8-25	10-27	41.38	40.60	31
28	8-27	8-27	8-24	8-22				8-24	8-18	E-K	E-K	E-J	E-H	E-J	E-G	8-25	8-25	10-27	10-27	—	8-25	10-27	44.56	43.75	32	48	35		
30	10-28	10-28	10-26	10-23				10-26	10-18	F-K	F-K	F-K	F-J	F-K	F, G	10-26	10-26	12-28	10-30	3-14 S+TsW-3	10-26	12-28	47.75	46.95	33	52	36		
32	10-32	10-32	10-28	10-27				10-28	10-22	F-L	F-L	F-K	F-K	F-K	F-H	10-30	10-30	12-32	12-35	(For B Shape) 2.0≤J≤L-2.0	10-30	12-32	50.93	50.10	37	55	40		
34	T5250 *A :27 *W :32 *L :44	B	V	10-37				10-36	10-30	10-30	10-30	10-25	F-M	F-M	F-K	F-K	F-K	F-J	10-35	10-34	12-37	12-36	—	10-35	12-37	54.11	53.25	40	61
36				10-37	10-36	10-30	10-30	10-30	10-25	F-M	F-M	F-K	F-K	F-K	F-J	10-35	10-34	12-37	12-36	—	10-35	12-37	57.30	56.45	40	61	45		
38				10-42	10-42	10-38	10-37	10-38	10-29	F-P	F-P	F-M	F-M	F-K	F-K	10-40	10-40	12-42	12-42	—	10-40	12-42	63.66	62.85	47	67	50		
40				12-50	12-46	12-42	12-40	12-40	12-32	F-R	F-Q	F-P	F-N	F-N	F-L	12-48	12-44	14-50	14-46	—	12-48	14-50	70.03	69.2	50	74	58		
44				T5250 *A :27 *W :32 *L :44	B	Y	12-55	12-55	12-45	12-45	12-40	12-40	F-S	F-S	F-Q	F-Q	F-N	F-N	12-53	12-53	14-55	14-55	—	12-53	14-55	76.39	75.55	60	83
48	12-59	12-59	12-45				12-45	12-43	12-43	F-S	F-S	F-Q	F-Q	F-P	F-P	12-57	12-57	14-59	14-59	—	12-57	14-59	79.58	78.75	63	87	67		
50	12-72	12-71	12-45				12-45	12-45	12-45	F-S	F-S	F-Q	F-Q	F-Q	F-Q	12-70	12-69	14-72	14-71	—	12-70	14-72	95.49	94.65	75	99	80		

① For inch hole dimensions detail information refer to next page. ② Shaft Bore Dia. 9 is not available for Shaft Bore specification N. ③ Z-d≥2 for shaft bore specification V and F. ④ Shaft Bore Dia. 8, 9, 11, 13, 14, 17, 21 ~ 45 are not available for Shaft Bore specification C. ⑤ Q(R)-d≥2 for shaft bore specification Y. ⑥ Shaft Bore Dia. 6.35 is selectable for Shaft Bore specifications H, P, V and F. Q(R)-d≥2 for shaft bore specification Y. ⑦ Select NK10 when New JIS Keywayed Bore + Tap with shaft bore diameter of 10 and keyway width 4.0mm (height 1.8mm) is requested.



Timing Pulleys

T5 Type



Ordering Example

Part Number																	
Material Type	Tooth No.	Belt Type	Belt Width														
HTPA	48	Y6	040														
	Part Number	–	Pulley Shape	–	Shaft Bore Spec. / Inner Dia.	–	Z	–	J	–	Q	–	R	–	S	–	T
(Shaft Bore : H / P / N / C)	TTPA18T5100	–	A	–	NK10												
(Shaft Bore : V / F)	TTPA30T5200	–	A	–	V10	–	Z23	–	J16.0								
(Shaft Bore : Y)	TTPA48T5150	–	A	–	Y25					–	Q42	–	R37	–	S9	–	T7

Conveying	—
Positioning	—
Power Transmission	—
High Speed	•

Inch Hole Specifications

No.	Nominal	Dimension (mm)
A	1/8	3.175
B	3/16	4.763
C	1/4	6.350
D	5/16	7.938
E	3/8	9.525
F	1/2	12.700
G	5/8	15.875
H	3/4	19.050
J	7/8	22.225
K	1	25.400



Days to Ship

TTPA / TTPT / TPPM / TPPP

4 Days

Ⓢ Non-Returnable

TPPB / TTPK / TTPN

7 Days

Ⓢ Non-Returnable



Alterations

Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	KC90 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC / TPC / SLH		
TTPA25T5100	A	H10							QSC18	—	M4

Alterations	Set Screw Angle	Side Tapped Hole		Side Through Hole	
Code	KC90	QSC / QFC / QTC		KSC / KFC / KTC	
Spec.	Changes an angle of set screw to 90°. Ⓢ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.	Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 1mm Increment) Ⓢ Thickness required: minimum 2mm A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$ B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$ Ⓢ $d=Z$ when the Shaft Bore Specifications is V.		Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 1mm Increment) Ⓢ Thickness required: minimum 2mm A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$ B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$ Ⓢ $d=Z$ when the Shaft Bore Specifications is V.	
		Ⓢ Specify KC90 when selecting QFC for Shaft Bore specifications P, N and C. Ⓢ The pilot hole for tapping may go through. Ⓢ Not applicable to Shaft Bore Specifications F or Y. Ⓢ When the Shaft Bore Specifications are P, N or C, QSC is not applicable. M Selection M3, M4, M5, M6, M8 Ordering Code QFC28-M4		Ⓢ Specify KC90 when selecting KFC for Shaft Bore Specifications P, N and C. Ⓢ Not applicable to Shaft Bore Specifications F or Y. Ⓢ When the Shaft Bore Specifications are P, N or C, KSC is not applicable. K (Through Hole Dia.) Selection K4.0~K13.0 (0.5mm Increment) Ordering Code KSC20-K5	

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length
Code	BC	NFC	RFC / LFC	FC	TPC	SLH
Spec.	Cuts the hub length in 0.5mm increment. Ⓢ Shaft Bore specification: H, V, F: $3 \leq BC \leq L-W$ Ⓢ Shaft Bore specification: P, N, C: $M+3 \leq BC \leq L-W$	Flange is not installed. (Flange included)	Flange installed on the hub side (RFC) or the opposite side (LFC) only. Ⓢ Same on A Shape	Lowers flange by cutting. FC: 0.5mm Increment Ⓢ No surface treatment applied on flange circumference.	Changes the tapped hole dimension. Ⓢ Applicable to Shaft Bore specification P, N, C only.	Changes the length of the included set screws. Ⓢ Applicable to Shaft Bore specification P, N, C only.
	 Ordering Code BC6.5 Ⓢ Clear anodized products may not have surface treatment on the embossed plane. Ⓢ Not applicable for A Shape.			 Ⓢ $FC \geq (O.D.) + 2$ Ⓢ $FC \leq F-2$ Ordering Code FC45	 Ordering Code TPC5	 Ordering Code SLH12



Keyless Timing Pulleys

T5 Type

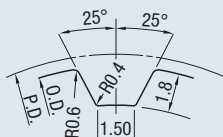
RoHS



Part Number				Material			Surface Treatment		
Belt Width 10mm	Belt Width 15mm	Belt Width 20mm	Belt Width 25mm	Pulley	Flange	Bushing	Pulley	Flange	Bushing
A: 11 W: 16	A: 17 W: 22	A: 22 W: 27	A: 27 W: 32						
TTLA_T5100	TTLA_T5150	TTLA_T5200	TTLA_T5250	7075 Aluminum Alloy	5052 Aluminum Alloy	1045 Carbon Steel	Clear Anodize		—
TTLK_T5100	TTLK_T5150	TTLK_T5200	TTLK_T5250				Hard Clear Anodize*		—

*Hard Anodize Treatment: Film Hardness 300HV~

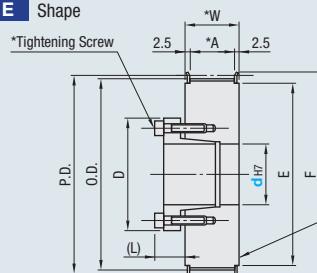
Standard Tooth Profile



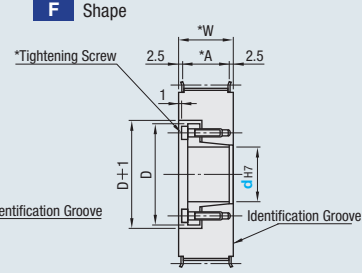
Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 5.0 mm)

Pulley Shape

E Shape



F Shape



① The shaft bore may not have surface treatment.



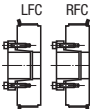
② Two types of bushings are available: Standard Type (ST Bushings) and Short Type (SH Bushings).

Part Number			Pulley Shape	d _{H7} Range (Select Shaft Bore Dia. from Table 1)								P.D.	O.D.	F	E
Type	Teeth	Type, Nominal Width		T5100		T5150		T5200		T5250					
				E (ST Bushing)	F (SH Bushing)	E (ST Bushing)	F (SH Bushing)	E (ST Bushing)	F (SH Bushing)	E (ST Bushing)	F (SH Bushing)				
TTLA TTLK	22	T5100 *A :11 *W :16	E	8	—	—	—	—	—	—	—	35.01	34.25	40	27
	24			8, 10	8	10	8	—	8	—	8	38.20	37.40	45	30
	25			8, 10	8	10	8	—	8	—	8	39.79	39.00	45	30
	26			8~12	8	10, 11, 12	8, 10	12	8, 10	12	8, 10	41.38	40.60	48	35
	28	8~12		8	10, 11, 12	8, 10, 11	12	8, 10, 11	12	8, 10, 11	44.56	43.75	48	35	
	30	T5150 *A :17 *W :22		10~15	—	10~15	10, 11, 12	12, 14, 15	10, 11, 12	12, 14, 15	10, 11, 12	47.75	46.95	52	36
	32	10~17		—	10~17	10, 11, 12	12~17	10~14	12~17	10~14	50.93	50.10	55	40	
	34	T5200 *A :22 *W :27		10~17	—	10~17	10, 11, 12	12~17	10~18	12~17	10~18	54.11	53.25	61	45
	36	10~17	—	10~17	10, 11, 12	12~17	10~18	12~17	10~18	57.30	56.45	61	45		
	40	10~17	—	10~17	10, 11, 12	12~17	10~19	12~17	10~19	63.66	62.85	67	50		
	44	T5250 *A :27 *W :32	12~25	—	12~25	12	12~25	12~25	12~25	12~25	70.03	69.20	74	58	
	48	12~28	—	12~28	12	12~28	12~28	12~28	12~28	76.39	75.55	83	63		
	50	12~32	—	12~32	12	12~32	12~32	12~32	12~32	79.58	78.75	87	67		
	60	12~38	—	12~40	12	12~40	12~35	12~40	12~35	95.49	94.65	99	80		

Table 1: Select Shaft Bore Diameter

d _{H7}	Max. Allowable Torque Nm		D		(L)
	ST Bushing	SH Bushing	ST Bushing	SH Bushing	
8	16	8.5	25.5	24.5	8.5
10	39	18	30	29	10.5
11	43	20	31	30	
12	48	23	32	31	
14	73	37	35	36	12
15	78	39	36	37	13
16	83	42	37	38	
17	88	45	38	39	
18	154	48	43	40	14
19	163	49	45	42	
20	171	97	46	46	
22	186	110	48	47	
24	206	121	50	49	
25	216	124	52	51	
28	353	141	54	53	15.5
30	382	149	57	56	
32	412	163	59	58	
35	451	173	63	61	16.5
38	686	—	70	—	19
40	725	—	71	—	

① Electroless nickel plated bushing decreases maximum allowable torque and allowable thrust load by 20~30%

Alterations	Surface Treatment	Pulley for Replacement (Pulley Only)	
Code	BMC / BMR	OP	
Spec.	<p>Applies electroless nickel plating on a bushing. (Anti-rusting treatment applied to screws).</p> <p>① Electroless nickel plated bushing decreases allowable torque by 20~30%.</p> <p>BMC: Non-RoHS-compliant (Screw: Dacrotized treatment applied 4137 Alloy Steel)</p> <p>BMR: RoHS-compliant (Screw: GeoMet coating applied 4137 Alloy Steel)</p>	<p>Pulleys will be shipped individually (No bushings).</p>	
Alterations	Flange Cut	No Flange	Single Flange
Code	FC	NFC	LFC / RFC
Spec.	<p>Lowers flange by cutting.</p> <p>FC: 0.5mm Increment</p> <p>① No surface treatment applied on flange circumference.</p> <p>② $FC \geq (O.D.) + 2$</p> <p>③ $FC \leq F - 2$</p> <p>Ordering Code FC35</p> 	<p>Flange is not installed. (Flange included)</p> 	<p>Flange installed on the bushing side (LFC) or the opposite side (RFC) only prior to shipping.</p> 



Ordering Example

Part Number	-	Pulley Shape	-	Shaft Bore Dia.
TTLA40T5250	-	E	-	15



Days to Ship

7 Days

① Non-Returnable



Alterations



Part Number	-	Pulley Shape	-	Shaft Bore Dia.	-	(BMC / BMR / OP / FC / NFC / LFC / RFC)
TTLA40T5250	-	F	-	15	-	FC65



Keyless Timing Pulleys

T5 Type – Keyless Bushing with Centering Function –

■ **Features:** It tolerates on average of 1.2 times and 2.5 times greater torque compared to the conventional ST bushing and SH bushing respectively.

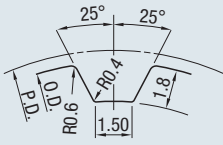
RoHS



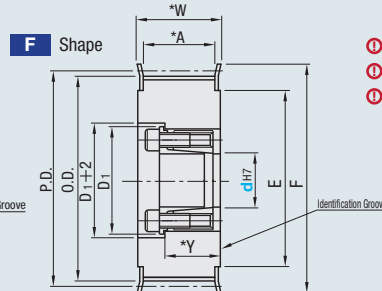
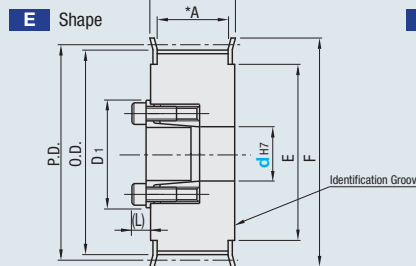
Part Number				Material			Surface Treatment		
Belt Width 10mm	Belt Width 15mm	Belt Width 20mm	Belt Width 25mm	Pulley	Flange	Bushing	Pulley	Flange	Bushing
A: 11 W: 16	A: 17 W: 22	A: 22 W: 27	A: 27 W: 32	7075 Aluminum Alloy	5052 Aluminum Alloy	1045 Carbon Steel	Clear Anodize		—
HTTA__T5100	HTTA__T5150	HTTA__T5200	HTTA__T5250				Hard Clear Anodize*		—
HTTK__T5100	HTTK__T5150	HTTK__T5200	HTTK__T5250						

*Hard Anodize Treatment: Film Hardness 300HV~

Standard Tooth Profile ■ Pulley Shape



Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 5.0 mm)



- ① The shaft bore may not have surface treatment.
- ② Flange attached
- ③ Y dimensions in () require the shaft bore diameter of 12 and above.

Part Number			Pulley Shape	d _{H7} Range (Select Shaft Bore Dia. from Table 1)								P.D.	O.D.	F	E
Type	Teeth	Type, Nominal Width		T5100	T5150		T5200		T5250						
				E	E	F	E	F	E	F					
HTTA HTTK	24	T5100	E	8	8	8	8	8	8	8	38.20	37.40	45	30	
	25	*A :11 *W :16		8	8	8	8	8	8	8	39.79	39.00	45	30	
	26	T5150		8, 10	8, 10	8, 10	8, 10	8, 10	8, 10	8, 10	41.38	40.60	48	35	
	28	*A :17 *W :22 *Y :14		8, 10	8, 10	8, 10	8, 10	8, 10	8, 10	8, 10	44.56	43.75	48	35	
	30			10	10	10	10	10	10	10	47.75	46.95	52	36	
	32	T5200		10, 12, 14	10, 12, 14	10	10, 12, 14	10, 12, 14	10, 12, 14	10, 12, 14	50.93	50.10	55	40	
	34	*A :22 *W :27 *Y :14		10, 12, 14	10~16	10	10~16	10~16	10~16	10~16	54.11	53.25	61	45	
	36	(d12~: Y=18)		10, 12, 14	10~16	10	10~16	10~16	10~16	10~16	57.30	56.45	61	45	
	40			10, 12, 14	10~19	10	10~19	10~19	10~19	10~19	63.66	62.85	67	50	
	44	T5250		12, 14	12~22	—	12~22	12~19	12~22	12~22	70.03	69.20	74	58	
	48	*A :27 *W :32 *Y :14		12, 14	12~22		12~24	12~19	12~24	12~24	76.39	75.55	83	63	
	50	(d12~22: Y=22)		12, 14	12~22		12~28	12~19	12~28	12~28	79.58	78.75	87	67	
60	(d24~: Y=23.5)	12, 14	12~22	12~32	12~19		12~32	12~30	95.49	94.65	99	80			

Table 1: Select Shaft Bore Diameter

d _{H7}	Max. Allowable Torque (Nm)	D ₁	(L)
8	19.6	23.5	6
10	27.5	25.5	
12	44.1	28.5	6.5
14	63.7	30.5	
15	80.4	31.5	
16	83.3	33.0	
17	92.2	33.5	
18	95.1	34.5	
19	98.1	35.5	8
20	216.0	42.0	
22	255.0	44.0	
24	363.0	46.0	
25	392.0	47.0	8.5
28	441.0	50.0	
30	500.0	52.0	
32	530.0	54.0	

Alterations	Surface Treatment	
Code	BMC / BMR	FC
Spec.	Applies electroless nickel plating on a bushing. (Anti-rusting treatment applied to screws). ① Electroless nickel plated bushing decreases allowable torque by 20~30%. BMC: Non-RoHS-compliant (Screw: Dacrotized treatment applied 4137 Alloy Steel) BMR: RoHS-compliant (Screw: GeoMet coating applied 4137 Alloy Steel)	Lowers flange by cutting. FC: 0.5mm Increment ① No surface treatment applied on flange circumference.
		② FC ≥ (O.D.) + 2 ③ FC ≤ F - 2 (Ordering Code) FC43



Ordering Example

Part Number	Pulley Shape	Shaft Bore Dia.
HTTA48T5250	F	20



Days to Ship 7 Days

① Non-Returnable

Alterations	No Flange	Single Flange
Code	NFC	LFC / RFC
Spec.	Flange is not installed. (Flange included)	Flange installed on the bushing side (LFC) or the opposite side (RFC) only prior to shipping.



Alterations



Part Number	Pulley Shape	Shaft Bore Dia.	(BMC / BMR / OP / FC / NFC / LFC / RFC)
HTTA40T5250	E	18	BMC



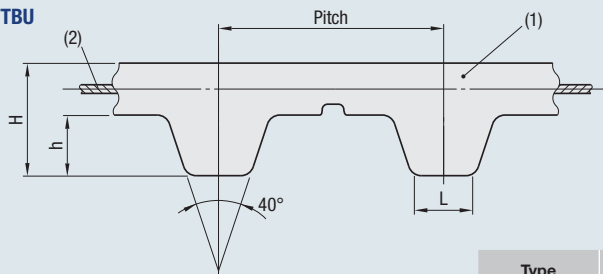
Timing Belts

T5 Type

RoHS



TTBU



Material	
(1) Body	Polyurethane
(2) Core Wire	Steel Cord

Type	Pitch	H	h	L	Unit Mass g/m (Width: 10 mm)
T5	5	2.2	1.2	1.8	20.0

- ⊗ Cannot be used with tension from back side.
- ⊙ Operating Temperature: 0~80°C

■ Type T5 (Pitch: 5 mm)

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
TTBU	185T5	100 (10 mm)	37	185
	200T5		40	200
	225T5		45	225
	250T5		50	250
	275T5		55	275
	280T5		56	280
	295T5		59	295
	300T5		60	300
	325T5		65	325
	350T5		70	350
	375T5		75	375
	400T5		80	400
	425T5	150 (15 mm)	85	425
	440T5	200 (20 mm)	88	440
	450T5		90	450
	475T5	250 (25 mm)	95	475
	500T5	200 (20 mm)	100	500
	525T5		105	525
	550T5		110	550
	575T5		115	575
	590T5		118	590
	600T5		120	600
	625T5		125	625
	630T5		126	630
	650T5		130	650
	675T5		135	675

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
TTBU	690T5	100 (10 mm)	138	690
	700T5		140	700
	725T5		145	725
	750T5		150	750
	780T5		156	780
	800T5		160	800
	850T5	150 (15 mm)	170	850
	900T5		180	900
	1000T5		200	1000
	1075T5	200 (20 mm)	215	1075
	1090T5		218	1090
	1100T5	250 (25 mm)	220	1100
	1115T5		223	1115
	1215T5		243	1215
	1350T5		270	1350
	1380T5		276	1380



Ordering Example

Part Number			Belt Nominal Width
Type	Belt No.		
TTBU	550	T5	100

— Belt Nominal Width
 — Type
 — Belt Circumference Length (mm)
 — Type



Days to Ship

6 Days

⊙ Non-Returnable



Timing Pulleys

T10 Type

RoHS



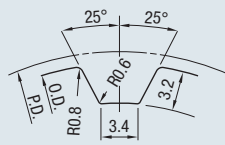
Part Number						Material		Surface Treatment
Belt Width 15mm	Belt Width 20mm	Belt Width 25mm	Belt Width 30mm	Belt Width 40mm	Belt Width 50mm	Pulley	Flange	
A:17 W:22 L:37	A:22 W:27 L:42	A:27 W:32 L:47 (52)	A:32 W:37 L:52 (57)	A:43 W:48 L:61 (63)	A:53 W:58 L:70	2017 Aluminum Alloy (Duralumin)	5052 Aluminum Alloy	Clear Anodize Black Anodize Hard Clear Anodize* Electroless Nickel Plating
TTPA_T10150	TTPA_T10200	TTPA_T10250	TTPA_T10300	TTPA_T10400	TTPA_T10500			
TPPB_T10150	TPPB_T10200	TPPB_T10250	TPPB_T10300	TPPB_T10400	TPPB_T10500			
TPPK_T10150	TPPK_T10200	TPPK_T10250	TPPK_T10300	TPPK_T10400	TPPK_T10500			
TPPN_T10150	TPPN_T10200	TPPN_T10250	TPPN_T10300	TPPN_T10400	TPPN_T10500			
TPPT_T10150	TPPT_T10200	TPPT_T10250	TPPT_T10300	TPPT_T10400	TPPT_T10500			
TPPM_T10150	TPPM_T10200	TPPM_T10250	TPPM_T10300	TPPM_T10400	TPPM_T10500	1045 Carbon Steel	Low Carbon Steel	Black Oxide Electroless Nickel Plating
TPPP_T10150	TPPP_T10200	TPPP_T10250	TPPP_T10300	TPPP_T10400	TPPP_T10500			

① Flanges are installed. Set screws are included with P, N & C bore hole specification.

② L Dimensions in () are for 44~60 toothed pulleys.

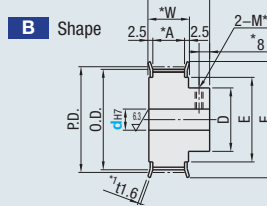
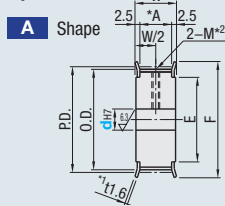
*Hard Anodize Treatment: Film Hardness 300HV~

Standard Tooth Profile



Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 10.0 mm)

Pulley Shape



*1 t=2.0 for 34, 50 and 60 toothed pulleys (Cut Flange).

*11 for T10250 and T10300 with 44~60 teeth.

*2 Shaft Bore Specifications H (Round Hole), V/F (Stepped Hole) and Y (Both Sides Stepped Hole), do not have tapped holes.
(L-W)/2 for T10400 and T10500.

Tapped Hole Dimensions (Shaft Bore: P / N / C)

dH7 Shaft Bore Inner Dia.	M (Coarse)	Accessory Set Screw
8~12	M4	M4 x 3
13~17	M5	M5 x 4
18~30	M6	M6 x 5
31~45	M8	M8 x 6
46~65	M10	M10 x 8

Shaft Bore Specs.

① The shaft bore may not have surface treatment.

H Round Hole

P Round Hole+Tap

N New JIS Keywayed Bore + Tap

NU Inch New JIS Key Groove Hole + Tap

HU Inch Round Hole

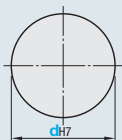
PU Inch Round Hole+Tap

C Old JIS Keywayed Bore + Tap

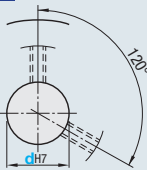
V Stepped Hole

F Stepped Hole
(counterbored holes on the hub side)

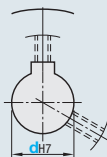
Y Both Ends Stepped Hole



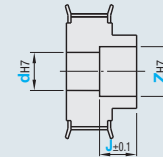
*No tapped holes and set screws.



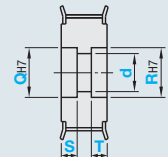
*For A Shape pulley, the set screw hole is set at around 120° to keep away from peaks.



*No tapped holes and set screws.



*Applicable to B Shape only.
*No tapped holes and set screws.



*Applicable to A Shape only.

*Shaft Bore Dia. D is general tolerance.

*No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Specs	Shaft Bore Spec. (1mm Increment)																			P.D.	O.D.	D	F	E									
Type	Teeth	Type Nominal Width			H		P		N / C		HU		PU		NU		V / F				Y																
					A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	d	Q _{H7} / R _{H7}	S / T														
																				J (0.1mm Increment)			S / T														
																				A / B																	
(2017 Aluminum Alloy)	12	T10150	A		8-19	—	8-18	—	8-18	—	E-G	—	E-G	—	E-G	—	8-17	—	10-23	—	8-17	10-19	38.20	36.35	—	40	27										
	14	*A :17 *W :22 *L :37			10-27	10-27	10-26	10-22	10-26	10-20	F-K	F-K	F-K	F-H	F-J	F-H	10-25	10-25	12-27	12-27	10-25	12-27	44.56	42.70	32	48	35										
	15	T10200			10-28	10-28	10-26	10-23	10-26	10-20	F-K	F-K	F-K	F-J	F-K	F-H	10-26	10-26	12-28	12-28	10-26	12-28	47.75	45.90	33	52	36										
	16	*A :22 *W :27 *L :42	H		12-32	12-32	12-30	12-27	12-30	12-22	F-L	F-L	F-K	F-K	F-K	F-H	12-30	12-30	14-32	14-32	12-30	14-32	50.93	49.05	37	58	40										
	18				12-37	12-36	12-30	12-30	12-30	12-25	F-M	F-M	F-K	F-K	F-M	F-J	12-35	12-34	14-37	14-36	12-35	14-37	57.30	55.45	40	61	45										
	20		HU		12-42	12-42	12-40	12-35	12-40	12-29	F-P	F-P	F-N	F-M	F-N	F-K	12-40	12-40	14-42	14-42	12-40	14-42	63.66	61.80	47	67	50										
	22	T10250			12-52	12-46	12-48	12-38	12-48	12-32	F-S	F-Q	F-R	F-M	F-R	F-K	12-50	12-44	14-52	14-46	12-50	14-52	70.03	68.15	50	80	60										
	24	*A :27 *W :32 *L :47	P		12-59	12-56	12-50	12-46	12-50	12-40	F-S	F-S	F-R	F-Q	F-R	F-L	12-57	12-54	14-59	14-56	12-57	14-59	76.39	74.55	60	87	67										
	25	TTPA			12-59	12-59	12-50	12-49	12-50	12-43	F-S	F-S	F-R	F-R	F-R	F-N	12-57	12-57	14-59	14-59	12-57	14-59	79.58	77.70	63	87	67										
	26	TTPB			12-59	12-59	12-50	12-49	12-50	12-43	F-S	F-S	F-R	F-R	F-R	F-P	12-57	12-57	14-59	14-59	12-57	14-59	82.76	80.90	63	87	67										
(1045 Carbon Steel)	28	TTPK	A		12-59	12-59	12-50	12-49	12-50	12-43	F-S	F-S	F-R	F-R	F-R	F-P	12-57	12-57	14-59	14-59	12-57	14-59	82.76	80.90	63	87	67										
	30	TTPN			12-67	12-66	12-57	12-56	12-50	12-48	F-S	F-S	F-S	F-S	F-R	F-P	12-65	12-64	14-67	14-66	12-65	14-67	89.13	87.25	70	95	75										
	32				12-76	12-71	12-65	12-61	12-50	12-50	F-S	F-S	F-S	F-S	F-R	F-R	12-74	12-69	14-76	14-71	12-74	14-76	95.49	93.65	75	104	84										
	34				20-80	20-80	20-65	20-65	20-50	20-50	J-S	J-S	J-S	J-S	J-R	J-R	20-80	20-79	22-82	22-81	20-75	22-82	101.86	100.00	85	111	90										
	36				20-80	20-80	20-65	20-65	20-50	20-50	J-S	J-S	J-S	J-S	J-R	J-R	20-80	20-80	22-92	22-86	20-75	22-92	108.23	106.40	90	115	95										
	40				20-80	20-80	20-65	20-65	20-50	20-50	J-S	J-S	J-S	J-S	J-R	J-R	20-80	20-80	22-94	22-91	20-75	22-94	114.59	112.75	95	123	102										
	44				20-80	20-80	20-65	20-65	20-50	20-50	J-S	J-S	J-S	J-S	J-R	J-R	20-80	20-80	22-95	22-95	20-75	22-95	127.32	125.45	100	135	115										
	48				20-80	20-80	20-65	20-65	20-50	20-50	J-S	J-S	J-S	J-S	J-R	J-R	20-80	20-80	22-95	22-95	20-75	22-95	140.06	138.20	100	152	130										
	50				20-80	20-80	20-65	20-65	20-50	20-50	J-S	J-S	J-S	J-S	J-R	J-R	20-80	20-80	22-95	22-95	20-75	22-95	152.79	150.95	100	160	140										
	60				20-80	20-80	20-65	20-65	20-50	20-50	J-S	J-S	J-S	J-S	J-R	J-R	20-80	20-80	22-95	22-95	20-75	22-95	159.15	157.30	100	170	150										
60				20-80	20-80	20-65	20-65	20-50	20-50	J-S	J-S	J-S	J-S	J-R	J-R	20-80	20-80	22-95	22-95	20-75	22-95	190.99	189.10	100	200	175											

① For inch hole dimensions detail information refer to next page. ② Shaft Bore Dia. 9 is not available for Shaft Bore specification N. ③ Z-d≥2 for shaft bore specification V and F. ④ Shaft Bore Dia. 8, 9, 11, 13, 14, 17, 21 ~ 50 are not available for Shaft Bore specification C. ⑤ Q(R)-d≥2 for shaft bore specification Y. ⑥ L Dimensions in () are for 44~60 toothed pulleys. Select NK10 when New JIS Keywayed Bore + Tap with shaft bore diameter of 10 and keyway width 4.0mm (height 1.8mm) is requested.



Timing Pulleys

T10 Type



Ordering Example

Part Number																			
Material Type	Tooth No.	Belt Type	Belt Width																
HTPA	48	Y6	040																
	Part Number		–	Pulley Shape	–	Shaft Bore Spec. / Inner Dia.		–	Z	–	J	–	Q	–	R	–	S	–	T
(Shaft Bore : H / P / N / C)	TTPA14T10500		–	A	–	NK10													
(Shaft Bore : V / F)	TTPA48T10500		–	B	–	V20		–	Z38	–	J23.5								
(Shaft Bore : Y)	TTPA24T10250		–	A	–	Y25						–	Q37	–	R37	–	S7	–	T7

Conveying	—
Positioning	—
Power Transmission	—
High Speed	•

Inch Hole Specifications

No.	Nominal	Dimension (mm)
A	1/8	3.175
B	3/16	4.763
C	1/4	6.350
D	5/16	7.938
E	3/8	9.525
F	1/2	12.700
G	5/8	15.875
H	3/4	19.050
J	7/8	22.225
K	1	25.400



Days to Ship

TTPA / TTPB / TTPM / TTPN

4 Days

Ⓢ Non-Returnable

TTPB / TTPK / TTPN

7 Days

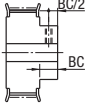

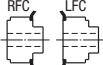

Ⓢ Non-Returnable



Alterations

Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	(KC90 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC / TPC / SLH)
TTPA36T10250	A	H40							KSC80 - K10

Alterations	Set Screw Angle	Side Tapped Hole	Side Through Hole
Code	KC90	QSC / QFC / QTC	KSC / KFC / KTC
Spec.	<p>Changes an angle of set screw to 90°.</p> <p>Ⓢ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.</p>	<p>Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 1mm Increment)</p> <p>Ⓢ Thickness required: minimum 2mm</p> <p>A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$</p> <p>B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$</p> <p>Ⓢ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>Ⓢ Specify KC90 when selecting QFC for Shaft Bore specifications P, N and C.</p> <p>Ⓢ The pilot hole for tapping may go through.</p> <p>Ⓢ Not applicable to Shaft Bore Specifications F or Y.</p> <p>Ⓢ When the Shaft Bore Specifications are P, N or C, QSC is not applicable.</p> <p>M Selection M3, M4, M5, M6, M8</p> <p>Ordering Code QFC28-M4</p>	<p>Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 1mm Increment)</p> <p>Ⓢ Thickness required: minimum 2mm</p> <p>A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$</p> <p>B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$</p> <p>Ⓢ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>Ⓢ Specify KC90 when selecting KFC for Shaft Bore Specifications P, N and C.</p> <p>Ⓢ Not applicable to Shaft Bore Specifications F or Y.</p> <p>Ⓢ When the Shaft Bore Specifications are P, N or C, KSC is not applicable.</p> <p>K (Through Hole Dia.) Selection K4.0~K13.0 (0.5mm Increment)</p> <p>Ordering Code KSC20-K5</p>

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length																								
Code	BC	NFC	RFC / LFC	FC	TPC	SLH																								
Spec.	<p>Cuts the hub length in 0.5mm increment.</p> <p>① Shaft Bore specification: H, V, F: 3≤BC≤L-W</p> <p>① Shaft Bore specification: P, N, C: M+3≤BC≤L-W</p>  <p>Ordering Code BC6.5</p> <p>① Clear anodized products may not have surface treatment on the embossed plane.</p> <p>⊗ Not applicable for A Shape.</p>	<p>Flange is not installed. (Flange included)</p> 	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p> <p>① Same on A Shape</p> 	<p>Lowers flange by cutting. FC: 0.5mm Increment</p> <p>① No surface treatment applied on flange circumference.</p>  <p>① FC≥(O.D.)+2</p> <p>① FC≤F-2</p> <p>Ordering Code FC80</p>	<p>Changes the tapped hole dimension.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><thead><tr><th>M</th><th>TPC</th></tr></thead><tbody><tr><td>M4</td><td>M5</td></tr><tr><td>M5</td><td>M4 / M6</td></tr><tr><td>M6</td><td>M5 / M8</td></tr><tr><td>M8</td><td>M6 / M10</td></tr><tr><td>M10</td><td>M8</td></tr></tbody></table> <p>Ordering Code TPC5</p>	M	TPC	M4	M5	M5	M4 / M6	M6	M5 / M8	M8	M6 / M10	M10	M8	<p>Changes the length of the included set screws.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><thead><tr><th>Set Screw</th><th>SLH</th></tr></thead><tbody><tr><td>M4 x 3</td><td>5, 8</td></tr><tr><td>M5 x 4</td><td>6, 10</td></tr><tr><td>M6 x 5</td><td>10</td></tr><tr><td>M8 x 6</td><td>10, 12</td></tr><tr><td>M10 x 8</td><td>12, 15</td></tr></tbody></table> <p>Ordering Code SLH12</p>	Set Screw	SLH	M4 x 3	5, 8	M5 x 4	6, 10	M6 x 5	10	M8 x 6	10, 12	M10 x 8	12, 15
	M	TPC																												
	M4	M5																												
M5	M4 / M6																													
M6	M5 / M8																													
M8	M6 / M10																													
M10	M8																													
Set Screw	SLH																													
M4 x 3	5, 8																													
M5 x 4	6, 10																													
M6 x 5	10																													
M8 x 6	10, 12																													
M10 x 8	12, 15																													



Keyless Timing Pulleys

T10 Type

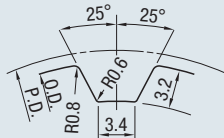
RoHS



Part Number						Material			Surface Treatment		
Belt Width 15 mm	Belt Width 20 mm	Belt Width 25 mm	Belt Width 30 mm	Belt Width 40 mm	Belt Width 50 mm	Pulley	Flange	Bushing	Pulley	Flange	Bushing
A: 17 W: 22	A: 22 W: 27	A: 27 W: 32	A: 32 W: 37	A: 43 W: 48	A: 53 W: 58						
TTLA_T10150	TTLA_T10200	TTLA_T10250	TTLA_T10300	TTLA_T10400	TTLA_T10500	7075 Aluminum Alloy	5052 Aluminum Alloy	1045 Carbon Steel	Clear Anodize	—	—
TTLK_T10150	TTLK_T10200	TTLK_T10250	TTLK_T10300	—	—	—	—	—	Hard Clear Anodize*	—	—
TTLN_T10150	TTLN_T10200	TTLN_T10250	TTLN_T10300	—	—	—	—	—	Electroless Nickel Plating	—	—
TTPL_T10150	TTPL_T10200	TTPL_T10250	TTPL_T10300	TTPL_T10400	TTPL_T10500	1045 Carbon Steel	Low Carbon Steel	1045 Carbon Steel	Black Oxide	—	—
TTLG_T10150	TTLG_T10200	TTLG_T10250	TTLG_T10300	TTLG_T10400	TTLG_T10500	—	—	—	Electroless Nickel Plating	—	—

*Hard Anodize Treatment: Film Hardness 300HV~

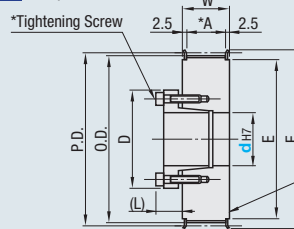
Standard Tooth Profile



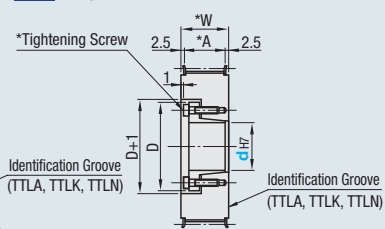
Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 10.0 mm)

Pulley Shape

E Shape



F Shape



- ① The shaft bore may not have surface treatment.
- ② Two types of bushings are available: Standard Type (ST Bushings) and Short Type (SH Bushings).
- ③ Machined Flange for 34, 50 and 60 toothed pulleys.

Part Number			Pulley Shape	d _{H7} Range (Select Shaft Bore Dia. from Table 1)												P.D.	O.D.	F	E	
Type	Teeth	Type, Nominal Width		T10150		T10200		T10250		T10300		T10400		T10500						
				E (ST Bushing)	F (SH Bushing)	E (ST Bushing)	F (SH Bushing)	E (ST Bushing)	F (ST Bushing) (SH Bushing)	E (ST Bushing)	F (ST Bushing) (SH Bushing)	E (ST Bushing)	F (SH Bushing)	E (ST Bushing)	F (SH Bushing)					
TLTA TLTK TLTN TTPL TTLG	15	T10150 *A: 17 *W: 22	E	12	12	12	12	12	12	—	—	12-14	12	12-14	12	47.75	45.90	52	3	
	16			12-15	12	12-15	12	12-15	12-15	15	15	12-17	12-15	12-17	12-15	50.93	49.05	58	4	
	18			12-17	12	12-17	12-17	12-17	12-17	15, 16, 17	15, 16, 17	12-17	12-17	12-17	12-17	57.30	55.45	61	5	
	20			12-17	12	12-17	12-17	12-17	12-17	15, 16, 17	15, 16, 17	12-22	12-18	12-22	12-18	63.66	61.80	67	6	
	22	T10200 *A: 22 *W: 27		—	14-25	—	14-25	14-25	14-25	14-25	15-25	15-25	14-25	14-25	14-25	14-25	70.03	68.15	80	6
	24	14-25			—	14-25	14-25	14-25	14-25	15-25	15-25	14-25	14-25	14-25	14-25	76.39	74.55	87	6	
	25	14-25			—	14-25	14-25	14-25	14-25	15-25	15-25	14-25	14-25	14-25	14-25	79.58	77.70	87	6	
	26	T10250 *A: 27 *W: 32			14-25	—	14-25	14-25	14-25	14-25	15-25	15-25	14-35	14-35	14-35	14-35	82.76	80.90	87	6
	28	T10300 *A: 32 *W: 37	F	16-35	—	16-35	16-35	16-35	16-35	16-35	16-35	16-35	16-35	16-35	16-35	89.13	87.25	95	7	
	30			16-35	—	16-35	16-35	16-35	16-35	16-35	16-35	16-42	16-35	16-42	16-35	95.49	93.65	104	8	
	32			20-42	—	20-42	20-35	20-42	20-35	20-42	20-35	20-42	20-42	20-42	20-42	101.86	100.00	111	9	
	34			20-42	—	20-42	20-35	20-42	20-35	20-42	20-35	20-42	20-42	20-42	20-42	108.23	106.40	115	9	
	36	T10400 *A: 43 *W: 48		20-42	—	20-42	20-35	20-42	20-35	20-42	20-35	20-42	20-42	20-42	20-42	114.59	112.75	123	10	
	40	20-50		—	20-50	20-35	20-50	20-35	20-50	20-35	20-50	20-50	20-50	20-50	20-50	127.32	125.45	135	11	
	44	T10500 *A: 53 *W: 58		20-50	—	20-50	20-35	20-50	20-35	20-50	20-35	20-50	20-50	20-50	20-50	140.06	138.20	152	13	
	48	20-50		—	20-50	20-35	20-50	20-35	20-50	20-35	20-50	20-50	20-50	20-50	20-50	152.79	150.95	160	14	
50	20-50	—		20-50	20-35	20-50	20-35	20-50	20-35	20-50	20-50	20-50	20-50	20-50	159.15	157.30	170	15		
60	20-50	—		20-50	20-35	20-50	20-35	20-50	20-35	20-50	20-50	20-50	20-50	20-50	190.99	189.10	200	17		

- ① For "F" shape of S8M250, ST bushing is applicable to shaft bore diameter of 12~30 and SH bushing is applicable to 32 and 35.
- ② TTLK and TTLN are not available for T10400 and T10500.
- ③ For "F" shape of S8M300, ST bushing is applicable to shaft bore diameter of 15~32 and SH bushing is applicable to 35.

Table 1: Select Shaft Bore Diameter

d _{H7}	Max. Allowable Torque Nm		D		(L)
	ST Bushing	SH Bushing	ST Bushing	SH Bushing	
12	48	23	32	31	10.5
14	73	37	35	36	12
15	78	39	36	37	13
16	83	42	37	38	
17	88	45	38	39	14
18	154	48	43	40	
19	163	49	45	42	
20	171	97	46	46	
22	186	110	48	47	15.5
24	206	121	50	49	
25	216	124	52	51	
28	353	141	54	53	
30	382	149	57	56	16.5
32	412	163	59	58	
35	451	173	63	61	19
38	686	—	70	—	
40	725	—	71	—	
42	757	—	74	—	
45	1490	—	84	—	20
48	1600	—	87	—	
50	1660	—	89	—	24.5

- ① Electroless nickel plated bushing decreases maximum allowable torque and allowable thrust load by 20~30%

Alterations	Surface Treatment
Code	BMC / BMR
Spec.	Applies electroless nickel plating on a bushing. (Anti-rusting treatment applied to screws). ① Electroless nickel plated bushing decreases allowable torque by 20~30%. BMC: Non-RoHS-compliant (Screw: Dacrotized treatment applied 4137 Alloy Steel) BMR: RoHS-compliant (Screw: GeoMet coating applied 4137 Alloy Steel)



Ordering Example

Part Number	Pulley Shape	Shaft Bore Dia.
TTLA40T10250	E	20



Days to Ship

7 Days

① Non-Returnable

Alterations	Flange Cut	No Flange	Single Flange
Code	FC	NFC	LFC / RFC
Spec.			



Alterations

Part Number	Pulley Shape	Shaft Bore Dia.	(BMC...etc.)
TTLA40T10250	F	30	FC132



Keyless Timing Pulleys

T10 Type – Keyless Bushing with Centering Function –

Features: It tolerates on average of 1.2 times and 2.5 times greater torque compared to the conventional ST bushing and SH bushing respectively.

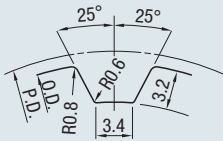
RoHS



Part Number						Material			Surface Treatment		
Belt Width 15mm	Belt Width 20mm	Belt Width 25mm	Belt Width 30mm	Belt Width 40mm	Belt Width 50mm	Pulley	Flange	Bushing	Pulley	Flange	Bushing
A: 17 W: 22	A: 22 W: 26 Y: 18	A: 27 W: 32 Y: 22 (23.5)	A: 32 W: 37 Y: 24 (25, 27)	A: 43 W: 48 Y: 30 (31, 34)	A: 53 W: 58 Y: 35 (36, 39) 35(36, 39)	7075 Aluminum Alloy	5052 Aluminum Alloy	1045 Carbon Steel	Clear Anodize	—	—
HTTA_T10150	HTTA_T10200	HTTA_T10250	HTTA_T10300	HTTA_T10400	HTTA_T10500	1045 Carbon Steel	Low Carbon Steel	1045 Carbon Steel	Hard Clear Anodize*	—	—
HTTK_T10150	HTTK_T10200	HTTK_T10250	HTTK_T10300	—	—	—	—	—	—	—	—
HTTT_T10150	HTTT_T10200	HTTT_T10250	HTTT_T10300	HTTT_T10400	HTTT_T10500	—	—	—	—	—	—

*Hard Anodize Treatment: Film Hardness 300HV~

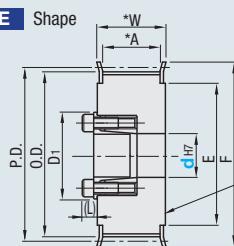
Standard Tooth Profile



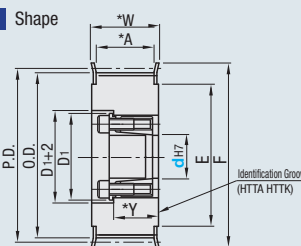
Tooth groove dimensions slightly change according to No. of teeth.
(Pitch: 10.0 mm)

Pulley Shape

E Shape



F Shape



- ① The shaft bore may not have surface treatment.
- ② Flange attached
- ③ Y dimensions in () require the shaft bore diameter of 24 and above.

Part Number			Pulley Shape	d _{H7} Range (Select Shaft Bore Dia. from Table 1)												P.D.	O.D.	F	E		
Type	Teeth	Type, Nominal Width		T10150	T10200			T10250		T10300		T10400		T10500							
				E	E	F	E	F	E	F	E	F	E	F							
HTTA HTTK HTTT	16	T10150 *A :17 *W :22	E	12, 14	12, 14	12, 14	12, 14	12, 14	12, 14	12, 14	12, 14	12, 14	12, 14	12, 14	12, 14	50.93	49.05	58	40		
	18			12-16	12-16	12-16	12-16	12-16	12-16	12-16	12-16	12-16	12-16	12-16	12-16	12-16	57.3	55.45	61	47	
	20			12-19	12-19	12-19	12-19	12-19	12-19	12-19	12-19	12-19	12-19	12-19	12-19	12-19	63.66	61.8	67	50	
	22			14-22	14-22	14-19	14-22	14-22	14-22	14-22	14-22	14-22	14-22	14-22	14-22	14-22	70.03	68.15	80	60	
	24	T10250 *A :27 *W :32 *Y :22 (d24--:Y=23.5)		14-22	14-28	14-19	14-28	14-28	14-28	14-28	14-28	14-28	14-28	14-28	14-28	76.39	74.55	87	67		
	25			14-22	14-28	14-19	14-28	14-28	14-28	14-28	14-28	14-28	14-28	14-28	14-28	79.58	77.7	87	67		
	26			14-22	14-28	14-19	14-28	14-28	14-28	14-28	14-28	14-28	14-28	14-28	14-28	82.76	80.9	87	67		
	28			16-22	16-32	16-19	16-32	16-30	16-32	16-32	16-32	16-32	16-32	16-32	16-32	89.13	87.25	95	75		
	30	T10300 *A :32 *W :37 *Y :24 (d24-32:Y=25)		F	16-22	16-32	16-19	16-32	16-30	16-32	16-32	16-32	16-32	16-32	16-32	95.49	93.65	104	84		
	32				20, 22	20-35		20-35	20-35	20-35	20-35	20-35	20-35	20-35	101.86	100	111	90			
	34				20, 22	20-35	20-35	20-35	20-35	20-35	20-35	20-35	20-35	20-35	108.22	106.40	115	95			
	36				20, 22	20-35	20-40	20-30	20-40	20-35	20-40	20-35	20-40	20-35	20-40	114.59	112.75	123	100		
	40	T10400 *A :43 *W :48 *Y :30 (d24-32:Y=31) (d35--:Y=34)			20, 22	20-35	—	20-50	20-30	20-50	20-35	20-50	20-35	20-50	20-35	127.32	125.45	135	110		
	44				20, 22	20-35		20-50	20-30	20-50	20-35	20-50	20-35	20-50	20-35	140.06	138.2	152	130		
	48				20, 22	20-35		20-50	20-30	20-50	20-35	20-50	20-35	20-50	20-35	152.79	150.95	160	140		
	50				20, 22	20-35		20-50	20-30	20-50	20-35	20-50	20-35	20-50	20-35	159.15	157.30	170	150		
	60	T10500 *A :53 *W :58 *Y :35 (d35--:Y=39)			20, 22	20-35	—	20-50	20-30	20-50	20-35	20-50	20-35	20-50	20-35	20-50	20-35	190.99	189.10	200	170
					20, 22	20-35		20-50	20-30	20-50	20-35	20-50	20-35	20-50	20-35	20-50	20-35	190.99	189.10	200	170

Table 1: Select Shaft Bore Diameter

dH7	Max. Allowable Torque (Nm)	D1	(L)
12	44.1	28.5	6.5
14	63.7	30.5	
15	80.4	31.5	
16	83.3	33	
17	92.2	33.5	8
18	95.1	34.5	
19	98.1	35.5	
20	216.0	42	
22	255.0	44	8.5
24	363.0	46	
25	392.0	47	
28	441.0	50	
30	500.0	52	10
32	530.0	54	
35	883.0	62	
40	1079.0	67	
45	1285.0	72	10.5
50	1706.0	77	

Alterations	Surface Treatment	
Code	BMC / BMR	FC
Spec.	Applies electroless nickel plating on a bushing. (Anti-rusting treatment applied to screws).	Low flange by cutting.
	① Electroless nickel plated bushing decreases allowable torque by 20~30%. BMC: Non-RoHS-compliant (Screw: Dacrotized treatment applied 4137 Alloy Steel) BMR: RoHS-compliant (Screw: GeoMet coating applied 4137 Alloy Steel)	FC: 0.5mm Increment ① No surface treatment applied on flange circumference. $FC \geq (O.D.) + 2$ $FC \leq F - 2$ [Ordering Code] FC35



Ordering Example

Part Number	-	Pulley Shape	-	Shaft Bore Dia.
HTTA36T10250	-	F	-	25



Days to Ship

7 Days

① Non-Returnable

Alterations	No Flange	Single Flange
Code	NFC	LFC / RFC
Spec.	Flange is not installed. (Flange included)	Flange installed on the bushing side (LFC) or the opposite side (RFC) only prior to shipping.



Alterations




Part Number	-	Pulley Shape	-	Shaft Bore Dia.	-	(BMC...etc.)
HTTA36T10200	-	E	-	30	-	BMC

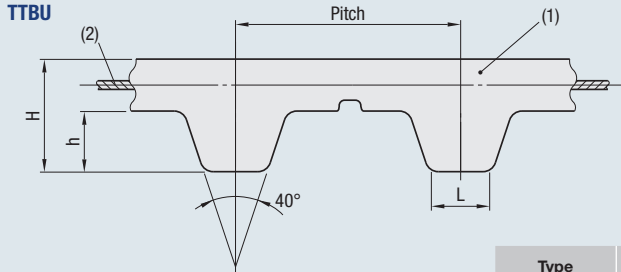


Timing Belts

T10 Type



TTBU



Material	
(1) Body	Polyurethane
(2) Core Wire	Steel Cord

Type	Pitch	H	h	L	Unit Mass g/m (Width: 10 mm)
T10	10	4.5	2.5	3.5	42.0

⊗ Cannot be used with tension from back side.
Ⓢ Operating Temperature: 0~80°C

■ Type T10 (Pitch: 10 mm)

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
TTBU	400T10	150 (15 mm)	40	400
	450T10		45	450
	500T10		50	500
	530T10		53	530
	550T10		55	550
	560T10	200 (20 mm)	56	560
	600T10		60	600
	630T10	250 (25 mm)	63	630
	650T10		65	650
	700T10	300 (30 mm)	70	700
	720T10		72	720
	750T10	400 (40 mm)	75	750
	800T10		80	800
	850T10	500 (50 mm)	85	850
	900T10		90	900
	910T10		91	910
	920T10		92	920
	950T10		95	950
	960T10		96	960
	980T10		98	980

Part Number			Teeth	Belt Circum. Length (mm)
Type	Belt No.	Belt Nominal Width		
TTBU	1000T10	150 (15 mm)	100	1000
	1050T10		105	1050
	1100T10		110	1100
	1150T10		115	1150
	1200T10	200 (20 mm)	120	1200
	1250T10		125	1250
	1300T10	250 (25 mm)	130	1300
	1320T10		132	1320
	1350T10	300 (30 mm)	135	1350
	1400T10		140	1400
	1450T10	400 (40 mm)	145	1450
	1500T10		150	1500
	1600T10	500 (50 mm)	160	1600
	1700T10		170	1700
	1750T10		175	1750
	1800T10		180	1800
	1880T10		188	1880



Ordering Example

Part Number		Belt Nominal Width
Type	Belt No.	
TTBU	550	100
T5		

Belt Nominal Width

Type

Belt Circumference Length (mm)

Type



Days to Ship

6 Days

Ⓢ Non-Returnable



Timing Pulleys

AT5 Type

■ **Features:** AT type for heavy conveyance with allowable tension 1.3 times greater than T type.

RoHS



Part Number		Material		Surface Treatment
Belt Width 10 mm	Belt Width 15 mm			
A:11.6 W:16.5 L:25 (27 / 29) ①	A:16.6 W:21.5 L:30 (32 / 34) ①	2017 Aluminum Alloy (Duralumin)	5052 Aluminum Alloy	Clear Anodize
TTPA _AT5100	TTPA _AT5150			Black Anodize
TTPB _AT5100	TTPB _AT5150			Hard Clear Anodize*
TTPK _AT5100	TTPK _AT5150			Electroless Nickel Plating
TTPN _AT5100	TTPN _AT5150			

① Flanges are installed. Set screws are included with P, N & C bore hole specification.
② L dimension varies depending on the number of teeth. Refer to the Specification Table..

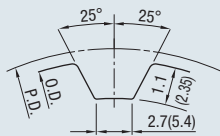
*Hard Anodize Treatment: Film Hardness 300HV~

*I=4 (No. of Teeth 15, 16)

I=5 (No. of Teeth 18~28)

I=6 (No. of Teeth 30~60)

Standard Tooth Profile

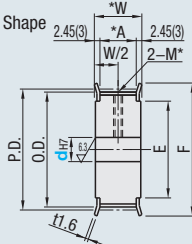


Tooth groove dimensions slightly change according to No. of teeth.
(AT5 Pitch:5.0mm/AT10 Pitch:10.0mm)

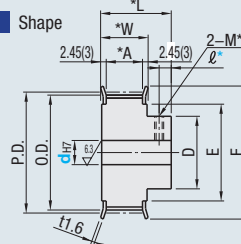
① The dimensions with () in the diagram are applied for AT10.

Pulley Shape

A Shape



B Shape



*For Shaft Bore Specifications H (Round Hole), V and F (Stepped Hole) and Y (Both Sides Stepped Hole), no tapped hole is machined.

Shaft Bore Specs.

① The shaft bore may not have surface treatment.

H Round Hole

P Round Hole+Tap

N New JIS Keywayed Bore + Tap

NU Inch New JIS Key Groove Hole + Tap

HU Inch Round Hole

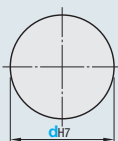
PU Inch Round Hole+Tap

C Old JIS Keywayed Bore + Tap

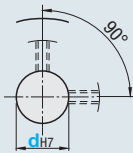
V Stepped Hole

F Stepped Hole (counterbored holes on the hub side)

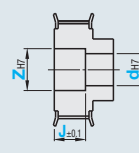
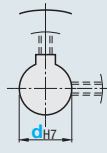
Y Both Ends Stepped Hole



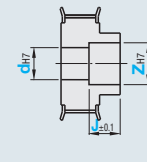
*No tapped holes and set screws.



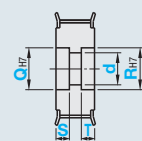
*For A Shape pulley, the set screw hole is set at around 120° to keep away from peaks.
*For A Shape the set screws are placed at around 90° to keep away from the tooth peaks.



*No tapped holes and set screws.



*Applicable to B Shape only.
*No tapped holes and set screws.



*Applicable to A Shape only.
*Shaft Bore Dia. D is general tolerance.
*No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Specs	Shaft Bore Spec. (1mm Increment)																		P.D.	O.D.	D	F	E	ℓ	
Type	Teeth	Type Nominal Width			H		P		N / C		HU		PU		NU		V / F		Y										
					d _{H7}										d _{H7}		Z _{H7}		J (0.1mm Increment) A / E		d Q _{H7} / R _{H7}								S / T
(2017 Aluminum Alloy) TPA TPB TPK TPN	15	AT5100 *A :11.6 *W :16.5 *L :25 (No. of Teeth 18-28 L:27) (No. of Teeth 30-60 L:29)	H	5-10	5-10	5-10	5-8	8, 10	—	C-E	C-E	C-E	C, D	E	—	5-8	5-7	7-10	7-9	—	—	5-8	7-10	23.87	22.65	13	28	18	4
	16			6-12	6-12	6-12	6-10	8-12	8	C-E	C-E	C-E	C-E	E	—	6-10	6-10	8-12	8-12	—	—	6-10	8-12	25.46	24.20	16	32	20	4
	18			6-14	6-14	6-12	6-11	8-12	8, 10	C-F	C-F	C-F	C-E	E	E	6-12	6-10	8-14	8-12	—	—	6-12	8-14	28.65	27.40	16	33	22	5
	20			6-16	6-15	6-16	6-12	8-16	8, 10	C-G	C-F	C-G	C-E	E-G	E	6-14	6-14	8-16	8-16	—	—	6-14	8-16	31.83	30.60	20	36	24	5
	22	AT5150 *A :16.6 *W :21.5 *L :30 (No. of Teeth 18-28 L:32) (No. of Teeth 30-60 L:34)	P	7-19	7-19	7-18	7-15	8-18	8-12	D-G	D-G	D-G	D-F	E-G	E	7-17	7-14	9-19	9-16	—	—	7-17	9-19	35.01	33.85	20	40	27	5
	24			7-22	7-22	7-20	7-17	8-20	8-13	D-H	D-H	D-H	D-G	E-H	E, F	7-20	7-19	9-23	9-21	—	—	7-20	9-22	38.20	37.00	25	45	30	5
	25			7-22	7-22	7-20	7-18	8-20	8-15	D-H	D-H	D-H	D-G	E-H	E, F	7-20	7-19	9-23	9-21	(For A Shape) 2.0≤J≤W-2.0	7-20	9-22	39.79	38.60	25	45	30	5	
	26			8-27	8-27	8-22	8-21	8-22	8-17	E-K	E-K	E-H	E-H	E-G	E-G	8-25	8-25	10-27	10-26	8-25	10-27	41.38	40.20	30	48	35	5		
	28	AT5150 *A :16.6 *W :21.5 *L :30 (No. of Teeth 18-28 L:32) (No. of Teeth 30-60 L:34)	N	8-27	8-27	8-24	8-22	8-24	8-18	E-K	E-K	E-J	E-H	E-J	E-G	8-25	8-25	10-27	10-26	—	—	8-25	10-27	44.56	43.35	30	48	35	5
	30			10-28	10-28	10-26	10-23	10-26	10-18	F-K	E-K	F-K	F-J	F-K	F-G	10-26	10-26	12-28	10-31	(For B Shape) 2.0≤J≤L-2.0	10-26	12-30	47.75	46.55	35	55	40	6	
	32			10-32	10-32	10-28	10-27	10-28	10-22	F-L	F-L	F-K	F-K	F-K	F-H	10-30	10-30	12-32	12-31	10-30	12-35	50.93	49.70	35	55	40	6		
	36			10-37	10-36	10-30	10-30	10-30	10-25	F-M	F-M	F-K	F-K	F-K	F-J	10-35	10-34	12-37	12-36	10-35	12-37	57.30	56.05	40	61	45	6		
	40	F	V	10-42	10-42	10-38	10-37	10-38	10-29	F-P	F-P	F-M	F-M	F-M	F-K	10-40	10-40	12-42	12-41	—	—	10-40	12-42	63.66	62.45	45	67	50	6
	44			12-50	12-46	12-42	12-40	12-40	12-30	F-R	F-Q	F-P	F-N	F-N	F-K	12-48	12-44	14-50	14-41	12-48	14-50	70.03	68.80	45	74	58	6		
	48			12-55	12-55	12-45	12-45	12-40	12-40	F-S	F-S	F-Q	F-Q	F-N	F-N	12-53	12-53	14-55	14-41	12-53	14-55	76.39	75.15	45	83	63	6		
	50			12-59	12-59	12-45	12-45	12-43	12-43	F-S	F-S	F-Q	F-Q	F-P	F-P	12-57	12-57	14-59	14-41	12-57	14-59	79.58	78.35	45	87	67	6		
60	Y	Y	12-72	12-71	12-45	12-45	12-43	12-43	F-S	F-S	F-Q	F-Q	F-Q	F-Q	12-70	12-69	14-72	14-41	12-70	14-72	95.49	94.25	45	99	80	6			

① For inch hole dimensions detail information refer to next page. ② Shaft Bore Dia. 9 is not available for Shaft Bore specification N. ③ Z-d≥2 for shaft bore specification V and F. ④ Q(R)-d≥2 for shaft bore specification Y.
⑤ Shaft Bore Dia. 8, 9, 11, 13, 14, 17, 21 ~ 50 are not available for Shaft Bore specification C. ⑥ Shaft Bore Dia. 6.35 is selectable for Shaft Bore specifications H, P, V and F. (*AT5 only.) ⑦ Select NK10 when New JIS Keywayed Bore + Tap with shaft bore diameter of 10 and keyway width 4.0mm (height 1.8mm) is requested.



Timing Pulleys

AT5 Type



Ordering Example

Part Number										
Material Type	Tooth No.	Belt Type	Belt Width							
HTPA	48	Y6	040							

Conveying	•
Positioning	•
Power Transmission	—
High Speed	•

Inch Hole Specifications

No.	Nominal	Dimension (mm)
A	1/8	3.175
B	3/16	4.763
C	1/4	6.350
D	5/16	7.938
E	3/8	9.525
F	1/2	12.700
G	5/8	15.875
H	3/4	19.050
J	7/8	22.225
K	1	25.400



Days to Ship

TTPA

4 Days

ⓘ Non-Returnable

TTPB / TTPK / TTPN

7 Days

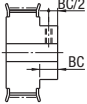

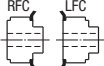

ⓘ Non-Returnable



Alterations

Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	(KC120 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC / TPC / SLH)
TTPA18-AT5100	A	P10							NFC

Alterations	Set Screw Angle	Side Tapped Hole	Side Through Hole
Code	KC90	QSC / QFC / QTC	KSC / KFC / KTC
Spec.	<p>Changes an angle of set screw to 90°.</p> <p>ⓘ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.</p>	<p>Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 1mm Increment)</p> <p>ⓘ Thickness required: minimum 2mm</p> <p>A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$</p> <p>B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$</p> <p>ⓘ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>ⓘ Specify KC90 when selecting QFC for Shaft Bore specifications P, N and C.</p> <p>ⓘ The pilot hole for tapping may go through.</p> <p>⊗ Not applicable to Shaft Bore Specifications F or Y.</p> <p>⊗ When the Shaft Bore Specifications are P, N or C, QSC is not applicable.</p> <p>M Selection M3, M4, M5, M6, M8 Ordering Code QFC28-M4</p>	<p>Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 1mm Increment)</p> <p>ⓘ Thickness required: minimum 2mm</p> <p>A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$</p> <p>B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$</p> <p>ⓘ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>ⓘ Specify KC90 when selecting KFC for Shaft Bore Specifications P, N and C.</p> <p>⊗ Not applicable to Shaft Bore Specifications F or Y.</p> <p>⊗ When the Shaft Bore Specifications are P, N or C, KSC is not applicable.</p> <p>K (Through Hole Dia.) Selection K4.0~K13.0 (0.5mm Increment) Ordering Code KSC20-K5</p>

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length																						
Code	BC	NFC	RFC / LFC	FC	TPC	SLH																						
Spec.	<p>Cuts the hub length in 0.5mm increment.</p> <p>① Shaft Bore specification: H, V, F: 3≤BC≤L-W</p> <p>① Shaft Bore specification: P, N, C: M+3≤BC≤L-W</p> <div></div> <p>Ordering Code BC6.5</p> <p>① Clear anodized products may not have surface treatment on the embossed plane.</p> <p>⊗ Not applicable for A Shape.</p>	<p>Flange is not installed. (Flange included)</p> <div></div>	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p> <p>① Same on A Shape</p> <div></div>	<p>Lowers flange by cutting. FC: 0.5mm Increment</p> <p>① No surface treatment applied on flange circumference.</p> <div></div> <p>① FC≥(O.D.)÷2</p> <p>① FC≤F-2</p> <p>Ordering Code FC45</p>	<p>Changes the tapped hole dimension.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><tr><th>M</th><th>TPC</th></tr><tr><td>M4</td><td>M3 / M5</td></tr><tr><td>M5</td><td>M4 / M6</td></tr><tr><td>M6</td><td>M5 / M8</td></tr><tr><td>M8</td><td>M6</td></tr></table> <p>Ordering Code TPC5</p>	M	TPC	M4	M3 / M5	M5	M4 / M6	M6	M5 / M8	M8	M6	<p>Changes the length of the included set screws.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><tr><th>Set Screw</th><th>SLH</th></tr><tr><td>M3 x 3</td><td>6</td></tr><tr><td>M4 x 3</td><td>5, 8</td></tr><tr><td>M5 x 4</td><td>6, 10</td></tr><tr><td>M6 x 5</td><td>10</td></tr><tr><td>M8 x 6</td><td>10, 12</td></tr></table> <p>Ordering Code SLH12</p>	Set Screw	SLH	M3 x 3	6	M4 x 3	5, 8	M5 x 4	6, 10	M6 x 5	10	M8 x 6	10, 12
	M	TPC																										
M4	M3 / M5																											
M5	M4 / M6																											
M6	M5 / M8																											
M8	M6																											
Set Screw	SLH																											
M3 x 3	6																											
M4 x 3	5, 8																											
M5 x 4	6, 10																											
M6 x 5	10																											
M8 x 6	10, 12																											

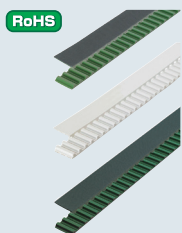


Long Timing Belts

AT5 Type – Polyurethane – No. of Teeth Configurable Joint Machining –

■ **Features:** The belt length is selectable as desired, and suitable for a long span synchronous conveyance.

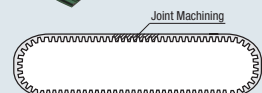
RoHS



LTBJ (Standard)

LTBN (Backside Upholstered)

LTBR (Both Sides Upholstered)



■ Joint Process

The Open-ended Belt can be changed to an endless belt by thermally bonding the ends of the Open-ended Belt. Core wires of the joint part are not connected.

■ Feature of Cloth Lined Belts

Backside Cloth Lined: Reduces friction coefficient of conveyed items and is suitable for accumulation conveyance.

Both Sides Cloth Lined: Reduces friction coefficient of conveyed materials and Pulleys and cut noise.

Type		Material		
		(1) Body	(2) Core Wire	(3) Cloth
LTBJ	Standard	Polyurethane (for Joint Process)	Steel Cord	—
LTBN	Backside Upholstered			Nylon Cloth
LTBR	Both Sides Upholstered			

⚠ Operating Temperature: -20 ~ 70°C

Type of Belt	Pitch	2θ (°)	H	h	i	L	Unit Mass g/m (Width: 10mm)		
							Standard	Backside Upholstered	Both Sides Upholstered
AT5	5	50°	2.7	1.2	1.5	2.5	32.0	—	—

Part Number			No. of Teeth	Belt Width (mm)	Allowable Tension (N)
Type	Type of Belt	Belt Nominal Width			
LTBJ (Standard)	AT5	100	140~2000	10	37
LTBN (Backside Upholstered)		150		15	55
LTBR (Both Sides Upholstered)		150		15	55

⚠ Full Length: Number of Teeth x Pitch. ⚠ Kgf=Nx0.101972



Part Number			Teeth
Type	Belt No.	Belt Nominal Width	
LTBJ	AT5	150	800
LTBR	H	200	300

■ Comparison of Friction Coefficient (Reference Value)

Belt Type	Tooth Surface		Back Surface	
	Cloth Lined Type	Standard Type	Cloth Lined Type	Standard Type
Steel	0.34	0.65	0.29	0.75
Stainless Steel	0.22	0.68	0.17	0.69
Aluminum	0.19	0.42	0.15	0.50
Ultra High-Molecular-Weight Polyethylene	0.18	0.31	0.17	0.32
Teflon	0.12	0.21	0.12	0.28

*Figures in the chart are examples of actual measurement, not standard values.



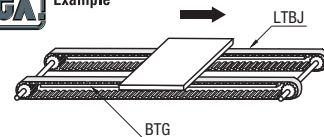
Days to Ship

8 Days

⚠ Non-Returnable
⚠ For larger quantity orders "Days to Ship" may differ from published catalog term.



Example



Open End Belts

AT5 Type – Polyurethane, Chloroprene Rubber –

RoHS



TTBO

Type	Material	
	Main Body	Core Wire
TTBO	Polyurethane (White)	Steel Cord

⚠ Operating Temperature: -20 ~ 80°C

Type of Belt	Pitch	2θ (°)	H	h	i	L	Unit Mass g/m (Width: 10mm)	
							Chloroprene Rubber	Polyurethane
AT5	5	50°	2.7	1.2	1.5	2.5	—	32.0

Part Number			No. of Teeth	Belt Width (mm)	Allowable Tension (N)		Applicable Metal Joint
Type	Type of Belt	Belt Nominal Width			Chloroprene Rubber	Polyurethane	
TTBO (Polyurethane)	AT5	100	40~4000	10	—	147	TBCK-AT5100
		150		15	—	221	TBCK-AT5150

⚠ Full Length: Number of Teeth x Pitch. ⚠ Kgf=Nx0.101972



Ordering Example

Part Number			Teeth
Type	Belt No.	Belt Nominal Width	
TBO	H	100	1100
HTBOG	S5M	100	500
TTBO	AT5	150	1200



Days to Ship

6 Days

⚠ Non-Returnable
⚠ For larger quantity orders "Days to Ship" may differ from published catalog term.

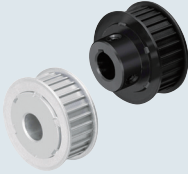


Timing Pulleys

AT10 Type

■ **Features:** AT type for heavy conveyance with allowable tension 1.3 times greater than T type.

RoHS



Part Number			Material		Surface Treatment
Belt Width 15 mm	Belt Width 20 mm	Belt Width 25 mm			
A: 16.5 W: 22.5 L: 38(40) ①	A: 21.5 W: 27.5 L: 43(45) ①	A: 26.5 W: 32.5 L: 48(50) ①	2017 Aluminum Alloy (Duralumin)	5052 Aluminum Alloy	Clear Anodize Black Anodize Hard Clear Anodize* Electroless Nickel Plating
TTPA _-AT10150	TTPA _-AT10200	TTPA _-AT10250			
TTPB _-AT10150	TTPB _-AT10200	TTPB _-AT10250			
TTPK _-AT10150	TTPK _-AT10200	TTPK _-AT10250			
TTPN _-AT10150	TTPN _-AT10200	TTPN _-AT10250			

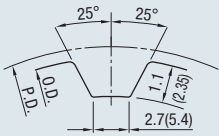
① Flanges are installed. Set screws are included with P, N & C bore hole specification.

② L dimension varies depending on the number of teeth. Refer to the Specification Table..

*Hard Anodize Treatment: Film Hardness 300HV~

*I=8 (No. of Teeth 14~48)

Standard Tooth Profile

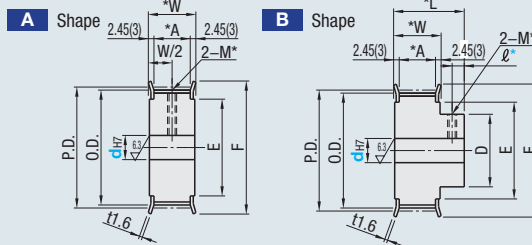


Tooth groove dimensions slightly change according to No. of teeth.

(AT5 Pitch:5.0mm/AT10 Pitch:10.0mm)

③ The dimensions with () in the diagram are applied for AT10.

Pulley Shape



Tapped Hole Dimensions (Shaft Bore: P / N / C)

d _{H7} Shaft Bore Inner Dia.	M (Coarse)	Accessory Set Screw
5	M3	M3 x 3
6~12	M4	M4 x 3
13~17	M5	M5 x 4
18~30	M6	M6 x 5
31~45	M8	M8 x 6
46~65	M10	M10 x 8

*For Shaft Bore Specifications H (Round Hole), V and F (Stepped Hole) and Y (Both Sides Stepped Hole), no tapped hole is machined.

Shaft Bore Specs.

④ The shaft bore may not have surface treatment.

H Round Hole

P Round Hole+Tap

N New JIS Keywayed Bore + Tap

NU Inch New JIS Key Groove Hole + Tap

C Old JIS Keywayed Bore + Tap

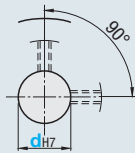
V Stepped Hole

F Stepped Hole
(counterbored holes on the hub side)

Y Both Ends Stepped Hole

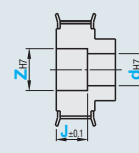
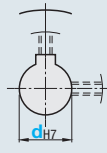


*No tapped holes and set screws.

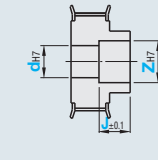


*For A Shape pulley, the set screw hole is set at around 120° to keep away from peaks.

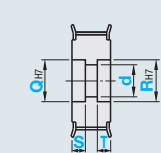
*For A Shape the set screws are placed at around 90° to keep away from the tooth peaks.



*No tapped holes and set screws.



*Applicable to B Shape only.
*No tapped holes and set screws.



*Applicable to A Shape only.
*Shaft Bore Dia. D is general tolerance.
*No tapped holes and set screws.

Part Number			Pulley Shape	Shaft Bore Specs	Shaft Bore Spec. (1mm Increment)																		P.D.	O.D.	D	F	E	ℓ
Type	Teeth	Type Nominal Width			H	P	N / C				HU	PU	NU	V / F				Y										
					d _{H7}								d _{H7}	Z _{H7}	J		d	Q _{H7} / R _{H7}	S / T									
					A	B	A	B	A	B	A	B	A	B	A	B	A	B	(0.1mm Increment)	A / B	A	A						
(2017 Aluminum Alloy) TTPA TTPB TTPK TTPN	14	AT10150 *A :16.5 *W :22.5 *L :.38 (No. of Teeth 30~L:40)	H	10~27	10~30	10~26	10~24	10~26	10~18	F-K	F-K	F-K	F-H	F-K	F-H	10~25	10~27	12~27	12~30	10~25	12~27	44.56	42.70	34	52	36	8	
	15			10~28	10~31	10~26	10~25	10~26	10~20	F-K	F-K	F-K	F-J	F-K	F-H	10~26	10~29	12~28	12~31	10~26	12~28	47.75	45.90	35	58	40	8	
	16			12~32	12~31	12~30	12~25	12~30	12~25	F-L	F-L	F-K	F-K	F-K	F-H	12~30	12~29	14~32	14~31	12~30	14~32	50.93	49.05	35	58	40	8	
	18			12~37	12~31	12~30	12~25	12~30	12~20	F-M	F-M	F-K	F-K	F-K	F-J	12~35	12~29	14~37	14~31	12~35	14~37	57.30	55.45	35	61	45	8	
	20			12~42	12~36	12~40	12~30	12~40	12~25	F-P	F-P	F-M	F-M	F-M	F-K	12~40	12~34	14~42	14~36	12~40	14~42	63.66	61.80	40	67	50	8	
	22			12~52	12~36	12~48	12~30	12~48	12~25	F-S	F-S	F-R	F-M	F-R	F-L	12~50	12~34	14~52	14~36	12~50	14~52	70.03	68.15	40	80	60	8	
	24	AT10200 *A :21.5 *W :27.5 *L :.43 (No. of Teeth 30~L:45)	PU	12~59	12~46	12~50	12~38	12~50	12~32	F-S	F-S	F-R	F-Q	F-R	F-M	12~57	12~44	14~59	14~46	12~57	14~59	76.39	74.55	50	87	67	8	
	25	12~59		12~46	12~50	12~38	12~50	12~32	F-S	F-S	F-R	F-R	F-R	F-P	12~57	12~44	14~59	14~46	12~57	14~59	79.58	77.70	50	87	67	8		
	26	12~59		12~46	12~50	12~38	12~50	12~32	F-S	F-S	F-R	F-R	F-R	F-P	12~57	12~44	14~59	14~46	12~57	14~59	82.76	80.90	50	87	67	8		
	28	12~67		12~55	12~57	12~45	12~50	12~40	F-S	F-S	F-S	F-S	F-R	F-R	12~65	12~53	14~67	14~55	12~65	14~67	89.13	87.25	60	95	75	8		
	30	12~76		12~55	12~65	12~45	12~50	12~40	F-S	F-S	F-S	F-S	F-R	F-R	12~74	12~53	14~76	14~55	12~74	14~76	95.49	93.65	60	104	84	8		
	32	AT10250 *A :26.5 *W :32.5 *L :.48 (No. of Teeth 30~L:50)		V	20~80	20~55	20~65	20~45	20~50	20~40	J-S	J-S	J-S	J-S	J-R	J-R	20~80	20~53	22~82	20~55	20~75	22~82	101.86	100.00	60	111	90	8
	36	20~80	20~55		20~65	20~45	20~50	20~40	J-S	J-S	J-S	J-S	J-R	J-R	20~80	20~53	22~94	20~55	20~75	22~94	114.59	112.75	60	123	102	8		
	40	20~80	20~55		20~65	20~45	20~50	20~40	J-S	J-S	J-S	J-S	J-R	J-R	20~80	20~53	22~95	20~55	20~75	22~95	127.32	125.45	60	135	115	8		
	44	20~80	20~55		20~65	20~45	20~50	20~40	J-S	J-S	J-S	J-S	J-R	J-R	20~80	20~53	22~95	20~55	20~75	22~95	140.06	138.20	60	152	130	8		
	48	20~80	20~55	20~65	20~45	20~50	20~40	J-S	J-S	J-S	J-S	J-R	J-R	20~80	20~53	22~95	20~55	20~75	22~95	152.79	150.95	60	160	140	8			

① For inch hole dimensions detail information refer to next page. ② Shaft Bore Dia. 9 is not available for Shaft Bore specification N. ③ Z-d≥2 for shaft bore specification V and F. ④ Q(R)-d≥2 for shaft bore specification Y.

⑤ Shaft Bore Dia. 8, 9, 11, 13, 14, 17, 21 ~ 50 are not available for Shaft Bore specification C. ⑥ Shaft Bore Dia. 6.35 is selectable for Shaft Bore specifications H, P, V and F. (*AT5 only.) ⑦ Select NK10 when New JIS Keywayed Bore + Tap with shaft bore diameter of 10 and keyway width 4.0mm (height 1.8mm) is requested.



Timing Pulleys

AT10 Type



Ordering Example

Part Number																	
Material Type	Tooth No.	Belt Type	Belt Width														
HTPA	48	Y6	040														
	Part Number	-	Pulley Shape	-	Shaft Bore Spec. / Inner Dia.	-	Z	-	J	-	Q	-	R	-	S	-	T
(Shaft Bore : H / P / N / C)	TTPA30-AT5150	-	A	-	NK10												
(Shaft Bore : V / F)	TTPA50-AT5150	-	B	-	F20		- Z30	-	J20.0								
(Shaft Bore: Y)	TTPA24-AT10250	-	A	-	Y25						- Q37	-	R37	-	S7	-	T7

Conveying	•
Positioning	•
Power Transmission	—
High Speed	•

Inch Hole Specifications

No.	Nominal	Dimension (mm)
A	1/8	3.175
B	3/16	4.763
C	1/4	6.350
D	5/16	7.938
E	3/8	9.525
F	1/2	12.700
G	5/8	15.875
H	3/4	19.050
J	7/8	22.225
K	1	25.400



Days to Ship

TTPA

4 Days

ⓘ Non-Returnable

TTPB / TTPK / TTPN

7 Days

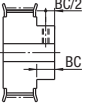

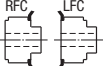

ⓘ Non-Returnable



Alterations

Part Number	Pulley Shape	Shaft Bore Spec. / Inner Dia.	Z	J	Q	R	S	T	(KC120 / QSC / QFC / QTC / KSC / KFC / KTC / BC / NFC / RFC / LFC / FC / TPC / SLH)
TTPA18-AT5100	A	P10							NFC

Alterations	Set Screw Angle	Side Tapped Hole	Side Through Hole
Code	KC90	QSC / QFC / QTC	KSC / KFC / KTC
Spec.	<p>Changes an angle of set screw to 90°.</p> <p>ⓘ For A shape pulley, the set screw hole is set at around 90° to keep away from peaks.</p>	<p>Machines tapped hole on the side surface of hub side. (QSC, QFC, QTC: 1mm Increment)</p> <p>ⓘ Thickness required: minimum 2mm</p> <p>A Shape: $d+M+4 \leq QSC(QFC / QTC) \leq E-(M+4)$</p> <p>B Shape: $d+M+4 \leq QSC(QFC / QTC) \leq D-(M+4)$</p> <p>ⓘ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>ⓘ Specify KC90 when selecting QFC for Shaft Bore specifications P, N and C.</p> <p>ⓘ The pilot hole for tapping may go through.</p> <p>⊗ Not applicable to Shaft Bore Specifications F or Y.</p> <p>⊗ When the Shaft Bore Specifications are P, N or C, QSC is not applicable.</p> <p>M Selection M3, M4, M5, M6, M8</p> <p>Ordering Code QFC28-M4</p>	<p>Machines through hole on the side surface of hub side. (KSC, KFC, KTC: 1mm Increment)</p> <p>ⓘ Thickness required: minimum 2mm</p> <p>A Shape: $d+K+4 \leq KSC(KFC / KTC) \leq E-(K+4)$</p> <p>B Shape: $d+K+4 \leq KSC(KFC / KTC) \leq D-(K+4)$</p> <p>ⓘ $d=Z$ when the Shaft Bore Specifications is V.</p> <p>ⓘ Specify KC90 when selecting KFC for Shaft Bore Specifications P, N and C.</p> <p>⊗ Not applicable to Shaft Bore Specifications F or Y.</p> <p>⊗ When the Shaft Bore Specifications are P, N or C, KSC is not applicable.</p> <p>K (Through Hole Dia.) Selection K4.0~K13.0 (0.5mm Increment)</p> <p>Ordering Code KSC20-K5</p>

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Tapped Hole Dimensions	Set Screw Length																						
Code	BC	NFC	RFC / LFC	FC	TPC	SLH																						
Spec.	<p>Cuts the hub length in 0.5mm increment.</p> <p>① Shaft Bore specification: H, V, F: 3≤BC≤L-W</p> <p>① Shaft Bore specification: P, N, C: M+3≤BC≤L-W</p> <div></div> <p>Ordering Code BC6.5</p> <p>① Clear anodized products may not have surface treatment on the embossed plane.</p> <p>⊗ Not applicable for A Shape.</p>	<p>Flange is not installed. (Flange included)</p> <div></div>	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p> <p>① Same on A Shape</p> <div></div>	<p>Lowers flange by cutting.</p> <p>FC: 0.5mm Increment</p> <p>① No surface treatment applied on flange circumference.</p> <div></div> <p>① FC≥(O.D.)+2</p> <p>① FC≤F-2</p> <p>Ordering Code FC45</p>	<p>Changes the tapped hole dimension.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><tr><th>M</th><th>TPC</th></tr><tr><td>M4</td><td>M5</td></tr><tr><td>M5</td><td>M4 / M6</td></tr><tr><td>M6</td><td>M5 / M8</td></tr><tr><td>M8</td><td>M6</td></tr></table> <p>Ordering Code TPC5</p>	M	TPC	M4	M5	M5	M4 / M6	M6	M5 / M8	M8	M6	<p>Changes the length of the included set screws.</p> <p>① Applicable to Shaft Bore specification P, N, C only.</p> <table><tr><th>Set Screw</th><th>SLH</th></tr><tr><td>M3 x 3</td><td>6</td></tr><tr><td>M4 x 3</td><td>5, 8</td></tr><tr><td>M5 x 4</td><td>6, 10</td></tr><tr><td>M6 x 5</td><td>10</td></tr><tr><td>M8 x 6</td><td>10, 12</td></tr></table> <p>Ordering Code SLH10</p>	Set Screw	SLH	M3 x 3	6	M4 x 3	5, 8	M5 x 4	6, 10	M6 x 5	10	M8 x 6	10, 12
	M	TPC																										
	M4	M5																										
M5	M4 / M6																											
M6	M5 / M8																											
M8	M6																											
Set Screw	SLH																											
M3 x 3	6																											
M4 x 3	5, 8																											
M5 x 4	6, 10																											
M6 x 5	10																											
M8 x 6	10, 12																											



Long Timing Belts

AT10 Type – Polyurethane – No. of Teeth Configurable Joint Machining –

■ **Features:** The belt length is selectable as desired, and suitable for a long span synchronous conveyance.

RoHS

LTBJ (Standard)

LTBN (Backside Upholstered)

LTBR (Both Sides Upholstered)

■ **Joint Process**
The Open-ended Belt can be changed to an endless belt by thermally bonding the ends of the Open-ended Belt. Core wires of the joint part are not connected.

■ **Feature of Cloth Lined Belts**
Backside Cloth Lined: Reduces friction coefficient of conveyed items and is suitable for accumulation conveyance.
Both Sides Cloth Lined: Reduces friction coefficient of conveyed materials and Pulleys and cut noise.

Type	Material		
	(1) Body	(2) Core Wire	(3) Cloth
LTBJ Standard	Polyurethane (for Joint Process)	Steel Cord	—
LTBN Backside Upholstered			Nylon Cloth
LTBR Both Sides Upholstered			

① Operating Temperature: -20 ~ 70°C

Type of Belt	Pitch	2θ (°)	H	h	i	L	Unit Mass g/m (Width: 10mm)		
							Standard	Backside Upholstered	Both Sides Upholstered
AT10	10	50°	4.5	2.5	2.0	5.0	58.6	—	—

Part Number			No. of Teeth	Belt Width (mm)	Allowable Tension (N)
Type	Type of Belt	Belt Nominal Width			
LTBJ (Standard)	AT10	150	70~1000	15	117
LTBN (Backside Upholstered)		200		20	156
LTBR (Both Sides Upholstered)		250		25	195

① Full Length: Number of Teeth x Pitch. ② Kg=Nx0.101972



Ordering Example

Part Number			—	Teeth
Type	—	Belt No.		
LTBJ	—	AT5	—	800
LTBR	—	H	—	300

■ Comparison of Friction Coefficient (Reference Value)

Belt Type	Tooth Surface		Back Surface	
	Cloth Lined Type	Standard Type	Cloth Lined Type	Standard Type
Steel	0.34	0.65	0.29	0.75
Stainless Steel	0.22	0.68	0.17	0.69
Aluminum	0.19	0.42	0.15	0.50
Ultra High-Molecular-Weight Polyethylene	0.18	0.31	0.17	0.32
Teflon	0.12	0.21	0.12	0.28

*Figures in the chart are examples of actual measurement, not standard values.

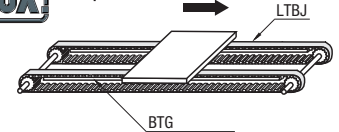


Days to Ship

8 Days



Example



- ① Non-Returnable
- ② For larger quantity orders "Days to Ship" may differ from published catalog term.

Open End Belts

AT10 Type – Polyurethane, Chloroprene Rubber –

RoHS

TTBO

■ **Material**
TTBO Polyurethane (White) Steel Cord

① Operating Temperature: -20 ~ 80°C

Type of Belt	Pitch	2θ (°)	H	h	i	L	Unit Mass g/m (Width: 10mm)	
							Chloroprene Rubber	Polyurethane
AT10	10	50°	4.5	2.5	2.0	5	—	58.6

Part Number			No. of Teeth	Belt Width (mm)	Allowable Tension (N)		Applicable Metal Joint
Type	Type of Belt	Belt Nominal Width			Chloroprene Rubber	Polyurethane	
TTBO (Polyurethane)	AT10	150	40~2000	15	—	469	TBCK-AT10150
		200		20	—	625	TBCK-AT10200
		250		25	—	781	TBCK-AT10250

① Full Length: Number of Teeth x Pitch. ② Kg=Nx0.101972



Ordering Example

Part Number			—	Teeth
Type	—	Belt No.		
TBO	—	H	100	1100
HTBOG	—	S5M	100	500
TTBO	—	AT5	150	1200



Days to Ship

6 Days

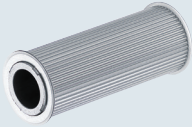
- ① Non-Returnable
- ② For larger quantity orders "Days to Ship" may differ from published catalog term.



Timing Pulleys

Width Configurable Type MXL, XL, S2M, S3M, S5M Type

RoHS

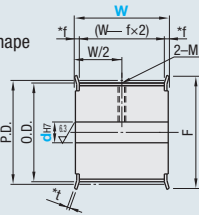


FTP_ MXL
XL
S2M
S3M
S5M

*MXL, S2M, S3M: f=2.0 t=1.0
XL, S5M : f=2.5 t=1.6

Pulley Shape

A Shape



Shaft Bore Specs.

The shaft bore may not have surface treatment.

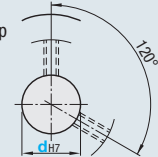
H Round Hole

*No tapped holes and set screws.



P Round Hole+Tap

*The set screw holes are placed at around 120° in order to avoid peaks.



Tapped Hole Dimensions

M (Coarse)	Accessory Set Screw	(d _{H7} Shaft Bore Inner Dia.)				
		MXL	XL	S2M	S3M	S5M
M3	M3 x 3	3~5	—	3~5	4~5	—
M4	M4 x 3	6~18	6~12	6~22	6~17	6~12
M5	M5 x 4	19~20	13~17	—	18~32	13~17
M6	M6 x 5	—	18~30	—	—	18~30
M8	M8 x 6	—	31~47	—	—	31~38

Type	Material		Surface Treatment
	Pulley	Flange	
FTP	2017 Aluminum Alloy	5052 Aluminum Alloy	Clear Anodize



Ordering Example

Part Number	—	Pulley Shape	—	W	—	Shaft Bore Spec. / Inner Dia.
FTP20S5M	—	A	—	W80	—	P16



Days to Ship

8 Days

Non-Returnable



Alterations

Part Number	—	Pulley Shape	—	W	—	Shaft Bore Spec. / Inner Dia.	—	(KC90 / NFC / RFC / FC / WMC)
FTP20S5M	—	A	—	W80	—	P16	—	KC90-WMC40-WA20

Part Number	Teeth	Belt Type	Pulley Shape	W 1mm Increment	Shaft Bore Specs	Shaft Bore Dia. d _{H7} (1mm Increment)	P.D.	O.D.	F
FTP	14	MXL	A	15~100	H	3, 4	9.06	8.55	12
	15					3, 4	9.70	9.19	12
	16					3~5	10.35	9.84	14
	17					3~5	11.00	10.49	14
	18					3~5	11.64	11.14	14
	19					3~5	12.29	11.78	14
	20					4~6	12.94	12.43	18
	21					4~6	13.58	13.07	18
	22					4~6	14.23	13.72	18
	23					4~7	14.88	14.37	20
	24					4~7	15.52	15.02	20
	25					4~7	16.17	15.66	20
	26			W≤dx5	P	4~8	16.82	16.31	22
	27					4~8	17.46	16.96	22
	28					4~8	18.11	17.60	22
	29					4~10	19.40	18.90	25
	30					4~10	20.70	20.19	25
	31					4~10	21.99	21.48	25
	32					5~12	23.29	22.78	28
	33					5~12	24.58	24.07	28
	34					5~12	25.87	25.36	30
	35					5~12	27.17	26.66	30
	36					5~13	28.46	27.95	32
	37					5~13	29.75	29.24	32
	38					5~15	31.05	30.54	35
	39					5~15	32.34	31.84	35
	40					5~20	38.81	38.30	44
	41					5~20	46.57	46.06	52
FTP	16	XL	A	15~100	H	6~13	25.87	25.36	32
	17					6~15	29.11	28.60	36
	18					6~15	30.72	30.22	36
	19					8~16	32.34	31.83	40
	20					8~20	35.57	35.07	45
	21					8~22	38.81	38.30	45
	22					8~22	40.43	39.92	48
	23					8~23	42.04	41.53	48
	24			W≤dx5	P	8~25	45.28	44.77	55
	25					10~30	48.51	48.00	55
	26					10~30	51.74	51.24	61
	27					10~38	58.21	57.70	67
	28					10~47	64.68	64.17	74
	29								
	30								
	31								
	32								
	33								
	34								
	35								
	36								

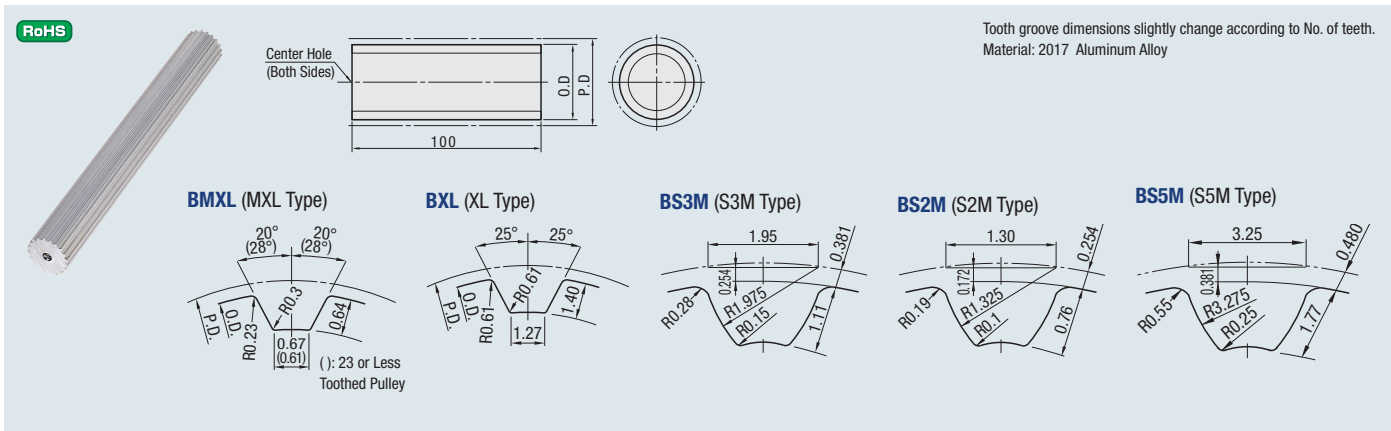
Part Number	Teeth	Belt Type	Pulley Shape	W 1mm Increment	Shaft Bore Specs	Shaft Bore Dia. d _{H7} (1mm Increment)	P.D.	O.D.	F
FTP	14	S2M	A	15~100	H	3, 4	8.91	8.40	12
	15					3, 4	9.55	9.04	12
	16					3~5	10.19	9.68	14
	17					3~5	11.46	10.95	14
	18					3~6	12.73	12.22	16
	19					3~6	14.01	13.50	18
	20					3~7	15.28	14.77	20
	21					3~7	15.92	15.41	20
	22					3~8	16.55	16.04	22
	23			W≤dx5	P	3~8	17.83	17.32	22
	24					3~8	19.01	18.50	22
	25					4~10	20.37	19.86	25
	26					4~10	22.92	22.41	28
	27					4~12	25.46	24.96	30
	28					5~13	28.01	27.50	32
	29					5~15	30.56	30.05	35
	30					5~16	31.83	31.32	35
	31					5~22	38.20	37.69	44
	32					4~6	13.37	12.61	16
	33					4~6	14.32	13.56	18
	34					4~7	15.28	14.52	18
	35					4~8	17.19	16.43	20
	36					4~8	19.10	18.34	22
	37					4~10	21.01	20.25	25
	38					4~10	22.92	22.16	28
	39					4~11	23.87	23.11	28
	40					5~11	24.83	24.07	28
FTP	14	S3M	A	15~100	H	5~13	26.74	25.98	30
	15					6~14	28.65	27.89	32
	16					6~16	30.56	29.80	35
	17					6~18	34.38	33.62	40
	18					8~23	38.20	37.44	44
	19					8~25	42.02	41.25	48
	20					8~25	45.84	45.07	50
	21					8~28	47.75	46.98	52
	22			W≤dx5	P	8~32	57.30	56.53	61
	23					6~10	22.28	21.32	26
	24					7~12	25.46	24.50	32
	25					7~16	31.83	30.87	36
	26					7~20	38.20	37.24	45
	27					7~20	39.79	38.83	45
	28					10~26	47.75	46.79	52
	29					10~28	50.93	49.97	55
	30					10~30	57.30	56.34	61
	31					10~38	63.66	62.70	67

Alterations	Boss Cut	No Flange	Single Flange	Flange Cut	Set Screw Length
Code	BC	NFC	RFC	FC	WMC
Spec.	Changes an angle of set screw to 90°. ⊗ The set screw hole is set at around 90° in order to avoid peaks. 	Flange is not installed. (Flange included) 	RFC LFC 	Low flange by cutting. FC: 0.5mm Increment ⊗ No surface treatment applied on flange circumference. ⊗ FC≥(O.D.)÷2 ⊗ FC≤F-2 [Ordering Code] FC45 	Adds a tapped hole. WMC≥M+3 WA≥M/2+3 WMC+WA≤W-(M/2+3) [Ordering Code] WMC20-WA5 ⊗ Applicable to P hole specifications. ⊗ 4 pieces of set screws are included ⊗ When WA is not specified, WA=(W-WMC)/2.



Timing Pulley Stock

MXL, XL, S2M, S3M, S5M Type



Part Number		P.D.	O.D.
Type	Teeth		
BMXL (MXL Type)	10	6.47	5.96
	11	7.11	6.61
	12	7.76	7.25
	13	8.41	7.90
	14	9.06	8.55
	15	9.70	9.19
	16	10.35	9.84
	17	11.00	10.49
	18	11.64	11.14
	19	12.29	11.78
	20	12.94	12.43
	21	13.58	13.07
	22	14.23	13.72
	23	14.88	14.37
	24	15.52	15.02
	25	16.17	15.66
	26	16.82	16.31
	27	17.46	16.96
	28	18.11	17.60
	30	19.40	18.90
	32	20.70	20.19
	34	21.99	21.48
	36	23.29	22.78
	38	24.58	24.07
	40	25.87	25.36
	42	27.17	26.66
	44	28.46	27.95
	46	29.75	29.24
	48	31.05	30.54
	50	32.34	31.83
	60	38.81	38.30
	72	46.57	46.06

Part Number		P.D.	O.D.
Type	Teeth		
BXL (XL Type)	16	25.87	25.36
	18	29.11	28.60
	19	30.72	30.22
	20	32.34	31.83
	22	35.57	35.07
	24	38.81	38.30
	25	40.43	39.92
	26	42.04	41.53
	28	45.28	44.77
	30	48.51	48.00
	32	51.74	51.24
	36	58.21	57.70
	40	64.68	64.17

Part Number		P.D.	O.D.
Type	Teeth		
BS2M (S2M Type)	14	8.91	8.40
	15	9.55	9.04
	16	10.19	9.68
	18	11.46	10.95
	20	12.73	12.22
	22	14.01	13.50
	24	15.28	14.77
	25	15.92	15.41
	26	16.55	16.04
	28	17.83	17.32
	30	19.10	18.59
	32	20.37	19.86
	36	22.92	22.41
	40	25.46	24.96
	44	28.01	27.50
	48	30.56	30.05
	50	31.83	31.32
	60	38.20	37.69

Part Number		P.D.	O.D.
Type	Teeth		
BS3M (S3M Type)	14	13.37	12.61
	15	14.32	13.56
	16	15.28	14.52
	18	17.19	16.43
	20	19.10	18.34
	22	21.01	20.25
	24	22.92	22.16
	25	23.87	23.11
	26	24.83	24.07
	28	26.74	25.98
	30	28.65	27.89
	32	30.56	29.80
	36	34.38	33.62
	40	38.20	37.44
	44	42.02	41.25
	48	45.84	45.07
	50	47.75	46.98
	60	57.30	56.53

Part Number		P.D.	O.D.
Type	Teeth		
BS5M (S5M Type)	14	22.28	21.32
	16	25.46	24.50
	20	31.83	30.87
	24	38.20	37.24
	25	39.79	38.83
	30	47.75	46.79
	32	50.93	49.97
	36	57.30	56.34
	40	63.66	62.70



Ordering
Example

Part Number
BMXL20



Days
to Ship

5 Days

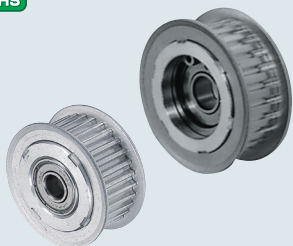
Ⓢ Non-Returnable



Flanged Idlers with Teeth MXL, XL Type

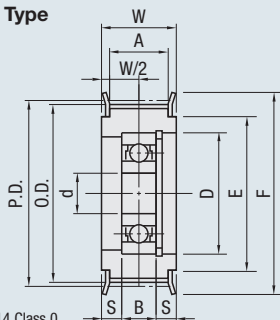
■ The shaft bore specification **Y** for the Timing Pulleys is applicable to the Idlers.

RoHS

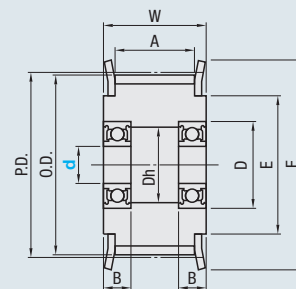


Type		Material			Surface Treatment
Center Bearing	Both Sides Bearing	Main Body	Flange	Bearing	
AATF	AATFW	2017 Aluminum Alloy	5052 Aluminum Alloy	Steel	Clear Anodize
ANTF	—				Electroless Nickel Plating

■ Center Bearing Type



■ Both Sides Bearing Type



*Bearing Accuracy JIS B1514 Class 0
⊕ Bearings are press-fitted.

■ MXL Type (Center Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	S	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AATF	20	MXL019	3	12.94	12.43	18	11	6	10	3	693ZZx1	8	4
	22	MXL019	3	14.23	13.72	18	11	6	10	3	693ZZx1	8	4
	24	MXL019	3	15.52	15.02	20	13	6	10	3	693ZZx1	8	4
	30	MXL019	5	19.40	18.90	25	16	6	10	3	695ZZx1	13	4
	36	MXL019	5	23.29	22.78	28	18	6	10	3	695ZZx1	13	4
	40	MXL019	6	25.87	25.36	30	20	6	10	2.5	696ZZx1	15	5
		MXL025						7.5	11.5	3.25			
		MXL037						11	15	5			
	50	MXL019	8	32.34	31.84	35	25	6	10	2	698ZZx1	19	6
		MXL025						7.5	11.5	2.75			
		MXL037						11	15	4.5			
	60	MXL019	10	38.81	38.30	44	32	6	10	2	6900ZZx1	22	6
		MXL025						7.5	11.5	2.75			
		MXL037						11	15	4.5			

■ MXL Type (Both Sides Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	Dh	Bearing Dimensions		
	Teeth	Applicable belt									No.	D	B
AATFW	16	MXL019	3	10.35	9.84	14	8	6	10	5	673ZZx2	6	2.5
	20	MXL019	3	12.94	12.43	18	11	6	10	5	673ZZx2	6	2.5
	22	MXL025	3	14.23	13.72	18	11	7.5	11.5	5	673ZZx2	6	2.5
		MXL037						11	15				
		MXL050						14	18				
	24	MXL025	4	15.52	15.02	20	13	7.5	11.5	6	674ZZx2	7	2.5
		MXL037						11	15				
		MXL050						14	18				
	30	MXL019	4	19.40	18.90	25	16	6	10	6	674ZZx2	7	2.5
		MXL025						7.5	11.5				
		MXL037						11	15				
	36	MXL025	5	23.29	22.78	28	18	7.5	11.5	11	695ZZx2	13	4
		MXL037						11	15				
		MXL050						14	18				
	40	MXL025	5	25.87	25.36	30	20	7.5	11.5	11	695ZZx2	13	4
		MXL037						11	15				
		MXL050						14	18				
	50	MXL025	5	32.34	31.84	35	25	7.5	11.5	11	695ZZx2	13	4
		MXL037						11	15				
		MXL050						14	18				
	60	MXL025	5	38.81	38.30	44	32	7.5	11.5	11	695ZZx2	13	4
		MXL037						11	15				
		MXL050						14	18				



Flanged Idlers with Teeth

MXL, XL Type

■ XL Type (Center Bearing Type)

Part Number			Shaft Diameter d	P.D.	O.D.	F	E	A	W	S	Bearing Dimensions		
Type	Teeth	Applicable Belt									No.	D	B
AATF ANTF	18	XL025	6	29.11	28.60	36	24	7.5	12.5	3.25	626ZZx1	19	6
		XL031						9	14	4			
		XL037						11	16	5			
	20	XL025	6	32.34	31.83	40	27	7.5	12.5	3.25	626ZZx1	19	6
		XL031						9	14	4			
		XL037						11	16	5			
	22	XL025	8	35.57	35.07	45	30	7.5	12.5	2.25	628ZZx1	24	8
		XL031						9	14	3			
		XL037						11	16	4			
		XL050						14	19	5.5			
	25	XL025	10	40.43	39.92	48	35	7.5	12.5	2.25	6000ZZx1	26	8
		XL031						9	14	3			
		XL037						11	16	4			
		XL050						14	19	5.5			
	28	XL025	10	45.28	44.77	55	40	7.5	12.5	2.25	6000ZZx1	26	8
		XL031						9	14	2.5	6200ZZx1	30	9
		XL037						11	16	3.5	6200ZZx1	30	9
	30	XL025	10	48.51	48.00	55	40	7.5	12.5	2.25	6000ZZx1	26	8
		XL031						9	14	2.5	6200ZZx1	30	9
		XL037						11	16	3.5			
		XL050						14	19	5			
	36	XL025	12	58.21	57.70	67	50	7.5	12.5	2.25	6001ZZx1	28	8
		XL031						9	14	2	6201ZZx1	32	10
		XL037						11	16	3			
		XL050						14	19	4.5			

■ XL Type (Both Sides Bearing Type)

Part Number			Shaft Diameter d	P.D.	O.D.	F	E	A	W	Dh	Bearing Dimensions		
Type	Teeth	Applicable Belt									No.	D	B
AATFW	16	XL025	5	25.87	25.36	32	20	7.5	12.5	11	695ZZx2	13	4
		XL031						9	14				
		XL037						11	16				
		XL050						14	19				
	18	XL037	6	29.11	28.60	36	24	11	16	13	696ZZx2	15	5
		XL050						14	19				
	20	XL037	8	32.34	31.83	40	27	11	16	16.5	698ZZx2	19	6
		XL050						14	19				
	22	XL037	8	35.57	35.07	45	30	11	16	16.5	698ZZx2	19	6
		XL050						14	19				
	25	XL037	10	40.43	39.92	48	35	11	16	19.5	6900ZZx2	22	6
		XL050						14	19				
	28	XL037	10	45.28	44.77	55	40	11	16	19.5	6900ZZx2	22	6
		XL050						14	19				
	30	XL037	10	48.51	48.00	55	40	11	16	19.5	6900ZZx2	22	6
		XL050						14	19				
	36	XL037	10	58.21	57.70	67	50	11	16	19.5	6900ZZx2	22	6
		XL050						14	19				



Ordering Example

Center Bearing Type

Part Number		
Type	Teeth	Applicable Belt
AATF	40	MXL037

Both Sides Bearing Type

Part Number				d
Type	Teeth	Applicable Belt		
AATFW	22	MXL050	-	3



Days to Ship

Center Bearing Type - AATF

5 Days

Ⓢ Non-Returnable

ANTF

7 Days

Ⓢ Non-Returnable

Both Sides Bearing Type - AATFW

4 Days

Ⓢ Non-Returnable



Alterations



Part Number	-	(FC / NFC / LFC / RFC)
AATF25XL037	-	FC43

Alterations	Flange Cut	No Flange	Single Flange
Code	FC	NFC	RFC / LFC
Spec.	<p>Lowers flange by cutting. FC: 0.5mm Increment</p> <p>Ⓢ No surface treatment applied on flange circumference. Ⓢ FC ≥ (O.D.) + 2 Ⓢ FC ≤ F - 2 Ordering Code FC43</p>	<p>Flange is not installed. (Flange included)</p>	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p>



Flanged Idlers with Teeth L, H Type

■ The shaft bore specification **Y** for the Timing Pulleys is applicable to the Idlers.

RoHS

Type		Material		Surface Treatment
Center Bearing	Both Sides Bearing	Main Body	Flange	
AATF	AATFW	7075 Aluminum Alloy	5052 Aluminum Alloy	Steel Clear Anodize Hard Clear Anodize* Black Oxide Electroless Nickel Plating
—	AKTFW			
BATF	BATFW	1045 Carbon Steel	Low Carbon Steel	
MATF	MATFW			

*Hard Anodize Treatment: Film Hardness 300HV~

■ **Center Bearing Type**
<Bearing 1 pc.>

■ **Both Sides Bearing Type**
<Bearing 2 pcs.>

*Bearing Accuracy JIS B1514 Class 0 Ⓢ Bearings are press-fitted.

■ L Type (Center Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	S	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AATF BATF MATF	16	L050	10	48.51	47.75	55	40	14	19	5	6200ZZx1	30	9
		L075						21	26	8.5			
		L100						27	32	6			
	18	L050	12	54.57	53.81	61	45	14	19	4.5	6201ZZx1	32	10
		L075						21	26	8			
		L100						27	32	6			
	20	L050	12	60.64	59.88	67	50	14	19	4.5	6201ZZx1	32	10
		L075						21	26	8			
		L100						27	32	6			
	22	L050	15	66.70	65.94	80	60	14	19	4	6202ZZx1	35	11
		L100	15	90.96	90.20	99	80	14	19	4	6202ZZx1	35	11

■ L Type (Both Sides Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	Dh	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AATFW BATFW MATFW	14	L050	8	42.45	41.68	48	35	14	19	16.5	698ZZx2	19	6
		L075						21	26				
		L100						27	32				
		L150						40	45				
	15	L050	8	45.48	44.72	48	35	14	19	16.5	698ZZx2	19	6
		L075						21	26				
		L100						27	32				
		L150						40	45				
	16	L050	8	48.51	47.75	55	40	14	19	16.5	698ZZx2	19	6
		L075						21	26				
		L100						27	32				
		L150						40	45				
	16	L050	10	48.51	47.75	55	40	14	19	19.5	6900ZZx2	22	6
		L075						21	26				
		L100						27	32				
		L150						40	45				
	18	L050	12	54.57	53.81	61	45	14	19	25	6001ZZx2	28	8
		L075						21	26				
		L100						27	32				
		L150						40	45				
	20	L050	15	60.64	59.88	67	50	21	26	29	6002ZZx2	32	9
		L075						27	32				
		L100						40	45				
		L150						21	26				
	22	L050	15	66.70	65.94	80	60	21	26	29	6002ZZx2	32	9
		L075	15					27	32				
		L100	20					40	45				
		L150	20					27	32				
	30	L050	12	90.96	90.20	99	80	14	19	22	6901ZZx2	24	6
		L075	15					21	26				
		L100	20					27	32				
		L150	20					40	45				



Flanged Idlers with Teeth

L, H Type

■ H Type (Center Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	S	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AATF BATF MATF	14	H075	12	56.60	55.22	61	45	21	26	3	6201ZZx2	32	10
		H100						27	32	6			
		H150						40	45	11.5			
		H200						54	59	18.5			
	16	H075	12	64.68	63.31	70	56	21	26	3	6201ZZx2	32	10
		H100						27	32	6			
		H150						40	45	11.5			
		H200						54	59	18.5			
	18	H075	15	72.77	71.39	80	60	21	26	4	6002ZZx2	32	9
	20	H075	15	80.85	79.48	87	67	21	26	4	6002ZZx2	32	9
	22	H075	15	88.94	87.56	95	75	21	26	4	6002ZZx2	32	9
	24	H075	15	97.02	95.65	104	84	21	26	4	6002ZZx2	32	9
	25	H075	15	101.06	99.69	111	90	21	26	4	6002ZZx2	32	9
	28	H075	15	113.19	111.82	123	102	21	26	4	6002ZZx2	32	9

■ H Type (Both Sides Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	Dh	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AATFW AKTFW BATFW MATFW	14	H075	12	56.60	55.22	61	45	21	26	27	6201ZZx2	32	10
		H100						27	32	30			
		H150						40	45	30			
		H200						54	59	30			
	15	H075	12	60.64	59.27	67	50	21	26	27	6201ZZx2	32	10
		H100						27	32	30			
		H150						40	45	30			
		H200						54	59	30			
	16	H075	12	64.68	63.31	70	56	21	26	27	6201ZZx2	32	10
		H100						27	32	25			
		H150						40	45	27			
		H200						54	59	27			
	16	H100	15	64.68	63.31	70	56	27	32	29	6002ZZx2	32	9
		H150						40	45	30			
		H200						54	59	30			
		H200						54	59	30			
	18	H100	20	72.77	71.39	80	60	27	32	37	6004ZZx2	42	12
		H150						40	45	41			
		H200						54	59	41			
		H200						54	59	41			
	20	H100	20	80.85	79.48	87	67	27	32	37	6004ZZx2	42	12
		H150						40	45	41			
		H200						54	59	41			
		H200						54	59	41			
	22	H100	20	88.94	87.56	95	75	27	32	37	6004ZZx2	42	12
		H150						40	45	41			
		H200						54	59	41			
		H200						54	59	41			
	24	H100	25	97.02	95.65	104	84	27	32	42	6005ZZx2	47	12
		H150						40	45	46			
		H200						54	59	46			
		H200						54	59	46			
	25	H100	25	101.06	99.69	111	90	27	32	42	6005ZZx2	47	12
		H150						40	45	46			
		H200						54	59	46			
		H200						54	59	46			
	28	H100	25	113.19	111.82	123	102	27	32	42	6005ZZx2	47	12
		H150						40	45	46			
		H200						54	59	46			
		H200						54	59	46			



Ordering Example

Center Bearing Type

Part Number			
Type	Teeth	-	Applicable Belt
AATF	22	-	L050

Both Sides Bearing Type

Part Number					
Type	Teeth	-	Applicable Belt	-	d
BATFW	20	-	L100	-	15



Days to Ship

Center Bearing Type - AATF / BATF / MATF / AATFW / BATFW / MATFW

4 Days

ⓘ Non-Returnable

Both Sides Bearing Type - AKTFW

7 Days

ⓘ Non-Returnable



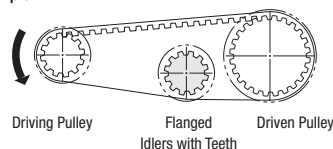
Alterations

Part Number	-	(FC / NFC / LFC / RFC)
AATF20L100	-	FC65

Alterations Code	Flange Cut	No Flange	Single Flange
	FC	NFC	RFC / LFC
Spec.	<p>Lowfers flange by cutting. FC: 0.5mm Increment</p> <p>ⓘ No surface treatment applied on flange circumference. ⓘ FC ≥ (O.D.) + 2 ⓘ FC ≤ F - 2 Ordering Code FC65</p>	<p>Flange is not installed. (Flange included)</p>	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p>



Example



- ⓘ Be sure to use the idler on the loose side.
- ⓘ Install the idler as close as possible to the larger pulley.



Flanged Idlers with Teeth S2M, S3M Type

■ The shaft bore specification **Y** for the Timing Pulleys is applicable to the Idlers.

RoHS

Type		Material		Bearing	Surface Treatment
Center Bearing	Both Sides Bearing	Main Body	Flange		
AHTF	AHTFW	2017 Aluminum Alloy	5052 Aluminum Alloy	Steel	Clear Anodize Hard Clear Anodize*
—	KHTFW				
NHTF	NHTFW	1045 Carbon Steel	Low Carbon Steel	Stainless Steel	Electroless Nickel Plating Electroless Nickel Plating
MHTF	—				
SHTF	SHTFW	304 Stainless Steel			—

*Hard Anodize Treatment: Film Hardness 300HV~

■ **Center Bearing Type**
<Bearing 1 pc.>

■ **Both Sides Bearing Type**
<Bearing 2 pcs.>

*Bearing Accuracy JIS B1514 Class 0 Ⓢ Bearings are press-fitted.

■ S2M Type (Center Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	S	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AHTF MHTF	40	S2M040	5	25.46	24.96	30	20	5	9	2.5	695ZZx1	13	4
		S2M060	6					7	11	3	696ZZx1	15	5
		S2M100						11	15	5			
	48	S2M040	6	30.56	30.05	35	25	5	9	2	696ZZx1	15	5
		S2M060						7	11	3			
	50	S2M040	6	31.83	31.32	35	25	5	9	2	696ZZx1	15	5
		S2M060	8					7	11	2.5	698ZZx1	19	6
	60	S2M040	10	38.20	37.69	44	32	5	9	1.5	6900ZZx1	22	6
		S2M060						7	11	2.5			

■ S3M Type (Both Sides Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	Dh	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AHTFW NHTFW SHTFW	20	S2M040	3	12.73	12.22	16	10	5	9	5	673ZZx2	6	2.5
		S2M060	4					7	11	6	674ZZx2	7	
		S2M100						11	15	6			
	30	S2M040	3	19.01	18.59	22	14	5	9	5	673ZZx2	6	2.5
		S2M060	4					7	11	6	674ZZx2	7	
		S2M100						11	15	6			
	32	S2M040	3	20.37	19.86	25	16	5	9	5	673ZZx2	6	2.5
		S2M060	4					7	11	9.5	694ZZx2	11	4
		S2M100						11	15				
	36	S2M040	4	22.92	22.41	28	18	5	9	6	674ZZx2	7	2.5
		S2M060	5					7	11	11	695ZZx2	13	4
		S2M100						11	15	6	674ZZx2	7	2.5
	40	S2M040	4	25.46	24.96	30	20	5	9	6	674ZZx2	7	2.5
		S2M060	5					7	11	11	695ZZx2	13	4
		S2M100	6					11	15	13	696ZZx2	15	5
	48	S2M100	8	30.56	30.05	35	25	11	15	16.5	698ZZx2	19	6
	50	S2M100	8	31.83	31.32	35	25	11	15	16.5	698ZZx2	19	6
	60	S2M100	8	38.20	37.69	44	32	11	15	16.5	698ZZx2	19	6



Flanged Idlers with Teeth

S2M, S3M Type

■ S3M Type (Center Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	S	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AHTF NHTF SHTF	20	S3M060	5	19.10	18.34	22	14	7	11	3	685ZZx1	11	5
		S3M100						11	15	2.5	685ZZx2		
	24	S3M060	5	22.92	22.16	25	16	7	11	3.5	695ZZx1	13	4
		S3M100						11	15	3.5	695ZZx2		
	25	S3M060	5	23.87	23.11	28	18	7	11	3.5	695ZZx1	13	4
	26	S3M060	6	24.83	24.07	28	18	7	11	3	696ZZx1	15	5
	28	S3M060	6	26.74	25.98	30	20	7	11	3	696ZZx1	15	5
	30	S3M060	6	28.65	27.89	32	23	7	11	3	696ZZx1	15	5
		S3M100						11	15	4.5	626ZZx1		
	32	S3M060	8	30.56	29.80	35	25	7	11	2.5	698ZZx1	19	6
		S3M100						11	15	4.5	698ZZx1		
	36	S3M060	8	34.38	33.62	40	28	7	11	2.5	698ZZx1	19	6
	40	S3M060	10	38.20	37.44	44	32	7	11	2.5	6900ZZx1	22	6
	44	S3M060	10	42.02	41.25	48	36	7	11	2.5	6900ZZx1	22	6
	48	S3M060	10	45.84	45.07	50	38	7	11	2.5	6900ZZx1	22	6
	50	S3M060	10	47.75	46.98	52	40	7	11	2.5	6900ZZx1	22	6
	60	S3M060	10	57.30	56.53	61	46	7	11	2.5	6900ZZx1	22	6

■ S3M Type (Both Sides Bearing Type)

	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	Dh	Bearing Dimensions				
Type	Teeth	Applicable Belt									No.	D	B		
AHTFW KHTFW SHTFW	20	S3M060	3	19.10	18.34	22	14	7	11	5	673ZZx2	6	2.5		
		S3M100	4					11	15	6	674ZZx2	7			
		S3M150	5					17	21	9	685ZZx2	11			
	24	S3M060	5	22.92	22.16	25	16	7	11	11	695ZZx2	13	4		
		S3M100						11	15					11	15
		S3M150						17	21					17	21
	25	S3M100	6	23.87	23.11	28	18	11	15	13	696ZZx2	15	5		
		S3M150						17	21					17	21
	26	S3M100	6	24.83	24.07	28	18	11	15	13	696ZZx2	15	5		
		S3M150						17	21					17	21
	28	S3M100	6	26.74	25.98	30	20	11	15	13	696ZZx2	15	5		
		S3M150						17	21					17	21
	30	S3M100	6	28.65	27.89	32	23	11	15	13	696ZZx2	15	5		
		S3M150						17	21					17	21
	32	S3M100	8	30.56	29.80	35	25	11	15	16.5	698ZZx2	19	6		
		S3M150						17	21					17	21
	36	S3M100	10	34.38	33.62	40	28	11	15	19.5	6900ZZx2	22	6		
		S3M150						17	21					17	21
	40	S3M100	10	38.20	37.44	44	32	11	15	19.5	6900ZZx2	22	6		
		S3M150						17	21					17	21
	44	S3M100	10	42.02	41.25	48	36	11	15	19.5	6900ZZx2	22	6		
		S3M150						17	21					17	21
	48	S3M100	10	45.84	45.07	50	38	11	15	19.5	6900ZZx2	22	6		
		S3M150						17	21					17	21
	50	S3M100	10	47.75	46.98	52	40	11	15	19.5	6900ZZx2	22	6		
		S3M150						17	21					17	21
	60	S3M100	10	57.30	56.53	61	46	11	15	19.5	6900ZZx2	22	6		
		S3M150						17	21					17	21



Ordering
Example

Center Bearing Type

Part Number			
Type	Teeth	-	Applicable Belt
AHTF	40	-	S2M060

Both Sides Bearing Type

Part Number				
Type	Teeth	-	Applicable Belt	d
AHTFW	32	-	S3M100	8



Alterations



Part Number	-	(FC / NFC / RFC / LFC)
AHTF40S2M060	-	FC28

Alterations Code	Flange Cut FC	No Flange NFC	Single Flange RFC / LFC
Spec.	<p>Lowers flange by cutting. FC: 0.5mm Increment</p> <p>Ⓢ No surface treatment applied on flange circumference. Ⓢ FC≥(O.D.)÷2 Ⓢ FC≤F-2</p> <p>Ordering Code FC28</p>	<p>Flange is not installed. (Flange included)</p>	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p>



Days
to Ship

Center Bearing Type - AHTF / MHTF / SHTF

4 Days

Ⓢ Non-Returnable

Both Sides Bearing Type - AHTFW / SHTFW

4 Days

Ⓢ Non-Returnable

NHTF

7 Days

Ⓢ Non-Returnable

KHTFW / NHTFW

7 Days

Ⓢ Non-Returnable



Flanged Idlers with Teeth

S5M, S8M, S14M Type

■ The shaft bore specification **Y** for the Timing Pulleys is applicable to the Idlers.

RoHS

Type		Material			Flange	Bearing	Surface Treatment
Center Bearing	Both Sides Bearing	S5M	S8M	S14M			
AHTF	AHTFW	2017 Aluminum Alloy	7075 Aluminum Alloy	—	5052 Aluminum Alloy	Steel	Clear Anodize Hard Clear Anodize* Black Oxide Electroless Nickel Plating
KHTF	KHTFW				Low Carbon Steel		
BHTF	BHTFW	1045 Carbon Steel			304 Stainless Steel	Stainless Steel	—
MHTF	MHTFW						
SHTF	—						

*Hard Anodize Treatment: Film Hardness 300HV~

■ **Center Bearing Type**
<Bearing 1 pc.>

■ **Both Sides Bearing Type**
<Bearing 2 pcs.>

*Bearing Accuracy JIS B1514 Class 0 Ⓢ Bearings are press-fitted.

■ S5M Type (Center Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	S	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AHTF KHTF BHTF MHTF SHTF	16	S5M100	6	25.46	24.50	32	20	11	16	5	606ZZx1	17	6
	18	S5M100	8	28.65	27.69	33	22	11	16	5	698ZZx1	19	6
	20	S5M100	8	31.83	30.87	36	24	11	16	5	698ZZx1	19	6
		S5M150	8					17	22	5	698ZZx2	19	6
	22	S5M100	8	35.01	34.05	40	27	11	16	4	628ZZx1	24	8
		S5M150	8					17	22	3	628ZZx2	24	8
	24	S5M100	10	38.20	37.24	45	30	11	16	4	6000ZZx1	26	8
		S5M150	10					17	22	3	6000ZZx2	26	8
	25	S5M100	10	39.79	38.83	45	30	11	16	4	6000ZZx1	26	8
		S5M150	10					17	22	3	6000ZZx2	26	8
	26	S5M100	10	41.38	40.42	48	35	11	16	3.5	6200ZZx1	30	9
		S5M150	10					17	22	3.5	6200ZZx1	30	9
	28	S5M100	12	44.56	43.60	48	35	17	22	6.5	6200ZZx1	30	9
		S5M150	12					17	22	6	6201ZZx1	32	10
	30	S5M100	12	47.75	46.79	52	36	17	22	6	6201ZZx1	32	10
		S5M150	12					17	22	3	6000ZZx2	26	8
	32	S5M100	10	50.93	49.97	55	40	17	22	3	6201ZZx1	32	10
		S5M150	12					17	22	3	6201ZZx1	32	10
	36	S5M100	12	57.30	56.34	61	45	17	22	3	6201ZZx1	32	10
		S5M150	12					17	22	3	6201ZZx1	32	10
	40	S5M100	12	63.66	62.70	67	50	11	16	3	6201ZZx1	32	10

■ S5M Type (Both Sides Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	Dh	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AHTFW KHTFW BHTFW MHTFW	16	S5M150	6	25.46	24.50	32	20	17	22	14.5	606ZZx2	17	6
		S5M250	6					27	32				
	18	S5M150	8	28.65	27.69	33	22	17	22	16.5	698ZZx2	19	6
		S5M250	8					27	32				
	20	S5M150	8	31.83	30.87	36	24	17	22	16.5	698ZZx2	19	6
		S5M250	8					27	32				
	22	S5M150	8	35.01	34.05	40	27	17	22	19.5	608ZZx2	22	7
		S5M250	8					27	32				
	24	S5M150	8	38.20	37.24	45	30	17	22	19.5	608ZZx2	22	7
		S5M250	8					27	32				
	25	S5M100	6	39.79	38.83	45	30	11	16	13	696ZZx2	15	5
		S5M150	6					17	22				
		S5M250	6					27	32	14.5	606ZZx2	17	6
	25	S5M100	8	39.79	38.83	45	30	11	16	16.5	698ZZx2	19	6
		S5M150	8					17	22				
		S5M250	8					27	32	19.5	608ZZx2	22	7
	26	S5M150	10	41.38	40.42	48	35	17	22	25	6200ZZx2	30	9
		S5M250	10					27	32				
	28	S5M100	10	44.56	43.60	48	35	11	16	19.5	6900ZZx2	22	6
		S5M150	10					17	22				
		S5M250	10					27	32	25	6200ZZx2	30	9
	30	S5M150	12	47.75	46.79	52	36	17	22	25	6001ZZx2	28	8
		S5M250	12					27	32	27	6201ZZx2	32	10
	32	S5M150	12	50.93	49.97	55	40	17	22	25	6001ZZx2	28	8
		S5M250	12					27	32	27	6201ZZx2	32	10
	36	S5M150	15	57.30	56.34	61	45	17	22	29	6002ZZx2	32	9
		S5M250	15					27	32	30	6202ZZx2	35	11
	40	S5M150	15	63.66	62.70	67	50	17	22	29	6002ZZx2	32	9
		S5M250	15					27	32	30	6202ZZx2	35	11



Flanged Idlers with Teeth

S5M, S8M, S14M Type

■ S8M Type (Center Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	S	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AHTF KHTF BHTF MHTF	20	S8M150	12	50.93	49.56	58	40	17	22	6	6201ZZx1	32	10
	22	S8M250	15	56.02	54.65	61	45	28	33	5.5	6202ZZx2	35	11
		S8M150	12					17	22	6	6201ZZx1	32	10
	24	S8M250	12	61.12	59.74	67	50	28	33	6.5	6201ZZx1	32	10
		S8M300						33	38	8	6201ZZx2		
		S8M400	15					44	49	13.5	6202ZZx2	35	11
	25	S8M150	15	63.66	62.29	70	56	17	22	5.5	6202ZZx1	35	11
	26	S8M150	15	66.21	64.84	74	58	17	22	5.5	6202ZZx1	35	11
	28	S8M150	15	71.30	69.93	80	60	17	22	5.5	6202ZZx1	35	11
		S8M150						17	22	5.5	6202ZZx1		
		S8M250	15					28	33	5.5	6202ZZx2	35	11
		S8M300	20	76.39	75.02	87	67	33	38	5	6204ZZx2	47	14
		S8M400						44	49	10.5			
	32	S8M150	20	81.49	80.12	87	67	17	22	4	6204ZZx1	47	14
	34	S8M150	20	86.58	85.21	95	75	17	22	4	6204ZZx1	47	14
	40	S8M150	25	101.86	100.49	111	90	17	22	3.5	6205ZZx1	52	15

■ S8M Type (Both Sides Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	Dh	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AHTFW KHTFW BHTFW MHTFW	22	S8M250	12	56.02	54.65	61	45	28	33	27	6201ZZx2	32	10
		S8M300						33	38				
		S8M400						44	49				
	24	S8M250	12	61.12	59.74	67	50	28	33	27	6201ZZx2	32	10
		S8M300						33	38				
		S8M400						44	49				
	25	S8M250	12	63.66	62.29	70	56	28	33	27	6201ZZx2	32	10
		S8M300						33	38				
		S8M400						44	49				
	26	S8M150	12	66.21	64.84	74	58	17	22	25	6001ZZx2	28	8
		S8M250						28	33				
		S8M300						33	38	27	6201ZZx2	32	10
		S8M400						44	49				
	28	S8M250	15	71.30	69.93	80	60	28	33	30	6202ZZx2	35	11
		S8M300						33	38				
		S8M400						44	49				
	30	S8M150	15	76.39	75.02	87	67	17	22	29	6002ZZx2	32	9
		S8M250						28	33				
		S8M300						33	38	30	6202ZZx2	35	11
		S8M400						44	49				
	30	S8M250	20	76.39	75.02	87	67	28	33	37	6004ZZx2	42	12
		S8M300						33	38	41	6204ZZx2	47	14
		S8M400						44	49				
	32	S8M250	20	81.49	80.12	87	67	28	33	41	6204ZZx2	47	14
		S8M300						33	38				
		S8M400						44	49				
	34	S8M250	20	86.58	85.21	95	75	28	33	41	6204ZZx2	47	14
		S8M300						33	38				
		S8M400						44	49				
	40	S8M250	25	101.86	100.49	111	90	28	33	43	6005ZZx2	47	12
		S8M300						33	38	47	6205ZZx2	52	15
		S8M400						44	49				

■ S14M Type (Both Sides Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	Dh	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
BHTFW	28	S14M400	30	124.78	121.98	136	101	46	53	57	6206ZZx2	62	16
		S14M600						67	74				
		S14M400	40	124.78	121.98	136	101	46	53	73.5	6208ZZx2	80	18
		S14M600						67	74				



Center Bearing Type

Part Number			
Type	Teeth	-	Applicable Belt
AHTF	30	-	S5M100

Both Sides Bearing Type

Part Number					
Type	Teeth	-	Applicable Belt	-	d
BHTFW	28	-	S14M400	-	30



AHTF / BHTF / MHTF / SHTF

4 Days

Ⓢ Non-Returnable

AHTFW / BHTFW (Except S14M Type) / MHTFW

4 Days

Ⓢ Non-Returnable

KHTF

7 Days

Ⓢ Non-Returnable

BHTFW (S14M) / KHTFW

7 Days

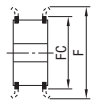
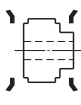
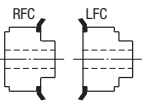
Ⓢ Non-Returnable



Alterations



Part Number	-	(FC / NFC / LFC / RFC)
AHTF28S5M100	-	FC46

Alterations Code	Flange Cut FC	No Flange NFC	Single Flange RFC / LFC
Spec.	Not available for Stainless Steel Type. Lowers flange by cutting. FC: 0.5mm Increment 	Flange is not installed. (Flange included) 	Flange installed on the hub side (RFC) or the opposite side (LFC) only. 
	Ⓢ Not available for Stainless Steel Type. Ⓢ No surface treatment applied on flange circumference. Ⓢ FC≥(O.D.)+2 Ⓢ FC≤F-2 Ordering Code FC46		



Flanged Idlers with Teeth

P2M, P3M, P5M, P8M, 2GT, 3GT, 5GT, 8YU Type

■ The shaft bore specification **Y** for the Timing Pulleys is applicable to the Idlers.

RoHS

Type				Material			Surface Treatment
P2M / P3M / P5M / P8M	2GT / 3GT / 5GT / 8YU	Center Bearing	Both Sides Bearing	Main Body	Flange	Bearing	
APTF	APTFW	AGTF	AGTFW	(*1) 2017 Aluminum Alloy	5052 Aluminum Alloy	Steel	Clear Anodize
—	KPTFW	—	—	(*) 1045 Carbon Steel	Low Carbon Steel	—	Hard Clear Anodize*
BPTF	BPTFW	BGTF	BGTFW				Black Oxide

*Hard Anodize Treatment: Film Hardness 300HV~

■ **Center Bearing Type**

<Bearing 1 pc.>

■ **Both Sides Bearing Type**

<Bearing 2 pcs.>

(*1) Body material of P8M is 7075 Aluminum Alloy.
 (*2) Material of P_M is equivalent in 1035 Carbon Steel.

■ P2M / P3M / P5M / P8M Type (Center Bearing Type)

*E and F dimensions in () are for BPTF.

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	S	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
APTF BPTF	40	P2M060	6	25.46	24.96	32	21.2	7.5	11.5	3.25	696ZZx1	15	5
	30	P3M100	6	28.65	27.89	34	23	12	16	5	626ZZx1	19	6
		P3M150									626ZZx2		
	20	P5M100	8	31.83	30.69	35	25	11.6	16	5	698ZZx1	19	6
		P5M150									698ZZx2		
	28	P5M100	10	44.56	43.42	50 (52)*	38 (37.5)*	11.6	16	3.5	6200ZZx1	30	9
		P5M150									6200ZZx2		
	20	P8M150	12	50.93	49.56	55	40	16.8	22	6	6201ZZx1	32	10
		P8M250									6202ZZx2		
	24	P8M250	12	61.12	59.74	67	50	27.8	33	6.5	6201ZZx2	32	10
		P8M150									6202ZZx1		
	30	P8M250	15	76.39	75.02	83 (82)*	63 (67)*	16.8	22	5.5	6202ZZx2	35	11

■ P5M / P8M Type (Both Sides Bearing Type)

* E and F dimensions in () are for BPTFW.

Part Number			Shaft Diameter d	P.D.	O.D.	F	E	A	W	Dh	Bearing Dimensions		
Type	Teeth	Applicable Belt									No.	D	B
APTFW KPTFW BPTFW	25	P5M100	6	39.79	38.65	44 (45)*	32 (33.5)*	11.6	16	13	696ZZx2	15	5
		P5M150						16.6	21				
		P5M100	8					11.6	16	16.5	698ZZx2	19	6
		P5M150						16.6	21				
	28	P5M100	10	44.56	43.42	50 (52)*	38 (37.5)*	11.6	16	19.5	6900ZZx2	22	6
		P5M150						16.6	21				
	30	P5M150	12	47.75	46.60	55	42.5	16.6	21	24	6001ZZx2	28	8
	36	P5M150	15	57.30	56.15	64	50	16.6	21	28	6002ZZx2	32	9
	26	P8M150	12	66.21	64.84	74 (73)*	58 (56)*	16.8	22	24	6001ZZx2	28	8
		P8M250						27.8	33				
	30	P8M150	15	76.39	75.02	83 (82)*	63 (67)*	16.8	22	28	6002ZZx2	32	9
		P8M250						27.8	33				
		P8M250	20					27.8	33	36	6004ZZx2	42	12



Flanged Idlers with Teeth

P2M, P3M, P5M, P8M, 2GT, 3GT, 5GT, 8YU Type

■ 2GT / 3GT / 5GT / 8YU Type (Center Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	S	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AGTF BGTF	40	GT2060	6	25.46	24.96	30	21	7.0	10.3	3.65	676ZZx1	10	3
		GT2090	6				21	10.0	13.3	5.15	676ZZx1	10	3
	30	GT3060	6	28.65	27.89	32	23	7.3	11.0	3.00	686ZZx1	13	5
		GT3090	6				23	10.3	14.0	4.50	686ZZx1	13	5
	20	GT5090	8	31.83	30.69	35	24	10.3	14.0	5.25	678ZZx1	12	3.5
		GT5120	8				24	13.3	17.0	5.00	678ZZx2	12	3.5
	24	GT5090	10	38.20	37.06	42	30	10.3	14.0	4.50	6800ZZx1	19	5
		GT5120	10				30	13.3	17.0	3.50	6800ZZx2	19	5
	28	GT5090	10	44.56	43.42	48	36	10.3	14.0	4.50	6800ZZx1	19	5
		GT5120	10				36	13.3	17.0	6.00	6800ZZx1	19	5
	30	GT5090	12	47.75	46.61	51	39	10.3	14.0	4.50	6801ZZx1	21	5
		GT5120	12				39	13.3	17.0	6.00	6801ZZx1	21	5
	20	YU8150	20	50.93	49.56	62	40	16.7	23.0	8.00	6804ZZx1	32	7
		YU8200	20				40	21.7	28.0	7.00	6804ZZx2	32	7
	30	YU8150	25	76.39	75.02	85	64	16.7	23.0	8.00	6805ZZx1	37	7
		YU8200	25				64	21.7	28.0	7.00	6805ZZx2	37	7
		YU8250	25				64	26.7	33.0	9.50	6805ZZx2	37	7

① For larger quantity orders "Days to Ship" may differ from published catalog term.

■ 2GT / 3GT / 5GT / 8YU Type (Both Sides Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	Dh	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AGTFW BGTFW	30	GT2040	5	19.10	18.59	24	15	5.0	8.3	7	675ZZx2	8	2.5
		GT2060	5				15	7.0	10.3	7	675ZZx2	8	2.5
		GT2090	5				15	10.0	13.3	7	675ZZx2	8	2.5
	20	GT3090	5	19.10	18.34	23	14	10.3	14.0	7	675ZZx2	8	2.5
		GT3150	5				14	16.3	20.0	7	675ZZx2	8	2.5
		GT3090	6				18	10.3	14.0	9	676ZZx2	10	3
	24	GT3150	6	22.92	22.16	26	18	16.3	20.0	9	676ZZx2	10	3
		GT3090	8				23	10.3	14.0	11	678ZZx2	12	3.5
		GT3150	8				23	16.3	20.0	11	678ZZx2	12	3.5
	30	GT5120	8	31.83	30.69	35	24	13.3	17.0	11	678ZZx2	12	3.5
		GT5150	8				24	16.3	20.0	11	678ZZx2	12	3.5
		GT5120	8				39	13.3	17.0	11	678ZZx2	12	3.5
	30	GT5150	12	47.75	46.61	51	39	16.3	20.0	18.5	6801ZZx2	21	5
		GT5120	12				42	13.3	17.0	18.5	6801ZZx2	21	5
		GT5150	12				42	16.3	20.0	18.5	6801ZZx2	21	5
	36	GT5120	15	57.30	56.16	61	49	13.3	17.0	21.5	6802ZZx2	24	5
		GT5150	15				49	16.3	20.0	21.5	6802ZZx2	24	5
		YU8200	25				64	21.7	28.0	34.5	6805ZZx2	37	7
	30	YU8250	25	76.39	75.02	85	64	26.7	33.0	34.5	6805ZZx2	37	7
		YU8250	25				64	26.7	33.0	34.5	6805ZZx2	37	7

① For larger quantity orders "Days to Ship" may differ from published catalog term.



Ordering
Example

Center Bearing Type

Part Number			
Type	Teeth	-	Applicable Belt
APTF	20	-	P5M100
AGTF	30	-	GT5090

Both Sides Bearing Type

Part Number			
Type	Teeth	-	Applicable Belt
APTFW	25	-	P5M150
AGTFW	20	-	GT3090

① For larger quantity orders "Days to Ship" may differ from published catalog term.



Days
to Ship

APTF / BPTF / APTFW / BPTFW

5 Days

① Non-Returnable

AGTF / BGTF / AGTFW / BGTFW

5 Days

① Non-Returnable

KPTFW

7 Days

① Non-Returnable

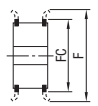
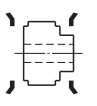
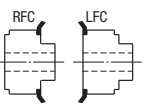


Alterations



Part Number	-	(FC / NFC / LFC / RFC)
APTF30P8M250	-	NFC

① For AGTF, BGTF, AGTFW and BGTFW, alterations of NFC, LFC or RFC applied with \$3.00 each.

Alterations Code	Flange Cut FC	No Flange NFC	Single Flange RFC / LFC
	Not available for Stainless Steel Type. Lowers flange by cutting. FC: 0.5mm Increment  ① Not applicable to all types of P2M, P3M and Steel Type of P5M, P8M. ① No surface treatment applied on flange circumference. ① FC≥(O.D.)+2 ① FC≤F-2 Ordering Code FC35	Flange is not installed. (Flange included) 	Flange installed on the hub side (RFC) or the opposite side (LFC) only. 



Flanged Idlers with Teeth

T5, T10, AT5, AT10 Type

■ The shaft bore specification **Y** for the Timing Pulleys is applicable to the Idlers.

RoHS

Type		Material			Surface Treatment
Center Bearing	Both Sides Bearing	Main Body	Flange	Bearing	
AHTF	AATFW	2017 Aluminum Alloy	5052 Aluminum Alloy	Steel	Clear Anodize
—	KHTFW				Hard Clear Anodize*

*Hard Anodize Treatment: Film Hardness 300HV~

■ **Center Bearing Type**
<Bearing 1 pc.>

■ **Both Sides Bearing Type**
<Bearing 2 pcs.>

*Bearing Accuracy JIS B1514 Class 0 ⓘ Bearings are press-fitted.

■ T5 Type (Center Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	S	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AHTF	18	T5100	8	28.65	27.80	33	22	11	16	5	698ZZx1	19	6
	20	T5100	8	31.83	31.00	36	24	11	16	5	698ZZx1	19	6
		T5150						17	22	5	698ZZx2	19	6
	22	T5100	10	35.01	34.25	40	27	11	16	5	6900ZZx1	22	6
	24	T5100	10	38.20	37.40	45	30	11	16	4	6000ZZx1	26	8
	25	T5100	10	39.79	39.00	45	30	11	16	4	6000ZZx1	26	8
		T5150						17	22	3.5	6200ZZx1	30	9
	30	T5100	12	47.75	46.95	52	36	11	16	6.5	6201ZZx1	32	10
		T5150						17	22	6			

■ T5 Type (Both Sides Bearing Type)

	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	Dh	Bearing Dimensions		
Type	Teeth	Applicable Belt									No.	D	B
AHTFW	18	T5100	6	28.65	27.80	33	22	11	16	13	696ZZx2	15	5
		T5150	8					17	22				
		T5200	8					22	27				
		T5250	8					27	32				
	20	T5100	8	31.83	31.00	36	24	11	16	16.5	698ZZx2	19	6
		T5150	8					17	22				
		T5200	8					22	27				
		T5250	8					27	32				
	22	T5100	10	35.01	34.25	40	27	17	22	19.5	6900ZZx2	22	6
		T5150	10					22	27				
		T5200	10					27	32				
		T5250	10					27	32				
	24	T5100	10	38.20	37.40	45	30	11	16	19.5	6900ZZx2	22	6
		T5150	10					17	22				
		T5200	10					22	27				
		T5250	10					27	32				
	25	T5100	10	39.79	39.00	45	30	17	22	23	6000ZZx2	26	8
		T5150	10					22	27				
		T5200	10					27	32				
		T5250	10					27	32				
	28	T5100	10	44.56	43.75	48	35	17	22	25	6200ZZx2	30	9
		T5150	10					22	27				
		T5200	10					27	32				
		T5250	10					27	32				
	30	T5100	12	47.75	46.95	52	36	17	22	25	6001ZZx2	28	8
		T5150	12					22	27				
		T5200	12					27	32				
		T5250	12					27	32				

■ T10 Type (Center Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	S	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AHTF	16	T10150	12	50.93	49.05	58	40	17	22	6	6201ZZx1	32	10
		T10250	15					27	32	5	6202ZZx2	35	11
	18	T10150	12	57.30	55.45	61	45	17	22	6	6201ZZx1	32	10
		T10150						17	22	6			
	20	T10250	15	63.66	61.80	67	50	27	32	5	6202ZZx2	35	11
	22	T10150	15	70.03	68.15	80	60	17	22	5.5	6202ZZx1	35	11
	24	T10150	15	76.39	74.55	87	67	17	22	5.5	6202ZZx1	35	11
	26	T10150	15	82.76	80.90	87	67	17	22	5.5	6202ZZx1	35	11



Flanged Idlers with Teeth

T5, T10, AT5, AT10 Type

■ T10 Type (Both Sides Bearing Type)

Part Number			Shaft Diameter d	P.D.	O.D.	F	E	A	W	Dh	Bearing Dimensions						
Type	Teeth	Applicable Belt									No.	D	B				
AHTFW	16	T10150	12	50.93	49.05	58	40	17	22	25	6001ZZx2	28	8				
		T10200						22	27					27	6201ZZx2	32	10
		T10250						27	32								
		T10300						32	37								
		T10150	15					17	22	29	6002ZZx2	32	9				
		T10200						22	27								
		T10250						27	32								
		T10300						32	37								
	T10400	43	48					30	6202ZZx2	35	11						
	T10500	53	58														
	T10200	22	27									29	6002ZZx2	32	9		
	T10250	27	32													30	6202ZZx2
	T10300	32	37														
	T10200	22	27					29	6002ZZx2	32	9						
	T10250	27	32														
	T10300	32	37									30	6202ZZx2	35	11		
	T10400	43	48														
	T10500	53	58														
	T10200	22	27	37	6004ZZx2	42	12										
	T10250	27	32					41	6204ZZx2	47	14						
	T10300	32	37									37	6004ZZx2	42	12		
	T10200	22	27													41	6204ZZx2
	T10250	27	32	37	6004ZZx2	42	12										
	T10300	32	37					41	6204ZZx2	47	14						
	T10200	22	27									41	6204ZZx2	42	12		
	T10250	27	32													41	6204ZZx2
T10300	32	37															
T10250	27	32															
T10300	32	37															

■ AT5 Type (Center Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	S	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AHTF	20	AT5100	8	31.83	30.60	36	24	11.6	16.5	5.25	698ZZx1	19	6
		AT5150						16.6	21.5	4.75	698ZZx2		
	28	AT5100	10	44.56	43.35	48	35	11.6	16.5	3.75	6200ZZx1	30	9
		AT5150						16.6	21.5	6.25			
	30	AT5100	12	47.75	46.55	55	40	11.6	16.5	3.25	6201ZZx1	32	10
		AT5150						16.6	21.5	5.75			

■ AT5 Type (Both Sides Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	Dh	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AHTFW KHTFW	18	AT5100	6	28.65	27.40	33	22	11.6	16.5	13	696ZZx2	15	5
	20	AT5100	8	31.83	30.60	36	24	11.6	16.5	16.5	698ZZx2	19	6
		AT5150						16.6	21.5				
	24	AT5100	10	38.20	37.00	45	30	11.6	16.5	19.5	6900ZZx2	22	6
	25	AT5150	10	39.79	38.60	45	30	16.6	21.5	23	6000ZZx2	26	8
	30	AT5150	12	47.75	46.55	55	40	16.6	21.5	27	6201ZZx2	32	10

■ AT10 Type (Center Bearing Type)

Type	Part Number		Shaft Diameter d	P.D.	O.D.	F	E	A	W	S	Bearing Dimensions		
	Teeth	Applicable Belt									No.	D	B
AHTF	16	AT10150	12	50.93	49.05	58	40	16.5	22.5	6.25	6201ZZx1	32	10
		AT10250	15					26.5	32.5	5.25	6202ZZx2	35	11
	20	AT10150	12	63.66	61.80	67	50	16.5	22.5	6.25	6201ZZx1	32	10
		AT10250	15					26.5	32.5	5.25	6202ZZx2	35	11
	22	AT10150	15	70.03	68.15	80	60	16.5	22.5	5.75	6202ZZx1	35	11

■ AT10 Type (Both Sides Bearing Type)

Part Number			Shaft Diameter d	P.D.	O.D.	F	E	A	W	Dh	Bearing Dimensions		
Type	Teeth	Applicable Belt									No.	D	B
AHTFW	16	AT10150	12	50.93	49.05	58	40	16.5	22.5	25	6001ZZx2	28	8
		AT10200						21.5	27.5				
		AT10250	15					26.5	32.5	29			
		AT10150						16.5	22.5				
		AT10200						21.5	27.5				
		AT10250						26.5	32.5				
	18	AT10250	15	57.30	55.45	61	45	26.5	32.5	30	6202ZZx2	35	11
	20	AT10200	15	63.66	61.80	67	50	21.5	27.5	29	6002ZZx2	32	9
		AT10250						26.5	32.5	30	6202ZZx2	35	11
	26	AT10250	20	82.76	80.90	87	67	26.5	32.5	41	6204ZZx2	47	14



Center Bearing Type

Part Number			
Type	Teeth	Applicable Belt	
AHTF	25	T5100	

Both Sides Bearing Type

Part Number			
Type	Teeth	Applicable Belt	d
AHTFW	24	T5200	10



AHTF

5 Days

Ⓢ Non-Returnable

AHTFW

5 Days

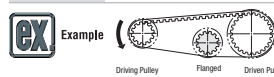
Ⓢ Non-Returnable

KHTFW

7 Days

Ⓢ Non-Returnable

Alterations	Flange Cut	No Flange	Single Flange
Code	FC	NFC	RFC / LFC
Spec.	<p>Lowers flange by cutting. FC: 0.5mm Increment</p> <p>Ⓢ No surface treatment applied on flange circumference.</p> <p>Ⓢ FC ≥ (O.D.) + 2</p> <p>Ⓢ FC ≤ F - 2</p> <p>Ordering Code FC35</p>	<p>Flange is not installed. (Flange included)</p>	<p>Flange installed on the hub side (RFC) or the opposite side (LFC) only.</p>



- Ⓢ Be sure to use the idler on the loose side.
- Ⓢ Install the idler as close as possible to the larger pulley.



Part Number	(FC / NFC / LFC / RFC)
AHTF30T5150	NFC



Idlers

Backside Tension Type

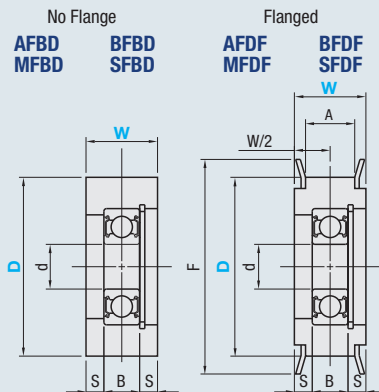
RoHS



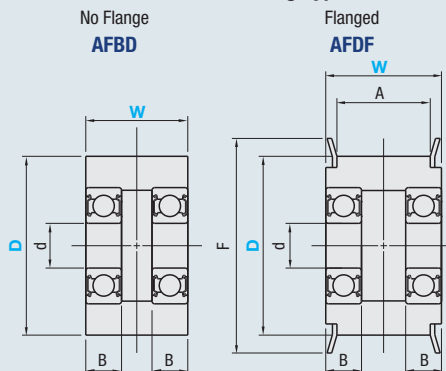
Type		Material		Bearing	Surface Treatment
No Flange	Flanged	Main Body	Flange		
AFBD	AFDF	2017 Aluminum Alloy	5052 Aluminum Alloy	Steel	Clear Anodize
BFBD	BFDF	1045 Carbon Steel	Low Carbon Steel		Black Oxide
MFBD	MFDF	304 Stainless Steel	304 Stainless Steel	Stainless Steel	Electroless Nickel Plating
SFBD	SFDF				—

*Hard Anodize Treatment: Film Hardness 300HV~

Center Bearing Type



Both Sides Bearing Type



*Bearing Accuracy JIS B1514 Class 0 Bearings are press-fitted.

Center Bearing Type

Part Number		D	F	A	Applicable Belt Nominal Width		S	Bearing Dimensions			Retaining Ring	
Type	W				Inch	mm		No.	d	B	AFBD / MFBD / SFBD / AFDF / MFDF / SFDF	BFBD / BFDF
No Flange	9	20	25	5	—	040	2.5	695ZZ	5	4	RTWS13	RTWN13
	10	25	30	6	019	—	2.5	696ZZ	6	5	RTWS15	RTWN15
	11	25	30	7	—	060	3.0	696ZZ	6	5	RTWS15	RTWN15
	11.5	25	30	7.5	025	—	3.25	696ZZ	6	5	RTWS15	RTWN15
	14	30	35	9	031	—	4	698ZZ	8	6	RTWS19	RTWN19
	15	30	35	11	037	100	4.5	698ZZ	8	6	RTWS19	RTWN19
Flanged	16	40	48	—	—	—	4	6000ZZ	10	8	RTWS26	RTWN26
	19	30	36	14	050	—	6.5	698ZZ	8	6	RTWS19	RTWN19
	19	35	45	14	—	—	5.5	628ZZ	8	8	RTWS24	RTWN24
	19	45	55	14	—	—	5	6200ZZ	10	9	RTWS30	RTWN30
	22	35	45	17	—	150	7	6000ZZ	10	8	RTWS26	RTWN26
	22	45	55	17	—	—	6.5	6200ZZ	10	9	RTWS30	RTWN30
	26	40	48	21	075	—	9	6000ZZ	10	8	RTWS26	RTWN26
	26	45	55	21	—	—	8.5	6200ZZ	10	9	RTWS30	RTWN30
	26	50	58	21	—	—	8.5	6200ZZ	10	9	RTWS30	RTWN30
	26	50	58	21	—	—	8.5	6200ZZ	10	9	RTWS30	RTWN30

Both Sides Bearing Type

Part Number		Nominal	D	F	A	Applicable Belt Nominal Width		Bearing Dimensions		
Type	W					Inch	mm	No.	d	B
No Flange	9	15	15	18	5	—	040	675ZZx2	5	2.5
	11	20	20	25	7	—	060	675ZZx2	6	3
	11.5	15	15	18	7.5	025	—	675ZZx2	5	2.5
	11.5	20	20	25	7.5	025	—	675ZZx2	6	3
	15	20	20	25	11	037	100	686ZZx2	6	5
	15	25	25	30	11	037	100	688ZZx2	8	5
	19	25	25	32	14	050	—	688ZZx2	8	5
	19	30	30	36	14	050	—	688ZZx2	8	5
	22	25	25	32	17	—	150	688ZZx2	8	5
	22	35	35	45	17	—	150	6000ZZx2	10	8
Flanged	26	40	40	48	21	075	—	6000ZZx2	10	8
	26	45	45	55	21	075	—	6201ZZx2	12	10
	27	60	60	67	22	—	200	—	—	—
	32	45	45	55	27	—	250	—	—	—
	32	65	65	74	27	100	250	6201ZZx2	12	10
	37	55	55	67	32	—	300	—	—	—
	45	60	60	74	32	—	300	—	—	—
	49	70	70	80	40	150	—	—	—	—
	49	60	60	67	44	—	400	6202ZZx2	15	11
	58	60	60	67	53	—	500	—	—	—
	59	70	70	80	54	200	—	—	—	—



Ordering Example



Days to Ship

Center Bearing Type

Part Number	—	D
AFBD9	—	20

Both Sides Bearing Type

Part Number	—	Nominal
AFBD11	—	15

AFBD / AFDF

1 Day

OTHERS

5 Days

Non-Returnable

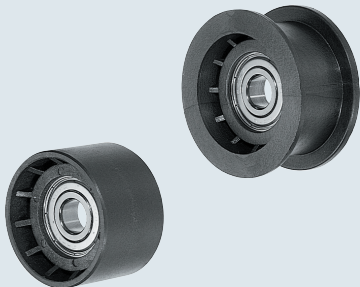


Idlers / Idler Shafts

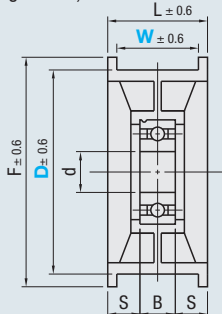
Resin Type

■ Idler Resin Type

RoHS

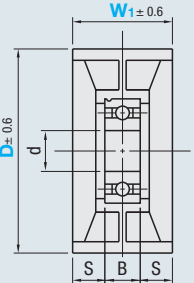


TPBSN
(Flanged Idler)



$L \pm 0.6$
 $W \pm 0.6$
 $F \pm 0.6$
 $D \pm 0.6$
 d
S B S

TPCFN
(Flat Idler)



$W_1 \pm 0.6$
 $D \pm 0.6$
 d
S B S

ⓘ For larger quantity orders "Days to Ship" may differ from published catalog term.

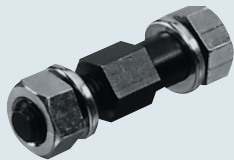
*Bearing Accuracy JIS B1514 Class 0
ⓘ Operating Ambient Temperature: 80°C or Less

Material: Glass Reinforced Nylon (Engineered Plastic)

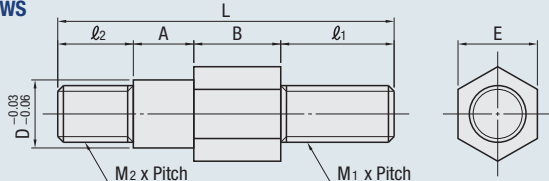
Part Number		TPBSN	TPCFN	F	L	S	Bearing Dimensions			Applicable Idler Shaft
Type	D	W	W ₁				No.	d	B	
TPBSN TPCFN	38	15	18	42	18	4.5	6200ZZ	10	9	WS010S
	40	20	26	48	26	8	6201ZZ	12	10	WS116S / WS122S
	45		25	50	25	7	6202ZZ	15	11	WS216S
	46			52	7.5	6201ZZ	12	10	WS112S / WS116S	
	50	25	31	62	31				10.5	WS116S / WS122S
	60	30	—	66	36				13	6202ZZ
	70	28	—	80	35	12				

■ Idler Shafts

RoHS



WS



$D_{-0.03/-0.06}$
 $M_2 \times \text{Pitch}$
 $M_1 \times \text{Pitch}$
 ℓ_2 A B ℓ_1
E

ⓘ For larger quantity orders "Days to Ship" may differ from published catalog term.

Material: 1045 Carbon Steel
Surface Treatment: Black Oxide
Accessories: Nut 2 pcs. Spring Washer 2 pcs.

Part Number		A	B	D	ℓ_1	$M_1 \times \text{Pitch}$	ℓ_2	$M_2 \times \text{Pitch}$	E	L
WS	010S	8.5	10	10	17	M10 x 1.5	12	M8 x 1.25	14	47.5
	112S	9.5	12	12	20		14	M10 x 1.5		55.5
	116S		16							59.5
	122S		22						65.5	
	216S	10.5	16	15	17		60.5			
	222S		22				66.5			



Ordering
Example

Part Number	-	W (W1)
TPCFN50	-	31
WS222S		



Days
to Ship

1 Day



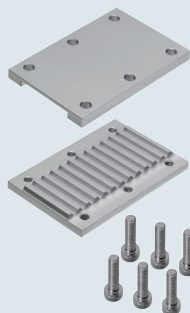
Metal Fittings for Timing Belts

Overpressure Prevention Type

RoHS

TBCK

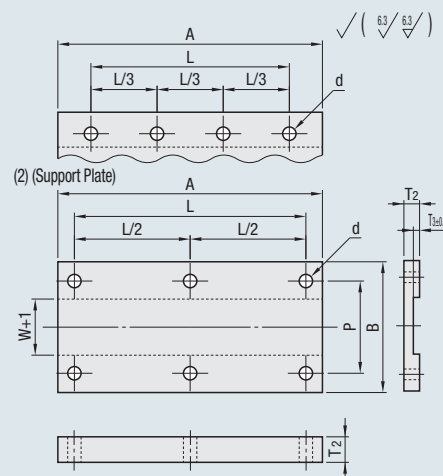
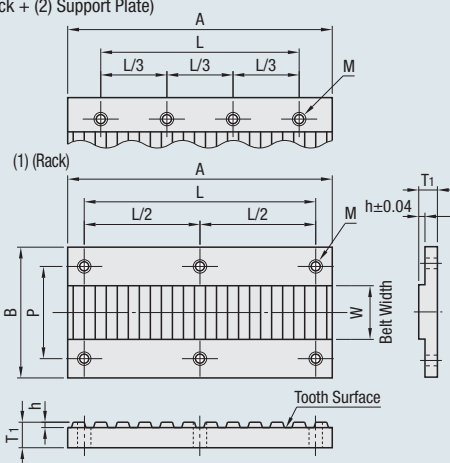
((1) Rack + (2) Support Plate)



Materials: A6N01-T5 Aluminum Alloy

Surface Treatment: Clear Anodize

Accessory: Hexagon Socket Head Cap Screw



Part Number			W	A	B	T ₁	T ₂	T ₃	h	L	P	M	d	Included Screw	Mounting No. of Holes
Type	Type of Belt	Belt Nominal Width													
TBCK ((1)+(2))	XL	025	6.4		24						13				
		037	9.5		26						16				
		050	12.7		30						20				6
	L	050	12.7		32						21				
		075	19.1	124	38	8	5.5	3.33	2.05	111	27			M5-12	
		100	25.4		46						34				
	H	075	19.1		38						27				
		100	25.4		46						34				
		150	38.1	165	58	10	6.5	4.15	2.55	147	46			M5-14	8
	S3M	200	50.8		70						59				
		060	6	39	18	4	3.5	1.94	1.25	31	11			M3-6	
		100	10		26						17				
	S5M	150	15	65	32	6	5.5	3.14	2.00	51	22			M4-10	6
		250	25		42						32				
		150	15		34						23				
	S8M	250	25	104	44						33				
		300	30		50	8	6.5	4.72	3.00	84	38			M5-12	8
		400	40		60						48				
	MA3	070	7		20						13				
		100	10	39	24	4	3.5	1.8	1.1	31	16			M3-6	
		150	15		29						21				
	MA5	100	10		26						17				
		150	15	65	32	6	5.5	2.9	1.7	51	22			M4-10	6
		250	25		37						32				
	MA8	150	15		34						23				
		200	20	104	39	8	6.5	4.3	2.8	84	28			M5-12	8
		250	25		45						33				
	T5	400	40		60						48				
		100	10		26						17				
		150	15	65	32	6	4.5	2.20	1.40	51	22			M4-10	6
	T10	200	20		38						27				
		250	25		43						32				
		150	15		34						23				
	AT5	200	20		40						28				
		250	25		44						33				
		300	30	130	50	8	6.5	4.30	2.70	111	38			M5-12	8
	AT10	400	40		60						48				
		500	50		70						58				
		150	15	65	32	6	4.5	2.6	1.40	51	22			M4-10	6
	AT10	200	20	130	40	8	6.5	4.30	2.70	111	28			M5-12	8
		250	25		44						33				

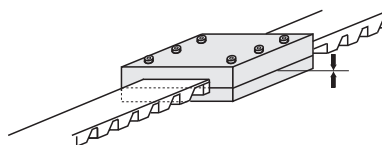
ⓘ This product is designed to be applied to the Open-ended Belts (Urethane Type).
When using this product for other types of belts, check the thickness of the belts and dimensions of this product before using.

ⓘ The tooth profile complies with the Timing Belts and the Open-ended Belts.
ⓘ A Dimension is set for engaging 6 teeth (fitting).



Part Number		
Type	Type of Belt	Belt Nominal Width
TBCK	XL	025

■ **Features:** Alteration of plate shape prevents belts from being over tightened.



3 Days



Metal Fittings for Timing Belts

Overpressure Prevention Metal Fittings Hole Position Configurable Type

■ **Features:** Fitting for timing belts can specify the hole positions for parts to be mounted.

RoHS

Materials: A6N01-T5 Aluminum Alloy
Surface Treatment: Clear Anodize

ⓘ Side faces of the Metal Fitting and holes may not be clear anodized.
ⓘ Mating part needs to be designed that back thickness compression amount is to be around 20% of back thickness of the belt.

TBCF
(Rack only)

-4 Holes- 4H

4-Screw
Nominal Diameter
N (Through Hole) M (Through Hole)

-6 Holes- 6H

6-Screw
Nominal Diameter
N (Through Hole) M (Through Hole)

-8 Holes- 8H

8-Screw
Nominal Diameter
N (Through Hole) M (Through Hole)

Hole Machining Details

N (Through Hole) M (Through Hole)

Screw Nominal Diameter	3	4	5
d	3.5	4.5	5.5

■ **Machining Limits**

*1 L Dimension : $A \geq L + M(d) + 6$
 $L/2, L/3 \geq M(d) + 3$
 *2 P Dimension : $B \geq P + M(d) + 4$
 $P \geq W + M(d) + 1$

Part Number		No. of Holes	Selection		L (1 mm Increment)	P (0.5 mm Increment)	W	A	B	T ₁	h
Type	Type of Belt		Hole Specs	Nominal Dia.							
TBCF	MXL	4H	N (Through Hole)	3	11	6.4	18				
					6~17	14~15	9.5	26	22	4	0.60
						17~19	12.7	26			
	XL	4H	N (Through Hole)	3	11~17	6.4	24				
					6~57	12~18	7.9	25	6	1.30	
						14~19	9.5	26			
	L	4H	N (Through Hole)	3	17~23	12.7	30				
					6~115	17~25	12.7	32			
						24~31	19.1	124	8	2.05	
	H	4H	N (Through Hole)	3	30~39	25.4	46				
					6~156	43~51	38.1	58	10	2.55	
						55~63	50.8	70			
	S2M	6H	M (Tapped Hole)	4	8~9	4	16				
					6~17	10~11	6	26	18	0.90	
						14~17	10	24	4		
	S3M	6H	M (Tapped Hole)	4	10~11	6	18				
					6~30	14~15	10	39	22	1.25	
						19~21	15	28			
	S5M	8H	M (Tapped Hole)	5	14~19	10	26				
					6~56	19~25	15	65	32	6	2.00
						29~35	25	42			
	S8M	8H	M (Tapped Hole)	5	19~27	15	34				
					6~95	29~37	25	104	44	8	3.00
						34~43	30	50			
						44~53	40	60			

Part Number		No. of Holes	Selection		L (1 mm Increment)	P (0.5 mm Increment)	W	A	B	T ₁	h
Type	Type of Belt		Hole Specs	Nominal Dia.							
TBCF	MA3	4H	N (Through Hole)	3	11~13	7	20				
					6~30	14~17	10	39	24	4	1.1
						19~22	15	29			
	MA5	4H	N (Through Hole)	3	14~19	10	26				
					6~56	19~25	15	65	32	6	1.7
						29~35	25	42			
	MA8	4H	N (Through Hole)	3	19~27	15	34				
					6~95	24~32	20	104	39	8	2.8
						29~38	25	45			
	T5	6H	M (Tapped Hole)	4	44~53	40	60				
					6~56	14~19	10	26			
						19~25	15	32	6	1.40	
	T10	8H	M (Tapped Hole)	5	29~36	25	43				
					6~121	19~27	15	34			
						24~33	20	40			
	AT5	6H	M (Tapped Hole)	4	29~37	25	130	44	8	2.70	
					6~121	34~43	30	50			
						44~53	40	60			
	AT10	8H	M (Tapped Hole)	5	54~63	50	70				
					6~56	14~19	10	26			
						19~25	15	32	6	1.40	
					6~121	19~27	15	34			
						24~33	20	130	40	8	2.70
						29~37	25	44			

ⓘ Metal fitting of S_M Type can be used with a P_M Type belt. EThe tooth profile complies with the Timing Belts and the Open-ended Belts.
ⓘ When selecting No. of holes 8H, specify L dimension in multiples of 3.



Alterations



Part Number	No. of Holes	Hole Spec / Nominal Dia.	L	P	(AC / BC)
TBCF-S5M150	6H	M4	L30	P22	AC45



Ordering Example

Part Number		No. of Holes	Hole	L	P
Type	Type of Belt				
TBCF	S5M	4H	M4	L48	P31.5



Days to Ship

7 Days

ⓘ Non-Returnable

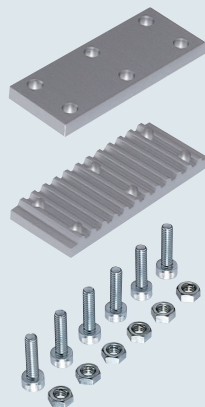
Alterations	A Dimension Cut	B Dimension Cut
Code	AC	BC
Spec.	<p>Cuts A dimension in 1 mm increment. $AC \geq L + M(d) + 6$</p>	<p>Cuts B dimension in 1 mm increment. $BC \geq P + M(d) + 4$</p>



Metal Fittings for Timing Belts

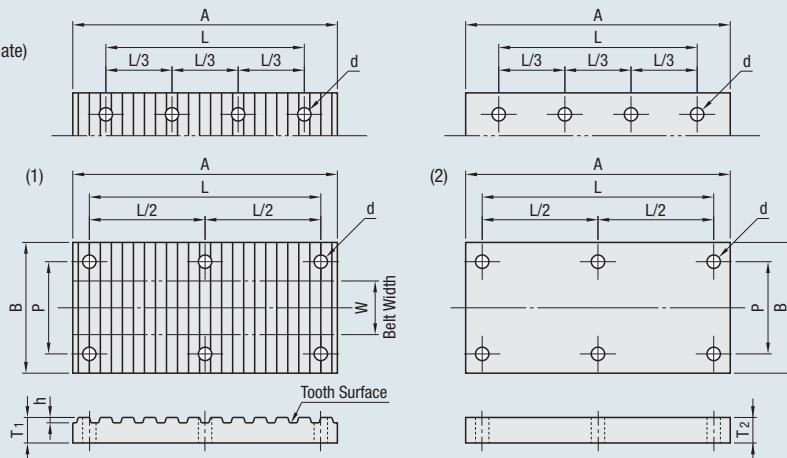
Nut Fitting Type

RoHS



TBCS

((1) Rack + (2) Support Plate)



Materials: A6N01-T5 Aluminum Alloy

Surface Treatment: Clear Anodize

Accessory: Hexagon Socket Head Cap Screw / Nuts

The tooth profile is complied with open end belts and timing belts.
Belt width is complied with timing belts.

Part Number		Belt Nominal Width	W	A	B	T ₁	T ₂	h	L	P	Included Screw	d	No. of Mounting Holes
Type	Type of Belt												
TBCS ((1)+(2))	MXL	*025	6.4	26	18	4	4	0.51	19	11	M3-12	3.4	6
		037	9.5		22					14			
		050	12.7		26					18			
	XL	025	6.4	66	24	6	5	1.25	56	12	M4-15	4.5	8
		031	7.9		25					14			
		037	9.5		26					16			
	L	050	12.7	124	30	8	5	1.90	111	20	M5-20	5.5	8
		075	19.1		32					20			
		075	19.1		38					26			
	H	100	25.4	165	46	10	5	2.30	147	33	M5-20	5.5	8
		075	19.1		38					26			
		100	25.4		46					33			
	S2M	150	38.1	39	58	4	4	1.14	31	45	M3-12	3.4	6
		200	50.8		70					58			
		040	4		16	6	5	1.81	51	8	M4-15	4.5	8
	S3M	060	6	26	18					10			
		100	10		24					15			
	S5M	060	6	65	18	8	5	2.85	84	10	M5-20	5.5	8
		100	10		22					14			
		150	15		28					20			
	S8M	100	10	104	26	6	5	1.2	51	16	M4-15	4.5	6
		150	15		32					21			
		250	25		42					31			
	T5	150	15	65	34	8	5	2.5	111	22	M5-20	5.5	8
		250	25		44					27			
		300	30		50					37			

*Metal fitting of S_M Type can be used with a P_M Type belt.

*MXL025 is available for belt of MXL019.

⚠ Do not machine mounting holes in a belt. ⚠ A Dimension is set for engaging 6 teeth (fitting).



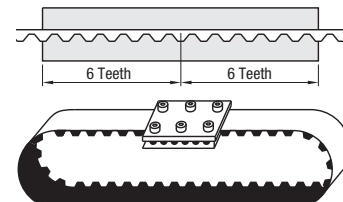
Part Number			
Type	Type of Belt	Belt Nominal Width	
TBCS	XL	025	



1 Day



Example



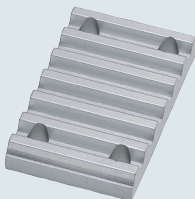
⚠ Also can be used as metal fittings for the Open End Belts.



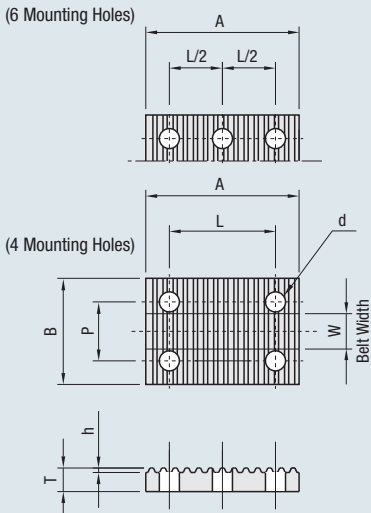
Metal Fittings for Timing Belts

Bottom Metal Short Type

RoHS

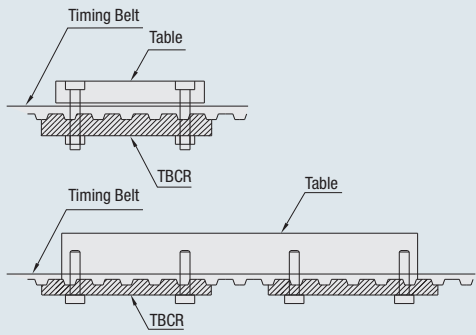


TBCR (6 Mounting Holes)



(4 Mounting Holes)

Installation Example



Materials: A6N01-T5 Aluminum Alloy
Surface Treatment: Clear Anodize

The tooth profile is complied with open end belts and timing belts.
Belt width is complied with timing belts.

Part Number			W	A	B	T	h	L	P	d	No. of Mounting Holes
Type	Type of Belt	Belt Nominal Width									
TBCR	XL	025	6.4	36	24	6	1.25	25	12	4.5	4
		031	7.9		25				14		
		037	9.5		26				16		
		050	12.7		30				20		
	L	050	12.7	66	32	8	1.9	50	20	5.5	4
		075	19.1		38				26		
		100	25.4		46				33		
		150	38.1		58				46		
	H	075	19.1	89	38	10	2.3	70	26	5.5	6
		100	25.4		46				33		
		150	38.1		58				45		
		200	50.8		70				58		
	S3M	060	6	21	20	4	1.14	15	11	3.4	4
		100	10		25				15		
		150	15		30				20		
	S5M	100	10	35	26	6	1.81	25	16	4.5	4
		150	15		32				21		
		250	25		42				31		
	S8M	150	15	56	34	8	2.85	40	22	5.5	4
		250	25		44				32		
		300	30		50				37		
		400	40		60				47		
	T5	100	10	35	26	6	1.2	25	16	4.5	4
		150	15		32				21		
		200	20		38				26		
		250	25		43				31		
	T10	150	15	70	34	8	2.5	50	22	5.5	6
		200	20		40				27		
		250	25		44				32		
		300	30		50				37		

*Metal fitting of S_M Type can be used with a P_M Type belt.



Ordering Example

Part Number			
Type	Type of Belt	Belt Nominal Width	
TBCR	XL	025	

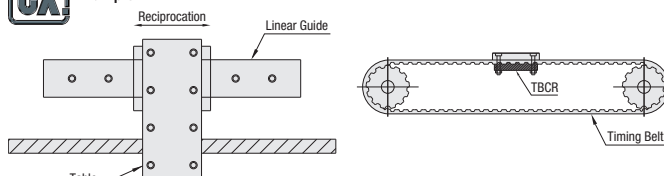


Days to Ship

3 Days



Example

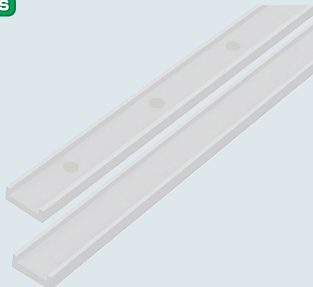




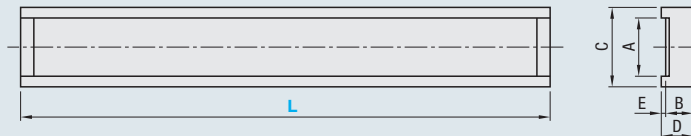
Timing Belts Guides

■ **Features:** A guide to prevent belts from flexure and wandering during conveying.

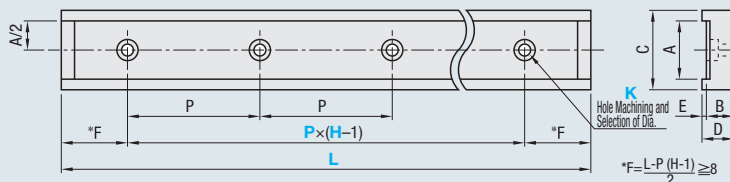
RoHS



BTG (No Hole Type)



BTGZ (1 row of counterbored holes type)



■ Details of Hole Dimensions

Counterbored Holes



- ⊙ $A \geq d1 + 6$
- ⊙ $A \geq d + 6$

Screw Nominal Dia.	4	5	6
d	4.5	5.5	6.5
d ₁	8	9.5	11
h	5	6	7

■ Accuracy Standards

Dimensions	Tolerance
A / B / C / D / E	±0.2
L	±1.0

Material: UHMW

- ⊙ Thermal Expansion Coefficient: $1.7 \times 10^{-4} / ^\circ\text{C}$
- ⊙ Machining conditions: 3 mm thickness from a hole to the end face is required.

Part Number		L 10 mm Increment	P (Hole pitch) 5 mm Increment	H No. of Holes	K Hole Machining and Selection of Dia.	Applicable Belt Type	A	B	C	D	E
Type	Nominal										
BTG (No Hole) BTGZ (1 row of counterbored holes)	100	200~1800	—	—	—	T5100 / AT5100	12	8.6	20	10	1.4
	150		50~500	2~10	4, 5, 6	T5150 / AT5150	17				
	150A					T10150 / AT10150	9	23	12	3	
	200					T5200	22	8.6	30	10	1.4
	200A					T10200 / AT10200	9	35	12	3	
	250					T10250 / AT10250					27
	250B					T5250	8.6	10	1.4		
	300					T10300	32	42	12	3	
	400					T10400	43	9			53
	500					T10500	53	63			

- ⊙ Applicable to belts not listed in "Applicable Belt Type". Make sure of the width and no. of teeth before use.
- ⊗ Belt Nominal Width 100 is not available for BTGZ.



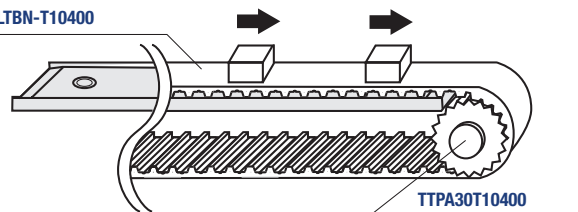
Ordering Example

Part Number		L	P	H	K
Type	Belt Nominal Width				Hole Machining Nominal Dia.
BTG	150	300			
BTGZ	200A	1200	P160	H8	K5



Example

LTBN-T10400



Days to Ship

5

Days ⊙ Non-Returnable



Timing Belts with Attachments

T5, T10 Type – Joint Machining –

■ Attachments are thermally bonded to the backside of the Timing Belt. It enables a constant pitch conveyance of various work pieces.

RoHS

Attachment A B

Attachment C (with Tapped Holes)

Attachment Shape Details

Attachment A

Attachment B (Belt width 10 and 15mm)

Attachment C (with Tapped Holes)

Operating Temperature -20~70°C

		Material			
(1) Body		Polyurethane (for Joint Process)			
(2) Core Wire		Aramid Core Wire			
(3) Attachment		Polyurethane (for Joint Process)			

Type	Pitch	H	h	L
T5	5	2.2	1.2	1.8
T10	10	4.5	2.5	3.5

2-M3

Threaded Insert (Material: SPCC)

Attachment A Dimensions

Type	Belt Width	A	B	T	Belt Unit Mass g/m (Width: 10mm)	Attachment Mass (g)
T5	10 mm	9			20.0	0.34
	15 mm	14				0.52
	20 mm	19				0.71
	25 mm	24				0.89
T10	15 mm	14			40.0	0.86
	20 mm	19				1.17
	25 mm	24				1.47
	30 mm	29				2.67
	40 mm	39				3.59
	50 mm	49				6.02

*B dimension is a dimension after adhesion.

Attachment B Dimensions

Type	Belt Width	A	B	Through Hole	G	F	T	Belt Unit Mass g/m (Width: 10mm)	Attachment Mass (g)
T5	10 mm	9	10	3.5	5.5			20.0	0.30
	15 mm	14	15	4.5	9				0.72
	20 mm	19	20	2-4.5	13				0.94
	25 mm	24	25	2-5.5	13				1.61
T10	15 mm	14	15	4.5	9			40.0	1.19
	20 mm	19	20	2-4.5	13				1.55
	25 mm	24	25	2-5.5	13				2.66
	30 mm	29	30	2-6.5	13				3.15
	40 mm	39	40	2-6.5	13				4.38
	50 mm	49	50	2-6.5	13				5.61

*B and G dimensions are dimensions after adhesion.

Attachment C Dimensions

Type	Belt Width	A	B	T	C	D	E	K	N	Belt Unit Mass g/m (Width: 10mm)	Attachment Mass (g)
T10	25 mm	25.0	6.5	7.8	15.0	3.2	5.0	4.8	4.0	40.0	3.9
	30 mm										
	40 mm										
	50 mm										

- ① The attachment is mounted on the backside above the belt teeth.
- ① Attachment is mounted on the center of the belt.
- ① Jointing process reduces allowable tension to approx. 50% of open end belts.
- ① Adhesion burrs occur at the base of the adhered attachment.
- ① If the attachments are to receive vibrations or large loads, test the applicability before using.

Tolerance of Mounting Pitch Attachment (mm)

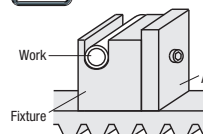
Mounting Pitch	Tolerance of Mounting Pitch
30~200	±0.5
300~	±1.0

Attachment Dimension Tolerance (mm)

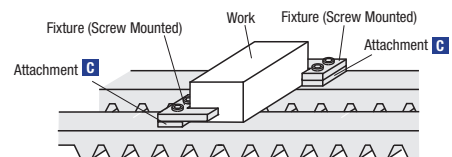
Dimensions	Dimension Tolerance
A	±0.5
B	±0.5
T	±0.5
C	±0.1



Example



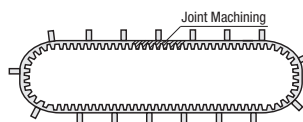
Attachment B allows mounting of work-piece specific fixtures.



Attachment C allows screw-mounting of fixtures/brackets from above, providing freedom in work-piece heights and shapes.

Joint Process

The Open End Belt can be changed to an endless belt by heat-sealing the ends of the Open End Belt. Core wires of the joint part are not connected.





Timing Belts with Attachments

T5, T10 Type – Joint Machining –

■ Type T5 (Pitch: 5 mm)

Part Number			Attachment Type	Attachment Mounting Pitch P	Teeth	Circum. Length (mm)
Type	Belt No.	Belt Nominal Width				
ATBT	700T5	100 (10 mm)	A	30	140	700
	750T5				150	750
	800T5				160	800
	850T5				170	850
	900T5				180	900
	950T5				190	950
	1000T5				200	1000
	1050T5				210	1050
	1100T5				220	1100
	1150T5				230	1150
	1200T5				240	1200
	1250T5			250	1250	
	1300T5			260	1300	
	1350T5			270	1350	
	1400T5			280	1400	
	1450T5			290	1450	
	1500T5			300	1500	
	1550T5			310	1550	
	1600T5			320	1600	
	1650T5			330	1650	
	1700T5			340	1700	
	1750T5			350	1750	
	1800T5			360	1800	
	1850T5			370	1850	
	1900T5			380	1900	
	1950T5			390	1950	
	2000T5			400	2000	
	2050T5			410	2050	
	2100T5			420	2100	
	2150T5			430	2150	
	2200T5			440	2200	
	2250T5			450	2250	
	2300T5	460		2300		
	2350T5	470		2350		
	2400T5	480		2400		
	2450T5	490		2450		
	2500T5	500		2500		
	2550T5	510		2550		
	2600T5	520		2600		
	2650T5	530		2650		
2700T5	540	2700				
2750T5	550	2750				
2800T5	560	2800				
2850T5	570	2850				
2900T5	580	2900				
2950T5	590	2950				
3000T5	600	3000				
3050T5	610	3050				
3100T5	620	3100				
3150T5	630	3150				
3200T5	640	3200				
3250T5	650	3250				
3300T5	660	3300				
3350T5	670	3350				
3400T5	680	3400				
3450T5	690	3450				
3500T5	700	3500				
3550T5	710	3550				
3600T5	720	3600				
3650T5	730	3650				
3700T5	740	3700				
3750T5	750	3750				
3800T5	760	3800				
3850T5	770	3850				
3900T5	780	3900				
3950T5	790	3950				
4000T5	800	4000				

ⓘ Attachments are available from one piece.



Ordering Example

Part Number		Attachment Type (A / B / C)	Attachment Mounting Pitch P
Type	Belt No.		
ATBT	1200T10	A	P100
ATBT	2450T10	C	P2450

ⓘ When specifying one attachment, select a mounting pitch of the same No. as Belt No.

ⓘ Select a mounting pitch for attachment that belt circumferential length is divisible by integral numbers.

(Ex.) T5 type, when belt circumferential length is 1050

0 1050/30=35 0 1050/50=21

X 1050/100=10.5 0 1050/150=7

Mounting pitch for attachment

30, 50 and 150 are selectable.

100 is not selectable.



Days to Ship

11

Days Ⓢ Non-Returnable

■ Type T10 (Pitch: 10 mm)

Part Number			Attachment Type	Attachment Mounting Pitch P	Teeth	Circum. Length (mm)
Type	Belt No.	Belt Nominal Width				
ATBT	700T10	150 (15 mm)	A	50~2400 (50 mm Increment)	70	700
	750T10				75	750
	800T10				80	800
	850T10				85	850
	900T10				90	900
	950T10				95	950
	1000T10				100	1000
	1050T10				105	1050
	1100T10				110	1100
	1150T10				115	1150
	1200T10				120	1200
	1250T10				125	1250
	1300T10				130	1300
	1350T10				135	1350
	1400T10				140	1400
	1450T10				145	1450
	1500T10				150	1500
	1550T10				155	1550
	1600T10				160	1600
	1650T10				165	1650
	1700T10				170	1700
	1750T10				175	1750
	1800T10	180		1800		
	1850T10	185		1850		
	1900T10	190		1900		
	1950T10	195		1950		
	2000T10	200		2000		
	2050T10	205		2050		
	2100T10	210		2100		
	2150T10	215		2150		
	2200T10	220		2200		
	2250T10	225		2250		
	2300T10	230	2300			
	2350T10	235	2350			
	2400T10	240	2400			
	2450T10	245	2450			
	2500T10	250	2500			
	2550T10	255	2550			
	2600T10	260	2600			
	2650T10	265	2650			
	2700T10	270	2700			
	2750T10	275	2750			
	2800T10	280	2800			
	2850T10	285	2850			
	2900T10	290	2900			
	2950T10	295	2950			
	3000T10	300	3000			
	3050T10	305	3050			
	3100T10	310	3100			
	3150T10	315	3150			
3200T10	320	3200				
3250T10	325	3250				
3300T10	330	3300				
3350T10	335	3350				
3400T10	340	3400				
3450T10	345	3450				
3500T10	350	3500				
3550T10	355	3550				
3600T10	360	3600				
3650T10	365	3650				
3700T10	370	3700				
3750T10	375	3750				
3800T10	380	3800				
3850T10	385	3850				
3900T10	390	3900				
3950T10	395	3950				
4000T10	400	4000				

ⓘ For larger quantity orders "Days to Ship" may differ from published catalog term.



Alterations



Part Number	Types of Attachments	P	(NB)
ATBT-1200T10200	A	P100	NB
13	Days	Ⓢ Non-Returnable	

Alteration	Removal of Adhesion Burrs
Code	NB
Spec.	Removes adhesion burrs at the base of attachments



Material Properties and Usage Examples

Long Timing Belts

■ Long Timing Belts Material Properties

Chemical Resistance (Long Timing Belts Polyurethane)

Chemicals	Resistibility
Acetic Acid	Acceptable
Acetone	Acceptable
Aluminum Chloride (5% Moisture)	Good
Ammonia Water (10%)	Good
Aniline	Poor
Astm No.1 Oil	Good
Astm No.2 Oil	Good
Astm No.3 Oil	Acceptable
Benzene	Acceptable
Butyl alcohol	Acceptable
Butyl Acetate	Poor
Carbon Tetrachloride	Poor
Cyclohexanol	Acceptable
Diesel Oil	Good
Dimethylformamide	Poor
Ethanol	Acceptable
Ethyl Acetate	Poor
Ethylether	Good
n-Heptane	Good
20% Hydrochloric Acid	Acceptable

Chemicals	Resistibility
Iron Chloride (Moisture 5%)	Acceptable
Isopropanol	Acceptable
Kerosene	Good
Grease	Good
Methanol	Acceptable
Methanol / Gasoline (15 / 85)	Acceptable
Methylethylketone	Acceptable
Chloromethane	Acceptable
Mineral oil	Good
Nitric Acid 20%	Poor
Regular gasoline	Acceptable
Super gasoline	Acceptable
Saline Solution	Good
Seawater	Good
Aqueous Sodium Chloride Solution	Good
Sodium Hydroxide	Acceptable
Tetrahydrofuran	Poor
Toluene	Poor
Trichloethylene	Poor
Water	Good

ⓘ Not applicable when temperature is above 40°C or belts are immersed in solution / liquid.

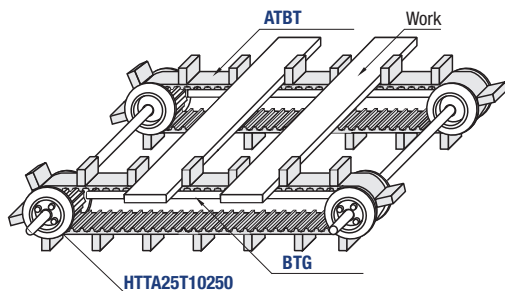


Material Properties and Usage Examples

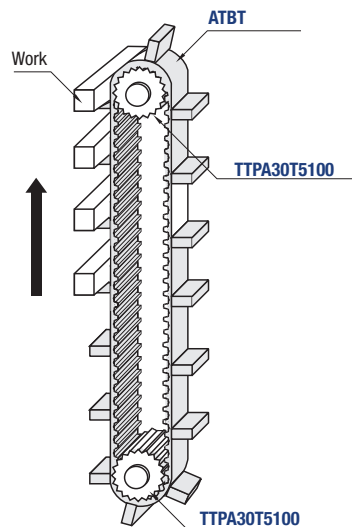
Long Timing Belts

■ Long Timing Belts / Open End Belts Example of Use

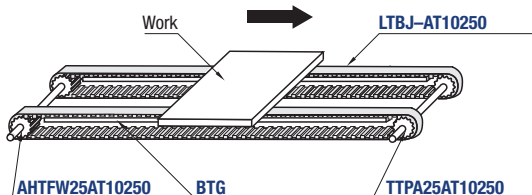
– Simultaneous Conveyance (Conveying work pieces at regular intervals using attachments)



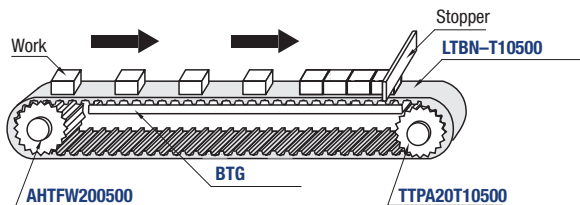
– Vertical Conveyance (Conveying with light work pieces on attachments)



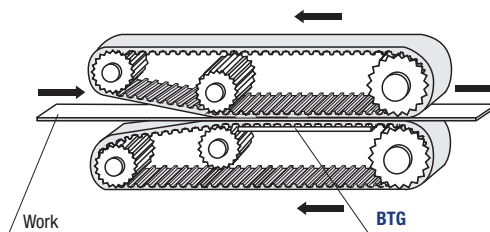
– Circuit Board Conveyance (Conveying boards on two timing belts)



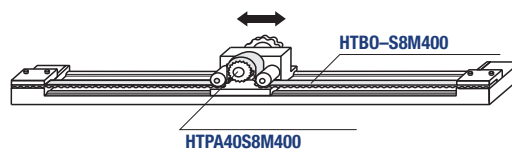
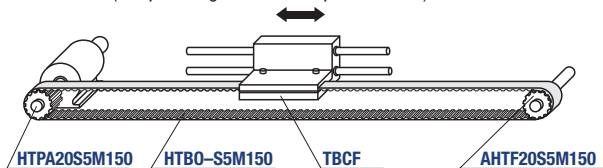
– Accumulation Conveyance (Using the Cloth Lined type to reduce friction coefficient)



– Tractor Conveyance (Sandwiching work pieces between belts)



■ Linear Drive (Reciprocating motion with open end belts)



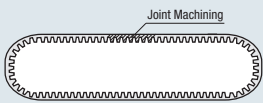
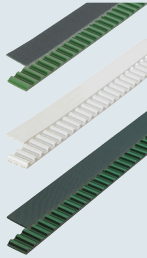


Long Timing Belts

Polyurethane – No. of Teeth Configurable Joint Machining –

■ **Features:** The belt length is selectable as desired, and suitable for a long span synchronous conveyance.

RoHS



■ Joint Process

The Open-ended Belt can be changed to an endless belt by thermally bonding the ends of the Open-ended Belt.

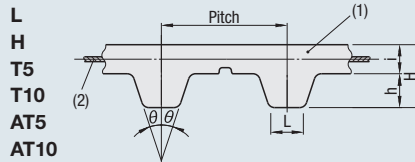
Core wires of the joint part are not connected.

■ Feature of Cloth Lined Belts

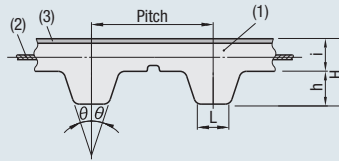
Backside Cloth Lined: Reduces friction coefficient of conveyed items and is suitable for accumulation conveyance.

Both Sides Cloth Lined: Reduces friction coefficient of conveyed materials and Pulleys and cut noise.

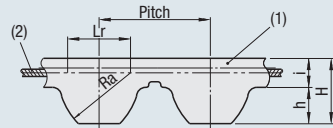
LTBJ (Standard)



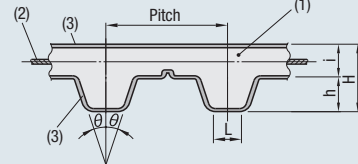
LTBN (Backside Upholstered)



S5M
S8M



LTBR (Both Sides Upholstered)



Type	Type	Material		
		(1) Body	(2) Core Wire	(3) Cloth
LTBJ	Standard	Polyurethane (for Joint Process)	T5 / T10 / L / H / S5M / S8M: Aramid Core Wire	—
LTBN	Backside Upholstered		AT5 / AT10: Steel Cord	Nylon Cloth
LTBR	Both Sides Upholstered			

① Operating Temperature: -20 ~ 70°C

Type of Belt	Pitch	2θ (°)	H	h	i	L	Unit Mass g/m (Width: 10 mm)		
							Standard	Backside Upholstered	Both Sides Upholstered
L	9.525	40°	3.6	1.91	1.69	3.25	29.1	28.8	—
H	12.7	40°	4.36	2.29	2.07	4.4	36.2	33.8	—
T5	5	40°	2.2	1.2	1.0	1.8	19.0	—	20.0
T10	10	40°	4.5	2.5	2.0	3.5	37.7	34.5	32.5
AT5	5	50°	2.7	1.2	1.5	2.5	32.0	—	—
AT10	10	50°	4.5	2.5	2.0	5.0	58.6	—	—

Type of Belt	Pitch	Ra	Lr	H	h	i	Unit Mass g/m (Width: 10 mm)	
							Standard	
S5M	5	3.25	3.25	3.31	1.81	1.5	29.0	
S8M	8	5.2	5.2	5.3	2.95	2.35	45.2	

■ Comparison of Friction Coefficient (Reference Value)

Belt Type Matching Material	Tooth Surface		Back Surface	
	Cloth Lined Type	Standard Type	Cloth Lined Type	Standard Type
Steel	0.34	0.65	0.29	0.75
Stainless Steel	0.22	0.68	0.17	0.69
Aluminum	0.19	0.42	0.15	0.50
Ultra High-Molecular-Weight	0.18	0.31	0.17	0.32
Polyethylene	0.12	0.21	0.12	0.28
Teflon				

*Figures in the chart are examples of actual measurement, not standard values.

Part Number			No. of Teeth	Belt Width (mm)	Allowable Tension (N)
Type	Type of Belt	Belt Nominal Width			
LTBJ (Standard)	L	050	74~1049	12.7	92
		075		19.1	138
		100		25.4	184
		150		38.1	276
LTBN (Backside Upholstered)	H	075	56~787	19.1	163
		100		25.4	216
		150		38.1	324
		200		50.8	432
LTBR (Both Sides Upholstered)	S5M	100	140~2000	10	60
		150		15	90
		250		25	150
		150		15	117
	S8M	250	88~1250	25	196
		300		30	235
		400		40	313
		400		40	313

① Full Length: Number of Teeth x Pitch. ② Kgf = N x 0.101972



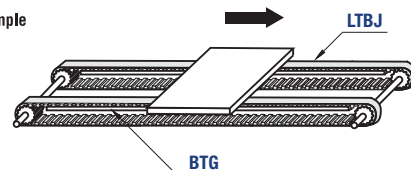
Part Number				Teeth
Type	—	Type of Belt	Belt Nominal Width	
LTBJ	—	AT5	150	800
LTBR	—	H	200	300



8 Days
① Non-Returnable



Example

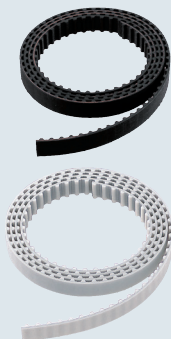




Open End Belts

Polyurethane, Chloroprene Rubber

RoHS



TB0G / TB0

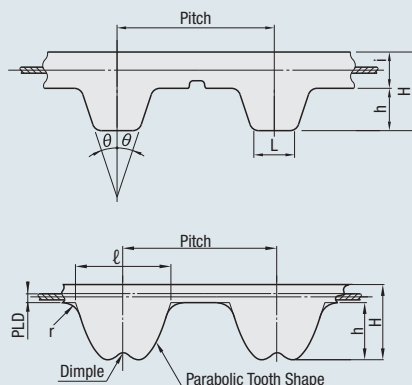
XL
L
H

TTBO

T5
T10
AT5
AT10

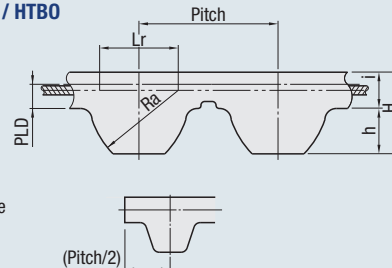
PTBOG

P5M
P8M



HTB0G / HTB0

S3M
S5M
S8M



Type	Material	
	Main Body	Core Wire
TB0G / HTB0G / PTBOG	Chloroprene Rubber (Black)	Glass Cord
TB0 / HTB0 / TTBO	Polyurethane (White)	Steel Cord

① Operating Temperature: -20 ~ 80°C

Type of Belt	Pitch	2θ (°)	H	h	i	L	Unit Mass g/m (Width: 10 mm)	
							Chloroprene Rubber	Polyurethane
XL	5.08	50°	2.25	1.25	1.0	1.35	26.77	22.17
L	9.525	40°	3.5	1.9	1.6	3.2	37.8	36.22
H	12.7	40°	4.3	2.3	2.0	4.4	52.36	41.22
T5	5	40°	2.2	1.2	1.0	1.8	—	22.1
T10	10	40°	4.5	2.5	2.0	3.5	—	47.6
AT5	5	50°	2.7	1.2	1.5	2.5	—	32.0
AT10	10	50°	4.5	2.5	2.0	5	—	58.6

Type of Belt	Pitch	Ra	Lr	H	h	i	PLD	Unit Mass g/m (Width: 10 mm)	
								Chloroprene Rubber	Polyurethane
S3M	3	1.95	1.95	2.10 (2.00)	1.14	0.96 (0.86)	0.381	—	24.3
S5M	5	3.25	3.25	3.61 (3.20)	1.91 (1.77)	1.70 (1.43)	0.480	38.8	34.6
S8M	8	5.20	5.20	5.30 (5.00)	3.05 (2.85)	2.25 (2.15)	0.686	55.2	57.6

① Dimensions in () are for Polyurethane

Part Number			No. of Teeth	Belt Width (mm)	Allowable Tension (N)		Applicable Metal Joint
Type	Type of Belt	Belt Nominal Width			Chloroprene Rubber	Polyurethane	
TB0G (Chloroprene Rubber)	XL	025	30-3937	6.4	—	66	TBCK-XL025
		037		9.5	47	102	TBCK-XL037
		050		12.7	70	142	TBCK-XL050
	L	050	30-2099	12.7	95	259	TBCK-L050
		075		19.1	165	387	TBCK-L075
		100		25.4	—	519	TBCK-L100
	H	075	45-1574	19.1	—	397	TBCK-H075
		100		25.4	—	529	TBCK-H100
		150		38.1	—	799	TBCK-H150
		200		50.8	—	1093	TBCK-H200
HTB0G (Chloroprene Rubber)	S3M	060	40-6666	6	—	127	TBCK-S3M060
		100		10	—	106	TBCK-S3M100
		150		15	—	159	TBCK-S3M150
	S5M	100	50-4000	10	310	215	TBCK-S5M100
		150		15	490	323	TBCK-S5M150
		250		25	—	539	TBCK-S5M250
	S8M	150	60-2500	15	—	647	TBCK-S8M150
		250		25	950	1176	TBCK-S8M250
		300		30	—	1412	TBCK-S8M300
		400		40	—	1882	TBCK-S8M400
PTBOG (Chloroprene Rubber)	P5M	100	50-4000	10	287	—	TBCK-SSM100
		150		15	456	—	TBCK-SSM150
		250		25	817	—	TBCK-SSM250
	P8M	150	60-2500	15	606	—	TBCK-S8M150
		250		25	1060	—	TBCK-S8M250

① Full Length: Number of Teeth x Pitch. ② kgf = N x 0.101972

Type of Belt	Pitch	ℓ	H	h	PLD	r	Unit Mass g/m (Width: 10 mm)
P5M	5	3.25	3.6	1.81	0.571	0.5	41.0
P8M	8	5.2	5.5	2.9	0.686	0.8	56.0

Part Number			No. of Teeth	Belt Width (mm)	Allowable Tension (N)		Applicable Metal Joint
Type	Type of Belt	Belt Nominal Width			Chloroprene Rubber	Polyurethane	
TTBO (Polyurethane)	T5	100	40-4000	10	—	112	TBCK-T5100
		150		15	—	166	TBCK-T5150
		200		20	—	225	TBCK-T5200
		250		25	—	284	TBCK-T5250
	T10	150	40-2000	15	—	299	TBCK-T10150
		200		20	—	397	TBCK-T10200
		250		25	—	529	TBCK-T10250
		300		30	—	627	TBCK-T10300
		400		40	—	862	TBCK-T10400
		500		50	—	1064	TBCK-T10500
	AT5	100	40-4000	10	—	147	TBCK-AT5100
		150		15	—	221	TBCK-AT5150
		250		25	—	469	TBCK-AT10150
	AT10	150	40-2000	15	—	469	TBCK-AT10150
		200		20	—	625	TBCK-AT10200
		250		25	—	781	TBCK-AT10250

① For larger quantity orders "Days to Ship" may differ from published catalog term.



Ordering Example

Part Number			Teeth
Type	Type of Belt	Belt Nominal Width	
TB0	H	100	1100
HTB0G	S5M	100	500
TTBO	AT5	150	1200

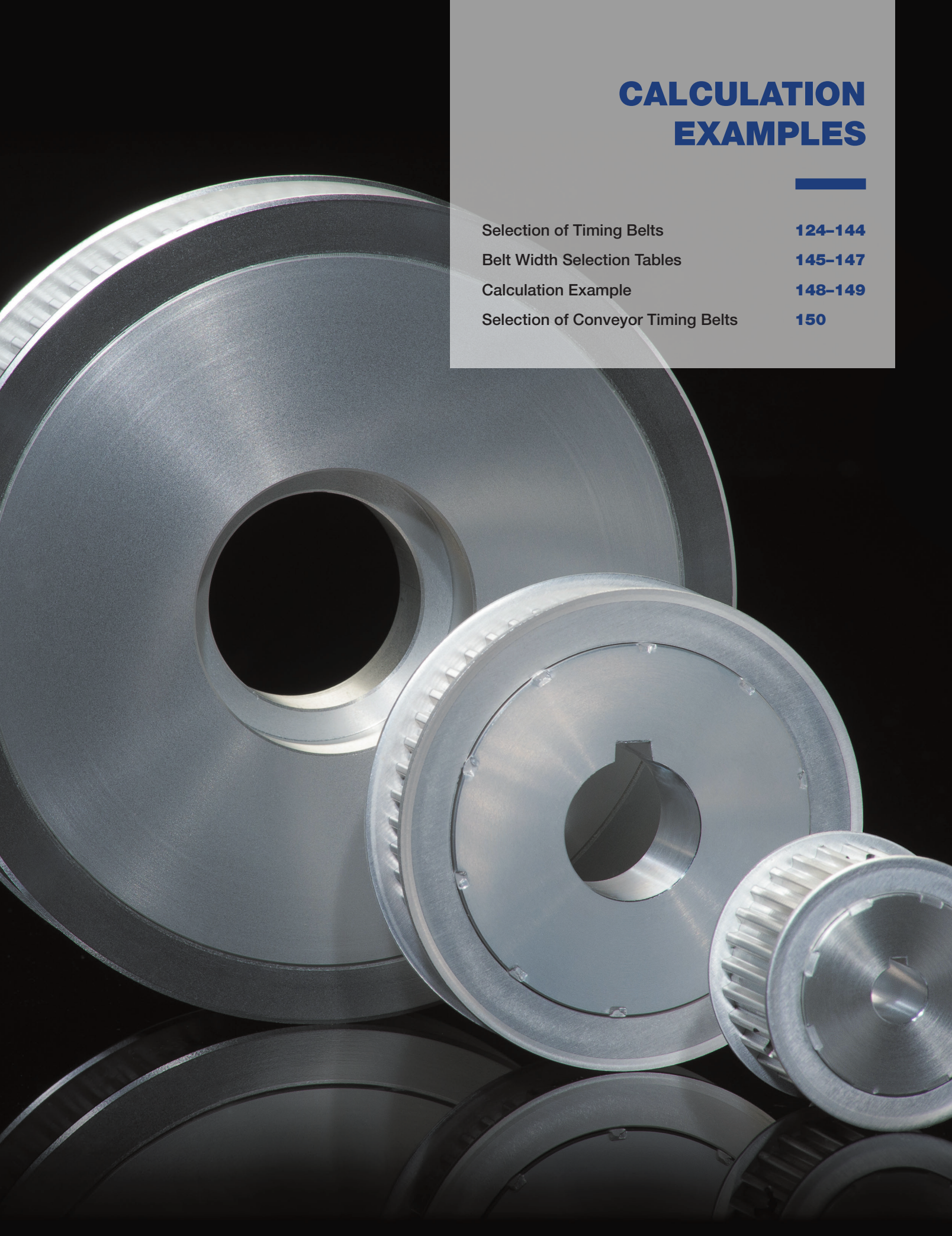


Days to Ship

6

Days

① Non-Returnable



CALCULATION EXAMPLES

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Selection of Timing Belts

Selection is easy with Timing Pulleys and Belts
automatic calculation tool available at:
http://fawos.misumi.jp/FA_WEB/pulley_us/

Step 1: Setting the Required Design Conditions

(1) Machine Type (2) Power Transmission (3) Load Variances (4) Operation Duration per Day (5) Small Pulley Rotational Speed
(6) Rotation Ratio (Lg. Pulley # of Teeth / Small Pulley # of Teeth) (7) Shaft Center Distance (Interim) (8) Pulley Diameter Limitation (9) Other Usage Conditions

Step 2a: Calculating Design Power (MXL / XL / L / H / S_M / MTS_M / T Series)

- Design Power (Pd) = Transmission Power (Pt) x Overload Factor (Ks)
- Calculate Transmission Power at Motor Rated Power Output. (Ideally should be calculated with the load applied to the belt)
- Overload Factor (Ks) = $K_o + K_r + K_i$ Overload Factor (Ks) = $K_o + K_r + K_i$
- Ko:** Overload Correction Factor (Table 1) **Kr:** Rotation Ratio Correction Factor (Table 2) **Ki:** Idler Correction Factor (Table 3)

Table 1. Load Correction Factor (Ko)

Typical Machines Using a Belt	Motor					
	Max. Output NOT Exceeding 300% of Rated Value			Max. Output Exceeding 300% of Rated Value		
	AC Motor (Standard Motor, Synchronous Motor) DC Motor (Shunt), Engine with 2 or More Cylinders			Special Motor (High Torque), Single-Cylinder Engine DC Motor (Series), Operation with Lye Shaft or Clutch		
	Operation Hours			Operation Hours		
	Intermittent Use 1 Day (3–5 hrs)	Regular Use 1 Day (8–12 hrs)	Continuous Use 1 Day (8–12 hrs)	Intermittent Use 1 Day (3–5 hrs)	Regular Use 1 Day (8–12 hrs)	Continuous Use 1 Day (8–12 hrs)
Exhibit Instrument, Projector, Measuring Instrument, Medical Machine	1.0	1.2	1.4	1.2	1.4	1.6
Cleaner, Sewing Machine, Office Machine, Carpentry Lathe, Belt Sawing Machine	1.2	1.4	1.6	1.4	1.6	1.8
Light Load Belt Conveyor, Packer, Sifter	1.3	1.5	1.7	1.5	1.7	1.9
Liquid Mixer, Drill Press, Lathe, Screw Machine, (Circular Sawing) Machine, Planer, Washing Machine, Paper Manufacturing Machine (Excluding Pulp Manufacturing Machine), Printing Machine	1.4	1.6	1.8	1.6	1.8	2.0
Mixer (Cement and Viscous Matter), Belt Conveyor (Ore, Coal and Sand), Grinder, Shaping Machine, Boring Machine, Milling Machine, Compressor (Centrifugal), Vibration Sifter, Textile Machine (Warper and Winder), Rotary Compressor, Compressor (Reciprocal)	1.5	1.7	1.9	1.7	1.9	2.1
Conveyor (Apron, Pan, Bucket and Elevator), Extraction, Fan, Blower (Centrifugal, Suction and Discharge), Power Generator, Exciter, Hoist, Elevator, Rubber Processor (Calender, Roll and Extruder), Textile Machine (Weaving Machine, Fine Spinning Machine, Twisting Machine and Weft Winding Machine)	1.6	1.8	2.0	1.8	2.0	2.2
Centrifugal Separator, Conveyor (Flight and Screw), Hammer Mill, Paper Manufacturing Machine (Pulpapitor)	1.7	1.9	2.1	1.9	2.1	2.3

- ⓘ Typical machines using a belt are listed above. For other machines using a belt, a load correction coefficient should be fixed by reference to this table.
ⓘ In the case of starts and stops over 100 times per day or rapid acceleration and deceleration, check the above values multiplied by 1.3. (MTS_M only)



Selection of Timing Belts

Table 2. Speed Ratio Correction Coefficient (Kr)

Speed Ratio	Coefficient (Kr)
1.00 to 1.25	0
1.25 to 1.75	0.1
1.75 to 2.50	0.2
2.50 to 3.50	0.3
3.50 or more	0.4

Table 3. Idlers Correction Coefficient (Ki)

Position of Idler	Coefficient (Ki)
Inside the loose side of the belt	0
Outside the loose side of the belt	0.1
Inside the loose side of the belt	0.1
Outside the loose side of the belt	0.2

Step 2b: Calculating Design Power (For P_M / UP_M Series)

- Design Power (Pd) = Transmission Power (Pt) x Overload Factor (Ks)
- Calculate Transmission Power at Motor Rated Power Output.
(Ideally should be calculated with the load applied to the belt)

– Normal Motor Load Factor (Ks) = Ko + Ki + Kr + Kh

Ko: Application Coefficient (**Table 4**)

Ki: Idler Correction Factor (**Table 5**)

Kr: Speed Multiplication Correction Factor (**Table 6**)

Kh: Operation Time Correction Factor (**Table 7**)

Table 4. Application Coefficient (Ko)

Type of Passive Unit		Type of Motor Peak Output/ Basic Output	I 200% or Less	II 200 to 300	III 300% or More
A	Extremely Smooth Transmission		1.0	1.2	1.4
B	Fairly Smooth Transmission		1.3	1.5	1.7
C	Transmission with Moderate Impact		1.6	1.8	2.0
D	Transmission with Considerable Impact		1.8	2.0	2.2
E	Transmission with Large Impact		2.0	2.2	2.5
Motor	AC Motor	Single-Phase	—	—	All Types
		Squirrel-Cage Induction	2 Poles	100kW or More	90~3.7kW
			4 Poles	55kW or More	45kW or Less
			6 Poles	37kW or More	30kW or Less
			8 Poles	15kW or More	11kW or Less
	Wire-Wound	4 Poles	—	15kW or Less	11kW or Less
		6 Poles	—	11kW or Less	7.5kW or Less
		8 Poles	—	5.5kW or Less	3.7kW or Less
	Synchronous Motor		—	Average Torque	High Torque
	DC Motor		Shunt	Compound	Series
Internal Combustion Engine		8 or More Cylinders	—	7~5 Cylinders	4~2 Cylinders
Hydraulic Motor		—	—	—	All Types

NOTE: When the transmission involves regular, reverse revolutions, large momentum or extreme impact, a basic-use coefficient of 2.5 or more can be used.

Type	Typical Passive Machines
A	Measuring Instrument, Camera Device, Radar, Medical Machine, Projector
B	Belt Conveyor (For Light Load), Chain Conveyor (For Light Load), Driller Press, Lathe, Screw Machine, Electric Typewriter, Calculator, Duplicator, Printing Press, Cutter, Paper Folder, Printer, Mixer, Calendar-Dryer, Lathe, Belt Sawing Machine, Plane, Circular Sawing Machine, Planer, Mixer (Liquid), Bread Baking Machine, Flour Kneading Machine, Sifter (Drum and Cone), Sawing Machine
C	Belt Conveyor (Ore, Coal, Sand), Elevator, Boring Mill, Grinder, Milling Machine, Shaper, Metal Sawing Machine, Wind Hoist, Dryer, Washing Machine (Including a Wringer), Excavator, Mixer, Granulating Machine, Pump (Centrifugal, Gear and Rotary), Compressor (High-Speed Center), Stirrer, Mixer (Viscous Matter), Centrifugal Forced Blower, General Rubber Handling Machine, Power Generator, Sifter (Electric)
D	Conveyor (Apron, Bucket, Flight, Screw), Hoist, Cutting Press, Shattering Machine, Pulp Manufacturing Machine, Weaving Machine, Spinning Machine, Twisting Machine, Blender, Centrifugal Separator, Blower (Axial Flow, for Mining and Roots), General Construction Equipment, Hammer Mill, Rollgang
E	Crank Press, Pump (Reciprocal), Compressor (Reciprocating), Civil Engineering, Mining Equipment Including Crushing Machine (Ball, Rod, Gravel), Rubber Mixer

Table 5. Correction Coefficient when Idler is Used (Ki)

Location of Idler in Use	Inside	Outside
Loose Side of the Belt	0	+0.1
Tense Side of the Belt	+0.1	+0.2

Should be added for each idler.

Table 6. Speed Increase Correction Coefficient (Kr)

Speed Increase Ratio	Correction Coefficient
1 to 1.25	0
1.25 to 1.75	+0.1
1.75 to 2.5	+0.2
2.5 to 3.5	+0.3
3.5 or more	+0.4

Table 7. Operating Correction Coefficient (Kh)

Operation Hours	Correction Coefficient
Operated 10 or More Hours a Day	+0.1
Operated 20 or More Hours a Day	+0.2
Operated 500 Hours or Less (For Seasonal Operation)	-0.2



NEW Selection of Timing Belts

Step 2c: Calculating the Design Power (MR2/MR3 Series **NEW**)

– Design Power (Pd) = Transmission Power (Pt) × Overload Coefficient (Ks)

– Calculate the Transmission Power (Pt) in terms of the rated power of the prime motor. (Originally, it is ideal to calculate from the actual load applied to the belt.)

A: Normal Motor Load Factor (Ks) = Ko + Ki + Kr + Kh

Ko: Load Correction Factor (**Table 8**) **Ki:** Idler Correction Factor (**Table 9**)

Kr: Speed Multiplication Correction Factor (**Table 10**) **Kh:** Operation Time Correction Factor (**Table 11**)

B: Servo Motor Kp, other table*

Table 8. Load Correction Factor (Ko)

Type of Motor			I	II	III
Peak Output/Basic Output			150% or Less	Over 150%~200% or Less	Over 250%
AC Motor	Single-Phase		—	—	All Types
	Squirrel Cage Type	2 Phase	—	—	All Types
		4 Phase	—	37Kw or More	30Kw or Less
		6 Phase · 8 Phase	—	—	All Types
	Wound Field Type	4 Phase	—	—	15Kw or Less
		6 Phase	—	—	11Kw or Less
		8 Phase	—	—	5.5Kw or Less
Synchronous Motor			—	Standard Torque Type	High Torque Type
DC Motor			Shunt	Wound Field	Series
Hydraulic Motor			—	—	All Types
Office Machinery	Printer · Fax Machine · Copy Machine		—	1.2	1.4
Home Appliance	Juicer		—	1.4	1.6
	Vacuum Cleaner		1	1.2	1.4
Finance Equipment	Money Exchanger · Ticket Machine · Ticket Gates · Bank Teller Machine		1.3	1.4	1.5
Food · Medicine · Medical Equipment	Bakery Equipment		1.2	1.4	1.6
	Mixer · Granulator		1.4	1.6	1.8
	Centrifuge		1.5	1.7	1.9
	Medical Machinery · Measurement Equipment		1	1.2	1.4
Machine Tool	Drill Press · Lathe		1.2	1.4	1.6
	Milling Machine		1.3	1.5	1.7
	Wood Lather		1.2	1.4	1.6
Printing Book Making	Printer · Book Making Machine · Cutter		1.2	1.4	1.6
Textile Machine	Textile · Knitting Machinery		1.3	1.5	1.7
Sawing Machine	Sawing Machine (Home Use)		—	1.2	1.4
	Sawing Machine (Industrial)		—	1.6	1.8
Belt Conveyor · Packaging Machine	Belt Conveyor (Light Objects)		1.1	1.3	1.5
	Packaging Machine		1.2	1.4	1.6
Film · Wire Making Machine	Calender · Extruder		1.4	1.6	1.8
	Wire Making Machinery		1.4	1.6	1.8

Table 9. Idler Correction Factor (Ki)

Idler Position	Inside	Outside
Loose Side of the Belt	0	+0.1
Tense Side of the Belt	+0.1	+0.2

Table 10. Speed Multiplication Correction Factor (Kr)

Speed Increase Ratio	Correction Factor
1 or More Less than 1.25	0
1.25 or More Less than 1.75	+0.1
1.75 or More Less than 2.50	+0.2
2.50 or More Less than 3.50	+0.3
3.50 or More	+0.4

Table 11. Operation Time Correction Factor (Kh)

Operation Time	Correction Factor
Less than 10 hours (Everyday)	0
10~16 Hours Continuous (Everyday)	+0.2
16~24 Hours Continuous (Everyday)	+0.4
300 Hours/Year or Less (Seasonal operations etc.)	-0.2

Table 12. Special Motor Correction Factor (Kp)

Motor Type	Load Correction Factor
Servo Motor	Design as Kp = 2.5 for Rated Output, and Kp = 0.5 for Peak Output (Rational speed as applied speed)
Spindle Motor	Design as Kp = 2.2 for Rated Output and Base Rotational Speed



NEW Selection of Timing Belts

Step 2d: Calculating Designed Power (MR5 Series **NEW**)

- Design Power (Pd) = Transmission Power (Pt) x Overload Factor (Ks)
- Calculate Transmission Power at Motor Rated Power Output. (Ideally should be calculated with the load applied to the belt)
- Overload Factor (Ks) = Ko + Ki + Kr + Kh + Km

Ko: Load Correction Factor (**Table 13**) **Ki:** Idler Correction Factor (**Table 14**) **Kr:** Speed Multiplication Correction Factor (**Table 15**)

Kh: Operation Time Correction Factor (**Table 16**) **Km:** Start/Stop Correction Factor (**Table 17**)

Table 13. Load Correction Factor (Ko)

Prime Motor Type		Induction Motor	Spindle Motor	Servo Motor (Peak Output/Rated Output)		
				200% or Less	201~299%	300% or More
Robot	Scara Type	2.0	2.0	1.6	1.7	1.8
Injection Mold Machine	Mold Fastening · Ball Screw Drive	1.8	1.8	1.3	1.4	1.5
Machine Tool	Lathe · Drill Press	1.6	1.3	1.2	1.3	1.4
	Milling Machine	1.7	1.3	1.2	1.3	1.4
Conveyor		1.8	1.8	1.4	1.5	1.6
Medical Machinery · Measurement Equipment		1.5	1.5	1.1	0.1	0.2
Packaging Machine		1.6	1.5	1.1	0.1	0.2
Agitator · Mixer	Liquid	1.6	1.6	1.2	1.3	1.4
	Viscous Material	1.7	1.7	1.3	1.4	1.5
Drilling Machine · Granulator		1.8	1.8	1.4	1.5	1.6
Centrifuge		1.9	1.9	1.5	1.6	1.7
Mills	Ball · Rods	2.2	2.2	1.7	1.8	1.9
Printing Machine · Book Making Machine		2.0	2.0	1.6	1.7	1.8
Paper Making Machine	Calender · Dryer	2.0	2.0	1.6	1.7	1.8
Textile Machine		2.0	2.0	1.6	1.7	1.8
Wire Related	Wire Drawing & Twisting Machine	2.1	2.0	1.6	0.1	0.2
Woodworking Machine		1.7	1.7	1.2	1.3	1.4
Pump		2.0	2.0	1.6	1.7	1.8
Compressor	Reciprocating · Rotating	2.0	2.0	1.6	1.7	1.8
Fan · Blower	Axial Flow · Roots	2.0	1.8	1.3	1.4	1.5
Generator · Exciter		1.8	1.8	1.4	1.5	1.6
Rubber Industry Machinery · Lumber Mill Machinery		2.0	2.0	1.6	1.7	1.8

Table 14. Idler Correction Factor (Ki)

No Idler	Inside Idler	Outside Idler
1	$0.1 \times (Qty-1)$	$0.1 \times (Qty-1)$

Table 16. Operation Time Correction Factor (Kh)

Operation Duration (Hours/Day)	Correction Factor
<8	0.1
8<16	0.2
16<	0.3

Table 15. Speed Multiplication Correction Factor (Kr)

Operation Duration (Hours/Day)	Correction Factor
1 or More Less than 1.25	0
1.25 or More Less than 1.75	0.1
1.75 or More Less than 2.50	0.2
2.50 or More Less than 3.50	0.3
3.50 or More	0.4

Table 17. Start/Stop Correction Factor (Km)

Start/Stop Frequency (Times/Day)	Correction Factor
<10	0.1
11<100	0.2
101<500	0.3
501<	0.4



Step 3: Temporarily Selecting the Type of Belt from Selection Guide Table

The graph illustrates the design power capacity of different pulley models across a range of rotary speeds. The y-axis represents Design Power in kW, with a logarithmic scale from 0.1kW to 100kW. The x-axis represents the Rotary Speed of the Pulley in rpm, ranging from 100 to 14,000. A shaded region indicates high altitude conditions, and a legend specifies the applicable pulley tooth numbers (20, 30, 40 teeth) for each model.

Pulley Model	Applicable Pulley Tooth Number
PMA400	20, 30, 40 teeth
PMA250	20, 30, 40 teeth
PMA150	20, 30, 40 teeth
PMA100	20, 30, 40 teeth
PMA60	20, 30, 40 teeth

The graph illustrates the performance characteristics of three motor types (MR2, MR3, and MR5) based on their Design Torque (Q) and the resulting rpm of the faster shaft. The y-axis represents the rpm of the faster shaft, ranging from 100 to 14,000. The x-axis represents the Design Torque (Q) in lb-in and N-m, with values ranging from 5 to 76 N-m (10 to 340 lb-in).

The graph is divided into three regions by the performance curves of the motor types:

- MR2:** This region is defined by the performance curve of the MR2 motor, which maintains a constant rpm of 10,000 up to a design torque of 100 lb-in (44.5 N-m) and then decreases linearly.
- MR3:** This region is defined by the performance curve of the MR3 motor, which maintains a constant rpm of 10,000 up to a design torque of 100 lb-in (44.5 N-m) and then decreases linearly.
- MR5:** This region is defined by the performance curve of the MR5 motor, which maintains a constant rpm of 8,000 up to a design torque of 275 lb-in (123.5 N-m) and then decreases linearly.

The graph shows that the rpm of the faster shaft decreases as the design torque increases, and the rate of decrease is steeper for the MR2 and MR3 motors compared to the MR5 motor.

The graph shows the relationship between Design Power (kW) and Rotary Speed of Small Pulley (rpm) for the MTS8M model. The y-axis is logarithmic, ranging from 10 to 10,000 rpm. The x-axis is logarithmic, ranging from 0.1 to 100 kW. A curve starts at (1, 10) and rises to (100, 6000). A horizontal line is drawn at 8000 rpm.

Design Power (kW)	Rotary Speed of Small Pulley (rpm)
1	10
10	100
100	6000

The graph illustrates the relationship between the rotary speed of the small pulley and the design power for two different pulley models, UP8M and UP5M. The y-axis represents Design Power in kW on a logarithmic scale from 0.001 to 10,000. The x-axis represents the Rotary Speed of the Small Pulley in rpm on a logarithmic scale from 10 to 10,000. The UP8M model (solid line) has a higher power rating than the UP5M model (dashed line) across the entire speed range.

Rotary Speed of Small Pulley (rpm)	UP8M Design Power (kW)	UP5M Design Power (kW)
10	~1.5	~0.3
100	~10	~2
1000	~60	~10
10000	~150	~30



Selection of Timing Belts

Step 4: Determining Number of Teeth of Large and Small Pulley, Belt Length, Inter-Shaft Distance

(1) Select the number of teeth of large and small pulley, which can satisfy the predetermined speed ratio.

(However, note that the number of teeth for small pulley should be larger than the min. number of teeth shown in Table 25.)

$$\text{Speed Ratio} = \frac{\text{Number of Teeth of Large Pulley}}{\text{Number of Teeth of Small Pulley}}$$

Table 25. Min. Number of Teeth of Pulley

Rotary Speed of Small Pulley (rpm)		Type of Belt, Minimum Number of Teeth											
		MXL	XL	L	H	S2M	S3M	S5M	S8M	S14M	MTS8M	T5	T10
900 or Less	1200 or Less	12	10	12	14	14	14	14	22	—	24	12	14
Over 900	1200 or Less	12	10	12	16	14	14	16	24	34	24	12	16
Over 1200	1800 or Less	14	11	14	18	16	16	20	26	38	24	14	18
Over 1800	3600 or Less	16	12	16	20	18	18	24	28	40	24	16	20
Over 3600	4800 or Less	—	16	20	24	20	20	26	30	48	24	20	22
Over 4800	10000 or Less	—	—	—	—	20	20	26	—	—	—	—	—

(2) Determine approx. belt circum. length (Lp') in terms of temporary inter-shaft distance (C'), diameter of large pulley (Dp) and diameter of small pulley (dp).

$$Lp' = 2C' + \frac{\pi(Dp+dp)}{2} + \frac{(Dp-dp)^2}{4C'}$$

C': Temporary Inter-shaft Distance

dp: Pitch Diameter of Small Pulley (mm)

Dp: Pitch Diameter of Large Pulley (mm)

Lp': Approx. Belt Circum. Length (mm)

(3) Determine a belt circum. length (Lp) that is the nearest value to approx. belt circum. length referring to timing belt section for each profile and then calculate the correct inter-shaft distance using the following formula.

$$C = \frac{b + \sqrt{b^2 - 8(Dp - dp)^2}}{8}$$

Dp: Pitch Diameter of Large Pulley (mm)

dp: Pitch Diameter of Small Pulley (mm)

C: Inter-shaft Distance

Lp: Belt Circum. Length (mm)

$$b = 2Lp - \pi(Dp + dp)$$

Step 5: Determining Belt Width

(1) Calculate an approx. belt width using the following formula, and then select a belt width (Bw': mm) that is the nearest value to the approximated value.

$$Bw' = \frac{Pd}{Ps \cdot Km} \times Wp$$

Pd: Design Power

Ps: Reference Transmission Capacity

Km: Engagement Correction Coefficient (Table 26)

Wp: Reference Belt Width (Table 27)



Selection of Timing Belts

Table 26. Engagement Correction Coefficient (Km)

No. of Teeth Engaged Zm	More than 6	5	4	3	2
Km	1.0	0.8	0.6	0.4	0.2

$$\text{No. of Teeth Engaged (Zm)} = \frac{Zd \cdot \theta}{360^\circ} \quad \theta = 180^\circ - \frac{57.3(Dp - dp)}{C}$$

Zd: No. of Teeth of Small Pulley **Dp:** Pitch Diameter of Large Pulley (mm) **C:** Inter-shaft Distance (mm) **θ:** Contact Angle(°) **dp:** Pitch Diameter of Small Pulley (mm)

Table 27. Reference Belt Width (Wp)

Type of Belt	MXL	XL	L	H	S2M	S3M	S5M	S8M	S14M	MTS8M
Reference Belt Width	6.4	25.4	25.4	25.4	4	6	10	60	120	60

Type of Belt	P2M	P3M	P5M	P8M	T5	T10
Reference Belt Width	4	6	10	15	10	10

(2) Check if Design Power (Pd) satisfies the following formula. (If not, select the belt width of one size larger again.)

· Pd < Ps · Km · Kb **Pd:** Design Power **Ps:** Reference Transmission Capacity **Km:** Engagement Correction Coefficient
 *MR2 · MR3 · MR5 · EV5GT · EV8YU **Kb:** Width Correction Coefficient (Table 28) **KL:** Length Correction Coefficient (Table 29)
 · Pd < Ps · Km · Kb · KL

Table 28. Width Correction Coefficient (Kb)

Type of Belt	Belt Width		Width Correction Coefficient
	Nominal	mm	Kb
MXL	019	4.8	0.72
	025	6.4	1.00
	037	9.5	1.57
	050	12.7	2.18
XL	025	6.4	0.15
	031	7.9	0.21
	037	9.5	0.28
	050	12.7	0.42
L	050	12.7	0.42
	075	17.1	0.71
	100	25.4	1.00
	150	38.1	1.56
H	075	19.1	0.71
	100	25.4	1.00
	150	38.1	1.56
	200	50.8	2.14

Type of Belt	Belt Width		Width Correction Coefficient
	Nominal	mm	Kb
S2M	040	4	1.00
	060	6	1.59
	100	10	2.84
S3M	060	6	1.00
	100	10	1.79
	150	15	2.84
S5M	100	10	1.00
	150	15	1.59
	250	25	2.84
S8M MTS8M	150	15	0.21
	250	25	0.37
	300	30	0.45
	400	40	0.63
S14M	400	40	0.29
	600	60	0.45

Type of Belt	Belt Width		Width Correction Coefficient
	Nominal	mm	Kb
P2M	40	4	1.00
	60	6	1.59
P3M	100	10	1.78
	150	15	2.84
P5M	100	10	1.00
	150	15	1.59
P8M	150	15	1.00
	250	25	1.79
T5	100	10	1.00
	150	15	1.60
	200	20	2.30
	250	25	2.90
T10	150	15	1.60
	200	20	2.30
	250	25	2.90
	300	30	3.50
	400	40	4.60
	500	50	5.80

Type of Belt	Belt Width		Width Correction Coefficient
	Nominal	mm	Kb
EV5GT	9	9	0.53
	12	12	0.76
	15	15	1.00
EV8YU	15	15	0.71
	20	20	1.00
	25	25	1.29

*For MR belts see pages 145–147 for width correction factor

Table 29. Length Correction Coefficient (KL)

Length Correction Coefficient (KL)	0.80	0.90	1.00	1.10	1.20
2GT Belt Length (mm)	130 or less	131~182	183~280	281~419	420 or less
3GT Belt Length (mm)	190 or less	191~260	261~400	401~599	600 or less

*For MR belts see pages 143–145 for MR Power Rating tables



Selection of Timing Belts

Transmission Capacity Table

Selection is easy with Timing Pulleys and Belts
automatic calculation tool available at:
http://fawos.misumi.jp/FA_WEB/pulley_us/

Step 6: Check if Inter-Shaft Distance Adjustment Range is Larger than that in Table 16

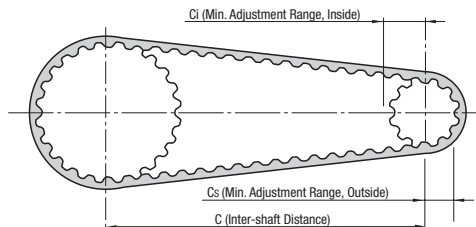


Table 16. Minimum Inter-Axial Distance Adjustment Range

Belt Length	Length Tolerance	Inter-Shaft Distance Tolerance	MXL		XL		L		H		S2M S3M S5M		S8M S14M		MTS8M		P2M P3M P5M		P8M		T5		T10	
			Ci	Cs	Ci	Cs	Ci	Cs	Ci	Cs	Ci	Cs	Ci	Cs	Ci	Cs	Ci	Cs	Ci	Cs	Ci	Cs	Ci	Cs
150 or Less	±0.35	±0.18	3	3	5	3	10	3	15	3	10	2	15	3	15	—	10	3	15	3	5	3	10	3
150 to 250	±0.41	±0.21		3		3		3		3		2		3		3		3						
250 to 380	±0.46	±0.23		5		5		5		5		2		3		3		3		5		5		
380 to 500	±0.51	±0.26		10		10		10		10		2		3		3		3		10		10		
500 to 750	±0.60	±0.30		10		10		10		10		3		5		3		5		10		10		
750 to 1000	±0.66	±0.33		15		15		15		15		3		5		5		5		15		15		
1000 to 1250	±0.76	±0.37		15		15		15		15		5		10		5		10		15		15		
1250 to 1500	±0.82	±0.41		25		25		25		25		5		10		10		10		25		25		
1500 to 1750	±0.86	±0.43		25		25		25		25		5		10		10		10		25		25		
1750 to 2000	±0.92	±0.46		30		30		30		30		5		10		10		10		30		30		

Belt Length	Length Tolerance	Inter-Shaft Distance Tolerance	MR2, MR3, MR5, EV5GT		EV8YU	
			Ci	Cs	Ci	Cs
150 or Less	± 0.40	± 0.20	10	3	20	3
Over 150	250 or Less	± 0.40		3		3
Over 250	380 or Less	± 0.46		3		3
Over 380	500 or Less	± 0.50		3		3
Over 500	750 or Less	± 0.60		5		5
Over 750	1000 or Less	± 0.66		5		5
Over 1000	1250 or Less	± 0.76		10		10
Over 1250	1500 or Less	± 0.82		10		10
Over 1500	1750 or Less	± 0.86		10		10
Over 1750	2000 or Less	± 0.92		10		10

■ Notes on Operation

- Be careful to avoid the ingress of foreign particles.
When solid foreign particles enter during operation, it can scratch the belt and adversely affect the engagement of the belt and the pulley. In some cases, the pulley may disengage, land on the teeth of the pulley, and be cut.
- Avoid Adhesion of oil.
Oil on the rubber timing belt may wet and expand it, drastically shortening its service life.
(a) Take special care when using solvent type oil.
(b) A small amount of lubricant or grease, however, rarely causes a trouble.
- Do not use the belt in a humid atmosphere.
- Please use a well-ventilated safety cover.
- The service life of the belt, when used at a high temperature (80°C or more), can be drastically shortened.

Reference: Belt Width Tolerance

Unit: mm

Belt Width	Belt Length			
	351 or Less	351 to 840	840 to 1680	1680 or More
10 or Less	+0.3	+0.3	+0.3	+0.6
	−0.6	−0.6	−0.6	−0.6
10 to 40	+0.6	+0.6	+0.6	+0.6
	−0.6	−0.6	−0.6	−0.6
40 to 50	+0.6	+0.6	+1.0	+1.0
	−0.6	−0.6	−1.0	−1.3



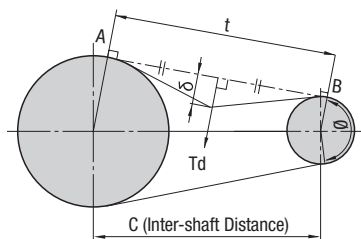
Selection of Timing Belts

Transmission Capacity Table

Cautions on Use of Belt

■ How to Extend Belt

When the belt is too taut, its service life can be shortened, while when it is not taut enough, the belt may (jump off) the groove of the pulley due to an activating torque or shock load. Keep the belt stationary and optimize its tautness. The warp load necessary to provide the optimum tautness can be calculated from values representing the belt, its width and the span in equation A below.



$$T_d = \frac{T_i + \frac{t \times Y}{L_p}}{16} \quad \text{Equation A}$$

Td: Load N Needed for Deflection d at the Center of Span t

Ti: Initial Tension N

From Table 31

Lp: Length of the Belt (mm)

Y: Correction Coefficient

From Table 31

C: Inter-shaft Distance (mm)

d: Deflection (mm)

d=0.016t

dp: Diameter of the Pitch Circle of the Small Pulley (mm)

t: Span Length (mm)

$$t = \sqrt{C^2 - \frac{(D_p - d_p)^2}{4}}$$

Dp: Diameter of the Pitch Circle of the Large Pulley (mm)

Table 31. Initial Tension (Ti) and Correction Coefficient (Y)

		Belt Nominal Width	019	025	031	037	050	075	100	150	200			Belt Nominal Width	60	100	150	250
Type	Ti-Y	Belt Width (mm)	4.8	6.4	7.9	9.5	12.7	19.1	25.4	38.1	50.8	Type	Ti-Y	Belt Width (mm)	6	10	15	25
MXL	Ti	Max. Value	9.8	13.7		21.6	29.9					P2M	Ti	Max. Value	13			
	N	Recommended Value	5.8	8.2		12.9	18.0						N	Recommended Value	9.8			
	Coefficient Y													Coefficient Y	0.9			
XL	Ti	Max. Value		29	37	44	67					P3M	Ti	Max. Value		46	74	
	N	Recommended Value		18	25	32	51						N	Recommended Value		34	55	
	Coefficient Y			3.8	5.4	7.6	11.8							Coefficient Y		1.9	3.0	
L	Ti	Max. Value					76	125	175	273		P5M	Ti	Max. Value		147	225.4	
	N	Recommended Value					52	87	123	191			N	Recommended Value		107.8	166.6	
	Coefficient Y						44.1	75.5	107	165				Coefficient Y			56.9	82.4
H	Ti	Max. Value						293	421	646	889	P8M	Ti	Max. Value			294	509.6
	N	Recommended Value						222	312	486	668		N	Recommended Value			225.4	382.2
	Coefficient Y								142	205	317		423		Coefficient Y			135

		Belt Nominal Width	40	60	100	150	250	300	400	600			Belt Nominal Width	4	6	9	12	15	20	25			
Type	Ti-Y	Belt Width (mm)	4	6	10	15	25	30	40	60	Type	Ti-Y	Belt Width (mm)	4	6	9	12	15	20	25			
S2M	Ti	Max. Value	7.8	12.7	22.6						MR2	Ti	Max. Value	12.2	20.5	32.8							
	N	Recommended Value	5.9	9.8	16.7							N	Recommended Value	9.4	15.8	25.2							
	Coefficient Y		9.8	15.7	27.4								Coefficient Y										
S3M	Ti	Max. Value		26	46	73					MR3	Ti	Max. Value		38	57		96					
	N	Recommended Value		20	34	54						N	Recommended Value		29	44		74					
	Coefficient Y			26.5	46.1	75.5							Coefficient Y										
S5M	Ti	Max. Value			77	124	221				MR5	Ti	Max. Value			92	127	163					
	N	Recommended Value			58	93	166					N	Recommended Value			71	98	125					
	Coefficient Y				52.8	85.5	151.0						Coefficient Y										
S8M MTS8M	Ti	Max. Value				294	510	628	873		EV8YU	Ti	Max. Value					273	364	455			
	N	Recommended Value				226	382	470	657			N	Recommended Value					210	280	350			
	Coefficient Y					98	196	235	333				Coefficient Y										
S14M	Ti	Max. Value							1226	1912	T5	Ti	Max. Value	37.3	59	85	106						
	N	Recommended Value							1108	1726		N	Recommended Value	24.5	39	59	74						
	Coefficient Y									686		1059		Coefficient Y	16.7	26.5	38.2	47.5					
												T10	Ti	Max. Value		162	235	294	363	500	628		
													N	Recommended Value		108	157	196	245	333	422		
														Coefficient Y			71.6	104.9	130.4	163.8	222.6	281.5	



Selection of Timing Belts

Transmission Capacity Table

Table 32. Reference Transmission Capacity of MXL Ps – Nominal Width of Belts 025 (6.4 mm) –

(W)

Rotary Speed of Small Pulley (rpm)	No. of Teeth of Small Pulley Diameter of the Pitch Circle (mm)	12	14	15	16	18	20	22	24	25	26	28	30	32	36	40
		7.76	9.06	9.70	10.35	11.64	12.94	14.23	15.52	16.17	16.82	18.11	19.40	20.70	23.29	25.97
950		9.0	10.5	11.3	12.0	13.5	15.0	16.5	18.0	18.8	19.6	21.1	22.6	24.1	27.1	30.1
1160		11.0	12.8	13.8	14.7	16.5	18.4	20.2	22.0	23.0	23.9	25.7	27.6	29.4	33.1	36.7
1425			15.8	16.9	18.0	20.3	22.6	24.8	27.1	28.2	29.3	31.6	33.9	36.1	40.6	45.1
1750			19.4	20.8	22.2	24.9	27.7	30.5	33.3	34.7	36.0	38.8	41.6	44.3	49.9	55.4
2850				33.9	36.1	40.6	45.1	49.6	54.1	56.4	58.6	63.1	67.6	72.1	81.0	90.0
3450				41.0	43.7	49.2	54.6	60.1	65.5	68.2	70.9	76.3	81.7	87.1	97.9	108.6
100		0.9	1.1	1.1	1.2	1.4	1.5	1.7	1.9	1.9	2.0	2.2	2.3	2.5	2.8	3.1
200		1.9	2.2	2.3	2.5	2.8	3.1	3.4	3.8	3.9	4.1	4.4	4.7	5.0	5.7	6.3
300		2.8	3.3	3.5	3.8	4.2	4.7	5.2	5.7	5.9	6.1	6.6	7.1	7.6	8.5	9.5
400		3.8	4.4	4.7	5.0	5.7	6.3	6.9	7.6	7.9	8.2	8.8	9.5	10.1	11.4	12.6
500		4.7	5.5	5.9	6.3	7.1	7.9	8.7	9.5	9.9	10.3	11.1	11.9	12.6	14.2	15.8
600		5.7	6.6	7.1	7.6	8.5	9.5	10.4	11.4	11.9	12.3	13.3	14.2	15.2	17.1	19.0
700		6.6	7.7	8.3	8.8	10.0	11.1	12.2	13.3	13.8	14.4	15.5	16.6	17.7	19.9	22.2
800		7.6	8.8	9.5	10.1	11.4	12.6	13.9	15.2	15.8	16.5	17.7	19.0	20.3	22.8	25.3
900		8.5	10.0	10.7	11.4	12.8	14.2	15.7	17.1	17.8	18.5	19.9	21.4	22.8	25.7	28.5
1000		9.5	11.1	11.9	12.6	14.2	15.8	17.4	19.0	19.8	20.6	22.2	23.8	25.3	28.5	31.7
1100		10.4	12.2	13.0	13.9	15.7	17.4	19.2	20.9	21.8	22.6	24.4	26.1	27.9	31.4	34.8
1200		11.4	13.3	14.2	15.2	17.1	19.0	20.9	22.8	23.8	24.7	26.6	28.5	30.4	34.2	38.0
1300			14.4	15.4	16.5	18.5	20.6	22.6	24.7	25.7	26.8	28.8	30.9	32.9	37.1	41.2
1400			15.5	16.6	17.7	19.9	22.2	24.4	26.6	27.7	28.8	31.0	33.3	35.5	39.9	44.3
1500			16.6	17.8	19.0	21.4	23.8	26.1	28.5	29.7	30.9	33.3	35.6	38.0	42.8	47.5
1600			17.7	19.0	20.3	22.8	25.3	27.9	30.4	31.7	32.9	35.5	38.0	40.5	45.6	50.7
1700			18.8	20.2	21.5	24.2	26.9	29.6	32.3	33.7	35.0	37.7	40.4	43.1	48.5	53.8
1800			19.9	21.4	22.8	25.7	28.5	31.4	34.2	35.6	37.1	39.9	42.8	45.6	51.3	57.0
2000				23.8	25.3	28.5	31.7	34.8	38.0	39.6	41.2	44.3	47.5	50.7	57.0	63.3
2200				26.1	27.9	31.4	34.8	38.3	41.8	43.6	45.3	48.8	52.2	55.7	62.7	69.6
2400				28.5	30.4	34.2	38.0	41.8	45.6	47.5	49.4	53.2	57.0	60.8	68.3	75.9
2600				30.9	32.9	37.1	41.2	45.3	49.4	51.5	53.5	57.6	61.7	65.8	74.0	82.1
2800					35.5	39.9	44.3	48.8	53.2	55.4	57.6	62.0	66.4	70.8	79.6	88.4
3000					38.0	42.8	47.5	52.2	57.0	59.3	61.7	66.4	71.2	75.9	85.3	94.6
3200					40.5	45.6	50.7	55.7	60.8	63.3	65.8	70.8	75.9	80.9	90.9	100.9
3400					43.1	48.5	53.8	59.2	64.5	67.2	69.9	75.2	80.6	85.9	96.5	107.1
3600					45.6	51.3	57.0	62.7	68.3	71.2	74.0	79.6	85.3	90.9	102.1	113.3
3800						54.1	60.1	66.1	72.1	75.1	78.1	84.0	90.0	95.9	107.7	119.5
4000						57.0	63.3	69.6	75.9	79.0	82.1	88.4	94.6	100.9	113.3	125.6
4200						59.8	66.4	73.0	79.6	82.9	86.2	92.8	99.3	105.8	118.8	131.8
4400						62.7	69.6	76.5	83.4	86.8	90.3	97.1	104.0	110.8	124.4	137.9
4600						65.5	72.7	79.9	87.1	90.7	94.3	101.5	108.6	115.8	129.9	144.0
4800						68.3	75.9	83.4	90.9	94.6	98.4	105.8	113.3	120.7	135.4	150.0

*Values in the table above are for nominal belt width 025 (6.4 mm). For other belt widths, those values should be multiplied by the width correction coefficient, Kb, shown in Table 28.

Table 33. Reference Transmission Capacity of XL Ps – Nominal Width of Belts 100 (25.4 mm) –

(kW)

Rotary Speed of Small Pulley (rpm)	No. of Teeth of Small Pulley Diameter of the Pitch Circle (mm)	10	11	12	14	15	16	18	19	20	21	22	24	25	26	28	30
		16.17	17.79	19.40	22.64	24.26	25.87	29.11	30.72	32.34	33.96	35.57	38.81	40.43	42.04	45.28	48.51
950		0.14	0.16	0.17	0.20	0.21	0.23	0.26	0.27	0.29	0.30	0.32	0.35	0.36	0.38	0.41	0.43
1160		0.17	0.19	0.21	0.25	0.26	0.28	0.32	0.33	0.35	0.37	0.39	0.42	0.44	0.46	0.50	0.53
1425				0.26	0.30	0.32	0.35	0.39	0.41	0.43	0.46	0.48	0.52	0.54	0.57	0.61	0.65
1750				0.32	0.37	0.40	0.43	0.48	0.51	0.53	0.56	0.59	0.64	0.67	0.69	0.75	0.80
2850				0.52	0.61	0.65	0.07	0.78	0.82	0.87	0.91	0.95	1.04	1.08	1.12	1.21	1.29
3450				0.63	0.74	0.79	0.84	0.94	1.00	1.05	1.10	1.15	1.25	1.30	1.35	1.45	1.55
100		0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04
200		0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.07	0.07	0.08	0.08	0.09
300		0.04	0.05	0.05	0.06	0.06	0.07	0.08	0.08	0.09	0.09	0.10	0.11	0.11	0.12	0.12	0.13
400		0.06	0.06	0.07	0.08	0.09	0.09	0.11	0.11	0.12	0.12	0.13	0.14	0.15	0.16	0.17	0.18
500		0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.16	0.18	0.19	0.20	0.21	0.23
600		0.09	0.10	0.11	0.12	0.13	0.14	0.16	0.17	0.18	0.19	0.20	0.22	0.23	0.24	0.25	0.27
700		0.10	0.11	0.12	0.15	0.16	0.17	0.19	0.20	0.21	0.22	0.23	0.25	0.27	0.28	0.30	0.32
800		0.12	0.13	0.14	0.17	0.18	0.19	0.22	0.23	0.24	0.25	0.27	0.29	0.30	0.32	0.34	0.37
900		0.13	0.15	0.16	0.19	0.20	0.22	0.25	0.26	0.27	0.29	0.30	0.33	0.34	0.36	0.38	0.41
1000		0.15	0.16	0.18	0.21	0.23	0.24	0.27	0.29	0.30	0.32	0.33	0.37	0.38	0.40	0.43	0.46
1100		0.16	0.18	0.20	0.23	0.25	0.27	0.30	0.32	0.33	0.35	0.37	0.40	0.42	0.44	0.47	0.50
1200		0.18	0.20	0.22	0.25	0.27	0.29	0.33	0.35	0.37	0.38	0.40	0.44	0.46	0.48	0.51	0.55
1300				0.24	0.28	0.30	0.32	0.36	0.38	0.40	0.42	0.44	0.48	0.50	0.52	0.56	0.59
1400				0.25	0.30	0.32	0.34	0.38	0.41	0.43	0.45	0.47	0.51	0.53	0.56	0.60	0.64
1500				0.27	0.32	0.34	0.37	0.41	0.43	0.46	0.48	0.50	0.55	0.57	0.59	0.64	0.69
1600				0.29	0.34	0.37	0.39	0.44	0.46	0.49	0.51	0.54	0.59	0.61	0.63	0.68	0.73
1700				0.31	0.36	0.39	0.41	0.47	0.49	0.52	0.54	0.57	0.62	0.65	0.67	0.73	0.78
1800				0.33	0.38	0.41	0.44	0.49	0.52	0.55	0.58	0.60	0.66	0.69	0.71	0.77	0.82
2000				0.37	0.43	0.46	0.49	0.55	0.58	0.61	0.64	0.67	0.73	0.76	0.79	0.85	0.91
2200				0.40	0.47	0.50	0.54	0.60	0.64	0.67	0.70	0.74	0.80	0.84	0.87	0.94	1.00
2400				0.44	0.51	0.55	0.59	0.66	0.70	0.73	0.77	0.80	0.88	0.91	0.95	1.02	1.09
2600				0.48	0.56	0.59	0.63	0.71	0.75	0.79	0.83	0.87	0.95	0.99	1.03	1.10	1.18
2800				0.51	0.60	0.64	0.68	0.77	0.81	0.85	0.89	0.94	1.02	1.06	1.10	1.19	1.27
3000				0.55	0.64	0.69	0.73	0.82	0.87	0.91	0.96	1.00	1.09	1.14	1.18	1.27	1.35
3200				0.59	0.68	0.73	0.78	0.88	0.92	0.97	1.02	1.07	1.16	1.21	1.26	1.35	1.44
3400				0.62	0.73	0.78	0.83	0.93	0.98	1.03	1.08	1.13	1.23	1.28	1.33	1.43	1.53
3600				0.66	0.77	0.82	0.88	0.98	1.04	1.09	1.14	1.20	1.30	1.35	1.41	1.51	1.61
3800						0.87	0.92	1.04	1.09	1.15	1.21	1.26	1.37	1.43	1.48	1.59	1.69
4000						0.91	0.97	1.09	1.15	1.21	1.27	1.33	1.44	1.50	1.55	1.67	1.78
4200						0.96	1.02	1.14	1.21	1.27	1.33	1.39	1.51	1.57	1.63	1.74	1.86
4400						1.00	1.07	1.20	1.26	1.33	1.39	1.45	1.58	1.64	1.70	1.82	1.94
4600						1.05	1.12	1.25	1.32	1.38	1.45	1.52	1.64	1.71	1.77	1.90	2.02
4800						1.09	1.16	1.30	1.37	1.44	1.51	1.58	1.71	1.78	1.84	1.97	2.10



Selection of Timing Belts

Transmission Capacity Table

Table 34. Reference Transmission Capacity of L Ps – Nominal Width of Belts 100 (25.4 mm) –

(kW)

Rotary Speed of Small Pulley (rpm)	No. of Teeth of Small Pulley Diameter of the Pitch Circle (mm)	12	14	15	16	18	19	20	21	22	24	25	26	28	30	32	36	40	48
		36.38	42.45	45.48	48.51	54.57	57.61	60.64	63.67	66.70	72.77	75.80	78.83	84.89	90.96	97.02	109.15	121.28	145.53
725		0.33	0.39	0.42	0.44	0.50	0.53	0.56	0.58	0.61	0.67	0.70	0.72	0.78	0.83	0.89	1.00	1.11	1.33
870		0.40	0.47	0.50	0.53	0.60	0.63	0.67	0.70	0.73	0.80	0.83	0.87	0.93	1.00	1.07	1.20	1.33	1.59
950		0.44	0.51	0.55	0.58	0.66	0.69	0.73	0.77	0.80	0.87	0.91	0.95	1.02	1.09	1.16	1.31	1.45	1.73
1160		0.53	0.62	0.67	0.71	0.80	0.85	0.89	0.93	0.98	1.07	1.11	1.15	1.24	1.33	1.41	1.59	1.76	2.09
1425			0.77	0.82	0.87	0.98	1.04	1.09	1.14	1.20	1.31	1.36	1.41	1.52	1.62	1.73	1.93	2.13	2.52
1750			0.94	1.01	1.07	1.20	1.27	1.34	1.40	1.47	1.59	1.66	1.72	1.85	1.97	2.10	2.34	2.58	3.02
2850					1.73	1.93	2.03	2.13	2.23	2.33	2.52	2.62	2.71	2.89	3.07	3.24	3.56	3.84	4.31
3450					2.07	2.31	2.43	2.54	2.66	2.77	2.99	3.09	3.19	3.39	3.58	3.76	4.07	4.33	4.67
100		0.04	0.05	0.05	0.06	0.06	0.07	0.07	0.08	0.08	0.09	0.09	0.10	0.10	0.11	0.12	0.13	0.15	0.18
200		0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.23	0.24	0.27	0.30	0.37
300		0.13	0.16	0.17	0.18	0.20	0.22	0.23	0.24	0.25	0.27	0.29	0.30	0.32	0.34	0.37	0.41	0.46	0.55
400		0.18	0.21	0.23	0.24	0.27	0.29	0.30	0.32	0.34	0.37	0.38	0.40	0.43	0.46	0.49	0.55	0.61	0.74
500		0.23	0.27	0.29	0.30	0.34	0.36	0.38	0.40	0.42	0.46	0.48	0.50	0.54	0.58	0.61	0.69	0.77	0.92
600		0.27	0.32	0.34	0.37	0.41	0.44	0.46	0.48	0.51	0.55	0.58	0.60	0.64	0.69	0.74	0.83	0.92	1.10
700		0.32	0.37	0.40	0.43	0.48	0.51	0.54	0.56	0.59	0.64	0.67	0.70	0.75	0.81	0.86	0.97	1.07	1.28
800		0.37	0.43	0.46	0.49	0.55	0.58	0.61	0.64	0.68	0.74	0.77	0.80	0.86	0.92	0.98	1.10	1.22	1.46
900		0.41	0.48	0.52	0.55	0.62	0.66	0.69	0.73	0.76	0.83	0.86	0.90	0.97	1.03	1.10	1.24	1.37	1.64
1000		0.46	0.54	0.58	0.61	0.69	0.73	0.77	0.81	0.84	0.92	0.96	1.00	1.07	1.15	1.22	1.37	1.52	1.81
1100		0.51	0.59	0.63	0.66	0.76	0.80	0.84	0.89	0.93	1.01	1.05	1.09	1.18	1.26	1.34	1.51	1.67	1.99
1200		0.55	0.64	0.69	0.74	0.83	0.87	0.92	0.97	1.01	1.10	1.15	1.19	1.28	1.37	1.46	1.64	1.81	2.15
1300			0.70	0.75	0.80	0.90	0.95	1.00	1.05	1.09	1.19	1.24	1.29	1.39	1.48	1.58	1.77	1.96	2.32
1400			0.75	0.81	0.86	0.97	1.02	1.07	1.12	1.18	1.28	1.34	1.39	1.49	1.59	1.70	1.90	2.10	2.48
1500			0.81	0.86	0.92	1.03	1.09	1.15	1.20	1.26	1.37	1.43	1.48	1.59	1.70	1.81	2.03	2.24	2.64
1600			0.86	0.92	0.98	1.10	1.16	1.22	1.28	1.34	1.46	1.52	1.58	1.70	1.81	1.93	2.15	2.38	2.80
1700			0.91	0.98	1.04	1.17	1.23	1.30	1.36	1.42	1.55	1.61	1.68	1.80	1.92	2.04	2.28	2.51	2.95
1800			0.97	1.03	1.10	1.24	1.31	1.37	1.44	1.51	1.64	1.70	1.77	1.90	2.03	2.15	2.40	2.64	3.10
1900					1.16	1.31	1.38	1.45	1.52	1.59	1.73	1.80	1.86	2.00	2.13	2.27	2.52	2.77	3.24
2000					1.22	1.37	1.45	1.52	1.59	1.67	1.81	1.89	1.96	2.10	2.24	2.38	2.64	2.90	3.38
2200					1.34	1.51	1.59	1.67	1.75	1.83	1.99	2.06	2.14	2.29	2.44	2.59	2.87	3.14	3.64
2400					1.46	1.64	1.73	1.81	1.90	1.99	2.15	2.24	2.32	2.48	2.64	2.80	3.10	3.38	3.87
2500					1.52	1.70	1.80	1.89	1.97	2.06	2.24	2.32	2.41	2.58	2.74	2.90	3.20	3.49	3.98
2600					1.58	1.77	1.86	1.96	2.05	2.14	2.32	2.41	2.50	2.67	2.84	3.00	3.31	3.59	4.09
2800					1.70	1.90	2.00	2.10	2.20	2.29	2.48	2.58	2.67	2.85	3.02	3.19	3.51	3.80	4.27
3000					1.81	2.03	2.13	2.24	2.34	2.44	2.64	2.74	2.84	3.02	3.20	3.38	3.70	3.98	4.43
3200					1.93	2.15	2.27	2.38	2.48	2.59	2.80	2.90	3.00	3.19	3.38	3.55	3.87	4.15	4.56
3400					2.04	2.28	2.40	2.51	2.62	2.73	2.95	3.05	3.16	3.35	3.54	3.72	4.04	4.30	4.65
3600					2.15	2.40	2.52	2.64	2.76	2.87	3.10	3.20	3.31	3.51	3.70	3.87	4.18	4.43	4.71
3800						2.52	2.65	2.77	2.89	3.01	3.24	3.35	3.45	3.66	3.84	4.02	4.31	4.54	4.73
4000						2.64	2.77	2.90	3.02	3.14	3.38	3.49	3.59	3.80	3.98	4.15	4.43	4.62	4.72
4200						2.76	2.89	3.02	3.15	3.27	3.51	3.62	3.73	3.93	4.11	4.27	4.53	4.69	4.66
4400						2.87	3.01	3.14	3.27	3.40	3.64	3.75	3.85	4.05	4.23	4.38	4.61	4.72	4.56
4600						2.99	3.13	3.26	3.39	3.52	3.76	3.87	3.97	4.17	4.33	4.48	4.67	4.73	4.42
4800						3.10	3.24	3.38	3.51	3.64	3.87	3.98	4.09	4.27	4.43	4.56	4.71	4.72	4.23

□ The circumferential speed of pulley is 33 (m/s) or more; a dynamic balance for the pulley is essential.

*Values in the table above are for nominal belt width 100 (25.4 mm). For other belt widths, those values should be multiplied by the width correction coefficient, Kb, shown in Table 28.

Table 35. Reference Transmission Capacity of H Ps – Nominal Width of Belts 100 (25.4 mm) –

(kW)

Rotary Speed of Small Pulley (rpm)	No. of Teeth of Small Pulley Diameter of the Pitch Circle (mm)	14	15	16	18	19	20	21	22	24	25	26	28	30	32	36	40	48
		56.60	60.64	64.68	72.77	76.81	80.85	84.89	88.94	97.02	101.06	105.1	113.19	121.28	129.36	145.53	161.70	194.04
725		1.33	1.43	1.52	1.71	1.81	1.90	2.00	2.09	2.28	2.38	2.47	2.66	2.85	3.04	3.41	3.79	4.53
870		1.60	1.71	1.83	2.05	2.17	2.28	2.40	2.51	2.74	2.85	2.96	3.19	3.41	3.64	4.08	4.53	5.41
950				1.99	2.24	2.37	2.49	2.61	2.74	2.99	3.11	3.23	3.48	3.72	3.97	4.45	4.93	5.89
1160				2.43	2.74	2.89	3.04	3.19	3.34	3.64	3.79	3.94	4.23	4.53	4.82	5.41	5.99	7.12
1425					3.35	3.54	3.72	3.91	4.09	4.45	4.63	4.81	5.17	5.53	5.89	6.59	7.27	8.61
1750					4.11	4.33	4.55	4.78	5.00	5.44	5.66	5.87	6.31	6.73	7.16	7.98	8.79	10.32
2850							7.27	7.61	7.95	8.61	8.93	9.25	9.87	10.48	11.06	12.16	13.15	14.80
3450							8.68	9.07	9.45	10.19	10.55	10.91	11.59	12.24	12.85	13.95	14.87	16.09
100		0.18	0.19	0.21	0.23	0.25	0.26	0.27	0.28	0.31	0.32	0.34	0.36	0.39	0.42	0.47	0.52	0.63
200		0.36	0.39	0.42	0.47	0.50	0.52	0.55	0.57	0.63	0.65	0.68	0.73	0.79	0.84	0.94	1.05	1.26
300		0.55	0.59	0.63	0.71	0.75	0.79	0.83	0.86	0.94	0.98	1.02	1.10	1.18	1.26	1.42	1.57	1.89
400		0.73	0.79	0.84	0.94	1.00	1.05	1.10	1.15	1.26	1.31	1.36	1.47	1.57	1.68	1.89	2.10	2.52
500		0.92	0.98	1.05	1.18	1.25	1.31	1.38	1.44	1.57	1.64	1.71	1.84	1.97	2.10	2.36	2.62	3.14
600		1.10	1.18	1.26	1.42	1.50	1.57	1.65	1.73	1.89	1.97	2.05	2.20	2.36	2.52	2.83	3.14	3.76
700		1.29	1.38	1.47	1.65	1.75	1.84	1.93	2.02	2.20	2.30	2.39	2.57	2.75	2.93	3.30	3.66	4.38
800		1.47	1.57	1.68	1.89	1.99	2.10	2.20	2.31	2.52	2.62	2.73	2.93	3.14	3.35	3.76	4.17	4.99
900		1.65	1.77	1.89	2.13	2.24	2.36	2.48	2.60	2.83	2.95	3.06	3.30	3.53	3.76	4.22	4.68	5.59
1000				2.10	2.36	2.49	2.62	2.75	2.88	3.14	3.27	3.40	3.66	3.92	4.17	4.68	5.19	6.18
1100				2.31	2.60	2.74	2.88	3.02	3.17	3.45	3.59	3.74	4.02	4.30	4.58	5.14	5.69	6.77
1200				2.52	2.83	2.99	3.14	3.30	3.45	3.76	3.92	4.07	4.38	4.68	4.99	5.59	6.18	7.35
1300					3.06	3.23	3.40	3.57	3.74	4.07	4.24	4.40	4.73	5.06	5.39	6.03	6.67	7.91
1400					3.30	3.48	3.66	3.84	4.02	4.38	4.55	4.73	5.09	5.44	5.79	6.48	7.16	8.



Selection of Timing Belts
Transmission Capacity Table

Table 36. Reference Transmission Capacity of S2M Ps – Belt Width 4 mm –

(W)

Rotary Speed of Small Pulley (rpm)	No. of Teeth of Small Pulley Diameter of the Pitch Circle (mm)	14	15	16	18	20	22	24	25	26	28	30	32	36	40	44	48	50	60
		8.91	9.55	10.19	11.46	12.73	14.01	15.28	15.92	16.55	17.83	19.10	20.37	22.92	25.46	28.01	30.56	31.83	38.20
870		11	12	14	16	19	21	23	25	26	28	30	33	37	41	46	50	52	62
1160		13	15	17	20	23	26	29	31	32	35	38	41	46	52	57	62	65	77
1750		17	20	22	27	31	35	39	41	43	47	51	55	63	70	78	85	88	105
3500		26	30	34	41	49	56	63	67	70	77	83	90	102	115	128	138	143	170
50		1	1	1	2	2	2	2	2	2	3	3	3	3	4	4	5	5	6
100		2	2	2	3	3	4	4	4	4	5	5	6	6	7	8	8	9	11
150		3	3	3	4	5	5	6	6	6	7	7	8	9	10	11	12	12	15
200		4	4	4	5	6	7	7	8	8	9	9	10	11	12	14	15	16	19
250		4	5	5	6	7	8	9	9	10	10	11	12	13	14	16	18	19	23
300		5	5	6	7	8	9	10	11	11	12	13	14	16	18	19	21	22	26
350		6	6	7	8	9	10	11	12	13	14	15	16	18	20	22	24	25	30
400		6	7	8	9	10	11	13	13	14	15	16	18	20	22	25	27	28	33
450		7	8	8	10	11	13	14	15	15	17	18	19	22	25	27	30	31	37
500		7	9	10	11	12	14	15	16	17	18	20	21	24	27	29	32	33	40
550		8	9	10	11	13	15	16	17	18	20	21	23	26	29	32	35	36	43
600		8	9	10	12	14	16	18	18	19	21	23	24	28	31	34	37	39	46
650		9	10	11	13	15	17	19	20	21	22	24	26	30	33	36	40	41	49
700		9	10	12	14	16	18	20	21	22	24	26	28	31	35	39	42	44	52
750		10	11	12	14	17	19	21	22	23	25	27	29	33	37	41	44	46	55
800		10	12	13	15	17	20	22	23	24	26	28	31	35	39	43	47	49	58
850		11	12	13	16	18	21	23	24	25	28	30	32	36	41	45	49	51	61
900		11	13	14	16	19	22	24	25	26	29	31	34	38	43	47	51	53	63
950		12	13	14	17	20	22	25	26	28	30	33	35	40	44	49	53	56	66
1000		12	14	15	18	21	24	26	27	29	31	34	36	41	46	50	55	58	69
1100		13	14	16	19	22	25	28	29	31	34	36	39	44	50	55	60	62	74
1200		14	15	17	20	24	27	30	31	33	36	39	42	47	53	58	64	66	79
1300		14	16	18	22	25	28	32	33	35	38	41	44	50	56	62	68	71	84
1400		15	17	19	23	26	30	33	35	37	40	44	47	53	60	66	72	75	89
1500		16	18	20	24	28	31	35	37	39	42	46	49	56	63	69	75	79	93
1600		17	19	21	25	29	33	37	39	41	44	48	52	59	66	73	79	82	98
1700		17	19	22	26	30	34	39	41	43	46	50	54	62	69	76	83	86	103
1800		18	20	23	27	31	36	40	42	44	48	52	56	64	72	79	86	90	107
1900		18	21	23	28	33	37	42	44	46	50	55	59	67	75	82	90	94	111
2000		19	22	24	29	34	39	43	46	48	52	57	61	69	78	85	93	97	115
2200		20	23	26	31	36	41	46	49	51	56	61	65	74	83	92	100	104	124
2400		21	24	27	33	38	44	49	52	54	59	64	69	79	88	97	106	111	131
2600		22	25	28	35	40	46	52	55	57	63	68	73	84	93	103	112	117	139
2800		23	26	30	36	42	49	55	57	60	66	72	77	88	96	109	118	123	146
3000		24	28	31	38	44	51	57	60	63	69	75	81	92	103	114	124	129	153
3200		25	29	32	39	46	53	60	63	66	72	79	85	96	108	119	130	135	160
3400		26	30	33	41	48	55	62	65	69	75	82	88	100	112	124	135	140	167
3600		26	30	34	42	50	57	64	68	71	78	85	92	104	117	129	140	146	173
3800		27	31	35	44	51	59	67	70	74	81	88	95	108	121	133	145	151	179
4000		28	32	36	45	53	61	69	73	76	84	91	98	112	125	138	150	156	185
4500		29	34	39	48	57	66	74	78	82	90	98	106	121	135	149	162	168	199
5000		30	36	41	51	60	70	79	83	88	96	105	113	129	144	159	173	179	211
5500		32	37	43	53	63	74	83	88	93	102	111	119	136	152	168	183	190	223
6000		33	38	44	56	66	77	87	92	97	107	117	126	143	160	176	192	199	233
6500		33	40	46	58	69	80	91	97	102	112	122	132	150	168	184	200	208	243
7000		34	41	47	60	72	83	95	100	106	117	127	137	156	174	192	208	216	251
7500		34	41	48	61	74	86	98	104	110	121	132	142	162	181	198	215	223	259
8000		35	42	49	63	76	89	101	107	113	125	136	147	167	187	205	222	229	265
8500		35	43	50	64	78	91	104	110	116	128	140	151	172	192	210	227	235	270
9000		35	43	51	65	80	94	107	113	119	132	144	155	177	197	215	232	240	275

*Values in the table above are for 4 mm belt width. For other belt widths, those values should be multiplied by the width correction coefficient, Kb, shown in Table 28.

Table 37. Reference Transmission Capacity of S3M Ps – Belt Width 6 mm –

(kW)

Rotary Speed of Small Pulley (rpm)	No. of Teeth of Small Pulley Diameter of the Pitch Circle (mm)	14	15	16	18	20	22	24	25	26	28	30	32	36	40	44	48	50	60
		13.37	14.32	15.28	17.19	19.10	21.01	22.92	23.87	24.83	26.74	28.65	30.56	34.38	38.20	42.02	45.84	47.75	57.30
870		53	58	62	73	79	87	95	99	103	110	118	125	140	155	169	182	188	222
1160		67	72	78	92	99	110	119	124	129	139	148	158	176	194	212	229	238	279
1750		92	100	107	128	137	151	165	171	178	192	205	218	243	268	291	315	326	381
3500		154	167	180	215	220	255	277	289	300	322	344	362	407	446	484	521	539	624
50		5	5	6	7	7	8	8	8	9	10	11	11	13	14	15	17	17	20
100		9	9	10	12	13	14	15	16	17	18	19	21	23	25	28	30	31	37
150		12	13	14	17	18	20	22	23	24	26	27	29	33	36	39	43	44	52
200		16	17	18	22	23	26	28	29	30	33	35	37	42	46	50	54	56	67
250		19	21	22	26	28	31	34	35	37	40	43	45	50	55	61	65	68	80
300		22	24	26	31	33	36	38	41	43	46	49	52	58	65	71	76	79	94
350		25	27	29	35	37	41	45	47	49	52	56	59	66	73	80	87	90	106
400		28	31	33	39	42	46	50	52	54	58	62	66	74	82	90	97	101	119
450		31	34	36	43	46	51	55	58	60	64	69	73	82	90	99	107	111	131
500		34	37	39	47	50	55	60	63	65	70	75	80	89	97	106	112	117	143
550		37	40	43	51	54	60	65	68	71	76	81	86	97	107	116	125	131	154
600		39	43	46	54	58	64	70	73	76	82	87	93	104	114	125	135	140	165
650		42	46	49	58	62	69	75	78	81	87	93	99	111	122	133	144	150	176
700		45	48	52	62	66	73	79	83	86	92	99	105	118	130	142	153	159	187
750		47	51	55	65	70	77	84	87	91	96	105	111	124	137	150	162	168	198
800		50	54	58	69	73	81	89	92	96	103	110	117	131	145	158	171	177	208
850		52	57	61	72	77	86	93	97	101	108	116	123	138	152	166	179	186	218
900		55	59	64	76	81	90	97	101	105	113	121	129	144	159	173	187	194	228
950		57	62	66	79	84	94	102	106	110	118	127	135	150	166	181	196	203	23



Selection of Timing Belts

Transmission Capacity Table

Table 38. Reference Transmission Capacity of S5M Ps – Belt Width 10 mm –

(W)

Rotary Speed of Small Pulley (rpm)	No. of Teeth of Small Pulley Diameter of the Pitch Circle (mm)	14	15	16	18	20	22	24	25	26	28	30	32	36	40	44	48	60
		22.28	23.87	25.46	28.65	31.83	35.01	38.20	39.79	41.38	44.56	47.75	50.93	57.30	63.66	70.03	76.39	95.49
870	173	192	210	246	282	317	352	369	386	420	453	486	551	614	677	738	916	
1160	216	239	263	309	355	399	443	465	487	529	572	613	695	775	854	931	1154	
1750	293	326	359	425	488	551	613	643	673	733	792	849	963	1073	1181	1286	1587	
3500	475	534	592	705	816	923	1029	1080	1131	1231	1330	1425	1611	1787	1955	2115	2544	
50	16	18	19	22	25	28	31	33	34	37	40	43	48	54	59	64	80	
100	30	32	35	41	46	52	57	60	62	68	73	78	88	98	108	118	147	
150	42	46	50	58	66	73	81	85	89	96	104	111	125	140	154	168	209	
200	53	58	63	74	84	94	104	108	113	123	132	142	161	179	197	215	268	
250	64	70	76	89	101	113	125	131	137	149	160	172	194	217	239	260	324	
300	74	81	89	103	118	132	146	153	160	173	187	200	227	253	279	304	378	
350	84	92	101	118	134	150	166	174	182	198	213	228	259	288	318	346	431	
400	93	103	112	131	150	168	186	195	203	221	238	255	289	323	355	388	482	
450	103	113	124	145	165	185	205	215	224	244	263	282	319	356	392	428	532	
500	112	123	135	158	180	202	224	234	245	266	287	308	349	389	428	467	581	
550	121	133	146	170	195	218	242	254	265	288	311	333	378	421	464	506	629	
600	129	143	156	183	209	235	260	272	285	310	334	358	406	453	499	544	676	
650	138	152	167	195	223	250	278	291	304	331	357	383	434	484	533	581	722	
700	146	161	177	207	237	266	295	309	323	351	379	407	461	514	566	618	767	
750	154	171	187	219	250	281	312	327	342	372	401	431	488	544	599	654	812	
800	162	179	197	231	264	296	329	345	361	392	423	454	514	574	632	689	856	
850	170	188	206	242	277	311	345	362	379	412	445	477	541	603	664	724	899	
900	178	197	216	253	290	326	362	379	397	432	466	500	566	632	696	759	941	
950	185	205	225	264	303	341	378	396	415	451	487	522	592	660	727	793	983	
1000	193	214	234	275	315	355	394	413	432	470	507	544	615	685	754	820	1025	
1100	207	230	252	297	340	383	425	446	467	507	548	588	662	735	797	877	1106	
1200	221	246	270	318	364	410	456	478	500	544	588	630	715	797	877	956	1185	
1300	235	261	287	338	388	437	485	509	533	580	626	672	762	849	935	1019	1262	
1400	248	276	304	358	411	463	515	540	565	615	664	713	808	901	992	1081	1338	
1500	262	291	320	376	434	489	543	569	597	649	701	753	853	951	1047	1141	1411	
1600	274	305	336	397	456	514	571	600	628	683	738	792	898	1001	1102	1200	1483	
1700	287	319	352	415	478	539	599	629	658	716	774	830	941	1049	1155	1258	1553	
1800	299	333	367	434	499	563	626	657	688	749	809	868	984	1097	1207	1314	1621	
1900	311	347	382	452	520	587	653	685	717	781	844	905	1026	1144	1258	1370	1688	
2000	323	360	397	470	541	611	679	713	746	813	878	941	1068	1189	1304	1424	1753	
2200	346	386	426	504	581	656	727	767	803	874	944	1013	1148	1279	1406	1529	1879	
2400	367	411	454	538	620	701	780	819	858	934	1009	1082	1226	1365	1500	1630	1998	
2600	389	435	480	570	658	744	828	870	911	991	1071	1149	1301	1448	1590	1727	2111	
2800	409	458	507	602	695	786	875	919	962	1048	1132	1214	1374	1528	1677	1820	2218	
3000	429	481	532	633	731	826	920	967	1012	1102	1190	1277	1445	1606	1761	1910	2319	
3200	448	502	556	662	765	866	965	1013	1061	1155	1247	1338	1513	1680	1841	1995	2414	
3400	466	524	580	691	799	904	1008	1058	1108	1206	1303	1397	1579	1752	1918	2076	2502	
3600	484	544	603	719	832	942	1049	1102	1154	1256	1356	1454	1642	1821	1992	2153	2584	
3800	501	564	626	747	864	978	1090	1145	1199	1305	1408	1509	1704	1888	2062	2227	2659	
4000	518	585	647	773	895	1014	1129	1186	1242	1352	1459	1563	1763	1957	2129	2296	2728	
4500	558	629	699	837	970	1098	1224	1285	1345	1463	1578	1689	1901	2098	2282	2452	2870	
5000	595	672	748	896	1039	1177	1312	1377	1441	1566	1688	1804	2025	2228	2414	2581	2966	
5500	629	712	793	951	1104	1251	1393	1462	1530	1661	1788	1909	2135	2340	2523	2683	3014	
6000	661	749	835	1003	1164	1319	1468	1540	1611	1747	1878	2002	2231	2434	2609	2756	3011	
6500	690	783	874	1051	1220	1382	1527	1600	1671	1817	1952	2084	2312	2508	2672	2800	2955	
7000	716	814	910	1096	1272	1440	1600	1671	1742	1895	2029	2154	2381	2563	2709	2812	2841	
7500	741	843	943	1137	1320	1493	1657	1735	1811	1965	2090	2213	2428	2598	2720	2791	2666	
8000	763	870	974	1174	1363	1540	1708	1787	1863	2007	2140	2260	2462	2611	2703	2735	2427	
8500	783	894	1001	1208	1402	1583	1752	1831	1908	2050	2179	2294	2479	2602	2658	2643	2122	
9000	801	915	1026	1239	1436	1620	1790	1869	1944	2094	2218	2315	2479	2570	2583	2513	1745	

□ The circumferential speed of pulley is 33 (m/s) or more; a dynamic balance for the pulley is essential.

*Values in the table above are for 10 mm belt width. For other belt widths, those values should be multiplied by the width correction coefficient, Kb, shown in Table 28.

Table 39. Reference Transmission Capacity of S8M Ps – Belt Width 60 mm –

(kW)

Rotary Speed of Small Pulley (rpm)	No. of Teeth of Small Pulley Diameter of the Pitch Circle (mm)	20	21	22	24	25	26	28	30	32	34	36	38	40	44	48	50	60	72	84
		50.93	53.48	56.02	61.12	63.66	66.21	71.30	76.39	81.49	86.58	91.67	96.77	101.86	112.05	122.23	127.32	152.79	183.35	213.90
870	6.38	6.70	7.02	7.66	7.98	8.29	8.93	9.56	10.20	10.83	11.47	12.10	12.73	14.00	15.25	15.88	19.01	22.73	26.41	
1160	8.51	8.93	9.35	10.20	10.62	11.05	11.89	12.73	13.58	14.42	15.25	16.09	16.93	18.60	20.26	21.08	25.19	30.03	34.77	
1750	12.81	13.44	14.07	15.34	15.97	16.61	17.86	19.12	20.37	21.62	22.86	24.10	25.35	27.78	30.20	31.40	37.29	44.09	50.52	
3500	25.33	26.56	27.78	30.20	31.40	32.59	34.96	37.29	39.60	41.96	44.09	46.28	48.42	52.57	56.62	58.42	67.02	79.08	80.26	
50	0.37	0.39	0.40	0.44	0.46	0.48	0.51	0.55	0.59	0.62	0.66	0.70	0.73	0.81	0.88	0.92	1.10	1.32	1.54	
100	0.73	0.77	0.81	0.88	0.92	0.95	1.03	1.10	1.18	1.25	1.32	1.40	1.47	1.62	1.76	1.84	2.20	2.64	3.08	
150	1.47	1.54	1.62	1.76	1.84	1.91	2.06	2.20	2.35	2.50	2.64	2.79	2.94	3.23	3.52	3.67	4.40	5.28	6.16	
200	2.20	2.31	2.42	2.64	2.75	2.86	3.08	3.30	3.52	3.74	3.96	4.18	4.40	4.84	5.28	5.50	6.60	7.92	9.24	
250	2.94	3.08	3.23	3.52	3.67	3.82	4.11	4.40	4.70	4.99	5.28	5.58	5.87	6.46	7.04	7.34	8.80	10.55	12.30	
300	3.67	3.85	4.04	4.40	4.59	4.77	5.14	5.50	5.87	6.24	6.60	6.97	7.34	8.07	8.80	9.16	10.99	13.17	15.34	
350	4.40	4.62	4.84	5.28	5.50	5.72	6.16	6.60	7.04	7.48	7.92	8.36	8.80	9.67	10.55	10.99	13.17	15.78	18.37	
400	5.14	5.39	5.65	6.16	6.42	6.68	7.19	7.70	8.21	8.72	9.24	9.75	10.26	11.28	12.30	12.80	15.34	18.37	21.37	
450	5.87	6.16	6.46	7.04	7.34	7.63	8.21	8.80	9.38	9.97	10.55	11.13	11.71	12.88	14.04	14.62	17.51	20.94	24.34	
500	6.38	6.70	7.02	7.66	7.98	8.29	8.93	9.56	10.20	10.83	11.47	12.10	12.73	14.00	15.25	15.88	19.02	23.50	27.29	
550	7.57	7.90	8.07	8.80	9.16	9.53	10.26	10.99	11.72	12.44	13.17	13.89	14.62	16.06	17.51	18.22	21.80	26.03	30.20	
600	8.07	8.47	8.87	9.67	10.08	10.48	11.28	12.08	12.88	13.68	14.47	15.27	16.08	17.65	19.23	20.01	23.92	28.54	33.37	
650	8.80	9.24	9.67	10.55	10.99	11.42	12.30	13.17	14.04	14.91	15.77	16.64	17.51	19.23	20.94	21.80	26.03	31.02	35.90	
700	9.53	10.00	10.48	11.42	11.90	12.37	13.31	14.26	15.20	16.14	17.07	18.01	18.94	20.80	22.65	23.57	28.12	33.48	38.87	
750	10.26	10.77	11.26	12.30	12.80	13.21	14.33	15.34	16.37	17.37	18.37	19.37	20.37	22.30	24.22	25.17	30.33	36.37	41.41	
800	10.99	11.53	12.08	13.17	13.71	14.26	15.34	16.42	17.51	18.58	19.66	20.73	21.80	23.92	26.03	27.08	32.25	38.29	44.09	
850	11.71	12.30	12.88	14.04	14.62	15.20	16.35	17.50	18.66	19.80	20.94	22.08	23.22	25.47	27.71	28.82	34.29	40.64	46.71	
900	12.44	13.06	13.68	14.91	15.52	16.14	17.36	18.58	19.80	21.01	22.22	23.43	24.63	27.01	29.37	30.54	36.30	42.95	49.26	
950	13.17	13.82	14.47	15.78	16.42	17.07	18.37	19.66	20.94	22.22	23.50	24.77	26.03	28.54	31.02	32.25	38.29	45.22	51.75	
1000	13.89	14.58	15.27	16.64	17.32	18.01	19.37	20.73	22.08	23.43	24.77	26.10	27.43	30.06	32.66	33.95	40.25	47.44	54.17	
1050	14.62	15.34	16.06	17.48	18.24	18.94	20.37	21.74	23.10	24.47	25.82	27.17	28.52	31.23	33.83	35.13	41.83	49.52	56.52	
1100	15.34	16.10	16.86	18.37	19.12	19.87	21.37	22.86	24.35	25.82	27.29	28.75	30.20	33.07	35.90	37.29	44.59	51.75	58.59	
1150	16.06	16.86	17.65	19.23	20.01	20.80	22.36	23.92	25.47	27.01	28.54	30.06	31.57	34.58	37.49	38.94	45.96	53.83	60.88	
1200	16.79	17.61	18.44	20.09	20.91	21.73	23.36	24.98	26.59	28.19	29.78	31.37	32.93	36.03	39.07	40.57	47.81	55.86	63.08	
1250	17.51	18.37	19.23	20.94	21.80	22.65	24.34	26.03	27.71	29.37	31.02	32.66	34.32	37.49	40.64	42.18	49.62	57.83	65.10	
1300	18.22	19.12	20.00	21.80	22.68	23.57	25.33	27.08	28.82	30.55	32.27	34.00	35.72	39.07	42.34	43.75	51.40	59.74	67.07	
1350	18.94	19.87	20.80	22.65	23.57	24.49	26.31	28.12	29.92	31.71	33.48	35.23	36.96	40.38	43.71	45.34	53.15	61.59	68.84	
1400	19.66	20.62	21.58	23.50	24.45	25.40	27.29	29.16	31.02	32.87	34.69	36.50	38.29	41.80	45.22	46.89	54.85	63.38	70.57	
1450	20.37	21.37	22.36	24.35	25.33	26.31	28.26	30.20	32.12	34.02	35.90	37.76	39.60	43.20	46.71	48.42	56.52	65.10	72.19	
1500	21.09	22.12	23.14	25.19	26.21	27.22	29.23	31.23	33.21	35.16	37.09	39.01	40.89	44.59	48.17	49.92	58.15	66.75	73.70	
1550	21.80	22.86	23.92	26.03	27.08	28.13	30.20	32.25	34.29	36.30	38.28	40.25	42.18	45.97	49.47	51.00	59.74	68.33	75.09	
1600	22.51	23.61	24.71	26.87	27.95	29.03	31.16	33.27	35.36	37.43	39.46	41.48	43.46	47.32	50.76	52.16	61.49	69.84	76.37	
1650	23.22	24.35	25.47	27.71	28.82	29.92	32.12	34.29	36.43	38.55	40.63	42.69	44.72	48.66	52.45	54.29	62.79	71.27	77.54	
1700	23.92	25.09	26.24	28.54	29.68	30.82	33.07	35.29	37.49	39.66	41.79	43.90	45.96	49.98	53.83	55.69	64.25	72.63	78.57	
1750	24.63	25.82	27.01	29.37	30.54	31.71	34.02	36.30	38.55	40.76	42.95	45.09	47.20	51.29	55.19	57.07	65.66	73.90	79.48	
1800	25.33	26.59	27.84	30.23	31.43	32.63	34.96	37.29	39.62	41.95	44.28	46.54	48.82	52.84	57.83	59.74	68.33	76.20	80.90	
1850	26.03	27.35	28.64	31.03	32.25	33.48	35.83	38.18	40.53	42.87	45.19	47.46	49.73	53.69	58.60	60.36	69.29	77.22	81.41	
1900	26.73	28.10	29.44	31.86	33.09	34.33	36.67	39.02	41.36	43.69	46.01	48.28	50.54	54.49	59.40	61.16	70.37	78.37	82.99	
1950	27.43	28.79	30.06	32.66	33.95	35.23	37.66	40.04	42.69	45.45	48.14	50.74	53.34	57.29	62.20	63.96	72.81	80.81	85.77	
2000	28.12	29.48	30.82	33.48	34.79	36.10	38.68	41.21	43.71	46.15	48.54	50.87	53.15	57.51	61.59	63.52	71.96	79.88	84.98	
2050	28.82	30.20	31.57	34.29	35.63	36.96	39.59	42.18	44.72	47.20	49.62	51.99	54.29	58.69	62.79	64.72	73.06	80.92	86.04	
2100	30.20	31.64	33.07	35.90	37.29	38.68	41.41	44.09	46.71	49.28	51.75	54.18	56.52	60.98	65.10	67.02	75.89	83.69	88.89	
2150	31.57	33.07	34.54	37.50	38.94	40.38	43.20	45.66	48.16	50.58	52.93	55.26	57.56	61.98	65.98	67.79	76.97	84.69	89.89	
2200	32.93	34.49	36.03	39.08	40.53	41.97	44.87	47.31	50.00	52.49	54.97	57.36	59.73	64.14	68.14	70.00	79.37	87.09	92.29	
2250	34.29	35.90	37.49	40.64	42.18	43.71	46.71	49.62	52.45	55.19	57.83	60.37	62.79	67.29	71.27	73.06	79.72	87.92	93.11	
2300	35.63	37.30	38.94	42.18	43.77	45.34	48.42	51.40	54.29	57.07	59.74	62.30	64.72	69.18	73.06	74.77	80.74	88.94	94.13	
2350	36.96	38.68	40.37	43.71	45.34	46.95	50.10	53.14	56.08	58.90	61.59	64.15	66.57	70.96	74.71	76.32	81.47	89.67	94.86	
2400	38.29	40.05	41.79	45.22	46.89	48.54	51.75	54.85	57.53	60.67	63.38	65.94	68.33	72.63	76.20	77.89	81.91	89.99	95.18	
2450	39.60	41.41	43.26	46.71	48.42	50.13	53.37	56.47	59.57	62.67	65.77	68.82	71.84	76.14	79.69	81.29	85.04	92.99	98.18	
2500	40.89	42.76	44.59	48.18	49.92	51.64	54.96	58.15	61.19	64.05	66.75	69.27	71.58	75.80	78.71	79.93	83.71	91.56	96.75	
2550	42.18	44.09	45.96	49.63	51.40	53.15	56.52	59.74	62.79	65.66	68.33	70.81	73.06	76.89	79.72	80.73	84.51	92.36	97.55	



Selection of Timing Belts

Transmission Capacity Table

Table 40. Reference Transmission Capacity of S14M Ps
– Belt Width 120 mm – (kW)

Rotary Speed of Small Pulley (rpm)	Pitch Dia. (mm)	No. of Teeth of Small Pulley															
		28	30	32	34	36	40	42	44	48	50	56	60	64	72	84	
	124.78	133.69	142.60	151.52	160.43	178.25	187.17	196.08	213.90	222.82	249.55	267.38	285.21	320.86	374.33		
575	32.08	34.36	36.63	38.90	41.17	45.68	47.94	50.19	54.67	56.91	63.58	68.00	72.39	81.10	93.92		
690	38.45	41.17	43.88	46.59	49.29	54.67	57.36	60.03	65.35	68.00	75.89	81.09	86.26	96.44	111.32		
870	48.35	51.75	55.14	58.52	61.88	68.57	71.90	75.20	81.77	85.03	94.68	101.02	107.27	119.49	136.99		
1160	64.12	68.57	73.00	77.40	81.77	90.41	94.69	98.92	107.27	111.39	123.46	131.27	138.87	153.39	173.25		
1750	95.20	101.57	107.84	114.03	120.11	131.93	137.68	143.29	154.11	159.32	174.00	182.96	191.21	205.36	220.00		
3450	172.13	181.10	189.39	196.95	203.72	214.76	218.93	222.13	225.47								
20	1.12	1.20	1.28	1.36	1.44	1.60	1.68	1.76	1.92	2.00	2.24	2.40	2.56	2.88	3.36		
40	2.24	2.40	2.56	2.72	2.88	3.20	3.36	3.52	3.84	4.00	4.48	4.80	5.12	5.76	6.71		
60	3.36	3.60	3.84	4.08	4.32	4.80	5.04	5.28	5.76	6.00	6.71	7.19	7.67	8.63	10.07		
80	4.48	4.80	5.12	5.44	5.76	6.39	6.71	7.03	7.67	7.99	8.95	9.59	10.23	11.51	13.42		
90	5.04	5.40	5.76	6.12	6.47	7.19	7.55	7.91	8.63	8.99	10.07	10.79	11.51	12.94	15.10		
100	5.60	6.00	6.39	6.79	7.19	7.99	8.39	8.79	9.59	9.99	11.19	11.99	12.79	14.38	16.77		
200	11.19	11.99	12.78	13.58	14.38	15.98	16.78	17.57	19.17	19.96	22.35	23.94	25.53	28.71	33.47		
300	16.78	17.97	19.17	20.36	21.56	23.94	25.14	26.33	28.71	29.90	33.47	35.84	38.21	42.94	49.99		
400	22.35	23.94	25.53	27.12	28.71	31.88	33.47	35.05	38.21	39.79	44.51	47.65	50.78	57.01	66.27		
500	27.92	29.90	31.88	33.86	35.84	39.79	41.76	43.72	47.64	49.60	55.45	59.33	63.20	70.87	82.22		
600	33.47	35.84	38.21	40.58	42.94	47.64	49.99	52.34	57.00	59.33	66.27	70.87	75.43	84.47	97.76		
700	39.00	41.76	44.51	47.26	49.99	55.45	58.17	60.88	66.27	68.96	76.95	82.22	87.45	97.76	112.80		
800	44.51	47.65	50.77	53.90	57.01	63.19	66.27	69.34	75.43	78.46	87.45	93.36	99.21	110.68	127.26		
900	49.99	53.51	57.00	60.49	63.97	70.87	74.29	77.70	84.47	87.82	97.75	104.27	110.68	123.19	141.06		
1000	55.45	59.33	63.19	67.04	70.87	78.46	82.22	85.96	93.36	97.03	107.84	114.90	121.82	135.23	154.11		
1100	60.88	65.12	69.34	73.54	77.70	85.96	90.05	94.10	102.11	106.06	117.68	125.23	132.60	146.75	166.35		
1200	66.27	70.87	75.43	79.97	84.47	93.36	97.76	102.11	110.68	114.90	127.26	132.60	142.97	157.70	177.67		
1300	71.73	76.57	81.47	86.34	91.16	100.66	105.35	109.97	119.07	123.53	136.53	144.87	152.91	168.02	188.00		
1400	76.95	82.22	87.45	92.63	97.76	107.84	112.80	117.69	127.26	131.94	145.49	154.12	162.37	177.67	197.26		
1500	82.22	87.45	92.63	97.76	102.87	111.90	120.11	125.23	135.23	140.10	154.11	162.94	171.32	186.69	205.36		
1600	87.45	93.36	99.21	104.99	110.68	121.82	127.26	132.60	142.97	148.00	162.36	171.31	179.72	194.73	212.22		
1700	92.63	98.85	104.98	111.04	116.99	128.60	134.25	139.78	150.46	155.62	170.22	179.21	187.53	202.03	217.76		
1800	97.76	104.27	110.68	116.99	123.19	135.23	141.06	146.75	157.70	162.94	177.67	186.59	194.73	208.45	221.89		
1900	102.83	109.62	116.29	122.85	129.27	141.70	147.69	153.51	164.65	169.95	184.67	193.43	201.26	213.94	224.54		
2000	107.85	114.90	121.82	128.61	135.23	147.99	154.12	160.05	171.31	176.63	191.21	199.69	207.11	218.44	225.62		
2100	112.80	120.10	127.26	134.25	141.06	154.11	160.34	166.35	177.67	182.96	197.25	205.36	212.22	221.89			
2200	117.69	125.23	132.60	139.78	146.75	160.05	166.35	172.40	183.70	188.93	202.79	210.39	216.56	224.26			
2300	122.51	130.27	137.83	145.19	152.30	165.78	172.13	178.18	189.39	194.51	207.78	214.76	220.10	225.47			
2400	127.26	135.23	142.97	150.47	157.70	171.31	177.67	183.70	194.72	199.69	212.22	218.43	222.80	225.50			
2500	131.94	140.10	147.99	155.62	162.94	176.63	182.97	188.93	199.69	204.46	216.06	221.39	224.63				
2600	136.54	144.87	152.90	160.63	168.02	181.82	188.00	193.86	204.27	208.78	219.29	223.59	225.54				
2700	141.06	149.54	157.70	165.51	172.93	186.58	192.77	198.49	208.45	212.66	221.89	225.01	225.50				
2800	145.50	154.12	162.36	170.23	177.67	191.21	197.26	202.79	212.22	216.06	223.83	225.62					
2900	149.85	158.58	166.90	174.80	182.22	195.58	201.46	206.76	215.55	218.98	225.08						
3000	154.12	162.94	171.31	179.21	186.59	199.69	205.36	210.39	218.43	221.39	225.62						
3100	158.29	167.19	175.58	183.46	190.76	203.53	208.95	213.66	220.86	223.28							
3200	162.37	171.31	179.71	187.53	194.73	207.10	212.22	216.56	222.80	224.63							
3300	166.35	175.32	183.70	191.44	198.49	210.39	215.16	219.09	224.25	225.42							
3400	170.23	179.21	187.53	195.16	202.03	213.37	217.76	221.22	225.20	225.63							
3500	174.00	182.96	191.21	198.69	205.36	216.06	220.01	222.94									
3600	177.67	186.59	194.72	202.04	208.45	218.43	221.89	224.26									
3700	181.23	190.08	198.08	205.18	211.32	220.49	223.41	225.14									
3800	184.67	193.43	201.26	208.12	213.94	222.21	224.54	225.58									
3900	188.00	196.63	204.27	210.86	216.31	223.59	225.28	225.58									
4000	191.21	199.69	207.10	213.38	218.44	224.63	225.62										
4100	194.30	202.60	209.75	215.68	220.30	225.30											
4200	197.26	205.36	212.22	217.76	221.89	225.62											
4300	200.09	207.95	214.49	219.61	223.21												
4400	202.79	210.39	216.56	221.22	224.26												
4500	205.36	212.66	218.43	222.59	225.01												
4600	207.79	214.76	220.10	223.71	225.47												
4700	210.08	216.68	221.56	224.58	225.64												
4800	212.22	218.43	222.80	225.20													
4900	214.22	220.00	223.83	225.55													
5000	216.06	221.39	224.63	225.63													

- The durability in terms of hours decreases, this range should be avoided whenever possible.
- The circumferential speed of pulley is 33 (m/s) or more; a dynamic balance for the pulley is essential.
- The marked range should be avoided whenever possible, as above two factors overlap here.

*Values in the table above is for nominal belt width 120 (120 mm). For other belt widths, these values should be multiplied by the width correction coefficient in Table 28.

Table 41. Reference Transmission Capacity of MTS8M Ps
– Belt Width 60 mm – (kW)

Rotary Speed of Small Pulley (rpm)	Pitch Dia. (mm)	No. of Teeth of Small Pulley															
		24	26	28	30	32	34	36	38	40	42	44	46	48	50	60	72
	61.12	66.21	71.30	76.39	81.49	86.58	91.67	96.77	101.86	106.95	112.05	117.14	122.23	127.32	152.79	183.35	213.90
50	1.35	1.47	1.58	1.70	1.82	1.93	2.05	2.17	2.27	2.37	2.46	2.56	2.66	2.75	3.21	3.75	4.27
100	2.71	2.94	3.17	3.40	3.63	3.87	4.11	4.35	4.54	4.74	4.93	5.12	5.31	5.50	6.42	7.50	8.54
200	4.91	5.32	5.73	6.15	6.57	6.99	7.42	7.85	8.20	8.54	8.89	9.22	9.56	9.89	11.52	13.41	15.23
300	6.91	7.48	8.06	8.64	9.23	9.83	10.43	11.04	11.52	12.00	12.47	12.94	13.41	13.87	16.12	18.71	21.20
400	8.77	9.50	10.23	10.98	11.73	12.48	13.25	14.02	14.63	15.23	15.82	16.41	16.99	17.57	20.38	23.62	26.72
500	10.53	11.40	12.29	13.18	14.08	14.99	15.92	16.85	17.57	18.28	18.99	19.69	20.38	21.07	24.40	28.22	31.88
600	12.20	13.22	14.24	15.28	16.33	17.39	18.46	19.55	20.38	21.20	22.02	22.82	23.62	24.40	28.22	32.59	36.76
700	13.80	14.95	16.11	17.29	18.48	19.69	20.91	22.15	23.09	24.01	24.92	25.82	26.72	27.60	31.88	36.76	41.39
800	15.32	16.61	17.91	19.23	20.56	21.91	23.28	24.66	25.70	26.72	27.72	28.72	29.70	30.68	35.39	40.74	45.81
900	16.79	18.21	19.64	21.09	22.56	24.05	25.56	27.10	28.22	29.34	30.44	31.52	32.59	33.67	37.77	44.57	50.84
1000	18.21	19.75	21.31	22.89	24.50	26.13	27.78	29.46	30.68	31.88	33.06	34.23	35.39	36.53	42.03	48.25	54.09
1100	19.57	21.24	22.92	24.64	26.38	28.14	29.94	31.76	33.06	34.35	35.62	36.87	38.10	39.32	45.19	51.88	57.98
1200	20.89	22.67	24.44	26.33	28.20	30.10	32.04	34.00	35.39	36.76	38.10	39.43	40.74	42.03	48.25	55.02	61.77
1300	22.16	24.06	26.00	27.97	29.97	32.01	34.08	36.19	37.66	39.10	40.52	41.93	43.31	44.67	51.21	58.52	65.29
1400	23.28	25.40	27.46	29.56	31.69	33.86	36.07	38.33	39.87	41.39	42.89	44.36	45.81	47.24	54.09	61.71	68.73
1500	24.57	26.71	28.88	31.10	33.37	35.67	38.02	40.41	42.03	43.62	45.19	46.73	48.25	49.74	56.88	64.79	72.03
1600	25.71	27.97	30.26	32.61	35.00	37.44	39.92	42.46	44.15	45.81	47.44	49.05	50.63	52.18	59.59	67.76	75.19
1700	26.82	29.19	31.60	34.07	36.59	39.16	41.78	44.46	46.22	47.95	49.64	51.31	52.95	54.56	62.37	70.83	78.42
1800	27.89	30.37	32.90	35.49	38.14	40.84	43.60	46.42	48.25	50.04	51.79	53.52	55.22	56.88	64.78	73.40	81.12
1900	28.92	31.61	34.36	37.15	39.95	42.85	45.80	48.35	50.25	52.08	53.90	55.68	57.43	59.15	67.27	76.04	83.89
2000	29.92	32.62	35.39	38.27	41.12	44.09	47.13	50.23	52.18	54.09	55.96	57.79	59.59	61.36	69.68	78.64	86.59
2100	30.89	33.70	36.57	39.53	42.55	45.65	48.83	52.08	54.09	56.05	57.97	59.86	61.71	63.51	72.03	81.12	89.05
2200	31.82	34.73	37.73	40.80	43.93	47.19	50.50	53.90	55.96	57.97	59.95	61.88	63.77	65.62	74.30	83.50	91.43
2300	32.72	35.74	38.85	42.04	45.32	48.68	52.14	55.68	57.79	59.86	61.88	63.85	65.79	67.68	76.51	85.79	
2400	33.59	36.72	39.93	43.25	46.65	50.15	53.71	57.43	59.69	61.71	63.77	65.75	67.68	69.68	78.64	87.98	
2500	34.42	37.66	40.94	44.42	47.95	51.54	55.34	59.15	61.36	63.51	65.62	67.68	69.68	71.64	80.72	90.08	
2600	35.23	38.57	42.01	45.66	49.21	52.98	56.85	60.83	62.99	65.29	67.43	69.52	71.56	73.55	82.72	92.09	
2700	36.00	39.44	43.00	46.56	50.45	54.34	58.36	62.48	64.78	67.02	69.21	71.33	73.40	75.41	84.66		
2800	36.75	40.29	43.96	47.74	51.65	55.68	59.83	64.11	66.45	68.73	70.94	73.09	75.19	77.23	86.53		
2900	37.45	41.11	44.89	48.79	52.82	56.99	61.28	65.70	68.08	70.39	72.64	74.82	76.94	78.91	88.34		
3000	38.16	41.90	45.78	49.88	53.96	58.26	62.70	67.27	69.68	72.03	74.30	76.50	78.64	80.67	90.08		
3200	39.44	43.39	47.49	51.75	56.28	60.72	65.44	70.31	72.79	75.19	77.51	79.76	81.93	84.02			
3400	40.61	44.76	49.08	53.57	58.23	63.07	68.07	73.25	75.78	78.22	80.58	82.85	85.04	87.14			
3600	41.67	46.02	50.55	55.28	60.19	65.30	70.59	76.07	78.64	81.12	83.50	85.79	87.98	90.08			
3800	42.63	47.17	51.92	56.88	62.04	67.42	73.00	78.78	81.39	83.89	86.29	88.58	90.76				
4000	43.47	48.21	53.15	58.36	63.78	69.42	75.30	81.39	84.02	86.53	88.93	91.21					
4200	44.21	49.14	54.31	59.73	65.41	71.32	77.49	83.89	86.53	89.04	91.43						
4400	44.85	49.96	55.35	61.00	66.92	73.11	79.57	86.29	88.93	91.43							
4600	45.38	50.68	56.27	62.16	68.33	74.80	81.55	88.57	91.21								
4800	45.81	51.29	57.09	63.21	69.64	76.37	83.42	90.76									
5000	46.14	51.80	57.81	64.15	70.83	77.84	85.18										
5200	46.36	52.20	58.41	64.99	71.92	79.20	86.84										
5400	46.48	52.51		65.72	72.90	80.46											
5600	46.51	52.70		66.34	73.78												
5800	46.43			66.86	74.54												
6000	46.25																



Selection of Timing Belts

Transmission Capacity Table

Table 42. Reference Transmission Capacity of P2M Ps – Belt Width 4 mm –

(W)

Rotary Speed of Small Pulley (rpm)	No. of Teeth of Small Pulley Diameter of the Pitch Circle (mm)	14	15	16	18	20	22	24	25	26	28	30	32	34	36	40	42	44	48
		8.91	9.55	10.19	11.46	12.73	14.01	15.28	15.92	16.55	17.83	19.10	20.37	21.65	22.92	25.46	26.74	28.01	30.56
100		2	2	2	2	3	3	3	3	3	4	4	5	5	6	7	7	8	9
200		3	3	4	5	5	6	7	7	7	8	9	10	11	11	13	14	15	17
400		6	6	7	8	9	10	11	12	13	14	15	16	17	19	22	24	25	28
600		8	9	10	11	12	14	16	17	18	19	20	22	23	25	29	31	33	37
800		10	11	12	13	16	18	19	20	21	23	25	27	29	31	36	38	41	46
1000		12	13	14	16	18	20	23	24	25	27	30	32	34	37	42	45	48	54
1200		14	15	16	19	21	23	26	26	28	31	34	37	40	42	48	51	54	61
1400		16	17	18	21	24	26	29	30	32	35	38	41	44	47	54	57	61	68
1450		16	18	19	21	24	27	30	31	33	36	39	42	45	48	55	59	62	70
1500		16	18	19	22	25	28	31	32	34	37	40	43	46	50	57	60	64	71
1600		17	18	20	23	26	29	32	33	35	39	43	46	49	53	60	64	67	75
1750		19	20	22	25	28	31	35	37	38	42	45	49	53	56	64	68	71	79
1800		19	21	23	25	29	32	35	37	38	42	46	50	54	57	65	69	73	81
2000		21	22	24	28	31	34	38	40	42	46	50	54	58	62	70	74	78	87
2400		24	26	28	32	36	40	44	46	48	52	56	61	65	70	80	85	89	99
3000			30	32	37	42	46	52	54	57	62	67	72	77	82	93	98	102	115
3600			35	38	43	48	53	59	62	64	70	76	82	88	94	106	112	118	131
4000			38	41	47	52	58	64	67	70	76	82	88	94	101	114	120	127	140
5000				48	55	61	68	75	78	82	89	96	104	111	118	132	139	147	162
6000				55	63	70	78	86	90	93	101	109	117	125	133	149	157	164	180
8000					76	86	95	105	109	114	123	132	141	150	158	176	184	192	209
10000					91	101	111	122	127	132	142	151	161	170	178	196	203	210	224
12000						114	125	136	141	146	157	166	175	183	190	206	211	217	228
14000						125	136	148	153	158	168	176	185	190	196	208	214	220	232

□ The durability in terms of hours decreases in the marked range, this range should be avoided whenever possible. For other belt widths, values above should be multiplied by the width correction coefficient shown in Table 28.

Table 43. Reference Transmission Capacity of P3M Ps – Belt Width 6 mm –

(W)

Rotary Speed of Small Pulley (rpm)	No. of Teeth of Small Pulley Diameter of the Pitch Circle (mm)	10	12	14	15	16	18	20	22	24	25	26	28	30	32	34	36	40	42
		9.55	11.46	13.37	14.32	15.28	17.19	19.10	20.01	22.92	23.87	24.83	26.74	28.65	30.56	32.47	34.38	38.20	40.11
100		4	5	6	6	7	8	9	10	12	12	13	14	15	17	19	20	22	23
200		8	11	12	13	14	16	18	20	23	24	25	28	31	34	36	38	45	47
400		14	17	20	22	24	27	32	35	39	41	43	47	51	56	61	65	75	79
600		19	23	28	30	33	37	42	47	53	55	58	63	69	75	81	87	100	105
800		24	29	35	38	41	46	53	59	65	68	72	79	85	92	99	107	123	129
1000		28	35	41	44	48	55	62	69	77	81	84	92	100	109	118	126	144	151
1200		33	40	47	51	55	63	71	79	88	92	97	106	115	125	135	144	164	172
1400		37	45	54	58	62	71	80	89	99	104	109	119	129	140	151	162	184	193
1450		38	46	55	59	64	72	82	90	102	106	111	122	133	144	155	166	188	197
1500		39	47	56	60	65	75	84	93	104	109	114	125	135	147	158	170	193	202
1600		41	49	59	63	68	79	88	98	109	114	120	131	142	154	166	178	202	212
1750		44	54	63	68	74	84	95	106	118	124	129	141	153	165	177	190	215	226
1800			55	65	70	75	86	97	108	120	126	131	143	155	168	181	193	219	230
2000			59	70	75	81	93	105	117	129	135	142	155	168	182	196	209	237	249
2400			68	81	87	93	107	121	134	148	155	162	177	192	207	223	238	270	284
3000				95	103	112	125	142	158	175	183	191	208	226	243	261	279	316	332
3600				110	118	127	145	163	182	201	210	219	238	258	278	298	318	359	377
4000				119	128	138	158	176	196	216	226	236	257	278	299	321	342	386	405
5000				141	152	163	186	208	231	255	267	278	302	326	351	375	399	448	470
6000					174	187	212	238	264	291	304	317	343	370	397	424	451	505	530
8000					232	263	293	324	356	371	387	418	448	479	508	538	597	627	
10000						308	342	377	413	430	446	480	512	545	574	604	663	696	
12000						349	386	423	460	477	495	530	562	594	620	646	699	734	
14000							424	462	500	517	534	568	597	626	645	665	704	739	

□ The durability in terms of hours decreases in the marked range, this range should be avoided whenever possible. For other belt widths, values above should be multiplied by the width correction coefficient shown in Table 28.



Selection of Timing Belts

Transmission Capacity Table

Table 44. Reference Transmission Capacity of P5M Ps – Belt Width 10mm –

(W)

Rotary Speed of Small Pulley (rpm)	No. of Teeth of Small Pulley Diameter of the Pitch Circle (mm)	12	14	16	18	20	22	24	25	26	28	30	32	34	36	40	42	44	48	56
		19.10	22.28	25.46	28.65	31.83	35.05	38.20	39.79	41.38	44.56	47.75	50.93	54.11	57.30	63.66	66.85	70.03	76.39	89.15
100		23	26	31	35	41	46	52	55	58	64	70	76	81	86	103	110	118	133	158
200		46	53	63	72	81	92	104	109	115	126	138	151	164	177	205	220	235	267	316
400		77	90	106	122	138	155	173	182	192	211	231	251	272	294	337	361	385	434	514
600		105	123	144	165	188	211	235	247	259	284	310	337	365	394	452	482	513	577	684
800		131	153	179	205	234	262	291	306	322	353	385	417	451	485	556	592	629	706	837
1000		156	182	212	243	276	309	343	361	379	415	453	491	530	570	651	694	738	825	977
1200		179	209	244	280	316	355	394	414	435	476	518	561	605	650	742	790	838	937	1110
1400		201	235	274	319	355	399	443	465	487	532	580	628	677	726	828	880	933	1040	1230
1450			242	282	323	365	409	453	476	499	546	594	643	694	745	850	903	957	1070	1260
1500			248	288	333	374	420	466	489	512	560	609	659	711	762	869	925	981	1090	1290
1600			261	303	348	393	441	489	514	538	588	639	691	745	799	910	970	1030	1140	1350
1750			278	325	372	420	471	522	548	575	628	683	738	795	852	970	1040	1100	1220	1430
1800				332	380	430	481	532	559	586	640	696	753	810	868	989	1050	1110	1240	1460
2000				360	412	465	520	576	605	633	691	751	812	874	937	1060	1130	1200	1330	1570
2400				413	472	532	595	658	691	723	789	857	925	992	1060	1210	1280	1350	1500	2030
3000					557	628	701	775	812	850	926	1000	1080	1150	1240	1400	1485	1570	1730	2120
3600					638	719	801	883	925	966	1050	1140	1230	1310	1400	1580	1670	1760	1940	2250
4000						776	865	953	997	1040	1130	1220	1320	1450	1500	1690	1785	1880	2060	2380
5000						911	1010	1110	1160	1210	1320	1420	1520	1620	1720	1920	2010	2110	2300	2610
6000							1140	1260	1310	1370	1480	1580	1690	1790	1900	2100	2190	2290	2460	2720
8000								1490	1550	1600	1720	1830	1930	2020	2120	2270	2330	2400	2480	2480
10000									1710	1760	1860	1940	2020	2080	2130	2170	2160	2150	2040	
12000									1770	1810	1880	1910	1940	1920	1900					
14000										1750	1760	1710	1660							

□ The durability in terms of hours decreases in the marked range, this range should be avoided whenever possible. For other belt widths, values above should be multiplied by the width correction coefficient shown in Table 28.



Selection of Timing Belts

Transmission Capacity Table

Table 45. Reference Transmission Capacity of P8M Ps – Belt Width 15m –

(kW)

Rotary Speed of Small Pulley (rpm)	No. of Teeth of Small Pulley Diameter of the Pitch Circle (mm)	20	22	24	26	28	30	32	34	36	38	40	44	48	50	56	60	64	72
		50.93	56.02	61.12	66.21	71.30	76.39	81.49	86.58	91.67	96.77	101.86	112.05	122.23	127.32	142.06	152.79	162.97	183.35
100		0.16	0.17	0.19	0.21	0.23	0.26	0.31	0.41	0.44	0.48	0.51	0.56	0.60	0.63	0.70	0.74	0.78	0.89
200		0.32	0.35	0.39	0.42	0.45	0.50	0.59	0.69	0.78	0.85	0.91	0.99	1.07	1.14	1.23	1.35	1.40	1.57
400		0.65	0.71	0.77	0.84	0.90	0.95	1.09	1.25	1.37	1.48	1.59	1.72	1.86	1.94	2.16	2.30	2.43	2.71
600		0.96	1.06	1.16	1.25	1.35	1.45	1.53	1.70	1.86	2.02	2.17	2.37	2.55	2.66	2.95	3.12	3.30	3.66
800		1.29	1.41	1.54	1.67	1.80	1.93	2.06	2.18	2.31	2.51	2.69	3.02	3.16	3.27	3.64	3.83	4.08	4.75
870		1.40	1.54	1.68	1.82	1.96	2.10	2.24	2.38	2.51	2.66	2.86	3.16	3.36	3.48	3.90	4.13	4.44	4.98
1000		1.61	1.77	1.93	2.09	2.25	2.41	2.57	2.73	2.89	2.99	3.16	3.64	3.84	4.00	4.47	4.78	5.09	5.71
1160		1.86	2.05	2.24	2.42	2.61	2.79	2.98	3.16	3.35	3.53	3.84	4.08	4.44	4.62	5.17	5.52	6.48	7.28
1200		1.93	2.12	2.31	2.51	2.70	2.89	3.07	3.27	3.46	3.60	3.82	4.22	4.59	4.78	5.34	5.71	6.08	7.52
1400		2.25	2.45	2.70	2.94	3.15	3.37	3.59	3.80	4.03	4.25	4.47	4.90	5.34	5.55	6.20	6.62	7.04	8.68
1450		2.33	2.55	2.79	3.04	3.26	3.65	3.72	3.94	4.17	4.40	4.63	5.07	5.53	5.75	6.41	6.85	7.28	8.96
1500		2.41	2.64	2.89	3.15	3.37	3.72	3.84	4.07	4.31	4.55	4.78	5.25	5.71	5.94	6.62	7.07	7.51	9.25
1600		2.57	2.83	3.07	3.35	3.59	3.84	4.09	4.34	4.59	4.84	5.09	5.59	6.08	6.32	7.04	7.52	7.98	9.81
1750		2.81	3.08	3.36	3.64	3.92	4.20	4.47	4.74	5.01	5.28	5.56	6.09	6.63	6.88	7.68	8.17	8.70	10.6
1800		2.89	3.18	3.72	3.75	4.03	4.31	4.59	4.87	5.15	5.43	5.71	6.26	6.80	7.07	7.86	8.38	8.90	10.9
2000		3.20	3.52	4.01	4.15	4.47	4.78	5.09	5.40	5.71	6.01	6.32	6.93	7.52	7.81	8.68	9.24	9.81	11.9
2400		3.84	4.22	4.59	4.97	5.34	5.71	6.08	6.44	6.80	7.16	7.52	8.22	9.05	9.24	9.86	10.9	11.5	13.8
3000		4.63	5.20	5.62	6.02	6.52	6.81	7.32	7.76	8.22	8.71	9.02	9.84	10.7	11.1	12.2	12.6	12.9	14.6
3600			5.82	6.34	6.75	7.27	7.67	8.17	8.65	9.14	9.72	10.0	10.8	11.7	12.2	13.1	13.9	13.9	15.3
4000				7.06	7.48	8.14	8.46	9.00	9.60	10.0	10.7	11.0	11.7	12.7	13.2	14.0	14.7	14.9	15.8
5000					8.81	9.60	10.2	10.7	11.3	11.7	12.4	12.8	13.6	14.5	14.8	15.7			
6000					10.2	11.2	11.9	12.3	13.0	13.2	14.1	14.5	14.9	15.8	16.0				

 The durability in terms of hours decreases in the marked range, this range should be avoided whenever possible. For other belt widths, values above should be multiplied by the width correction coefficient shown in Table 28.

 The circumferential speed of pulley is 33 (m/s) or more; a dynamic balance for the pulley is essential.



Selection of Timing Belts

Transmission Capacity Table

Table 46. Reference Transmission Capacity of UP5M Ps – Belt Width 10mm –

(W)

Rotary Speed of Small Pulley (rpm)	No. of Teeth of Small Pulley Diameter of the Pitch Circle (mm)	12	14	16	18	20	22	24	26	28	30	32	36	40	44	48	50	60	72
		19.10	22.28	25.46	28.65	31.83	35.01	38.20	41.38	44.56	47.75	50.93	57.30	63.66	70.03	76.39	79.58	95.49	114.59
20		10	12	15	17	19	21	24	26	29	31	34	39	45	51	58	61	78	101
40		19	23	28	32	36	40	45	49	54	59	64	74	85	96	108	114	147	187
60		27	32	39	45	50	56	63	69	76	83	90	104	119	135	152	161	206	267
100		41	50	60	69	78	88	97	107	118	128	139	162	185	210	236	249	321	420
200		76	92	111	128	145	162	180	198	215	237	257	298	342	388	436	460	592	774
400		141	170	206	236	267	299	332	366	401	437	474	550	631	715	804	849	1092	1430
500		172	207	251	287	325	364	405	446	488	532	577	670	769	871	979	1034	1330	1741
600		202	243	295	338	382	428	475	524	574	625	678	788	903	1024	1151	1216	1563	2045
800		260	314	380	436	492	552	613	675	740	806	875	1016	1164	1320	1483	1567	2016	2637
1000		316	382	463	531	600	672	747	822	901	982	1065	1238	1418	1609	1806	1909	2454	3210
1200		376	453	550	630	713	799	887	977	1070	1167	1265	1470	1685	1910	2146	2266	2913	3811
1400		436	526	637	730	826	924	1026	1132	1240	1351	1466	1702	1951	2212	2484	2625	3372	4409
1450			544	658	755	854	957	1061	1171	1283	1397	1516	1760	2017	2288	2569	2714	3488	4559
1500			561	681	780	883	988	1098	1209	1324	1444	1566	1819	2084	2364	2654	2803	3601	4707
1600			599	724	831	940	1052	1169	1287	1410	1537	1667	1935	2218	2514	2823	2984	3833	5007
1750			652	790	907	1025	1147	1275	1405	1539	1677	1817	2111	2420	2743	3080	3254	4178	5455
1800				813	931	1053	1179	1309	1443	1582	1724	1868	2171	2486	2820	3165	3344	4293	5605
2000				902	1032	1169	1309	1453	1601	1754	1912	2071	2407	2757	3124	3508	3707	4687	6201
2400				1068	1222	1386	1552	1720	1897	2077	2262	2453	2849	3261	3695	4146	4378	5485	7293
3000					1517	1714	1918	2130	2348	2570	2798	3034	3520	4027	4559	5108	5389	6614	8885
3600					1794	2029	2272	2519	2774	3039	3307	3584	4151	4743	5361	5996	6320	7629	10250
4000						2245	2513	2785	3067	3358	3655	3956	4577	5226	5895	6583	6932	8040	11069
5000						2747	3072	3404	3747	4090	4446	4807	5542	6301	7066	7843	8229	9048	
6000						3217	3585	3969	4359	4757	5154	5559	6376	7185	7995	8776	9159		
8000								5002	5455	5908	6361	6795	7624	8366	8993	9465	9619		
10000									6313	6747	7156	7518	8072	8349	8253				
12000									6824	7142	7359	7475	7316						
14000									6848	6882	6730								

□ The durability in terms of hours decreases in the marked range, this range should be avoided whenever possible. For other belt widths, values above should be multiplied by the width correction coefficient shown in Table 28.



Selection of Timing Belts

Transmission Capacity Table

Table 47. Reference Transmission Capacity of UP8M Ps – Belt Width 15mm –

(kW)

Rotary Speed of Small Pulley (rpm)	No. of Teeth of Small Pulley Diameter of the Pitch Circle (mm)	20	22	24	26	28	30	32	34	36	38	40	44	48	50	56	60	64	72
		50.93	56.02	61.12	66.21	71.30	76.39	81.49	86.58	91.67	96.77	101.86	112.05	122.23	127.32	142.60	152.79	162.97	183.35
20		0.11	0.12	0.13	0.14	0.15	0.17	0.18	0.19	0.20	0.21	0.23	0.25	0.28	0.29	0.33	0.36	0.40	0.46
40		0.19	0.21	0.24	0.26	0.28	0.30	0.33	0.36	0.38	0.40	0.42	0.47	0.52	0.55	0.62	0.67	0.73	0.84
60		0.27	0.31	0.34	0.37	0.40	0.44	0.47	0.50	0.53	0.56	0.60	0.67	0.74	0.77	0.89	0.96	1.04	1.20
100		0.43	0.48	0.52	0.57	0.62	0.67	0.71	0.77	0.82	0.88	0.93	1.03	1.14	1.20	1.38	1.50	1.62	1.87
200		0.76	0.84	0.93	1.01	1.10	1.19	1.28	1.37	1.46	1.57	1.69	1.85	2.06	2.16	2.48	2.70	2.93	3.40
300		1.06	1.17	1.29	1.41	1.54	1.66	1.78	1.92	2.05	2.18	2.29	2.59	2.88	3.03	3.48	3.79	4.11	4.79
400		1.32	1.47	1.62	1.78	1.93	2.09	2.25	2.41	2.59	2.75	2.92	3.28	3.65	3.84	4.41	4.81	5.22	6.08
500		1.57	1.75	1.93	2.12	2.30	2.50	2.69	2.89	3.09	3.30	3.50	3.93	4.37	4.60	5.30	5.78	6.29	7.32
600		1.81	2.01	2.22	2.44	2.65	2.88	3.10	3.33	3.57	3.80	4.05	4.54	5.06	5.32	6.14	6.71	7.29	8.51
700		2.04	2.26	2.50	2.75	2.99	3.24	3.50	3.75	4.02	4.29	4.57	5.13	5.72	6.02	6.95	7.59	8.26	9.65
800		2.25	2.51	2.77	3.04	3.31	3.59	3.87	4.17	4.46	4.76	5.07	5.70	6.35	6.69	7.73	8.45	9.20	10.75
900		2.46	2.74	3.03	3.32	3.61	3.92	4.24	4.55	4.88	5.21	5.55	6.25	6.97	7.34	8.48	9.29	10.11	11.83
1000		2.66	2.96	3.28	3.58	3.91	4.24	4.58	4.93	5.28	5.64	6.02	6.78	7.56	7.96	9.22	10.08	10.99	12.88
1100		2.86	3.19	3.52	3.87	4.23	4.59	4.95	5.33	5.71	6.10	6.51	7.32	8.18	8.62	9.99	10.93	11.91	13.97
1200		3.06	3.42	3.78	4.15	4.53	4.92	5.31	5.72	6.13	6.55	6.98	7.87	8.79	9.26	10.74	11.76	12.83	15.05
1300		3.26	3.64	4.02	4.42	4.82	5.24	5.67	6.10	6.54	6.99	7.45	8.40	9.40	9.90	11.49	12.59	13.73	16.11
1400		3.46	3.86	4.27	4.69	5.12	5.57	6.01	6.47	6.95	7.43	7.92	8.94	9.99	10.53	12.23	13.40	14.62	17.17
1450		3.55	3.96	4.39	4.82	5.26	5.72	6.18	6.66	7.15	7.64	8.15	9.20	10.28	10.84	12.59	13.80	15.06	17.69
1500		3.65	4.07	4.51	4.95	5.41	5.87	6.35	6.85	7.35	7.85	8.38	9.46	10.58	11.15	12.95	14.20	15.50	18.22
1600		3.83	4.27	4.73	5.21	5.69	6.18	6.69	7.21	7.74	8.28	8.84	9.98	11.16	11.77	13.68	15.00	16.37	19.26
1750		4.11	4.59	5.08	5.59	6.12	6.64	7.19	7.75	8.32	8.91	9.50	10.74	12.03	12.69	14.75	16.19	17.68	20.81
1800		4.19	4.69	5.20	5.71	6.25	6.79	7.35	7.92	8.52	9.11	9.72	11.00	12.31	12.99	15.10	16.58	18.11	21.32
2000		4.56	5.09	5.65	6.21	6.79	7.39	8.00	8.63	9.28	9.93	10.61	11.99	13.44	14.18	16.51	18.14	19.82	23.37
2400		5.25	5.87	6.51	7.17	7.85	8.54	9.27	10.00	10.75	11.52	12.31	13.95	15.65	16.53	19.27	21.20	23.18	27.38
2800		5.91	6.61	7.34	8.09	8.87	9.66	10.48	11.32	12.18	13.06	13.97	15.84	17.81	18.81	21.97	24.19	26.49	31.35
3000		6.22	6.97	7.75	8.54	9.37	10.21	11.09	11.97	12.89	13.82	14.79	16.78	18.87	19.94	23.31	25.68	28.13	33.30
3600		6.93	7.79	8.66	9.56	10.49	11.45	12.44	13.46	14.50	15.57	16.66	18.94	21.33	22.56	26.44	29.15	31.97	37.94
4000		7.36	8.29	9.20	10.18	11.18	12.20	13.27	14.36	15.48	16.63	17.81	20.27	22.85	24.18	28.37	31.30	34.36	40.81
5000		8.29	9.34	10.41	11.52	12.68	13.87	15.10	16.38	17.68	19.02	20.40	23.26	26.29	27.84	32.75	36.20		
6000		9.05	9.05	11.41	12.65	13.95	15.28	16.66	18.08	19.55	21.06	22.61	25.85	29.24	31.02	36.56	40.46		

2.46 The durability in terms of hours decreases in the marked range, this range should be avoided whenever possible. For other belt widths, values above should be multiplied by the width correction coefficient shown in Table 28.

37.94 The circumferential speed of pulley is 33 (m/s) or more; a dynamic balance for the pulley is essential.



Selection of Timing Belts

Transmission Capacity Table

Table 48. Reference Transmission Capacity of P5M Ps – Belt Width 10mm –

(W)

Rotary Speed of Small Pulley (rpm)	No. of Teeth of Small Pulley Diameter of the Pitch Circle (mm)	12	14	16	18	20	22	24	25	26	28	30	32	34	36	40	42	44	48	56
		19.10	22.28	25.46	28.65	31.83	35.05	38.20	39.79	41.38	44.56	47.75	50.93	54.11	57.30	63.66	66.85	70.03	76.39	89.15
100		23	26	31	35	41	46	52	55	58	64	70	76	81	86	103	110	118	133	158
200		46	53	63	72	81	92	104	109	115	126	138	151	164	177	205	220	235	267	316
400		77	90	106	122	138	155	173	182	192	211	231	251	272	294	337	361	385	434	514
600		105	123	144	165	188	211	235	247	259	284	310	337	365	394	452	482	513	577	684
800		131	153	179	205	234	262	291	306	322	353	385	417	451	485	556	592	629	706	837
1000		156	182	212	243	276	309	343	361	379	415	453	491	530	570	651	694	738	825	977
1200		179	209	244	280	316	355	394	414	435	476	518	561	605	650	742	790	838	937	1110
1400		201	235	274	319	355	399	443	465	487	532	580	628	677	726	828	880	933	1040	1230
1450			242	282	323	365	409	453	476	499	546	594	643	694	745	850	903	957	1070	1260
1500			248	288	333	374	420	466	489	512	560	609	659	711	762	869	925	981	1090	1290
1600			261	303	348	393	441	489	514	538	588	639	691	745	799	910	970	1030	1140	1350
1750			278	325	372	420	471	522	548	575	628	683	738	795	852	970	1040	1100	1220	1430
1800				332	380	430	481	532	559	586	640	696	753	810	868	989	1050	1110	1240	1460
2000				360	412	465	520	576	605	633	691	751	812	874	937	1060	1130	1200	1330	1570
2400				413	472	532	595	658	691	723	789	857	925	992	1060	1210	1280	1350	1500	2030
3000					557	628	701	775	812	850	926	1000	1080	1150	1240	1400	1485	1570	1730	2120
3600					638	719	801	883	925	966	1050	1140	1230	1310	1400	1580	1670	1760	1940	2250
4000						776	865	953	997	1040	1130	1220	1320	1450	1500	1690	1785	1880	2060	2380
5000						911	1010	1110	1160	1210	1320	1420	1520	1620	1720	1920	2010	2110	2300	2610
6000							1140	1260	1310	1370	1480	1580	1690	1790	1900	2100	2190	2290	2460	2720
8000								1490	1550	1600	1720	1830	1930	2020	2120	2270	2330	2400	2480	2480
10000									1710	1760	1860	1940	2020	2080	2130	2170	2160	2150	2040	
12000									1770	1810	1880	1910	1940	1920	1900					
14000										1750	1760	1710	1660							

□ The durability in terms of hours decreases in the marked range, this range should be avoided whenever possible. For other belt widths, values above should be multiplied by the width correction coefficient shown in Table 28.



Selection of Timing Belts

Transmission Capacity Table

Table 49. Reference Transmission Capacity of T10 Ps – Belt Width 10mm –

(kW)

Rotary Speed of Small Pulley (rpm)	No. of Teeth of Small Pulley Diameter of the Pitch Circle (mm)	12	14	16	18	20	22	24	26	28	30	32	36	40	44	48
		38.20	44.56	50.93	57.30	63.66	70.03	76.39	82.76	89.12	95.49	101.86	114.59	127.32	140.06	152.79
870		254.9	297.4	339.9	382.4	424.9	467.4	509.9	552.4	594.9	637.4	679.8	764.8	849.8	938.8	1019.8
1160		321.2	374.8	428.3	481.8	535.4	588.9	642.4	696.0	749.5	803.0	856.6	963.7	1070.7	1177.8	1284.9
1750		438.3	511.3	584.4	657.4	730.5	803.5	876.6	949.6	1022.7	1095.7	1168.8	1314.9	1461.0	1607.1	1753.2
3500		725.8	846.8	967.8	1088.7	1209.7	1330.6	1451.6	1572.6	1693.6	1814.6	1935.5	2177.5	2419.4	2661.4	2903.3
100		34.8	40.6	46.4	52.1	57.9	63.7	69.5	75.3	81.1	86.9	92.7	104.3	115.9	127.5	139.1
200		67.9	79.2	90.5	101.9	113.2	124.5	135.8	147.1	158.4	169.8	181.1	203.7	226.3	249.0	271.6
300		99.5	116.1	132.7	149.3	165.8	182.4	199.0	215.6	232.2	248.8	265.3	298.5	331.7	364.9	398.0
400		129.7	151.3	172.9	194.5	216.1	237.7	259.4	281.0	302.6	324.2	345.8	389.0	432.3	475.5	518.7
500		158.5	184.9	211.3	237.8	264.2	290.6	317.0	343.4	369.8	396.3	422.7	475.5	528.3	581.2	634.0
600		186.1	217.1	248.1	279.1	310.1	341.1	372.2	403.2	434.2	465.2	496.2	558.2	620.3	682.3	744.3
700		212.5	247.9	283.3	318.7	354.2	389.6	425.0	460.4	495.8	531.2	566.6	637.5	708.3	779.1	850.0
800		237.8	277.5	317.1	356.7	396.4	436.0	475.6	515.3	554.9	594.5	634.2	713.4	792.7	872.0	951.3
900		262.1	305.8	349.5	393.2	436.9	480.6	524.3	568.0	611.7	655.3	699.0	786.4	873.8	961.2	1048.6
1000		285.5	333.1	380.7	428.3	475.9	523.5	571.1	618.7	666.2	713.8	761.4	856.6	951.8	1047.0	1142.1
1100		308.1	359.4	410.8	462.1	513.5	564.8	616.2	667.5	718.8	770.2	821.5	924.2	1026.9	1129.6	1232.3
1200		329.8	384.8	439.8	494.7	549.7	604.7	659.7	714.6	769.6	824.6	879.6	989.5	1099.4	1209.4	1319.3
1300		350.9	409.4	467.8	526.3	584.8	644.3	701.4	760.2	818.7	877.2	935.7	1052.6	1169.6	1286.5	1403.5
1400		371.3	433.1	495.0	556.9	618.8	680.6	742.5	804.4	866.3	928.1	990.0	1113.8	1237.5	1361.3	1485.0
1500		391.0	456.2	521.4	586.6	651.7	716.9	782.1	847.3	912.4	977.6	1042.8	1173.1	1303.5	1433.8	1564.2
1600		410.3	478.7	547.1	615.4	683.8	752.2	820.6	889.0	957.4	1025.7	1094.1	1230.9	1367.7	1504.4	1641.2
1700		429.1	500.6	572.1	643.6	715.1	786.6	858.1	929.6	1001.2	1072.7	1144.2	1287.2	1430.2	1573.3	1716.3
1800		447.4	522.0	596.5	671.1	745.7	820.2	894.8	969.4	1043.9	1118.5	1193.1	1342.2	1485.1	1628.0	1771.0
1900		465.4	542.9	620.5	698.0	775.6	853.1	930.7	1008.3	1085.8	1163.4	1240.9	1396.1	1551.2	1706.3	1861.4
2000		483.0	563.5	643.9	724.4	804.9	885.4	965.9	1046.4	1126.9	1207.4	1287.9	1448.9	1609.9	1770.9	1931.8
2200		517.3	603.5	689.7	776.0	862.2	948.4	1034.6	1120.8	1207.1	1293.3	1379.5	1551.9	1724.4	1896.8	2069.2
2400		550.7	642.5	734.3	826.1	917.9	1009.7	1101.4	1193.8	1285.0	1376.8	1468.6	1652.2	1835.8	2019.3	2202.9
2600		583.5	680.7	777.9	875.2	972.4	1069.7	1166.9	1264.1	1361.4	1458.6	1555.9	1750.4	1944.9	2139.3	2333.8
2800		615.7	718.3	820.9	923.5	1026.1	1128.7	1231.3	1333.9	1436.6	1539.2	1641.8	1847.0	2052.3	2257.5	2462.7
3000			755.4	863.4	971.3	1079.2	1187.1	1295.0	1402.9	1510.9	1618.8	1726.7	1942.5	2158.4	2374.2	2590.1
3200			792.2	905.4	1018.6	1131.8	1244.9	1358.1	1471.2	1584.5	1697.6	1810.8	2037.2	2263.5	2489.9	2716.2
3400			828.7	947.1	1065.5	1183.8	1302.2	1420.6	1539.0	1657.4	1775.8	1894.2	2130.9	2367.7	2604.5	2841.2
3600			864.8	988.4	1111.9	1235.4	1358.9	1482.5	1606.0	1729.6	1853.2	1976.7	2223.8	2470.9	2718.0	2965.1
3800			900.5	1029.1	1157.7	1286.4	1415.0	1543.6	1672.2	1800.9	1929.6	2058.2	2315.5	2572.8	2830.0	3087.3
4000				1069.2	1202.8	1336.5	1470.0	1603.7	1737.3	1871.1	2004.7	2138.4	2405.7	2673.0	2940.3	3207.6
4200				1108.3	1246.9	1385.4	1523.9	1662.4	1800.9	1939.6	2078.1	2216.7	2493.7	2770.8	3047.9	3325.0
4400				1146.2	1289.5	1432.8	1576.0	1719.2	1862.5	2005.9	2149.2	2292.5	2579.0	2865.6	3152.1	3438.7
4600				1182.5	1330.3	1478.1	1625.8	1773.6	1921.4	2069.4	2217.2	2365.0	2660.6	2956.3	3251.9	3547.5
4800				1216.7	1368.8	1520.9	1672.8	1824.9	1976.9	2129.2	2281.3	2433.4	2737.6	3041.8	3345.9	3650.1
5000				1248.3	1404.3	1560.4	1716.2	1872.2	2028.3	2184.5	2340.6	2496.6	2808.7	3120.8	3432.8	3744.9
5200				1276.7	1436.3	1595.9	1755.2	1914.8	2074.4	2234.2	2393.8	2553.4	2872.6	3191.8	3510.9	3830.1
5400				1301.3	1463.9	1626.6	1789.0	1951.6	2114.2	2277.2	2439.9	2602.5	2927.8	3253.2	3578.5	3903.8
5600				1321.2	1486.4	1651.5	1816.4	1981.5	2146.7	2312.2	2477.3	2642.5	2972.8	3303.1	3633.4	3963.7
5800				1335.8	1502.8	1669.8	1836.4	2003.4	2170.3	2337.7	2504.7	2671.7	3005.6	3339.6	3673.5	4007.5
6000				1344.2	1512.2	1680.2	1847.8	2015.8	2184.3	2352.3	2520.3	2688.3	3024.4	3360.4	3696.5	4032.5

□ Avoiding the marked ranges is recommended as endurance time is shorten

□ Balance the traveling speed as wind velocity of pulley in the marked range reaches more than 33 (m/s)

*The above table shows values for the nominal width 10 (10mm). Multiply a value in the table by correction coefficient Kb in the table 28 for other widths.



Belt Width Selection Tables

2 mm PowerGrip® MR Belts

Belt Width (mm)	4	6	9	12
Width Multiplier	0.60	1.00	1.64	2.32

Table 50. Reference Transmission Capacity of MR2 Belt

MR2 Rated Torque (lb-in) for Small Sprocket – 6 mm Belt Width																		
Number of Grooves	12	14	16	18	20	22	24	26	28	30	34	38	45	50	56	62	74	80
Pitch (mm)	7.64	8.91	10.18	11.45	12.72	13.99	15.29	16.56	17.83	19.10	21.64	24.18	28.65	31.82	35.66	39.47	47.11	50.93
Diameter (in)	0.301	0.351	0.401	0.451	0.501	0.551	0.602	0.652	0.702	0.752	0.852	0.952	1.128	1.253	1.404	1.554	1.855	2.005
rpm of FASTER Shaft	10	7.75	9.17	10.6	12.0	13.3	14.7	16.0	17.4	18.7	20.0	22.6	25.1	29.5	32.6	36.2	39.8	46.9
	20	7.12	8.44	9.74	11.0	12.3	13.5	14.8	16.0	17.2	18.4	20.8	23.1	27.2	30.0	33.3	36.6	43.1
	40	6.50	7.72	8.91	10.1	11.2	12.4	13.5	14.7	15.8	16.9	19.0	21.2	24.8	27.4	30.4	33.4	39.2
	60	6.14	7.29	8.43	9.54	10.6	11.7	12.8	13.9	14.9	16.0	18.0	20.0	23.5	25.9	28.7	31.5	37.0
	100	5.68	6.76	7.81	8.852	9.87	10.9	11.9	12.9	13.8	14.8	16.7	18.5	21.7	23.9	26.6	29.1	34.1
	200	5.05	6.03	6.98	7.92	8.84	9.74	10.6	11.5	12.4	13.2	14.9	16.6	19.4	21.3	23.7	25.9	30.3
	300	4.69	5.60	6.50	7.37	8.23	9.07	9.92	10.7	11.5	12.3	13.9	15.4	18.0	19.8	22.0	24.0	28.0
	400	4.43	5.30	6.15	6.98	7.80	8.60	9.40	10.2	10.9	11.7	13.2	14.6	17.1	18.8	20.8	22.7	26.4
	500	4.23	5.07	5.88	6.68	7.46	8.23	9.00	9.74	10.5	11.2	12.6	14.0	16.3	17.9	19.8	21.7	25.2
	600	4.06	4.88	5.67	6.44	7.19	7.93	8.67	9.38	10.1	10.8	12.1	13.4	15.7	17.2	19.0	20.8	24.2
	800	3.81	4.57	5.32	6.05	6.76	7.46	8.15	8.82	9.48	10.1	11.4	12.6	14.7	16.2	17.8	19.5	22.6
	1000	3.61	4.34	5.05	5.75	6.43	7.09	7.75	8.39	9.01	9.63	10.8	12.0	14.0	15.3	16.9	18.4	21.4
	1200	3.44	4.15	4.83	5.50	6.15	6.79	7.42	8.03	8.63	9.22	10.4	11.5	13.4	14.6	16.1	17.6	20.4
	1400	3.30	3.99	4.65	5.29	5.92	6.53	7.15	7.73	8.31	8.87	9.97	11.0	12.8	14.1	15.5	16.9	19.5
	1600	3.18	3.85	4.49	5.11	5.72	6.31	6.91	7.47	8.03	8.57	9.63	10.7	12.4	13.6	14.9	16.2	18.7
	1800	3.08	3.72	4.35	4.96	5.55	6.12	6.69	7.24	7.78	8.31	9.33	10.3	12.0	13.1	14.4	15.7	18.1
	2000	2.98	3.61	4.22	4.81	5.39	5.95	6.50	7.04	7.56	8.07	9.06	10.0	11.6	12.7	14.0	15.2	17.5
	2400	2.82	3.42	4.00	4.57	5.11	5.65	6.18	6.68	7.18	7.66	8.60	9.50	11.0	12.0	13.2	14.3	16.5
	2800	2.68	3.26	3.82	4.36	4.88	5.39	5.90	6.38	6.85	7.31	8.20	9.06	10.5	11.5	12.6	13.6	15.6
	3200	2.56	3.12	3.66	4.18	4.68	5.17	5.66	6.12	6.57	7.01	7.86	8.68	10.0	11.0	12.0	13.0	14.9
	3600	2.45	3.00	3.52	4.02	4.51	4.98	5.44	5.89	6.32	6.75	7.56	8.34	9.64	10.5	11.5	12.4	14.2
	4000	2.36	2.89	3.39	3.88	4.35	4.80	5.25	5.68	6.10	6.51	7.29	8.04	9.28	10.1	11.1	11.9	13.6
	5000	2.16	2.65	3.12	3.58	4.01	4.44	4.85	5.25	5.63	6.00	6.72	7.40	8.52	9.26	10.1	10.9	12.3
	6000	1.99	2.46	2.90	3.33	3.74	4.13	4.52	4.89	5.24	5.59	6.25	6.87	7.89	8.56	9.31	10.0	11.2
	8000	1.73	2.16	2.56	2.94	3.31	3.66	4.00	4.32	4.63	4.93	5.50	6.03	6.89	7.43	8.04	8.58	9.51
	10000	1.53	1.92	2.29	2.64	2.97	3.28	3.59	3.88	4.15	4.42	4.92	5.37	6.09	6.54	7.02	7.44	8.09
	12000	1.37	1.73	2.07	2.39	2.69	2.98	3.26	3.51	3.76	3.99	4.43	4.82	5.43	5.79	6.16	6.45	6.85
	14000	1.23	1.56	1.88	2.18	2.45	2.72	2.97	3.20	3.42	3.63	4.01	4.35	4.85	5.13	5.39	5.58	
Rated Torque (N-m)																		
rpm of FASTER Shaft	10	0.88	1.04	1.19	1.35	1.51	1.66	1.81	1.96	2.11	2.26	2.55	2.84	3.33	3.68	4.09	4.50	5.30
	20	0.80	0.95	1.10	1.25	1.39	1.53	1.67	1.81	1.95	2.08	2.35	2.61	3.07	3.39	3.76	4.14	4.86
	40	0.73	0.87	1.01	1.14	1.27	1.40	1.53	1.66	1.78	1.91	2.15	2.39	2.80	3.09	3.44	3.77	4.43
	60	0.69	0.82	0.95	1.08	1.20	1.32	1.45	1.57	1.69	1.80	2.03	2.26	2.65	2.92	3.24	3.56	4.18
	100	0.64	0.76	0.88	1.00	1.12	1.23	1.34	1.45	1.56	1.67	1.89	2.10	2.46	2.71	3.00	3.29	3.86
	200	0.57	0.68	0.79	0.89	1.00	1.10	1.20	1.30	1.40	1.50	1.69	1.87	2.19	2.41	2.67	2.93	3.42
	300	0.53	0.63	0.73	0.83	0.93	1.02	1.12	1.21	1.30	1.39	1.57	1.74	2.04	2.24	2.48	2.71	3.17
	400	0.50	0.60	0.70	0.79	0.88	0.97	1.06	1.15	1.24	1.32	1.49	1.65	1.93	2.12	2.34	2.56	2.99
	500	0.48	0.57	0.66	0.75	0.84	0.93	1.02	1.10	1.18	1.26	1.42	1.58	1.84	2.02	2.24	2.45	2.85
	600	0.46	0.55	0.64	0.73	0.81	0.90	0.98	1.06	1.14	1.22	1.37	1.52	1.77	1.95	2.15	2.35	2.73
	800	0.43	0.52	0.60	0.68	0.76	0.84	0.92	1.00	1.07	1.14	1.29	1.43	1.66	1.83	2.02	2.20	2.55
	1000	0.41	0.49	0.57	0.65	0.73	0.80	0.88	0.95	1.02	1.09	1.22	1.36	1.58	1.73	1.91	2.08	2.41
	1200	0.39	0.47	0.55	0.62	0.70	0.77	0.84	0.91	0.98	1.04	1.17	1.30	1.51	1.65	1.82	1.99	2.30
	1400	0.37	0.45	0.53	0.60	0.67	0.74	0.81	0.87	0.94	1.00	1.13	1.25	1.45	1.59	1.75	1.91	2.20
	1600	0.36	0.43	0.51	0.58	0.65	0.71	0.78	0.84	0.91	0.97	1.09	1.20	1.40	1.53	1.69	1.84	2.12
	1800	0.35	0.42	0.49	0.56	0.63	0.69	0.76	0.82	0.88	0.94	1.05	1.17	1.35	1.48	1.63	1.77	2.04
	2000	0.34	0.41	0.48	0.54	0.61	0.67	0.73	0.80	0.85	0.91	1.02	1.13	1.31	1.44	1.58	1.72	1.98
	2400	0.32	0.39	0.45	0.52	0.58	0.64	0.70	0.75	0.81	0.87	0.97	1.07	1.24	1.36	1.49	1.62	1.86
	2800	0.30	0.37	0.43	0.49	0.55	0.61	0.67	0.72	0.77	0.83	0.93	1.02	1.19	1.29	1.42	1.54	1.76
	3200	0.29	0.35	0.41	0.47	0.53	0.58	0.64	0.69	0.74	0.79	0.89	0.98	1.13	1.24	1.36	1.47	1.68
	3600	0.28	0.34	0.40	0.45	0.51	0.56	0.62	0.67	0.71	0.76	0.85	0.94	1.09	1.19	1.30	1.41	1.60
	4000	0.27	0.33	0.38	0.44	0.49	0.54	0.59	0.64	0.69	0.74	0.82	0.91	1.05	1.14	1.25	1.35	1.54
	5000	0.24	0.30	0.35	0.40	0.45	0.50	0.55	0.59	0.64	0.68	0.76	0.84	0.96	1.05	1.14	1.23	1.39
	6000	0.23	0.28	0.33	0.38	0.42	0.47	0.51	0.55	0.59	0.63	0.71	0.78	0.89	0.97	1.05	1.13	1.27
	8000	0.20	0.24	0.29	0.33	0.37	0.41	0.45	0.49	0.52	0.56	0.62	0.68	0.78	0.84	0.91	0.97	1.07
	10000	0.17	0.22	0.26	0.30	0.34	0.37	0.41	0.44	0.47	0.50	0.56	0.61	0.69	0.74	0.79	0.84	0.91
	12000	0.15	0.20	0.23	0.27	0.30	0.34	0.37	0.40	0.42	0.45	0.50	0.54	0.61	0.65	0.70	0.73	0.77
	14000	0.14	0.18	0.21	0.25	0.28	0.31	0.34	0.36	0.39	0.41	0.45	0.49	0.55	0.58	0.61	0.63	

Length Correction Factor		0.70	0.75	0.80	0.85	0.90	0.95	1.00	1.05	1.10	1.15	1.20	1.25	1.30	1.35
For Belt Length	From	Length (mm)	100	106	124	146	170	198	232	272	318	372	436	510	598
		# of teeth	50	53	62	73	85	99	116	136	159	186	218	255	299
	To	Length (mm)	104	122	144	168	196	230	270	316	370	434	508	596	696
		# of teeth	52	61	72	84	98	115	135	158	185	217	254	298	348



Belt Width Selection Tables

3 mm PowerGrip® MR Belts

Belt Width (mm)	6	9	12	15
Width Multiplier	1.00	1.64	2.32	3.03

Table 51. Reference Transmission Capacity of MR3 Belt

MR3 Rated Torque (lb-in) for Small Sprocket – 6 mm Belt Width																
Number of Grooves	16	18	20	22	24	26	28	30	34	38	45	50	56	62	74	80
Pitch (mm)	15.29	17.19	19.10	21.00	22.91	24.81	26.74	28.65	32.46	36.29	42.97	47.75	53.46	59.20	70.66	76.40
Diameter (in)	0.602	0.677	0.752	0.827	0.902	0.977	1.053	1.128	1.278	1.429	1.692	1.880	2.105	2.331	2.782	3.008
rpm of FASTER Shaft	10	18.4	21.3	24.1	27.0	29.8	32.6	35.4	38.1	43.6	49.0	58.4	65.0	72.8	80.6	103.6
	20	17.0	19.8	22.5	25.1	27.8	30.4	33.0	35.6	40.8	45.9	54.7	60.9	68.2	75.5	96.9
	40	15.7	18.3	20.8	23.3	25.8	28.2	30.7	33.1	37.9	42.7	50.9	56.7	63.6	70.3	90.3
	60	14.9	17.4	19.8	22.2	24.6	27.0	29.4	31.7	36.3	40.9	48.7	54.3	60.8	67.3	86.4
	100	14.0	16.3	18.6	20.9	23.1	25.4	27.6	29.9	34.2	38.6	46.0	51.2	57.4	63.5	81.5
	200	12.6	14.8	16.9	19.1	21.2	23.2	25.3	27.4	31.4	35.4	42.3	47.1	52.8	58.4	74.9
	300	11.9	13.9	16.0	18.0	20.0	22.0	24.0	25.9	29.7	33.6	40.1	44.6	50.0	55.4	71.0
	400	11.3	13.3	15.3	17.2	19.2	21.1	23.0	24.9	28.6	32.2	38.5	42.9	48.1	53.3	68.3
	500	10.9	12.8	14.8	16.7	18.5	20.4	22.2	24.1	27.7	31.2	37.3	41.6	46.6	51.6	66.1
	600	10.5	12.4	14.3	16.2	18.0	19.8	21.6	23.4	26.9	30.4	36.3	40.5	45.4	50.2	64.4
	800	9.98	11.8	13.6	15.4	17.2	18.9	20.7	22.4	25.8	29.1	34.8	38.8	43.5	48.1	61.6
	1000	9.55	11.3	13.1	14.8	16.5	18.2	19.9	21.6	24.8	28.1	33.6	37.4	42.0	46.4	59.4
	1200	9.20	10.9	12.7	14.3	16.0	17.7	19.3	20.9	24.1	27.2	32.6	36.3	40.7	45.1	57.6
	1400	8.91	10.6	12.3	13.9	15.6	17.2	18.8	20.4	23.5	26.5	31.8	35.4	39.7	43.9	56.1
	1600	8.65	10.3	12.0	13.6	15.2	16.8	18.3	19.9	22.9	25.9	31.0	34.6	38.8	42.9	54.8
	1800	8.42	10.1	11.7	13.3	14.8	16.4	17.9	19.5	22.4	25.4	30.4	33.9	38.0	42.0	53.6
	2000	8.22	9.84	11.4	13.0	14.5	16.1	17.6	19.1	22.0	24.9	29.8	33.2	37.2	41.2	52.6
	2400	7.87	9.44	11.0	12.5	14.0	15.5	17.0	18.4	21.3	24.1	28.8	32.1	36.0	39.8	50.7
	2800	7.57	9.11	10.6	12.1	13.6	15.0	16.5	17.9	20.6	23.3	27.9	31.2	34.9	38.6	49.1
	3200	7.32	8.82	10.3	11.7	13.2	14.6	16.0	17.4	20.1	22.7	27.2	30.3	34.0	37.5	47.7
rpm of FASTER Shaft	3600	7.09	8.57	10.0	11.4	12.8	14.2	15.6	16.9	19.6	22.2	26.5	29.6	33.1	36.6	46.4
	4000	6.89	8.34	9.76	11.2	12.5	13.9	15.2	16.5	19.1	21.7	25.9	28.9	32.3	35.7	45.2
	5000	6.45	7.85	9.21	10.6	11.9	13.2	14.5	15.7	18.2	20.6	24.6	27.4	30.6	33.8	42.4
	6000	6.10	7.45	8.77	10.1	11.3	12.6	13.8	15.0	17.4	19.7	23.5	26.1	29.2	32.1	40.0
	8000	5.53	6.81	8.05	9.26	10.5	11.6	12.8	13.9	16.1	18.2	21.6	24.0	26.6	29.1	35.4
	10000	5.09	6.30	7.48	8.63	9.75	10.8	11.9	13.0	15.0	16.9	20.0	22.1	24.3	26.3	
	12000	4.71	5.87	7.00	8.09	9.15	10.2	11.2	12.2	14.0	15.8	18.5	20.3			
	14000	4.39	5.50	6.57	7.61	8.61	9.58	10.5	11.4	13.1	14.7	17.1				
Rated Torque (N-m)																
rpm of FASTER Shaft	10	2.08	2.40	2.72	3.05	3.36	3.68	4.00	4.31	4.92	5.54	6.60	7.34	8.23	9.11	11.7
	20	1.93	2.23	2.54	2.84	3.14	3.43	3.73	4.03	4.61	5.18	6.18	6.88	7.71	8.53	11.0
	40	1.78	2.06	2.35	2.63	2.91	3.19	3.47	3.74	4.29	4.83	5.75	6.41	7.18	7.95	10.2
	60	1.69	1.97	2.24	2.51	2.78	3.05	3.32	3.58	4.10	4.62	5.51	6.13	6.87	7.61	9.77
	100	1.58	1.84	2.10	2.36	2.62	2.87	3.12	3.37	3.87	4.36	5.20	5.79	6.49	7.18	9.21
	200	1.43	1.67	1.91	2.15	2.39	2.63	2.86	3.09	3.55	4.00	4.77	5.32	5.96	6.60	8.46
	300	1.34	1.57	1.80	2.03	2.26	2.48	2.71	2.93	3.36	3.79	4.53	5.04	5.65	6.26	8.02
	400	1.28	1.50	1.73	1.95	2.17	2.38	2.60	2.81	3.23	3.64	4.35	4.85	5.44	6.02	7.71
	500	1.23	1.45	1.67	1.88	2.09	2.30	2.51	2.72	3.13	3.53	4.22	4.70	5.27	5.83	7.47
	600	1.19	1.41	1.62	1.83	2.03	2.24	2.44	2.65	3.04	3.43	4.11	4.58	5.13	5.68	7.27
	800	1.13	1.34	1.54	1.74	1.94	2.14	2.34	2.53	2.91	3.29	3.93	4.38	4.91	5.43	6.96
	1000	1.08	1.28	1.48	1.67	1.87	2.06	2.25	2.44	2.81	3.17	3.79	4.23	4.74	5.25	6.71
	1200	1.04	1.24	1.43	1.62	1.81	2.00	2.18	2.36	2.72	3.08	3.68	4.10	4.60	5.09	6.51
	1400	1.01	1.20	1.39	1.57	1.76	1.94	2.12	2.30	2.65	3.00	3.59	4.00	4.48	4.96	6.34
	1600	0.98	1.17	1.35	1.53	1.72	1.89	2.07	2.25	2.59	2.93	3.51	3.91	4.38	4.85	6.19
	1800	0.95	1.14	1.32	1.50	1.68	1.85	2.03	2.20	2.54	2.87	3.43	3.83	4.29	4.75	6.06
	2000	0.93	1.11	1.29	1.47	1.64	1.82	1.99	2.16	2.49	2.81	3.37	3.75	4.21	4.65	5.94
	2400	0.89	1.07	1.24	1.41	1.58	1.75	1.92	2.08	2.40	2.72	3.25	3.63	4.07	4.50	5.73
	2800	0.86	1.03	1.20	1.37	1.53	1.70	1.86	2.02	2.33	2.64	3.16	3.52	3.94	4.36	5.55
	3200	0.83	1.00	1.16	1.33	1.49	1.65	1.81	1.96	2.27	2.57	3.07	3.43	3.84	4.24	5.39
	3600	0.80	0.97	1.13	1.29	1.45	1.61	1.76	1.91	2.21	2.50	3.00	3.34	3.74	4.13	5.24
	4000	0.78	0.94	1.10	1.26	1.42	1.57	1.72	1.87	2.16	2.45	2.93	3.26	3.65	4.03	5.10
	5000	0.73	0.89	1.04	1.19	1.34	1.49	1.63	1.78	2.05	2.33	2.78	3.10	3.46	3.81	4.80
	6000	0.69	0.84	0.99	1.14	1.28	1.42	1.56	1.70	1.96	2.22	2.66	2.95	3.30	3.62	4.52
	8000	0.63	0.77	0.91	1.05	1.18	1.31	1.44	1.57	1.82	2.05	2.45	2.71	3.01	3.29	4.00
	10000	0.57	0.71	0.84	0.97	1.10	1.23	1.35	1.47	1.69	1.91	2.26	2.49	2.75	2.97	
	12000	0.53	0.66	0.79	0.91	1.03	1.15	1.26	1.37	1.58	1.78	2.09	2.29			
	14000	0.50	0.62	0.74	0.86	0.97	1.08	1.19	1.29	1.48	1.66	1.93				

□ indicates drive conditions where reduced service life can be expected. Contact Misumi for specific recommendations.

Length Correction Factor		0.70	0.75	0.80	0.85	0.90	0.95	1.00	1.05	1.10	1.15	1.20	1.25	1.30	1.35	1.40
For Belt Length	From	Length (mm)	120	129	153	180	213	252	294	348	408	480	567	666	786	924
		# of Teeth	40	43	51	60	71	84	98	116	136	160	189	222	262	308
	To	Length (mm)	126	150	177	210	249	291	345	405	477	564	663	783	921	1089
		# of Teeth	42	50	59	70	83	97	115	135	159	188	221	261	307	363



Belt Width Selection Tables

5 mm PowerGrip® MR Belts

Belt Width (mm)	9	15	20	25
Width Multiplier	0.54	1.00	1.40	1.82

Table 52. Reference Transmission Capacity of MR5 Belt

MR5 Rated Torque (lb-in) For Small Sprocket – 15 mm Belt Width*																					
Number of Grooves	18	20	22	24	26	28	30	32	34	36	40	44	48	52	56	60	64	68	72	80	
Pitch (mm)	28.65	31.82	35.02	38.20	41.37	44.55	47.75	50.92	54.10	57.30	63.65	70.02	76.40	82.75	89.12	95.50	101.85	108.22	114.57	127.33	
Diameter (in)	1.128	1.253	1.379	1.504	1.629	1.754	1.880	2.005	2.130	2.256	2.506	2.757	3.008	3.258	3.509	3.760	4.010	4.261	4.511	5.013	
rpm of Faster Shaft	10	101.5	120.8	140.1	159.2	178.2	197.1	216.1	234.8	253.5	272.2	309.2	346.1	382.8	419.2	455.6	491.7	527.6	563.5	599.1	670.2
	20	94.36	112.9	131.4	149.7	167.9	186.0	204.1	222.1	239.9	257.9	293.3	328.6	363.8	398.5	433.3	467.9	502.2	536.5	570.5	638.4
	40	87.21	104.9	122.7	140.1	157.5	174.8	192.2	209.4	226.4	243.6	277.4	311.1	344.7	377.9	411.0	444.0	476.7	509.4	541.9	606.6
	60	83.02	100.3	117.5	134.6	151.5	168.3	185.2	201.9	218.5	235.2	268.1	300.9	333.5	365.8	398.0	430.1	461.9	493.6	525.1	588.0
	100	77.75	94.41	111.1	127.5	143.9	160.1	176.4	192.5	208.6	224.7	256.4	288.0	319.4	350.6	381.6	412.5	443.1	473.7	504.0	564.6
	200	70.59	86.46	102.3	118.0	133.5	149.0	164.5	179.8	195.1	210.3	240.5	270.5	300.4	329.9	359.3	388.6	417.6	446.6	475.4	532.7
	300	66.40	81.81	97.22	112.4	127.5	142.5	157.5	172.4	187.1	202.0	231.2	260.3	289.2	317.8	346.3	374.6	402.7	430.8	458.6	514.1
	400	63.43	78.51	93.58	108.4	123.2	137.9	152.6	167.1	181.5	196.0	224.6	253.0	281.2	309.2	337.0	364.7	392.1	419.5	446.7	500.8
	500	61.13	75.94	90.77	105.4	119.9	134.3	148.7	163.0	177.2	191.4	219.4	247.4	275.1	302.5	329.8	357.0	383.9	410.8	437.4	490.4
	600	59.24	73.85	88.46	102.9	117.1	131.3	145.6	159.6	173.6	187.6	215.2	242.7	270.0	297.0	323.9	350.7	377.1	403.6	429.8	482.0
	800	56.27	70.55	84.82	98.88	112.8	126.7	140.6	154.3	168.0	181.7	208.6	235.4	262.0	288.3	314.6	340.6	366.4	392.2	417.6	468.4
	1000	53.96	67.98	82.00	95.80	109.5	123.1	136.8	150.2	163.6	177.0	203.4	229.7	255.8	281.6	307.3	332.8	358.0	383.2	408.1	457.8
	1200	52.07	65.88	79.69	93.28	106.8	120.2	133.6	146.8	160.0	173.2	199.2	225.0	250.7	276.0	301.2	326.3	351.1	375.8	400.2	448.9
	1400	50.47	64.11	77.73	91.14	104.4	117.7	130.9	144.0	156.9	170.0	195.6	221.1	246.3	271.2	296.1	320.7	345.1	369.4	393.4	441.2
	1600	49.09	62.56	76.03	89.28	102.4	115.5	128.6	141.5	154.3	167.1	192.4	217.6	242.5	267.1	291.6	315.8	339.8	363.8	387.4	434.4
	1800	47.86	61.20	74.53	87.64	100.7	113.6	126.5	139.3	151.9	164.6	189.6	214.5	239.1	263.3	287.5	311.5	335.1	358.7	382.0	428.2
	2000	46.76	59.98	73.18	86.16	99.05	111.8	124.6	137.3	149.8	162.4	187.1	211.7	236.0	260.0	283.8	307.5	330.8	354.0	377.0	422.5
	2400	44.86	57.86	70.83	83.60	96.26	108.8	121.4	133.8	146.1	158.4	182.7	206.7	230.5	254.0	277.3	300.3	323.1	345.7	368.0	412.1
	2800	43.24	56.05	68.84	81.41	93.88	106.3	118.6	130.8	142.9	155.0	178.8	202.4	225.8	248.7	271.5	294.0	316.2	338.2	359.9	402.7
	3200	41.83	54.48	67.10	79.50	91.80	104.0	116.2	128.2	140.1	152.0	175.4	198.6	221.5	244.0	266.3	288.3	309.9	331.3	352.4	393.8
	3600	40.58	53.08	65.54	77.79	89.93	102.0	114.0	125.8	137.6	149.3	172.3	195.1	217.6	239.6	261.4	282.9	304.0	324.8	345.2	385.3
	4000	39.45	51.81	64.14	76.25	88.24	100.1	112.0	123.7	135.2	146.8	169.5	191.9	213.9	235.5	256.8	277.8	298.3	318.5	338.3	376.9
	5000	37.03	49.09	61.11	72.90	84.56	96.10	107.6	118.9	130.1	141.3	163.1	184.5	205.5	226.0	246.1	265.7	284.8	303.5	321.6	
	6000	35.00	46.80	58.55	70.05	81.41	92.63	103.8	114.8	125.6	136.3	157.3	177.8	197.8	217.1	235.9	254.1	271.7			
	8000	31.67	43.00	54.24	65.22	76.01	86.63	97.15	107.4	117.5	127.5	146.7	165.2	182.9							
	10000	28.89	39.80	50.57	61.03	71.27	81.28	91.13	100.7	110.0	119.1										
	12000	26.43	36.92	47.21	57.15	66.81	76.18	85.33	94.09												
	14000	24.2	34.22	44.02	53.42	62.46	71.15														
Rated Torque (N-m)*																					
rpm of Faster Shaft	10	11.5	13.7	15.8	18.0	20.1	22.3	24.4	26.5	28.6	30.8	34.9	39.1	43.3	47.4	51.5	55.6	59.6	63.7	67.7	75.7
	20	10.7	12.8	14.8	16.9	19.0	21.0	23.1	25.1	27.1	29.1	33.1	37.1	41.1	45.0	49.0	52.9	56.7	60.6	64.5	72.1
	40	9.85	11.9	13.9	15.8	17.8	19.8	21.7	23.7	25.6	27.5	31.3	35.2	38.9	42.7	46.4	50.2	53.9	57.6	61.2	68.5
	60	9.38	11.3	13.3	15.2	17.1	19.0	20.9	22.8	24.7	26.6	30.3	34.0	37.7	41.3	45.0	48.6	52.2	55.8	59.3	66.4
	100	8.78	10.7	12.6	14.4	16.3	18.1	19.9	21.8	23.6	25.4	29.0	32.5	36.1	39.6	43.1	46.6	50.1	53.5	56.9	63.8
	200	7.98	9.77	11.6	13.3	15.1	16.8	18.6	20.3	22.0	23.8	27.2	30.6	33.9	37.3	40.6	43.9	47.2	50.5	53.7	60.2
	300	7.50	9.24	11.0	12.7	14.4	16.1	17.8	19.5	21.1	22.8	26.1	29.4	32.7	35.9	39.1	42.3	45.5	48.7	51.8	58.1
	400	7.17	8.87	10.6	12.3	13.9	15.6	17.2	18.9	20.5	22.1	25.4	28.6	31.8	34.9	38.1	41.2	44.3	47.4	50.5	56.6
	500	6.91	8.58	10.3	11.9	13.5	15.2	16.8	18.4	20.0	21.6	24.8	27.9	31.1	34.2	37.3	40.3	43.4	46.4	49.4	55.4
	600	6.69	8.34	9.99	11.6	13.2	14.8	16.4	18.0	19.6	21.2	24.3	27.4	30.5	33.6	36.6	39.6	42.6	45.6	48.6	54.5
	800	6.36	7.97	9.58	11.2	12.7	14.3	15.9	17.4	19.0	20.5	23.6	26.6	29.6	32.6	35.5	38.5	41.4	44.3	47.2	52.9
	1000	6.10	7.68	9.26	10.8	12.4	13.9	15.5	17.0	18.5	20.0	23.0	26.0	28.9	31.8	34.7	37.6	40.5	43.3	46.1	51.7
	1200	5.88	7.44	9.00	10.5	12.1	13.6	15.1	16.6	18.1	19.6	22.5	25.4	28.3	31.2	34.0	36.9	39.7	42.5	45.2	50.7
	1400	5.70	7.24	8.78	10.3	11.8	13.3	14.8	16.3	17.7	19.2	22.1	25.0	27.8	30.6	33.5	36.2	39.0	41.7	44.5	49.9
	1600	5.55	7.07	8.59	10.1	11.6	13.0	14.5	16.0	17.4	18.9	21.7	24.6	27.4	30.2	32.9	35.7	38.4	41.1	43.8	49.1
	1800	5.41	6.91	8.42	9.90	11.4	12.8	14.3	15.7	17.2	18.6	21.4	24.2	27.0	29.8	32.5	35.2	37.9	40.5	43.2	48.4
	2000	5.28	6.78	8.27	9.74	11.2	12.6	14.1	15.5	16.9	18.3	21.1	23.9	26.7	29.4	32.1	34.7	37.4	40.0	42.6	47.7
	2400	5.07	6.54	8.00	9.45	10.9	12.3	13.7	15.1	16.5	17.9	20.6	23.4	26.0	28.7	31.3	33.9	36.5	39.1	41.6	46.6
	2800	4.89	6.33	7.78	9.20	10.6	12.0	13.4	14.8	16.1	17.5	20.2	22.9	25.5	28.1	30.7	33.2	35.7	38.2	40.7	45.5
	3200	4.73	6.15	7.58	8.98	10.4	11.7	13.1	14.5	15.8	17.2	19.8	22.4	25.0	27.6	30.1	32.6	35.0	37.4	39.8	44.5
	3600	4.58	6.00	7.41	8.79	10.2	11.5	12.9	14.2	15.5	16.9	19.5	22.0	24.6	27.1	29.5	32.0	34.3	36.7	39.0	43.5
	4000	4.46	5.85	7.25	8.62	9.97	11.3	12.7	14.0	15.3	16.6	19.1	21.7	24.2	26.6	29.0	31.4	33.7	36.0	38.2	42.6
	5000	4.18	5.55	6.90	8.24	9.55	10.9	12.2	13.4	14.7	16.0	18.4	20.8	23.2	25.5	27.8	30.0	32.2	34.3	36.3	
	6000	3.95	5.29	6.61	7.91	9.20	10.5	11.7	13.0	14.2	15.4	17.8	20.1	22.3	24.5	26.7	28.7	30.7			
	8000	3.58	4.86	6.13	7.37	8.59	9.79	11.0	12.1	13.3	14.4	16.6	18.7	20.7							
	10000	3.26	4.50	5.71	6.90	8.05	9.18	10.3	11.4	12.4	13.5										
	12000	2.99	4.17	5.33	6.46	7.55	8.61	9.64	10.6												
	14000	2.73	3.87	4.97	6.04	7.06	8.04														



Calculation Example

■ Application Specifications

- 1) Machine Type: Liquid Mixer
- 2) Power Transmission: $P_t = 0.1 \text{ kW}$
- 3) Load Variances: None
- 4) Operation Duration per Day = 8–12 hrs regular use
- 5) Small Pulley rotation speed: 600 rpm
- 6) Rotation ratio 3:1, large pulley teeth 60, small pulley teeth 20
- 7) Shaft Center Distance: 100 mm C'
- 8) Pulley Diameter Limitation: Large Pulley OD 57.1 mm D_p and Small Pulley OD 19.1 mm d_p
- 9) Other Usage Conditions: clean environment

■ Calculate Design Power P_d

$$P_d = P_t \times K_s$$

$$K_s = K_o + K_r + K_i = 1.6 + 0.3 + 0.1 = 2$$

$$P_d = 0.1 \text{ kW} \times 2 = 0.2 \text{ kW}$$

Refer to Table 1 for K_o , Table 2 for K_r , and Table for 3 K_i

3) Belt Selection.

Refer to Table 19 to choose S3M belt.

4) Determining Speed Ratio SR , Belt Length L_p and center distance C

Speed Ratio SR

$$SR = \frac{\# \text{ teeth large pulley}}{\# \text{ teeth small pulley}} = \frac{\text{Driven}}{\text{Driven}} = \frac{60}{20} = \frac{3}{1}$$

Belt Length L_p

$$L_p = C' + \frac{\pi \left(\frac{D_p}{d_p} \right)}{2} + \frac{(D_p - d_p)^2}{4C'}$$

$$L_p = (2 \times 100) + \frac{\pi \left(\frac{57.3}{19.1} \right)}{2} + \frac{(57.3 - 19.1)^2}{(4 \times 100)} = 208.36 \text{ mm}$$



Calculation Example

Center Distance

$$C = \frac{b + \sqrt{b^2 - 8(D_p - d_p)^2}}{8}$$

$$b = 2L_p - \pi(D_p + d_p) = 2(208.36 \text{ mm}) - \pi(57.3 + 19.1) = 176.7$$

$$C = \frac{b + \sqrt{b^2 - 8(D_p - d_p)^2}}{8} = \frac{176.7 + \sqrt{176.7^2 - 8(57.3 - 19.1)^2}}{8} = 39.5 \text{ mm}$$

5) Belt Width B_w

$$B_w = \frac{P_d}{(P_s \times K_m)} \times W_p$$

$$B_w = \frac{0.2}{(0.058 \times 1)} \times 6 = 20 \text{ mm} \approx 15 \text{ mm belt width}$$

Refer to Table 26 for K_m with at least 6 teeth engaged.

Refer to Table 37 for P_s value 0.058 kW.

Refer to Table 27 for W_p .

6) Load Deflection calculations for proper installation.

$$T_d = \frac{P_d + \frac{t \times Y}{L_p}}{16} = \frac{26 + \frac{98.15 \times 27.4}{208.36}}{16} = 2.43 \text{ N}$$

Refer to Table 31 for T_i and Y .

$$t = \sqrt{C^2 - \frac{(D_p - d_p)^2}{4}} = \sqrt{100^2 - \frac{(57.3 - 19.1)^2}{4}} = 98.15 \text{ mm}$$

$$\delta = 0.016 t = 0.016 \times 98.15 = 1.57 \text{ mm}$$



Selection of Conveyor Timing Belts

■ Conveyor Belts Selection Procedure

The following steps for selection is based on the case that sizes of head pulley and tail pulley are same. (Follow the steps 1~3 even when sizes of head pulley and tail pulley are different.) Use a head pulley as a driving pulley. For belt installation and tension control, make the structure of the driven side to be adjustable of alignment and center distance with set screws.

***Head Pulley:** The front of the pulley against traveling direction

Tail Pulley: The rear end of the pulley against traveling direction

[Step 1] Calculate Effective Tension (Te)

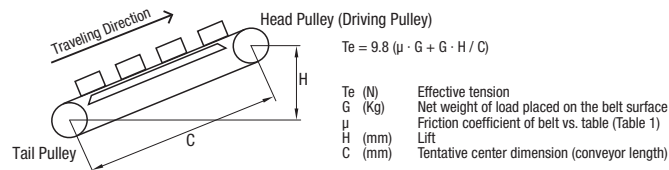


Table 1. Typical Friction Coefficient of Belt vs Table

Table Material	Steel	Stainless	Aluminium	UHMW	Teflon
Friction coefficient: μ	0.65	0.68	0.42	0.31	0.21

[Step 2] Calculate design tension (Td)

$$T_d = K \cdot T_e$$

$$K = K_1 + K_2 + K_3$$

Td (N) Design Tension
K Overload Coefficient
Te (N) Effective Tension

K1 Correction factors for daily operation hours
K2 Belt length correction coefficient
K3 Belt speed correction coefficient

Table 2. K1 Correction Factors for Daily Operation Hours Unit: hour

~5	5~8	8~12	12~16	16~24
1.0	1.1	1.2	1.3	1.4

Table 3. K2 Belt Length Correction Factors Unit: mm

~1500	1501~3000	3001~4500	4501~
0.3	0.2	0.1	0.0

Table 4. K3 Belt Speed Correction Factors Unit: m/minute

~60	61~90	91~120
0.0	0.1	0.2

[Step 3] Select Belt Type, Belt Width and Pulley Dimension

(1) Select from Table 5 a belt type and a width which have a greater allowable tension than the designed tension.

Table 5. Allowable Tension of Joint Belts Unit: N

Belt Type	Belt width (mm)						
	10	15	20	25	30	40	50
S5M	120	180	—	300	—	—	—
S8M	—	235	—	392	471	627	—
T5	58	87	116	145	—	—	—
T10	—	180	240	300	360	481	601
AT5	74	110	—	—	—	—	—
AT10	—	234	312	391	—	—	—

Belt Type	Belt Nominal Width				
	50	75	100	150	200
L	92	138	184	276	—
H	—	163	216	324	432

(2) Select a pulley with a larger number of teeth than the minimum allowable number in Table 6 for both of driving and driven pulley.

Table 6. Number of Minimum Allowable Number of Teeth for Pulleys

Belt Type	L	H	S5M	S8M	T5	T10	AT5	AT10
Pitch (mm)	9.525	12.7	5	8	5	10	5	10
Min. No. of Pulley Teeth	14	14	14	24	12	14	20	14
Pully Diameter (mm)	42.45	56.60	22.28	61.12	19.10	44.56	31.83	44.56

Reference: Table on Open-End Belts Allowable Tension Unit: N

Belt Type	Material	Belt width (mm)							
		6	10	15	20	25	30	40	50
S3M	Polyurethane	127	—	—	—	—	—	—	—
S5M	Rubber	—	310	490	—	—	—	—	—
	Polyurethane	—	215	323	—	539	—	—	—
S8M	Rubber	—	—	—	—	950	—	—	—
	Polyurethane	—	—	647	—	1176	1412	1882	—

ⓘ When using belts for other purpose than conveyance (e.g. transmission), for polyurethane belt S3M; design with 1/2 of the allowable tension in the table; for XL, L, H, S5M, S8M, T5 and T10, design with approx. 2/3 of the allowable tension in the table.

[Step 4] Determine Belt Length (No. of Teeth) and Center Distance

(1) Obtain approximate belt length from tentative center dimension (C') and approximate pulley diameter (Dp').

$$L_p' = 2 \cdot C' + \pi \cdot D_p' \quad L_p' \quad (\text{mm}) \quad \text{Approx. belt length}$$

C' (mm) Tentative center dimension

Dp' (mm) Approx. pulley diameter

(2) Determine the number of teeth required from the approximate belt length (Lp') and pitch (P).

Round down the obtained number of teeth (N) to the nearest whole number.

$$N = L_p' / P \quad N \quad \text{No. of belt teeth}$$

p (mm) Pitch

*Check the minimum teeth of belt which is available.

(3) Obtain the proper belt length from the number of teeth (N) and pitch (P).

$$L_p = P \cdot N \quad L_p \quad (\text{mm}) \quad \text{Belt length}$$

(4) Determine proper center distance with the following formula:

$$C = P \cdot (N - D_z) / 2 \quad C \quad (\text{mm}) \quad \text{Center Distance}$$

Dz No. of teeth of pulley

[Step 5] Confirm the Adjustment Margin for the Center Distance is Larger Than Figures In Table 7a and 7b

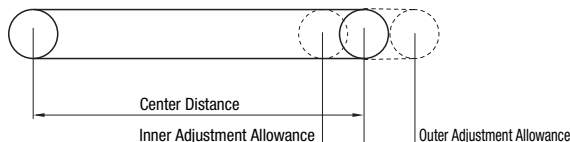


Table 7a. Inner Adjustment Allowance (Attachment Allowance)

Belt Type	Inner Adjustment Allowance
L	More than 10 mm
H	More than 15 mm
S5M	More than 10 mm
S8M	More than 15 mm
T5	More than 5 mm
T10	More than 10 mm
AT5	More than 10 mm
AT10	More than 15 mm

Table 7b. Outer Adjustment Allowance (Tension Allowance)

Distance between shafts (mm)	Outer Adjustment Allowance
0000~0500	More than 5 mm
0501~1000	More than 10 mm
1001~1500	More than 15 mm
1501~2000	More than 20 mm
2001~2500	More than 25 mm
2501~0000	More than 1% of center distance

[Step 6] Install Timing Belt

Install the belt with the installation tension in Table 8.

Axis weight at this time is twice the installation tension.

$$F_s = 2 \cdot T_i$$

Fs (N) Shaft load
Ti (N) Fixing Tension (Table 8)

Table 8. Installation Tension for Joint Belts Unit: N

Belt Type	Belt width (mm)						
	10	15	20	25	30	40	50
S5M	60	90	—	150	—	—	—
S8M	—	117	—	196	235	313	—
T5	29	43	58	72	—	—	—
T10	—	90	120	150	180	240	300
AT5	37	55	—	—	—	—	—
AT10	117	156	195	—	—	—	—

Belt Type	Belt Nominal Width				
	50	75	100	150	200
L	46	69	92	138	—
H	—	81	108	162	216

Belt Type	Material	Belt Nominal Width (mm)						
		25	37	50	75	100	150	200
XL	Rubber	—	45	70	—	—	—	—
	Polyurethane	66	102	142	—	—	—	—
L	Rubber	—	—	95	165	—	—	—
	Polyurethane	—	—	259	387	519	—	—
H	Rubber	—	—	—	600	—	—	—
	Polyurethane	—	—	—	397	529	799	1093

Reference: Table on Open-End Belts Allowable Tension Unit: N

Belt Type	Material	Belt width (mm)							
		6	10	15	20	25	30	40	50
T5	Polyurethane	—	112	166	225	284	—	—	—
T10	Polyurethane	—	—	299	397	529	627	862	1064
AT5	Polyurethane	—	147	221	—	—	—	—	—
AT10	Polyurethane	—	—	469	625	781	—	—	—

A close-up photograph of a metal pulley with a V-belt. The pulley is made of polished metal and has a series of vertical grooves. The V-belt is black and has a ribbed surface. The background is dark and out of focus.

TECHNICAL DATA

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Preventative Maintenance

To Install a Synchronous Belt Drive System

1. Follow proper lock-out/tag-out procedures by shutting down the power and locking/tagging the control box.
2. Remove the belt guard and loosen the motor mount bolts.
3. Loose tension, and remove the belt. Do not force the belt, or it will cause damage.
4. Inspect the belt for signs of excessive wear. Signs of wear could be an indication of maintenance problems, or design flaws.
5. Clean the belts and pulleys with a damp cloth. Do not use sharp object to scrape or remove debris from the belt.
Ensure the belt is completely dry before use.
6. Inspect the pulleys for signs of excessive wear, and check for proper alignment. Proper alignment is critical with synchronous belt drive systems.
7. Inspect all other drive components for alignment, wear, and lubrication. Make any adjustments necessary.
8. Install the new synchronous belt over the pulleys. The belt should slide easily over the pulleys/pulley flange, without the need for force.
9. Tension the belt using a belt tensioner. Check belt tension by rotating the drive through several revolutions and using a tension tester.
If necessary, re-tension the belt and check for alignment.
TIP: Proper belt tension is the lowest tension for your belt drive will run and not slip when under a full load. Belt slippage severely damages the belt from generated heat, causing cracks and belt failure. Synchronous belts will jump teeth or ratchet, causing premature failure. Over-tensioned belts have a decreased life span.
10. Tighten the motor mount bolts using the correct torque.
11. Ensure all other drive components are secure, as any unsecured components will cause issue with the drive system and belt performance.
12. Power up the machine and restart the drive. Look and listen for any unusual activity with the drive.



Preventative Maintenance

Installation and Alignment

Two of the top causes of early belt failure are improper alignment and installation tension. It is important that care is taken in the timing belt installation process to reduce both alignment and installation tension errors.

Shaft and Pulley Alignment

It's important to align shafts and pulleys to ensure consistent load distribution over the width of the timing belt so that each tensile cord carries equal amount of the load. Proper alignment will allow for a smooth running of the belt between the flanges and reduces tracking forces against the flanges.

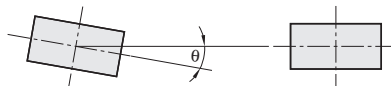
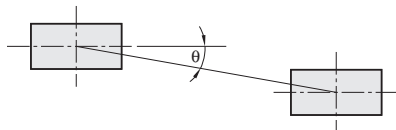
• Parallel Misalignment

Parallel misalignment is caused when pulleys on parallel shafts are not aligned. This type of misalignment can cause increased wear on the sides of the belt and may result early belt failure. The side loading on the timing pulley flange might dislodge the flange from the timing pulley. For timing pulleys without flanges the belt can run off the edge of the pulley reducing the operational life of the timing belt.

• Angular Misalignment

The angular misalignment is caused when both shafts and timing pulleys are not in proper alignment. This type of misalignment can cause increased wear on the side of the belt and may result early belt failure. The side loading on the flange might dislodge the flange from the timing pulley. For timing pulleys without flanges the belt can run off the edge of the pulley reducing the operational life of the timing belt.

The degree of misalignment, θ , must be below the permissible values described in the tables below.



■ MXL, XL, L, H, S_M, MTS_M, T Series

Belt Width (mm)	10	20	30≤
$\tan\theta$	5/1000	3/1000	2/1000

■ P_M, UP_M

Belt Width (mm)	≤30
$\tan\theta$	5/1000

■ EV5GT, EV8YU, MR

Belt Width (mm)	≤20	20<40
$\tan\theta$	6/1000	3/1000

Belt Installation Tension

It's important to provide proper initial tension to the timing belt during installation. This will ensure the belt timing pulley fit is correct for the designed load. Proper initial tensioning of the timing belt will allow smooth entry and exit of the belt tooth into the pulley tooth. It will also prevent early belt failure.

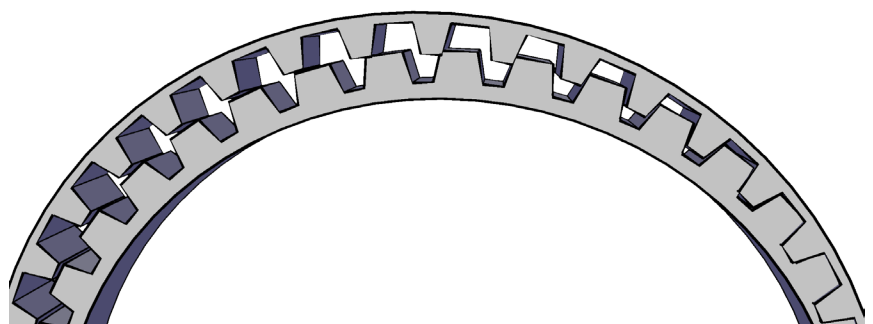
• Low Installation Tension

Timing belts installed with low belt tension will seek the tension required to carry the load. This might result in excess timing belt tooth wear or may allow the timing belt to skip teeth during operation resulting in belt failure.

• High Installation Tension

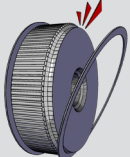
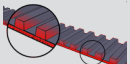
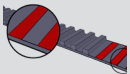
Timing belts installed with high installation tension can create excess land area wear, increase timing pulley wear, and increasing load on bearings reducing bearing life.

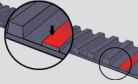
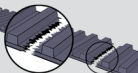
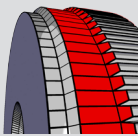
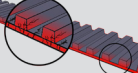
Timing belt should be installed to the specified calculated installation tension to ensure proper life and performance.





Troubleshooting

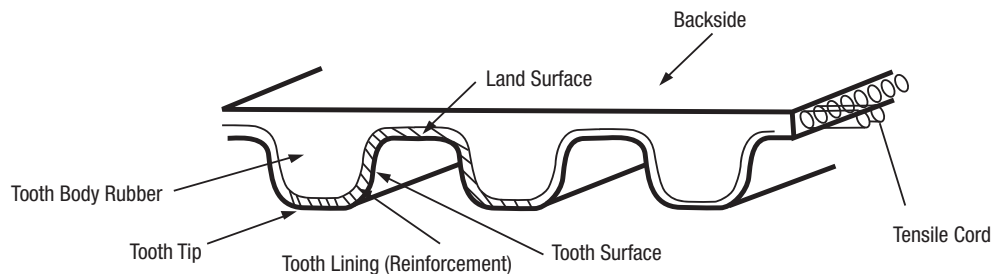
Symptom	Diagnosis	Possible Remedy
Unusual Noise	<ul style="list-style-type: none"> · Drive misalignment · Belt tension too high/low · Backside idler · Worn pulley · Bent guide flange · High Belt speed · Incorrect belt profile for the sprocket · Excess load 	<ul style="list-style-type: none"> · Correct alignment · Adjust belt tension · Use inside idler · Replace pulley · Replace pulley/flange · Redesign drive application · Use proper belt/pulley combination · Redesign drive for load capacity
Tension Loss	<ul style="list-style-type: none"> · Flexing of support structure · Pulley wear · Fixed center distance · Reduce pulley diameter due to cooling · Belt degradation, such as melting, swelling or softening 	<ul style="list-style-type: none"> · Reinforce the structure · Replace pulley · Use idler to achieve correct belt tension · Readjust belt tension to operational temperature · Reduce temperature or exposure to chemicals
Belt Tracking	<ul style="list-style-type: none"> · Belt runs hard against flange or off pulley edge · Excessive belt edge wear · Belt climbs up flange 	<ul style="list-style-type: none"> · Correct alignment · Correct alignment · Correct alignment
Flange Failure	<ul style="list-style-type: none"> · Belt forcing flange off 	<ul style="list-style-type: none"> · Correct alignment · Improve flange attachment to pulley
Belt Edge Wear	<ul style="list-style-type: none"> · Belt runs hard against flange · Belt wider than pulley face width between flanges · Low tension · Rough flange surface · Belt hitting obstacle in drive path 	<ul style="list-style-type: none"> · Correct alignment · Use proper width pulley · Tension to recommended value · Repair or replace flange · Remove obstruction or adjust belt path
Tooth Shear	<ul style="list-style-type: none"> · Excessive shock loads · Less than 6 teeth-in-mesh · Extreme sprocket runout · Worn sprocket · Incorrect belt profile for timing pulley · Misaligned drive · Belt under-tensioned 	<ul style="list-style-type: none"> · Increase belt capacity · Redesign drive · Replace pulley · Replace pulley · Use proper belt/pulley profile · Correct alignment · Adjust tension to recommended value

Symptom	Diagnosis	Possible Remedy
Premature Tooth Wear	 <ul style="list-style-type: none"> · Belt tension too high/low · Belt running off pulley edge · Drive misalignment · Mismatch belt/pulley profile · Worn/damaged pulley · Pulley tooth surface rough · Pulley not to dimensional specification · Belt rubbing drive obstacle in drive path · Excessive carrying load · Excessive debris 	<ul style="list-style-type: none"> · Tension to spec value · Correct alignment · Correct alignment · Use correct belt/pulley profile · Replace pulley · Replace pulley · Replace pulley · Redesign drive path · Increase belt capacity · Protect belt from dirt and dust
Tensile Break	 <ul style="list-style-type: none"> · Excessive shock load · Diameter too small below specifications for profile · Improper belt handling/storage prior to installation · Debris in drive · Extreme pulley runout · Belt tension too high/low 	<ul style="list-style-type: none"> · Increase belt capacity · Increase pulley diameter · Replace belt and improve handling process · Protect belt from dirt or dust · Replace pulley · Tension belt to specified tension
Unusual Pulley Wear	 <ul style="list-style-type: none"> · Pulley has too little wear resistance · Misaligned drive · Excessive debris · Excessive load · Belt tension too high/low · Incorrect belt tooth profile 	<ul style="list-style-type: none"> · Replace pulley with harder material · Realign drive · Protect pulley for dirt or dust · Reduce load on pulley by redesign · Tension belt to specified tension · Replace belt with correct tooth profile
Cracked Belt	 <ul style="list-style-type: none"> · Wrong TB/TP profile · Small timing pulley diameter · Backside idler · Low temperature at startup · Chemical exposure 	<ul style="list-style-type: none"> · Match profile TB/TP profile · Increase pulley diameter · Use inside idler · Increase start up belt temperature · Eliminate chemical exposure
High Drive Heat in Bearing	<ul style="list-style-type: none"> · Misalignment timing pulleys · Belt tension too high/low 	<ul style="list-style-type: none"> · Realign drive · Tension belt to specification
Vibration	<ul style="list-style-type: none"> · Wrong TB/TP profile · Belt tension too high/low · Loose timing pulley 	<ul style="list-style-type: none"> · Match profile TB/TP profile · Tension belt to specified tension · Tighten timing pulley to shaft



Synchronous Belt Replacement Indicators

■ Belt Structure



■ Examples of Belt Replacement Indicators

Examples	Condition
1. When belt tooth reinforcement fabric is worn and rubber/tensile cord are expose. When tooth surface/grooves are worn and rubber/tensile cord are exposed.	
2. When the backing rubber shows cracks due to hardening.	
3. When cracks appear in the tooth surface.	
4. Belt side faces are damaged due to wear.	
5. When missing tooth can be seen.	
6. When excessive wear can be seen on belt back side.	
7. When belt or tensile cord are broken.	



Table of SI Unit System

SI unit system is standardized unit system all over the world. The table shows interchangeability between traditional unit and SI unit.

Unit	Conventional Unit	SI Unit	Conversion Values
Weight	kg	kg	Same as conventional unit
Force • Weight	kgf	N (Newtons)	1 kg = 9.80665N 1000kg = 9.81kN
Moment	kgf • m	N • m	1 kgf • m = 9.80665N • m
Power	ps, W	W	1ps = 0.7355kW
Acceleration	G	m/s ²	1G = 9.80665m/s ²
Length	m	m	Same as conventional unit
Angle	(°)	rad	1° = (π/180) rad
Area	m ²	m ²	Same as conventional unit
Speed	m/s	m/s	Same as conventional unit
Rotational Speed	rpm	s ⁻¹	1rpm = 1.667 × 10 ⁻² s ⁻¹
Pressure	kgf/cm ²	Pa (Pascal)	1 kgf/cm ² = 9.80665 × 10 ⁻⁵ GPa

Safety Notices for Use of Synchronous Belts

We would like you to read catalogs and design manuals and follow proper use with extra attention to following contents. We categorize safe level as you read below.

Symbol	Description
Danger	Failure to follow proper operations cause death or serious injuries for users.
Warning	Failure to follow proper operations may cause death or serious injuries for users.
Attention	Failure to follow proper operations may cause injuries for users and physical damages.

Purpose and Objectives of Use

- Danger** If there are any possibilities that belt break causes racing, malfunctions or stop of machines and leads accidents resulting in death or serious injuries, attach additional safety equipments.
- Danger** Do not use belts to hang or haul objects.
- Warning** If static electric ties by belt power transmission system may cause fire and malfunction, select anti-static type belts and attach anti-static devices.
- Attention** Do not use belts as insulators. Insulation features differ from belt types. For more information, contact us.
- Attention** If belts touch foods directly, select belts that follow Food Sanitation Law.
- Attention** Do not have additional processes on belts. It may cause defective quality and performance.

Function and Performance

- Attention** Do not exceed the relevant permitted ranges of use listed in each belt's product catalog and design manual. It may cause early defectives.
- Attention** The presence of water, oil, chemicals, paint, dust, and other particles on belts or pulleys may result in lower power transmission capacity, or may damage the belt or pulley.
- Attention** High-speed operations may lead serious noise. Install a sound-insulating cover.



Basis of Fitting Selection/Dimensional Tolerances and Fitting

Drawing Manual in JIS (How To Use) Series

Excerpt from JIS B 0401 (1998)

		H6	H7	H8	H9	Applicable Part	Functional Classification	Application Example
Can be Moved Relatively	Clearance Fit				c9	<ul style="list-style-type: none"> Part which accommodates a wide gap or moving part which needs a gap Part which accommodates a wide gap to facilitate assembling Bearing subjected to a high temperature, high speed and heavy load (high-degree forced lubrication) 	Part whose structure needs a gap Inflates, large position error Fitting length is long Cost needs to be reduced Manufacturing Cost Maintenance Cost	<ul style="list-style-type: none"> Piston Ring and the Ring Groove Fitting by means of a loose set pin
				d9	d9	<ul style="list-style-type: none"> Part which accommodates or needs a gap 		<ul style="list-style-type: none"> Crank Web and Pin Bearing (Side) Exhaust Valve Box and the Sliding Part of a Spring Bearing Piston Ring and the Ring Groove
			e7	e8	e9	<ul style="list-style-type: none"> Part which accommodates a wide gap or needs a gap Fairly wide gap, well greased bearing Regular normal temperature bearing lubricated with grease or oil 	Regular Rotary or Sliding Part (Must be well greased)	<ul style="list-style-type: none"> Fitting of the Exhaust Valve Box Main Bearing for the Crank Shaft Regular Sliding Part
		f6	f7	f7	f8	<ul style="list-style-type: none"> Fitting so as to provide an appropriate gap to permit movement (high-quality fitting) Regular normal temperature bearing lubricated with grease or oil 	Regular Fitting (Often comes apart)	<ul style="list-style-type: none"> Part in which a cooled exhaust valve box is inserted Regular Shaft and Bushing Link Device Lever and Bushing
Cannot be Moved Relatively	Transition Fit					<ul style="list-style-type: none"> Continuously revolving part of a precision machine under a light load Fitting with a narrow gap so as to permit movement (spigot and positioning) Precision sliding part 	Part required to make a precision motion with virtually no play	<ul style="list-style-type: none"> Link Device Pin and Lever Key and its Groove Precision Control Valve Rod
						<ul style="list-style-type: none"> Fitting so as to permit movement by hand, with a lubricant applied (high-quality positioning) Special High Precision Sliding Part Unimportant Stationary Part 		<ul style="list-style-type: none"> Fitting a rim and a boss together Fitting the gear of a precision gear device
						<ul style="list-style-type: none"> Fitting which accommodates a light gap Precision fitting which locks both parts while the unit is used Fitting which allows assembling and disassembling with a wooden or lead hammer Fitting which requires an iron hammer or hand press for assembling, disassembling (a key or the like is necessary to prevent inter-part shaft rotation) Key or positioning 	Can be disassembled, reassembled without damaging component parts	<ul style="list-style-type: none"> Fitting Coupling Flanges Together Governor Path and Pin Fitting a Gear Rim and a Boss Together Fixing the Shaft of a Gear Pump and a Casing Together Reamer Bolts
						<ul style="list-style-type: none"> Same as the above for assembling and disassembling Precision positioning which allows no gap 		<ul style="list-style-type: none"> Reamer Bolts Fixing the piston of hydraulic equipment and a shaft together Fitting a Coupling Flange and a Shaft Together
	Interference Fit					<ul style="list-style-type: none"> Fitting which requires considerable force for assembling, disassembling Precision stationary fitting (a key or the like is necessary for high torque transmission purposes) 		<ul style="list-style-type: none"> Shaft of a Flexible Coupling and Gear (Passive Side) Precision Fitting Insertion of a Suction Valve and Valve Guide
						<ul style="list-style-type: none"> Fitting which requires much force for assembling, disassembling (a key or the like is necessary for high torque transmission) Light press fitting or the like is necessary for non-ferrous component parts Standard press fitting is required for iron component parts and a bronze part and a copper part 		<ul style="list-style-type: none"> Insertion of a Suction Valve and Valve Guide Fixing a Gear and a Shaft Together (Low Torque) Shaft of a Flexible Coupling and a Gear (Drive Side)
						<ul style="list-style-type: none"> Same as the above for assembling and disassembling Shrinkage press fitting, cold press fitting or forced press fitting is required for large component parts 	Hard to disassemble without damaging component parts	<ul style="list-style-type: none"> Coupling and Shaft
						<ul style="list-style-type: none"> Firmly coupled together and requires shrinkage press fitting, cold press fitting or forced press fitting Permanent assembly, which can not come apart Press fitting or the like is required for light alloy members 		<ul style="list-style-type: none"> Attaching and Fixing a Bearing Bushing
								<ul style="list-style-type: none"> Insertion of a Suction Valve and Valve Box Fixing a Coupling Flange and a Shaft Together (High Torque)
								<ul style="list-style-type: none"> Fixing the Rim of a Drive Gear and a Boss Together Attaching and Fixing a Bearing Bushing

1.1 Fitting, with Regularly Used Hole Adopted as Reference

Reference Hole	Class of Tolerance Range for Shafts																Interference Fit			
	Clearance Fit				Transition Fit															
H6					f6	g5	h5	js5	k5	m5	n6*	p6*	r6*	s6	t6	u6	x6			
H7				e7	f6	g6	h6	js6	k6	m6	n6	p6*	r6*	s6	t6	u6	x6			
H8					f7	g6	h6	js7	k6	m6	n6	p6*	r6*	s6	t6	u6	x6			
H9				d9	e8	f8	h8													
H10	b9	c9	d9	e9																

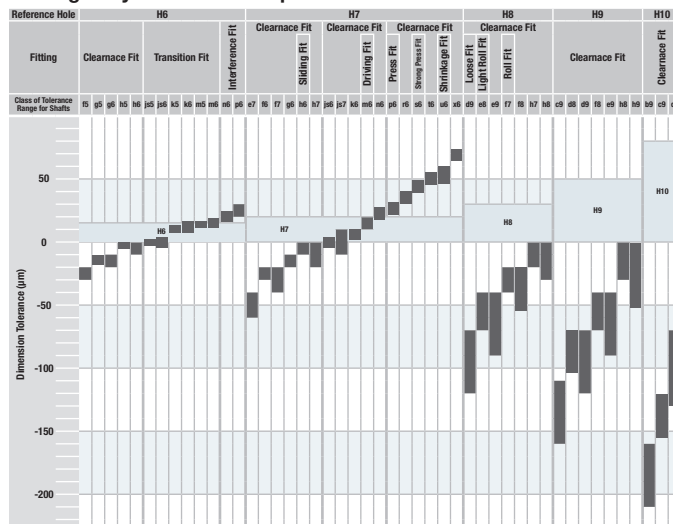
*An exception may arise according to the dimensional sectioning scheme.

2.1 Fitting, with Regularly Used Shaft Adopted as Reference

Reference Shaft	Class of Tolerance Range for Holes																Interference Fit			
	Clearance Fit				Transition Fit															
H5					f6	g6	h6	js6	k6	m6	n6*	p6*	r6*	s6	t6	u6	x6			
H6					f7	g7	h7	js7	k7	m7	n7	p7*	r7	s7	t7	u7	x7			
H7					f8	g8	h8	js8	k8	m8	n8	p8*	r8	s8	t8	u8	x8			
H8					f9	g9	h9	js9	k9	m9	n9	p9*	r9	s9	t9	u9	x9			
H9					f10	g10	h10	js10	k10	m10	n10	p10*	r10	s10	t10	u10	x10			

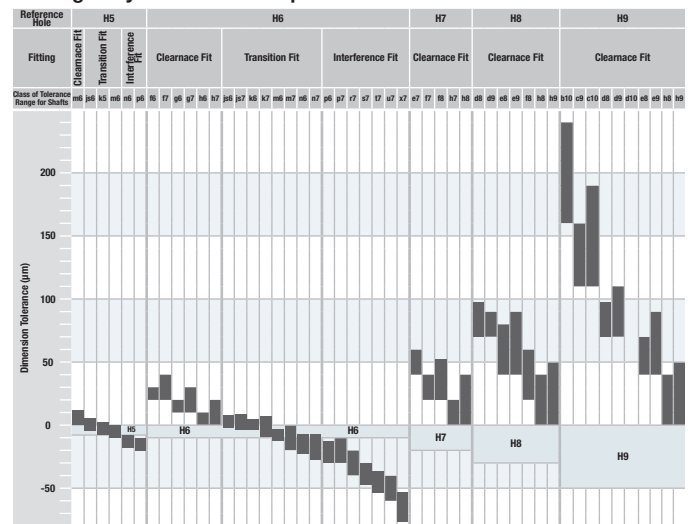
*An exception may arise according to the dimensional sectioning scheme.

1.2 Interrelation between Tolerance Ranges-Fitting with Regularly Used Hole Adopted as Reference



*Values in cases where the measurement exceeds the reference dimension 18 mm, but does not exceed 30 mm.

2.2 Interrelation between Tolerance Ranges-Fitting with Regularly Used Shaft Adopted as Reference

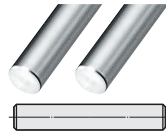


*Values in cases where the measurement exceeds the reference dimension 18 mm, but does not exceed 30 mm.

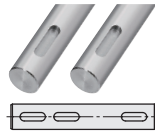
*: n5 is the previous version of JIS. Presented here because many MISUMI products conform to this version.



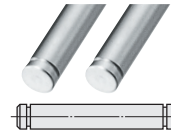
Rotary Shafts / Drive Shafts



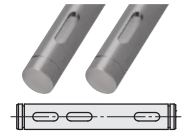
#HFR
Rotary Shafts – Straight



#SFGK
Rotary Shafts – Straight with Key Grooves



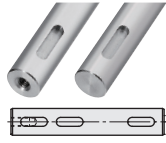
#SFRR
Rotary Shafts – with Retaining Ring Grooves



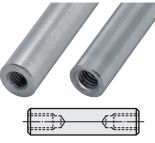
#SFGR
Rotary Shafts – with Retaining Ring Grooves and Key Grooves



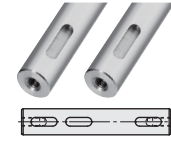
#HFRT
Rotary Shafts – One End Tapped



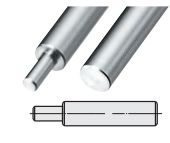
#SFGT
Rotary Shafts – One End Tapped with Key Grooves



#HFRW
Rotary Shafts – Both Ends Tapped



#SFGW
Rotary Shafts – Both Ends Tapped with Key Grooves



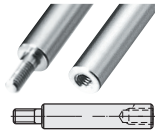
#HFRP
Rotary Shafts – One End Stepped



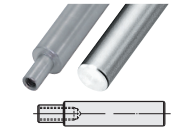
#SFRF
Rotary Shafts – One End Stepped, One End Tapped



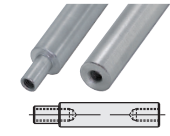
#HFRN
Rotary Shafts – One End Stepped and Threaded



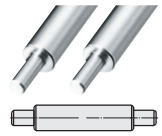
#SFRD
Rotary Shafts – One End Stepped and Threaded, One End Tapped



#SFRG
Rotary Shafts – One End Stepped and Tapped



#SFRB
Rotary Shafts – One End Stepped, Both Ends Tapped



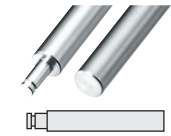
#HFRQ
Rotary Shafts – Both Ends Stepped



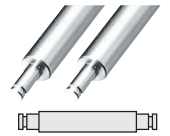
#HFRM
Rotary Shafts – Both Ends Stepped and Threaded



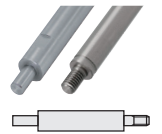
#SFRH
Rotary Shafts – Both Ends Stepped and Tapped



#SFRX
Rotary Shafts – One End Stepped with Retaining Ring Groove



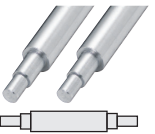
#SFRZ
Rotary Shafts – Both Ends Stepped with Retaining Ring Groove



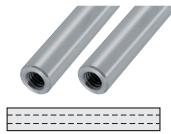
#SFRE
Rotary Shafts – Both Ends Stepped, One End Threaded



#SFRB
Rotary Shafts – Both Ends Stepped, One End Threaded, One End Tapped



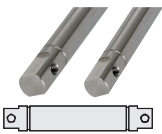
#SFRJ
Rotary Shafts – Both Ends Double Stepped



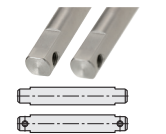
#PFR
Hollow Rotary Shafts – Straight



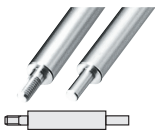
#SFRV
Rotary Shafts – D Cut



#SFR1
Rotary Shafts for Tension



#SFRM
Rotary Shafts for Tension – Push, Pull



#SFR1
Rotary Shafts – End Shape Selectable



#KZAC
Drive Shafts – Straight



#KZBC
Drive Shafts – One End Stepped



#KZCC
Drive Shafts – Both Ends Stepped



#KZDC
Drive Shafts – One End Stepped, One End Double Stepped



#KZEC
Drive Shafts – Flanged



#KZFC
Drive Shafts – One End Stepped with Flange



Product Name	Ball Bearings				Roller Bearings	Combination Bearings
	Deep Groove Ball Bearings	Self-Aligning	Angular Ball Bearings	Thrust Bearings	Needle Bearings	
Usage, Picture						
Bore Size (mm)	Ø3~50	Ø10~20	Ø10~50	Ø10~30	Ø4~30	Ø7~50
Load Capacity	Radial	G	G	—	—	E
	Axial	F	P	G	E	E
Speed	E	G	E	F	P	F
Accuracy Class	Class 0 (JIS) / ABEC-1 (ASTM)					

● Excellent ● Good ● Acceptable ● Fair ● Poor

**Bearings /
Bearings with
Housings /
Accessories**



#BGHS

Bearings with Housings – Block

Bearings with Housings – Flanged

Bearings with Housings – T-Shaped

Bearings with Housings – L-Shaped



#BGPB

Pillow Block Bearings



#BRGS

Ball Bearings

#NDBG

Needle Bearings



#CFRF

Cam Followers, Roller Followers

#BGLN

Bearing Lock Nuts

#BGSS

Bearing Shaft Screws

#BGSR

Bearing Spacers

#BCO

Bearing Cover Plates



Product Name	Disc	Flex	Oldham	Jaw	Bellow	Rigid	Universal Joints	Chain Coupling
Usage, Picture								
Bore Size	Ø2~45 mm	Ø2~18 mm	Ø1~38 mm	Ø3~40 mm	Ø3~14 mm	Ø5~24 mm	Ø6~30 mm	Ø14~55 mm
Hybrid Couplings (Inch Bores)	Yes	Yes	Yes	Yes	No	Yes	No	No
Recommended Motor	– Servo Motor – Stepper Motor	– Servo Motor – Stepper Motor	– General Purpose Motor	– Stepper Motor – General Purpose Motor	– Stepper Motor	– Servo Motor – Stepper Motor	– Stepper Motor – General Purpose Motor	– General Purpose Motor
Torque	0.1 to 250 N·m	0.1 to 8 N·m	0.3 to 80 N·m	0.7 to 180 N·m	0.3 to 3 N·m	0.3 to 6 N·m	20 to 495 N·m	100 to 2372 N·m
Zero Backlash	E	E	P	P	G	E	P	P
Angular Misalignment	G	G	E	F	E	P	E	F
Lateral Misalignment	F	F	E	F	F	P	P	F
Axial Misalignment	G	F	G	P	E	P	P	P
Cost \$	\$\$\$	\$\$	\$	\$\$\$	\$	\$	\$\$	\$\$\$\$

● Excellent ● Good ● Fair ● Poor

Shaft Couplings



#MCSSL
High Torque Disc, Clamping
(Double Disc)



#MCSS
High Torque Disc, Clamping
(Single Disc)



#CPO
Oldham – Clamping/Set Screw



#CPOS
Spacer for Oldham Couplings
(CPO, CPOC)



#CPCX
Flex – Clamping, Set Screw



#CPLX
Flex Duraluminum –
Clamping Long



#CPLC
Flex-Clamping



#CPL
Flex-Set Screw



#CPDW
Disc, Clamping



#SCPS
High Rigidity Disc, Clamping



#SCXW
High Positioning Accuracy Disc,
Clamping, Keyway



#CPSH
High Rigidity Disc, O.D. 65 mm,
Clamping



#CPAH
High Rigidity Disc, O.D. 65 mm,
Keyless, Clamping



#CPSW
High Rigidity Disc, O.D. 87mm,
Keyway, Clamping



#CPSN
High Rigidity Disc, O.D. 87mm, One
Side Keyless, Both Sides Keyless



#CPAS
High Rigidity Disc, O.D.40mm



#CPDD
Disc, Stepped, Clamping



#MCGL
Standard Torque Disc, Set Screw



#MCGC
Standard Torque Disc, Clamping



#MCKL
High Torque Disc, Set Screw



#MCKC
High Torque Disc, Clamping



#MCO
Oldham, Set Screw



#MCOS
Spacer for Oldham Couplings
(MCO, MCOC)



#MCOC
Oldham, Clamping



#MCOG
High Rigidity, Oldham, Set Screw



#MCO1
High Rigidity, Oldham, Clamping



#MFJ
Oldham, Large Shaft Diameter



#MFJS
Spacer for Oldham Couplings
(MFJ, MFJC)



#MFJG
Oldham - High Rigidity, Large Bore
Sizes



#CPOC
Oldham - Blue/Green Spacer,
Set Screw and Clamping



#SCOC
Super Short Oldham, Clamping



#CPF
Sleeve, Set Screw



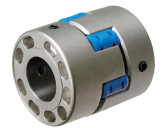
#CPJL
Jaw, Spider



#CPJ
Jaw, Setscrew with Key Groove



#CPJC
Jaw, Clamping with Key Groove



#MMJN
Jaw, Clamping



#CPN
N Couplings (Keyless)



#BHE
Chain Couplings



#CPR
Rigid, Setscrew



#CPRC
Rigid, Clamping



#CPSR
Rigid, Two-Piece Clamping



#CPND
Rigid, One-Piece Long, Clamping



#UNCA
Universal Joints, Set Pin



#UNKA
Universal Joints - Keyway,
Set Screw

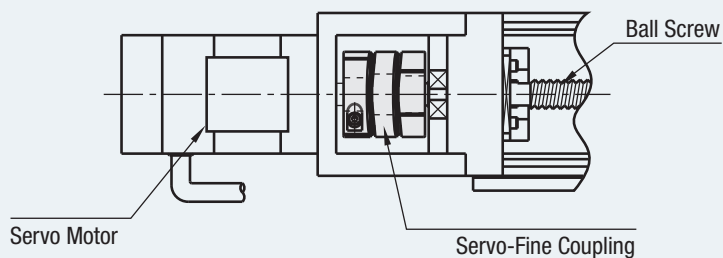


#CPB
Bellows, Set Screw, Clamping



#MCJN
Resin

Example





Product Name	Friction Power Transmission		Synchronous Power Transmission	
	Flat Belts	Round Belts	Timing Belts	Chains
Usage, Picture				
Torque	Medium	Low	High	High
Speed	High	Medium	Low to High	Low-Medium
Efficiency	94-98%	92-97%	95-99%	91-98%
Advantages	<ul style="list-style-type: none"> - Flexible (serpentine and twisted drives) - Transmit torque over long distance - Various materials (polyurethane, rubber, stainless steel) and colors - No lubrication 	<ul style="list-style-type: none"> - Flexible (serpentine and twisted drives) - Soft belts (typically don't require additional tensioning) - No lubrication 	<ul style="list-style-type: none"> - Quiet compare to chains - Require less tension than other belts - No stretch - No lubrication - No slippage 	<ul style="list-style-type: none"> - Higher operating temp. than belts - Increased load capacity with multi-strand chains - Long operating life - No slippage
Drawbacks	<ul style="list-style-type: none"> - Creep and slip - High tension needed - Endless belts can't be repaired - Extreme temp. ranges, high moisture, oil, chemicals, etc can damage belts 	<ul style="list-style-type: none"> - Creep and slip - Endless belts can't be repaired - Extreme temp. ranges, high moisture, oil, chemicals, etc can damage belts 	<ul style="list-style-type: none"> - Tensioning - Vibrations - Endless belts can't be repaired - Extreme temp. ranges, high moisture, oil, chemicals, etc can damage belts 	<ul style="list-style-type: none"> - Noise - Require lubrication - Can elongate due to wear - Limited flexibility - Usually limited to lower-speed applications

Flat Belts / Pulleys



#HBPA
Flanged, Crowned, Press-fit Urethane



#HBG
Idlers for Flat Belts - Flanged, Crowned



#ROBA
Centering Groove, Crowned



#ROFC
Idlers for Flat Belts - Straight, Centering Groove, Crowned



#RBW
Economy, Straight, Crowned, Centering Groove



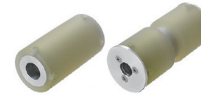
#RFW
Idlers for Flat Belts - Economy



#ROBW
Centering Groove, Crowned



#ROF1
Idlers for Flat Belts - Straight, Crowned, Centering Groove



#RWC
With Urethane, Centering Groove, Crowned



#RWBC
With Urethane, Centering Groove, Crowned



#HPCJ
Shaft Pulleys for Round Belts



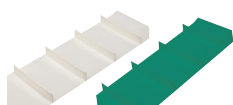
#ROFA
Idlers for Flat Belts - Straight



#ROFW
Idlers for Flat Belts - Straight



#HBLT
Flat Belts - General Purpose



#FLTB
Flat Belts



Round Belts / Pulleys



#MBR
Pulleys for Round Belts - Setscrew



#MBRC
Pulleys for Round Belts - Clamping, U-Groove



#MBF
Idlers for Round Belts - Narrow



#MBG
Idlers for Round Belts - Wide



#MBWA
Pulleys for Round Belts - Double Grooves



#MBXA
Idlers for Round Belts - Double Grooves



#RNDB
Round Belts

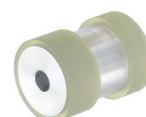
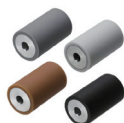


Rollers



#CORO

Conveyor Rollers



#ROLE

Rollers



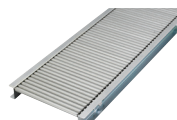
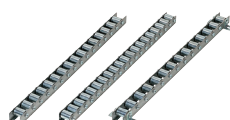
#ENGB

Bearings with Resin



#BALR

Ball Rollers



#GURL

Guide Rollers

#COWH

Conveyor Wheels

#ROCR

Roller Carriers

#ROCV

Gravity Conveyors, Chutes



#ROLJ

Pipe Rollers with Shafts

#RORS

Precision Rollers

#USH

Rollers with Shafts – Urethane, Straight

#USRH

Rollers with Shafts – Urethane, Configurable Liner Thickness

#BWP

One-Sided Rollers



NEW

#TGR1

Vertical Guide Rollers – Metal

#TGRU

Vertical Guide Rollers – Urethane

#RONA

Belt Tensioners – Screw

#ROBJ

Belt Tensioners – Spring-Loaded



Product Name	Spur Gears	Helical Gears	Bevel Gears	Gear Racks	Worm Gears
Usage, Picture					
Efficiency	94–98%	94–98%	93–99%	98–99%	30–90%
Gear Axis	Parallel	Parallel and Intersecting Axis	Intersecting Axis	Non-Intersecting and Non-Parallel Axis	Non-Intersecting and Non-Parallel Axis
Advantages	<ul style="list-style-type: none"> Highly reliable, simplest in design and easiest to manufacture Offer constant velocity ratio and are more efficient than helical gear of same size Spur gear teeth are parallel to its axis and do not produce axial thrust Used in efficient power transfer and low speed application (robotics application, machine tools etc.) 	<ul style="list-style-type: none"> Run more smoothly and quietly than spur gears due to angled teeth designed Highly durable and are ideal for high-load applications Load is distributed over several teeth, resulting in less wear Used in high-speed, high-power mechanical systems like car gear boxes, machine tools, etc. 	<ul style="list-style-type: none"> This gear makes it possible to change the operating angle Can be with straight or spiral teeth Miter gears are a special type of bevel gear designed to operate in pairs with identical numbers of teeth and diametral pitches, and a 1:1 ratio Transmission, Bevel Gear Differential, Printing, Material Handling 	<ul style="list-style-type: none"> Cheap Compact Robust Easiest way to convert rotation motion into linear motion Often used in traveling gantries and columns, pick and place robots etc. 	<ul style="list-style-type: none"> Worm gear drives operate silently and smoothly Self-locking and occupy less space Have high velocity ratio Used for reducing speed and increasing torque (gear reduction boxes)
Disadvantages	<ul style="list-style-type: none"> Gear teeth experience a large amount of stress Cannot transfer power between non-parallel shafts Compared to other gears, generate more noise at high speeds 	<ul style="list-style-type: none"> More expensive than spur gears Mashed helical gears create axial thrust that need adequate support (like thrust bearings) Lower efficiency due to axial thrust generating more heat between sliding teeth 	<ul style="list-style-type: none"> One wheel of bevel gear is designed to work with its complementary wheel and no other Must be precisely mounted The shafts' bearings must be capable of supporting significant forces Noisy at the higher speeds 	<ul style="list-style-type: none"> Inherent friction causes constant wear and part replacement after certain time 	<ul style="list-style-type: none"> Worm gear materials are expensive Worm drives have high power losses They produce a lot of heat

Gears

#GEAH

Spur Gears – with Pilot Bore

#GEAB

Spur Gears – Pressure Angle 20 Deg., Module 0.5

#GEA1

Spur Gears – Pressure Angle 20 Deg., Module 0.8

#GEA2

Spur Gears – Pressure Angle 20 Deg., Module 1.0



#GEA3

Spur Gears – Pressure Angle 20 Deg., Module 1.5

#GEA4

Spur Gears – Pressure Angle 20 Deg., Module 2.0

#GEA5

Spur Gears – Pressure Angle 20 Deg., Module 2.5

#GEA0

Spur Gears – Pressure Angle 20 Deg., Module 3.0

#GEFB

Spur Gears – Tooth Width, Hub Dimension Configurable, Pressure Angle 20 Deg.

#GEA6

Induction Hardened Spur Gears – Pressure Angle 20 Deg.

#GEYH

Bonded Plastic Spur Gears

#GEAM

Plastic Spur Gears – Pressure Angle 20 Deg.

#GEAL

Keyless Spur Gears – Pressure Angle 20 Deg.

#KGHS

Bevel Gears – Pressure Angle 20 Deg.



#NEGH

Helix Gears – Pressure Angle 20 Deg., Helix Angle 45 Deg.

#GEAD

Spur Gears – Bearing Built-in

#RGMA

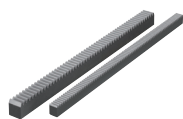
Round Gear Rack – Pressure Angle 20 Deg., Standard L Dimension

#WGEU

Worm Gear

#WGEA

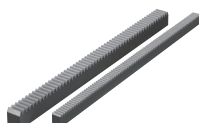
Worm Wheel



NEW

#RGEH

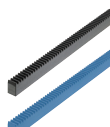
Gear Racks – Ground, Pressure Angle 20 Deg.



NEW

#RGEL

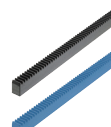
Gear Racks – Ground, Hole Position Configurable, Pressure Angle 20 Deg.



★

#RGEA

Gear Racks – Pressure Angle 20 Deg., Standard L Dimension



★

#LRGE

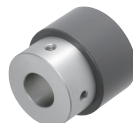
Gear Racks – Pressure Angle 20 Deg., Configurable L Dimension

Magnetic Transmission



#MDQ

TM Non-Contact Magnetic Transmission Drives



#MEQ

[Economy] TM Non-Contact Magnetic Transmission Drives

Chains / Sprockets



#CHE1

Roller Chains



#SSP1

Sprockets – 11B/15B Series



#JMOc

Joint Links, Offset Links



#SP15

Sprockets – 15B Series



#SP25

Sprockets – 25B Series



★

#SP35

Sprockets – 35B Series



★

#SP40

Sprockets – 40B Series



#SP50

Sprockets – 50B Series



#SP60

Sprockets – 60B Series



#SP4S

Sprockets – Double Strand



#SP80

Sprockets – 80B Series



#SP5S

Sprockets – Double Strand



#LFSP

Keyless Sprockets – 35B/40B Series



✓

#DRC

Idle Sprockets – Single Bearing



★

#DRCB

Idle Sprockets with Hub



#DRCBW

Idle Sprockets with Hub Double Pitch



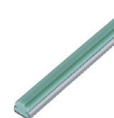
#SDRC

Small Idlers



#IDP

Idler Pins



★

#GDCC

Chain Guides – Raised Track, Steel Framed



#GDC

Chain Guides – Raised Track



#GDRC

Chain Guides – Channel, Flanged Steel Framed, Side Mount



#SGDT

Steel Chain Guides



✓

#STRT

Turnbuckles – Standard, Long



#SRCL

Turnbuckle Components – Tapped Hex



#STBT
Turnbuckles – Threaded



#HSBL
Turnbuckle Components – Threaded Rod



#SJN
Turnbuckle Components – Tapped Hex

Conveyor Chains / Sprockets



#CHEW
Chains – Double Pitch



#SP20
Sprockets – Double Pitch



#JNTW
Joint Links for Double Pitch Chains



#CHEL
Roller Chains with Attachments



#JNTL
Joint Links for Chains with Attachment



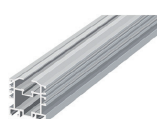
#CHET
Roller Chains with Attachments



#WCHE
Free Flow Conveyor Chains



#WESP
Sprockets – Double Speed, Free Flow Conveyor Chains



#WCF
Aluminum Frame for Double Speed – Free Flow Conveyor Chains



#RNG
Return Guides for Double Speed – Free Flow Conveyor Chains

Plastic Chains



#CHEC
Engineering Plastic Block Chains – Single Strand



#CHES
Sprockets – Engineered Plastic Chains, 2-Row



#CHEE
Engineering Plastic Block Chains – Double Strand



#TPCH
Table Top Conveyor Chains



#TPSP
Sprockets – Table Top Conveyor Chains



#TPDR
Idle Sprockets – Table Top Conveyor Chains

Tensioners



#TSUB
Tensioning Unit with an Idler



#TNSN
Tensioning Units without Idler



#TNSL
Tensioners without Idlers



#SDPT
Slide Plate for #TNSN Unit



#THBS
Chain Tensioners – Idler Set



#TSBX
Chain Guide Tensioners



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NOTE: The complete Terms and Conditions applicable to the products and purchases from this catalog are found at: <http://us.misumi-ec.com/contents/terms/>.

Express Limited Warranty (Annex-B)

MISUMI USA, Inc. (the "Company") has a Mechanical Components for Assembly Automation Catalog (the "Catalog") that lists products for sale (the "Products") which are subject to the Terms and Conditions of Catalog Use (the "Terms and Conditions"). The Company provides an Express Limited Warranty (the "Limited Warranty") for Products that is further set forth in this Annex A. Customer, through their purchase of Products, agrees to be bound by this Limited Warranty. A manufacturer guarantee certificate or warranty may also apply to certain Products, which shall supersede and void this Limited Warranty as to such Product(s).

A. Scope of Limited Warranty

1. Company warrants that the Products shall be free of defects in material and workmanship. During the Warranty Period, the Company at its sole discretion may repair or replace a Product with a defect attributable to the Company ("Defect") free of charge on condition that the customer provides the Company with written notice describing the alleged defect, within the warranty period (defined in the Limited Warranty), and the Company deems the alleged defect covered under this Limited Warranty. Minor flaws such as scratches, marks, dents or discoloration that do not affect the function of the Product do not constitute a Defect, unless the Company, in its sole discretion, deems such flaw to be a Defect.

2. EXCLUSIONS

This Limited Warranty does not cover damages or defects to Products resulting from or in any way contributed to:

- (1) Use in devices that transport humans such as automobiles, vehicles, or ships; medical equipment with the purpose of curing or diagnosing humans; or general household consumer goods such as electronic and electric equipment.
- (2) Use in aerospace equipment, nuclear energy equipment, or military-related products such as weapons or arms.
- (3) Customer's reckless, negligent or abusive handling or use of the Product.
- (4) Natural disasters including, but not limited to, earthquakes, fires and floods.
- (5) Failure to comply with Product specifications, intended uses, Terms and Conditions, drawings; or documentation shipped with the Product or accessory.
- (6) Any repair, modification, processing or disassembly of the Product.
- (7) Damage to equipment other than the Product itself.
- (8) Use outside of the country where the Company originally shipped the Product at the time of purchase.

B. Warranty Period

This Limited Warranty is valid for a period of one (1) year from the date Company ships Product to original purchaser.

C. Inspection and Notification

Within one (1) week of receipt of Product, customer should confirm the name, quantity and specifications of the Product(s) and check for any Defect. The customer must provide written notice to the Company within one (1) week of receipt of Product, or the Company may deem that the Product(s) are free from Defect.

D. Uncovered Products

The customer will be charged for all replacements and repairs of Product not covered by this Limited Warranty.

E. LIMITATION OF LIABILITY

IN NO EVENT SHALL COMPANY BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES, INCLUDING BUT NOT LIMITED TO, ANY CLAIMS OF PROPERTY DAMAGE, BASED UPON BREACH OF WARRANTY, BREACH OF CONTRACT, TORT, OR ANY OTHER LEGAL THEORY. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you.

F. LIMITATION OF WARRANTY

THIS LIMITED WARRANTY IS THE EXCLUSIVE WARRANTY FOR THE PRODUCT. COMPANY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE OR OTHERWISE. PRODUCTS ARE SOLD BUSINESS TO BUSINESS AND NOT TO CONSUMERS, RENDERING ANY CONSUMER LAW INAPPLICABLE. IN NO EVENT SHALL COMPANY'S LIABILITY WITH REGARD TO THE SALE OF PRODUCT EXCEED THE ORIGINAL PURCHASE PRICE PAID BY CUSTOMER.

G. ENTIRE AGREEMENT

This Limited Warranty contains and represents the only warranty extended by Company for the Product. No employee or agent of Company or any other party is authorized to make any other warranty in addition to those made in this Limited Warranty. This Limited Warranty gives you specific legal rights and you may also have other rights which vary from state to state.

H. MODIFICATION OR DISCONTINUATION OF PRODUCTS.

Company reserves the right to discontinue or modify the Product at any time without notice. In the event that repair or replacement of the Product pursuant to this Limited Warranty is not possible, Company will fulfill any repair or replacement obligation under this Limited Warranty with a product of equal or greater value.

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