High Torque Timing Pulleys - S5M

Compatible with S2M type from Mitsuboshi Belting Ltd. as well as Bando Chemical Industries Ltd.

For e-Catalog non-standard products, see P.131.

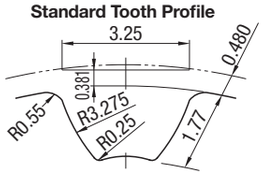
For High Torque Timing Belts, see P.1499. For Keyless High Torque Timing Pulleys, see P.1467, 1468. For Idlers with Teeth, see P.1485.

RoHS 10

Type	Belt Width 10mm S5M100	15mm S5M150	25mm S5M250	Material*1 Pulley	Flange	Surface Treatment	Accessory*1 Set Screws
HTPA	●	●	●	Aluminum Alloy	Aluminum Alloy	Clear Anodize	SUS304
HTPB	●	●	●			Black Anodize	
HTPK	●	●	●			Hard Clear Anodize*2	
HTPN	●	●	●			Electroless Nickel Plating	
HTPT	●	●	●	S45C Equivalent	SPCC	-	SCM435 (Black Oxide)
HTPM	●	●	●			Black Oxide	
HTPP	●	●	●			Electroless Nickel Plating	
HTPS	●	●	-	SUS304	SUS304	-	SUS304

Flange is already swaged, and set screws are included with for Shaft Bores P, N and C. *1. The above material and accessory might be changed to the ones equivalent to the originals. *2. Hard Clear Anodize: Film Hardness 300HV ~

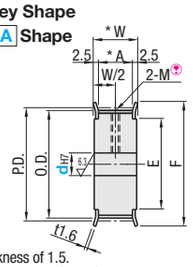
Standard Tooth Profile



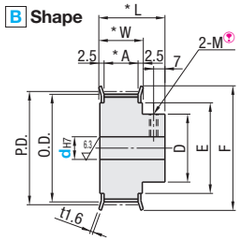
Tooth groove dimensions slightly vary according to the number of teeth.
(Pitch: 5.0mm)

• Pulley Shape

A Shape



B Shape



Aluminum and stainless steel flanges will have a thickness of 1.5.
Shaft Bore Specs. H (Round hole), V or F (Stepped Hole), Y (Both Sides Stepped Hole) and WB (Two-stepped Hole) do not have tapped holes.

Tapped Hole Dimensions (Shaft Bore Specs.: P, N, C)

dH7 Shaft Bore I.D.	M (Coarse)	Accessory: Set Screw
5	M3	M3x3
6~12	M4	M4x3
13~17	M5	M5x4
18~30	M6	M6x5
31~45	M8	M8x6
46~70	M10	M10x8

Number of Teeth / Dimension

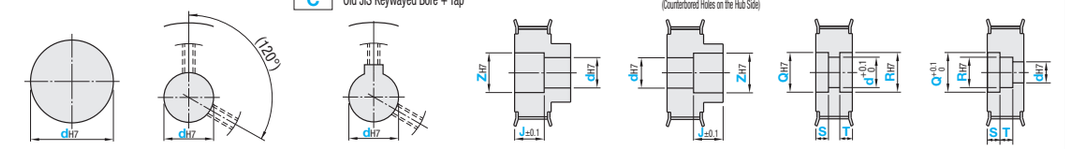
mm	Number of Teeth 14	15	16	18	19	20	22	24	25	26	28	30	32	34	36	40	44	48	50	60	72
P.D.	22.28	23.87	25.46	28.65	30.24	31.83	35.01	38.20	39.79	41.38	44.56	47.75	50.93	54.11	57.30	63.66	70.03	76.39	79.58	95.49	114.59
O.D.	21.32	22.91	24.50	27.69	29.28	30.87	34.05	37.24	38.83	40.42	43.60	46.79	49.97	53.15	56.34	62.70	69.07	75.43	78.62	94.53	113.63
D	14	15	17	19	19	19	24	27	27	31	32	33	37	40	40	47	50	60	63	75	90
F	26	28	32	33	36	36	40	45	45	48	48	52	55	61	61	67	74	83	87	99	119
E	16	18	20	22	24	24	27	30	30	35	35	36	40	45	45	50	58	63	67	80	100

Belt Nominal Width / Dimension

mm	Nominal S5M100	S5M150	S5M250
A	11	17	27
W	16	22	32
L	28	34	44

• Shaft Bore Specs. Select shaft bore spec mark and each dim. from the table below. Surface treatment may not be applied to shaft bores.

H Round Hole | P Round Hole + Tap | N New JIS Keywayed Bore + Tap | C Old JIS Keywayed Bore + Tap | V Stepped Hole | F Stepped Hole (Counterbored Holes on the Hub Side) | Y Both Ends Stepped Hole | WB Two-stepped Hole



No tapped holes or set screws.
Shaft Bore Dia. 6.35 is selectable when the shaft bore dim. d is within the selection range.

For A-Shape pulley, the screw holes are set at around 120° to keep away from peaks.
Shaft Bore Dia. 6.35 is selectable when the shaft bore dim. d is within the selection range.

For Keyway Dimension Details, see P.1413. Specify NK10 when selecting "New JIS Keywayed Bore" + "Shaft Bore Dia. 10" + "Keyway Width 4.0mm (Height 1.8mm)".

No tapped holes or set screws.
Shaft Bore Dia. 6.35 is selectable when the shaft bore dim. d is within the selection range.

Applicable to Shape B only.
No tapped holes or set screws.
Shaft Bore Dia. 6.35 is selectable when the shaft bore dim. d is within the selection range.

Applicable to Shape A only.
Shaft Bore Dia. d is +0.1 / 0
No tapped holes or set screws.

Applicable to Shape A only.
No tapped holes or set screws.

Part Number Type	Number of Teeth	Type Nominal Width	Pulley Shape	Pulley Shape A Shaft Bore Specs. "~": 1mm Increments "," : Selectable H(d) Round Hole	P(d) Round Hole + Tap	N(d), C(d) Keyway + Tap	V Stepped Hole V(d)	V Stepped Hole Z Z-d≥2	V Stepped Hole J (0.1mm Increment)	Y Both Ends Stepped Hole WB(d)	Y Both Ends Stepped Hole Q, R Q(R)-d≥2	WB Two-stepped Hole S, T (0.1mm Increment)	Pulley Shape B Shaft Bore Specs. "~": 1mm Increments "," : Selectable H(d) Round Hole	P(d) Round Hole + Tap	N(d), C(d) Keyway + Tap	V, F Stepped Hole V(d), F(d)	V, F Stepped Hole Z Z-d≥2	V, F Stepped Hole J (0.1mm Increment)
Aluminum HTPA HTPB HTPK HTPN	14	S5M100	A	5~12	5~10	8, 10, NK10	5~10	7~12	2.0≤J≤W-2.0	5~10	7~12	3~14 S+T≤W-3	5~10	5~8	-	5~8	7~10	2.0≤J≤L-2.0
	15			5~14	5~10	8, 10, NK10	5~12	7~14		5~12	7~14		5~11	5~8		5~9	7~11	
	16			5~16	5~12	8~12	5~14	7~16		5~14	7~16		5~13	5~10	8	5~11	7~13	
	18			6~18	6~12	8~12	6~16	8~18		6~16	8~18		6~15	6~11	8, 10, NK10	6~13	8~15	
	19			6~20	6~16	8~16	6~18	8~20		6~18	8~20		6~15	6~11	8, 10, NK10	6~13	8~15	
	20			6~20	6~16	8~16	6~18	8~20		6~18	8~20		6~15	6~11	8, 10, NK10	6~13	8~15	
	22			7~23	7~18	8~18	7~21	9~23		7~21	9~23		7~20	7~16	8~12	7~18	9~20	
	24			7~26	7~20	8~20	7~24	9~26		7~24	9~26		7~23	7~17	8~13	7~21	9~23	
	25			7~26	7~20	8~20	7~24	9~26		7~24	9~26		7~23	7~17	8~15	7~21	9~23	
Steel HTPT HTPM HTPP	26			8~31	8~23	8~22	8~29	10~31		8~29	10~31		8~27	8~21	8~17	8~25	10~27	
	28	S5M150	B	8~31	8~24	8~24	8~29	10~31		8~29	10~31		8~28	8~22	8~18	8~26	10~28	
	30	S5M250		10~32	10~26	10~26	10~30	12~32		10~30	12~32		10~29	10~23	10~18	10~27	12~29	
	32			10~36	10~28	10~28	10~34	12~36		10~34	12~36		10~33	10~27	10~22	10~31	12~33	
	34			10~41	10~33	10~33	10~39	12~41		10~39	12~41		10~36	10~30	10~25	10~34	12~36	
Stainless Steel HTPS	36			10~41	10~33	10~33	10~39	12~41		10~39	12~41		10~36	10~30	10~25	10~34	12~36	
	40			10~46	10~38	10~38	10~44	12~46		10~44	12~46		10~43	10~35	10~28	10~41	12~43	
	44			12~54	12~42	12~40	12~52	14~54		12~52	14~54		12~46	12~38	12~32	12~44	14~46	
	48			12~59	12~45	12~40	12~57	14~59		12~57	14~59		12~56	12~45	12~40	12~54	14~56	
	50			12~63	12~50	12~43	12~61	14~63		12~61	14~63		12~59	12~47	12~43	12~57	14~59	
	60			12~76	12~50	12~50	12~74	14~76		12~74	14~76		12~71	12~50	12~50	12~69	14~71	
	72			12~85	12~70	12~55	12~83	14~92		12~83	14~92		12~80	12~70	12~55	12~84	14~86	

Shaft Bore Dia. 6.35 is selectable for Shaft Bore Specs. H, P, V and F.
Shaft Bore Dia. 9, 51~54 are not available for Shaft Bore Specs. N. Shaft Bore Dia. 8, 11, 13, 14, 17, 21~55 are not available for Shaft Bore Spec. C.

Ordering Example

	Part Number	-	Pulley Shape	-	Shaft Bore Specs., I.D.	-	Z	-	J	-	Q	-	R	-	S	-	T
(Shaft Bore Specs.: H, P, N, C)	HTPA20S5M150	-	B	-	NK10												
(Shaft Bore Specs.: V, F)	HTPA26S5M150	-	A	-	V10	-	Z23	-	J16.0								
(Shaft Bore Specs: Y, WB)	HTPA40S5M250	-	A	-	Y17					-	Q35	-	R35	-	S10	-	T10

Number of Teeth	Body Price HTPA (x1.0) S5M100 Shape A	Shape B	HTPB, HTPK (x1.1) S5M150 Shape A	Shape B	HTPN (x1.2) S5M250 Shape A	Shape B	HTPT (x1.0) S5M100 Shape A	Shape B	HTPM (x1.05) S5M150 Shape A	Shape B	HTPP(x1.15) S5M250 Shape A	Shape B	HTPS (x1.0) S5M100 Shape A	Shape B	S5M150 Shape A	Shape B	Shaft Bore Machining Charge (Body Price +) HTPA, HTPB, HTPK, HTPN HTPT, HTPM, HTPP P Hole	N, C, V, F Hole	Y, WB Hole	HTPS P Hole	N, C, V, F Hole	Y, WB Hole
14																						
15																						
16																						
18																						
19																						
20																						
22																						
24																						
25																						
26																						
28																						
30																						
32																						
34																						
36																						
40																						
44																						
48																						
50																						
60																						
72																						

Alterations

	Part Number	-	Pulley Shape	-	Shaft Bore Specs., I.D.	-	Z	-	J	-	Q	-	R	-	S	-	T	(KC90… etc.)
	HTPM60S5M150	-	A	-	H30													- KSC50

Alterations Code	Set Screw Angle KC90	No Flange Swaged NFC	Single Flange RFC, LFC	Flange Cut FC
Spec.	Changes an angle of set screw to 90. For A-Shape pulley, the screw holes are set at around 90° to keep away from peaks. (90°)	(Flange 2 pcs. Included) Ordering Code NFC	(Flange 1 pc. Included) Ordering Code RFC RFC LFC	Cut the flange O.D. in 0.5mm increment. Ordering Code FC17 Application Notes FC≥(O.D.)+1 FC≤F-2 No surface treatment is applied on flange circumference. FC F

Alterations Code	Retaining Ring Groove SRG	Adds taper for retaining bearing BTC	Hub Shortening BC	Tapped Hole Dimensions TPC	Changes the length of the included set screws SLH
Spec.	Retaining Ring Groove applicable to the shaft dia. of stepped hole is machined. Retaining Ring Groove Dim. P.1413 Specify SRG 2.5~24.5mm 0.5mm Increments Application Notes Minimum Thickness: 2mm Applicable to Shaft Bore Specs. V and F only. Standards of retaining ring groove for Z dim. is applied. n≤J-SRG-m Ordering Code SRG7 SRG +0.1 0 n m ZH7 J±0.1	Add taper for retaining bearing inner ring Ordering Code BTC6-TL1.5 Application Notes Applicable to Shape A only. Applicable to Shaft Bore Specs. H and P only. TL<L-W TL dH7 6.3 D	Cuts the hub length in 0.5mm increment. Ordering Code BC6.5 Application Notes Shaft Bore Specs. H, V, F: 3≤BC<L-W Shaft Bore Specs. P, N, C: M+3≤BC<L-W Not available for Shape A. BC/2 BC	Ordering Code TPC5 Application Notes Applicable to Shaft Bore Specs. P, N, C only.	Ordering Code SLH10 Application Notes Applicable to Shaft Bore Specs. P, N, C only.

M	TPC
M3	M3
M4	M3, M5
M5	M4, M6
M6	M5, M8
M8	M6, M10
M10	M8

Set Screws	SLH
M3x3	6
M4x3	5, 8
M5x4	6, 10
M6x5	10
M8x6	10, 12
M10x8	12, 15

For details, see Shaft Alteration Overview. P.1414

Alterations Code	Add Side Holes Conditions may vary depending on the shaft bore specs. P.1414 Side Tapped Hole QTC, QFC, QSC	Side Through Hole KTC, KFC, KSC	Side Counterbored ZTC, ZFC, ZSC
Spec.	Machines tapped hole on the side surface of hub side. Ordering Code QTC28-M4 Q□C Selection Specify the hole position (P. C. D. dim.). M Selection M3, M4, M5, M6, M8 Application Notes Minimum Thickness: 2mm Formula P.1414 Conditions may vary depending on the shaft bore specs. P.1414 Mx2 (6 places) QSC 6-M (4 places) QFC 4-M (3 places) QTC 3-M	Machines through hole on the side surface. Ordering Code KTC28-K4.5 K□C Selection Specify the hole position (P. C. D. dim.). Code K K4.0 ~ 13.0 (0.5mm Increments) Application Notes Minimum Thickness: 2mm Formula P.1414 Conditions may vary depending on the shaft bore specs. P.1414 (6 places) KSC 6-K Through (4 places) KFC 4-K Through (3 places) KTC 3-K Through	Machines counterbored hole on the side surface. Ordering Code ZTC28-Z4 Z□C Selection Specify the hole position (P. C. D. dim.). Z Selection ZM3, ZM4, ZM5, ZM6, ZM8 Application Notes Minimum Thickness: 2mm Formula P.1414 Conditions may vary depending on the shaft bore specs. P.1414 (6 places) ZSC 6-ZM (4 places) ZFC 4-ZM (3 places) ZTC 3-ZM

For details, see Shaft Alteration Overview. P.1414