

# Non-Backlash Timing Pulleys - S8M

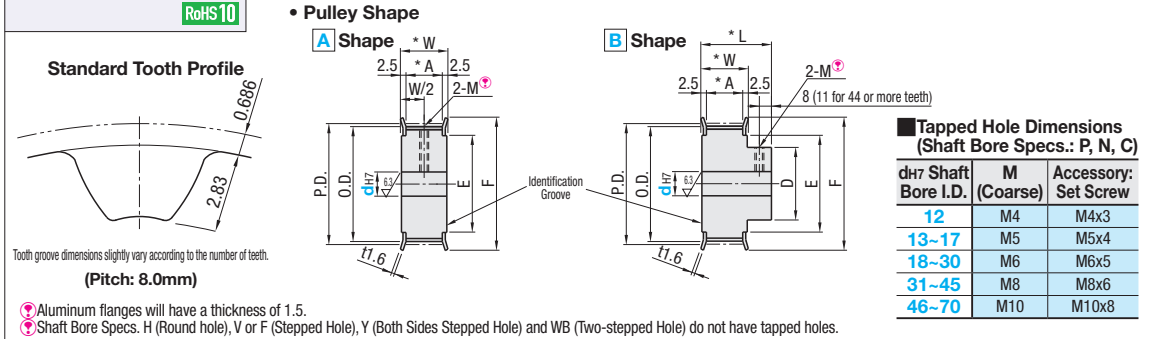
Compatible with S2M type from Mitsubishi Belting Ltd. as well as Bando Chemical Industries Ltd.

- **Features:** Timing pulleys with significantly reduced backlash compared to the conventional pulleys. Special timing belts are not required. Timing Belts **P1499**, **P1503**

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

Type	Belt Width				Material <sup>1</sup>		Surface Treatment	Accessory <sup>2</sup> Set Screws
	15mm S8M150	25mm S8M250	30mm S8M300	40mm S8M400	Pulley	Flange		
BLPA	•	•	•	•	Extra Super Duralumin	Aluminum Alloy	Clear Anodize Hard Clear Anodize <sup>2</sup> Electroless Nickel Plating	SUS304
BLPK	•	•	•	•	Aluminum Alloy			
BLPN	•	•	•	•				
BLPT	•	•	•	•	S45C Equivalent	SPCC	Black Oxide Electroless Nickel Plating	SCM435 (Black Oxide)
BLPM	•	•	•	•				
BLPP	•	•	•	•				

① Flange is already swaged, and set screws are included with for Shaft Bore Spec. P, N and C. ② The above material and accessory might be changed to the ones equivalent to the originals.  
③ Hard Clear Anodize: Film Hardness 300HV-2.

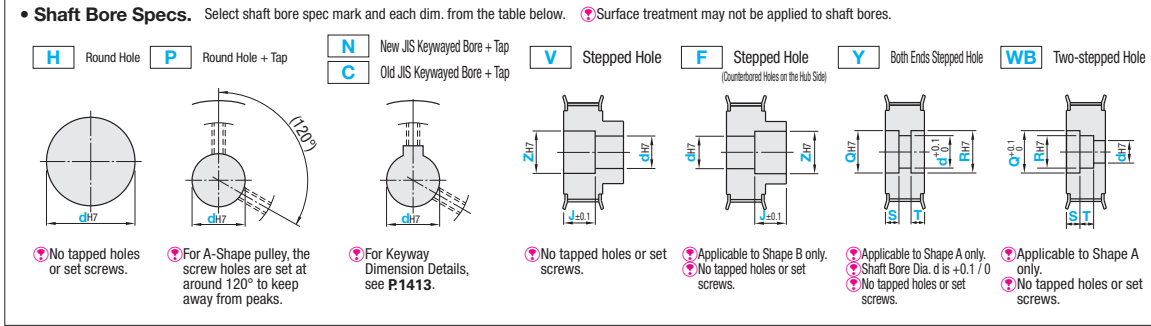


**Number of Teeth / Dimension**

mm	18	19	20	21	22	24	25	26	28	30	32	34	36	38	40	44	48	50	60
P.D.	45.84	48.38	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
O.D.	44.46	47.01	49.56	52.10	54.65	59.74	62.29	64.84	69.93	75.02	80.12	85.21	90.30	95.39	100.49	110.67	120.86	125.95	151.42
D	32	35	36	40	41	46	48	51	55	60	63	70	75	80	85	90	100	100	100
F	52	55	58	61	61	67	70	74	80	87	87	95	99	104	111	119	127	135	160
E	36	40	40	45	45	50	56	58	60	67	67	75	80	80	84	90	100	105	140

**Belt Nominal Width / Dimension**

mm	Nominal			
	S8M150	S8M250	S8M300	S8M400
A	17.0	28.0	33.0	44.0
W	22.0	33.0	38.0	49.0
L (Number of Teeth 18-40)	37.0	48.0	53.0	64.0
L (Number of Teeth 44-60)	42.0	53.0	58.0	69.0



Part Number	Type	Number of Teeth	Type Nominal Width	Pulley Shape	
				A	B
				<b>Shaft Bore Specs. "A": 1mm Increments</b>	<b>Shaft Bore Specs. "B": 1mm Increments</b>
				<b>H Round Hole</b> <b>P Round Hole + Tap</b> <b>N, C Keyway + Tap</b> <b>V Stepped Hole</b>	<b>H Round Hole</b> <b>P Round Hole + Tap</b> <b>N, C Keyway + Tap</b> <b>V, F Stepped Hole</b>
				<b>Y Both Ends Stepped Hole</b> <b>WB Two-stepped Hole</b>	
				<b>Y (J)</b> <b>Y (C)</b> <b>Y (F)</b> <b>Y (S)</b> <b>Y (T)</b>	<b>V (F)</b> <b>V (S)</b> <b>V (T)</b> <b>F (F)</b>
				<b>Y (J)</b> <b>Y (C)</b> <b>Y (F)</b> <b>Y (S)</b> <b>Y (T)</b>	<b>V (F)</b> <b>V (S)</b> <b>V (T)</b> <b>F (F)</b>
				<b>Y (J)</b> <b>Y (C)</b> <b>Y (F)</b> <b>Y (S)</b> <b>Y (T)</b>	<b>V (F)</b> <b>V (S)</b> <b>V (T)</b> <b>F (F)</b>
				<b>Y (J)</b> <b>Y (C)</b> <b>Y (F)</b> <b>Y (S)</b> <b>Y (T)</b>	<b>V (F)</b> <b>V (S)</b> <b>V (T)</b> <b>F (F)</b>
				<b>Y (J)</b> <b>Y (C)</b> <b>Y (F)</b> <b>Y (S)</b> <b>Y (T)</b>	<b>V (F)</b> <b>V (S)</b> <b>V (T)</b> <b>F (F)</b>
				<b>Y (J)</b> <b>Y (C)</b> <b>Y (F)</b> <b>Y (S)</b> <b>Y (T)</b>	<b>V (F)</b> <b>V (S)</b> <b>V (T)</b> <b>F (F)</b>
				<b>Y (J)</b> <b>Y (C)</b> <b>Y (F)</b> <b>Y (S)</b> <b>Y (T)</b>	<b>V (F)</b> <b>V (S)</b> <b>V (T)</b> <b>F (F)</b>
				<b>Y (J)</b> <b>Y (C)</b> <b>Y (F)</b> <b>Y (S)</b> <b>Y (T)</b>	<b>V (F)</b> <b>V (S)</b> <b>V (T)</b> <b>F (F)</b>
				<b>Y (J)</b> <b>Y (C)</b> <b>Y (F)</b> <b>Y (S)</b> <b>Y (T)</b>	<b>V (F)</b> <b>V (S)</b> <b>V (T)</b> <b>F (F)</b>
				<b>Y (J)</b> <b>Y (C)</b> <b>Y (F)</b> <b>Y (S)</b> <b>Y (T)</b>	<b>V (F)</b> <b>V (S)</b> <b>V (T)</b> <b>F (F)</b>

⚠ Shaft Bore Dia. 51~54 are not available for Shaft Bore Specs. N. ⚠ Shaft Bore Dia. 13, 14, 17 or 21~25 are not available for Shaft Bore Specs. C.

**Ordering Example**

(Shaft Bore Specs.: H, P, N, C) **Part Number** - **Pulley Shape** - **Shaft Bore Specs., I.D.** - **Z** - **J** - **Q** - **R** - **S** - **T**

(Shaft Bore Specs.: V, F) **Part Number** - **Pulley Shape** - **Shaft Bore Specs., I.D.** - **Z** - **J** - **Q** - **R** - **S** - **T**

(Shaft Bore Specs.: Y, WB) **Part Number** - **Pulley Shape** - **Shaft Bore Specs., I.D.** - **Z** - **J** - **Q** - **R** - **S** - **T**

Number of Teeth	Body Price								Shaft Bore Machining Charge (Body Price ×)		
	BLPA (x1.0) S8M150	BLPK (x1.1) S8M250	BLPN (x1.2) S8M300	BLPT (x1.0) S8M400	BLPM (x1.05) S8M300	BLPP (x1.15) S8M400	Shaft Bore Machining Charge (Body Price ×)				
18	Shape A	Shape B	Shape A	Shape B	Shape A	Shape B	Shape A	Shape B	P Hole	N, C, V Hole	Y, WB Hole
19											
20											
21											
22											
24											
25											
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28											
30											
32											
34											
36											
38											
40											
44											
48											
50											
60											

Alterations **Part Number** - Pulley Shape - Shaft Bore Specs., I.D. - **Z** - **J** - **Q** - **R** - **S** - **T** - (KC90... etc.)

BLPA36S8M250 - A - H65 - NFC

Alterations	Set Screw Angle	Flange Not Swaged	Flange Swaged on One Side	Flange Cut
<b>Code</b>	KC90	NFC	RFC, LFC	FC
<b>Spec.</b>	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.	(Flange 2 pcs. Included) [Ordering Code] NFC	(Flange 1 pc. Included) [Ordering Code] RFC LFC	Cut the flange O.D. in 0.5mm increment. [Ordering Code] FC17 Application Notes: Ⓜ FC<(O. D.)+1 Ⓜ FCSF-2 Ⓜ No surface treatment is applied on flange circumference.

Alterations	Retaining Ring Groove	Adds taper for retaining bearing	Hub Shortening	Tapped Hole Dimensions	Changes the length of the included set screws
<b>Code</b>	SRG	BTC	BC	TPC	SLH
<b>Spec.</b>	Retaining Ring Groove applicable to the shaft dia. of stepped hole is machined. Retaining Ring Groove Dim. <b>P1413</b> [Specify SRG] 2.5-40.5mm 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. [Ordering Code] SRG7	Add taper for retaining bearing inner ring [Ordering Code] BTC12-TL3 Application Notes: Ⓜ Applicable to Shape A only. Ⓜ Applicable to Shaft Bore Specs. H and P only. Ⓜ LT<L-W	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.	[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.

Add Side Holes			
Alterations	Side Tapped Hole	Side Through Hole	Side Counterbored
<b>Code</b>	QTC, QFC, QSC	KTC, KFC, KSC	ZTC, ZFC, ZSC
<b>Spec.</b>	Machines tapped hole on the side surface of hub side. [Ordering Code] QTC28-M4 Application Notes: Ⓜ Specify the hole position (P. C. D. dim.). Ⓜ Selection M3, M4, M5, M6, M8 Ⓜ Minimum Thickness: 2mm Formula <b>P.1414</b> Ⓜ Conditions may vary depending on the shaft bore specs. <b>P.1414</b>	Machines through hole on the side surface. [Ordering Code] KTC28-K4.5 Application Notes: Ⓜ Specify the hole position (P. C. D. dim.). Ⓜ Selection M3, M4, M5, M6, M8 Ⓜ Minimum Thickness: 2mm Formula <b>P.1414</b> Ⓜ Conditions may vary depending on the shaft bore specs. <b>P.1414</b>	Machines counterbored hole on the side surface. [Ordering Code] ZTC28-Z4 Application Notes: Ⓜ Specify the hole position (P. C. D. dim.). Ⓜ Selection ZM3, ZM4, ZM5, ZM6, ZM8 Ⓜ Minimum Thickness: 2mm Formula <b>P.1414</b> Ⓜ Conditions may vary depending on the shaft bore specs. <b>P.1414</b>

■ **Features of Non-backlash Pulleys (S8M)**

- Non-backlash pulley has reduced backlash compared to conventional type to work with high accuracy positioning mechanism.
- Backlash is significantly smaller than standard S8M pulleys. (The amount reduced depends on applications.)
- Use regular S8M timing belt.

Reference: Comparison of Deviation Angles between Non-Backlash Pulleys and Standard Pulleys

<Test Conditions>  
Belt Type : S8M  
Belt Width : 25mm  
Pulley Size : 30 Toothed (P.D.76.39mm)  
Tension  $T_t$  : 382N