


# Keyless High Torque Timing Pulleys - S3M

Compatible with S3M type from Mitsubishi Belting Ltd. as well as Bando Chemical Industries Ltd.

# Keyless High Torque Timing Pulleys - S3M MechaLock Standard Type Incorporated (with Centering Function)

Compatible with S3M type from Mitsubishi Belting Ltd. as well as Bando Chemical Industries Ltd.

For High Torque Timing Belts, see **P.1465**. For Open End Belts, see **P.1476**.

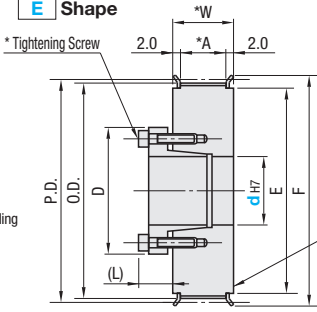


Type	Part Number		Material	Surface Treatment		
	Belt Width: 10mm A:11 W:15	Belt Width: 15mm A:17 W:21		Pulley	Flange	Bushing
HTLA	S3M100	S3M150	A7075	A5052	S45C	Clear Anodize
HTLK						Hard Clear Anodize
HTLN						Electroless Nickel Plating
HTPL			S45C Equivalent	SPCC	S45C	Black Oxide
HTLG						Electroless Nickel Plating

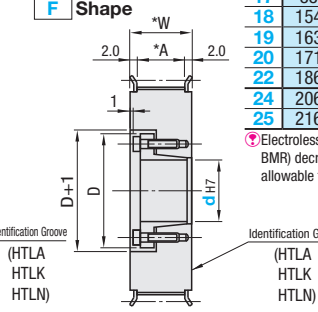
\*1. The above material and accessory might be changed to the ones equivalent to the originals.  
\*2. Hard Clear Anodize: Film Hardness 300HV ~

**• Pulley Shape**

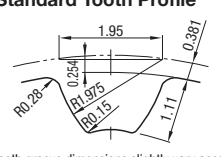
**E Shape**



**F Shape**



**Standard Tooth Profile**



Tooth groove dimensions slightly vary according to the number of teeth.  
(Pitch:3.0mm)

Number of Teeth	34	36	40	44	48	50	60	72
P.D.	32.47	34.38	38.20	42.02	45.84	47.75	57.30	68.75
O.D.	31.71	33.62	37.44	41.25	45.07	46.98	56.53	67.99
F	40	40	44	48	50	52	61	74
E	28	28	32	36	38	40	46	58

\* For quantity and size of tightening screws with flange installed, see **P.1425**.  
\* Surface treatment may not be applied to shaft bores.  
\* Two types of bushings are available: Standard Type (ST Bushings) and Short Type (SH Bushings). See **P.1425**.

**Table 1: Select Shaft Bore Dia.**



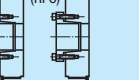
dh7	Max. Allowable Torque N · m		D		(L)
	ST Bushing	SH Bushing	ST Bushing	SH Bushing	
6	-	5.6	-	22.5	-
8	16	8.5	25.5	24.5	8.5
10	39	18	30	29	-
11	43	20	31	30	10.5
12	48	23	32	31	-
14	73	-	35	-	12
15	78	-	36	-	-
16	83	-	37	-	13
17	88	-	38	-	-
18	154	-	43	-	14
19	163	-	45	-	-
20	171	-	46	-	14
22	186	-	48	-	-
24	206	-	50	-	14
25	216	-	52	-	-

⚠ Electroless nickel plated bushing (Alterations BMC, BMR) decreases maximum allowable torque and allowable thrust load by 20 ~ 30%.


Type	Number of Teeth	Type, Nominal Width	Pulley Shape	dh7 Range (,): Select the former or latter, (-): Specify in 1mm Increment		Unit Price											
				Shape E	Shape F	HTLA (x1.0)		HTLK (x1.1)		HTLN (x1.2)		HTPL (x1.0)		HTLG (x1.1)			
				S3M100	S3M150	S3M100	S3M150	S3M100	S3M150	S3M100	S3M150	S3M100	S3M150	S3M100	S3M150		
				ST Bushing	ST Bushing	SH Bushing	SH Bushing	Shape E	Shape F	Shape E	Shape F	Shape E	Shape F	Shape E	Shape F		
HTLA	34		E	8	8	6	6										
HTLK	36		E	8	8	6	6										
HTLN	40	A:11	E	8, 10, 11	8, 10, 11	8	8										
HTPL	44	W:15	F	8, 10~12, 14	8, 10~12, 14	8	8, 10~12										
HTPL	48	S3M150	F	8, 10~12, 14~16	8, 10~12, 14~16	8	8, 10~12										
HTLG	50	A:17	F	8, 10~12, 14~17	8, 10~12, 14~17	8	8, 10~12										
	60	W:21	F	8, 10~12, 14~19	8, 10~12, 14~19	8	8, 10~12										
	72		F	8, 10~12, 14~20, 22, 24, 25	8, 10~12, 14~20, 22, 24, 25	8	8, 10~12										

Ordering Example: Part Number - Pulley Shape - Shaft Bore Dia.  
HTPL 60S3M100 - E - 18

Alterations: Part Number - Pulley Shape - Shaft Bore Dia. - (FC, NFC, LFC, RFC, BMC, BMR)  
HTLA 60S3M100 - E - 18 - FC59

Alterations Code	Flange Cut	Flange Not Swaged	Flange Swaged on One Side	Surface Treatment
FC	FC	NFC	LFC, RFC	BMC, BMR
Spec.	<p>Lowers flange by cutting. FC: 0.5mm increment ⚠ No surface treatment is applied on flange circumference.</p>  <p>FC ≥ (O.D.) + 1 FC ≤ F - 2 (Ordering Code) FC35</p>	<p>Flange is not installed. (Flange Included)</p> 	<p>Flange is installed on either the bushing side (LFC) or the opposite side (RFC) prior to shipping. (Flange 1 pc. Included)</p> 	<p>Applies electroless nickel plating on a bushing. (Antitrust treatment is applied to screws.) ⚠ Electroless nickel plated bushing decreases allowable torque by 20 ~ 30%. BMC: Not RoHS Compliant (Screw: SCM435 Dacrotized Treatment) BMR: RoHS Compliant (Screw: SCM435 GeoMet Coating)</p>

HHAA, Aluminum MechaLock Incorporated Type, is approx. 65% lighter than S45C MechaLock, and thus, is applicable for high speed rotation-based operations.

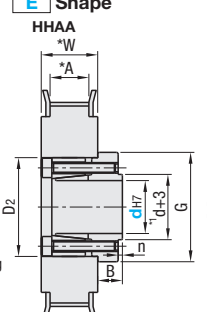


Type	Part Number		Material	Surface Treatment		
	Belt Width: 10mm A:11 W:15	Belt Width: 15mm A:17 W:21		Pulley	Flange	MechaLock
HHAA	S3M100	S3M150	Aluminum Alloy	A5052	A2014	Clear Anodize
HHTA						Clear Anodize
HHTK			A7075	A5052	S45C	Hard Clear Anodize

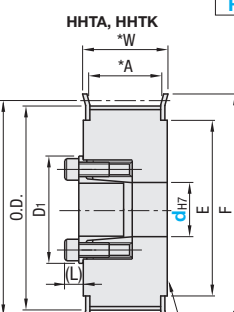
\*1. The above material and accessory might be changed to the ones equivalent to the originals.  
\*2. Hard Clear Anodize: Film Hardness 300HV ~

**• Pulley Shape**

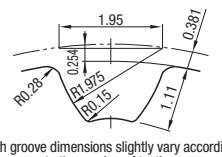
**E Shape**



**F Shape**



**Standard Tooth Profile**



Tooth groove dimensions slightly vary according to the number of teeth.  
(Pitch:3.0mm)

\*1. When d=6, d+2.5; and when d=15, d+3.5

Number of Teeth	30	34	36	40	44	48	50	60	72
P.D.	28.65	32.47	34.38	38.20	42.02	45.84	47.75	57.30	68.75
O.D.	27.89	31.71	33.62	37.44	41.25	45.07	46.98	56.53	67.99
F	32	40	40	44	48	50	52	61	74
E	23	28	28	32	36	38	40	46	58

⚠ Surface treatment may not be applied to shaft bores.  
⚠ For installation of flange swaging, see **P.1489**.

**Table 1: Select Shaft Bore Dia.**

dh7	Max. Allowable Torque (N · m)			D1	(L)
	HHAA	HHTA	HHTK		
6	4	17	4	20	0.5
8	6	19	5	22	0.5
10	8	21	5	24	0.5
12	12	24	6	27	1.0
14	18	26	6	29	1.0
15	25	28	7	31	1.2
16	-	-	-	-	-
17	-	-	-	-	-
18	-	-	-	-	-
19	-	-	-	-	-



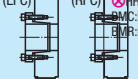
Type	Number of Teeth	Type, Nominal Width	Pulley Shape	dh7 Range (,): Select the former or latter, (-): Specify in 1mm Increment		Body Price 1 ~ 10 pc(s).						MechaLock Assembly Charge (+Body Price)	
				Shape E	Shape F	HHAA		HHTA, HHTK		HHTK			
				S3M100	S3M150	S3M100	S3M150	S3M100	S3M150	S3M100	S3M150	S3M100	S3M150
				ST Bushing	ST Bushing	SH Bushing	SH Bushing	Shape E	Shape F	Shape E	Shape F	Shape E	Shape F
HHAA	30		E	6	-	-	-	-	-	-	-	-	-
	34		E	6, 8	-	6	6	-	6	-	-	-	-
	36	A:11	E	6, 8	-	6	6	-	6	-	-	-	-
	40	W:15	F	8, 10	8	8	8	-	8	-	-	-	-
	44	S3M150	F	8, 10, 12	8, 10, 12	8, 10	8, 10	-	8, 10	-	-	-	-
	48	A:17	F	8, 10, 12	8, 10, 12, 14	8, 10	8, 10, 12	-	8, 10	-	-	-	-
	50	W:21	F	8, 10, 12, 14	8, 10, 12, 14	8, 10	8, 10, 12, 14	-	8, 10	-	-	-	-
	60	Y:14	F	8, 10, 12, 14	8, 10, 12, 14, 15	8, 10	8, 10, 12, 14~17	-	8, 10	-	-	-	-
	72		F	-	-	8, 10	8, 10, 12, 14~19	-	8, 10	-	-	-	-

**HHAA Aluminum MechaLock Performance, Weight**

dh7	Locking Screw			Surface Treatment	Allowable Thrust Load (kN)	Weight of MechaLock only (g)
	MxL	Qty.	Tightening Torque (N · m)			
6	M2.5x12	3	0.9	Black Oxide	1.33	8
8	M2.5x14	4	0.9		1.51	11
10	M2.5x14	4	0.9		1.63	12
12	M2.5x15	5	0.9		1.99	17
14	M2.5x15	6	0.9		2.56	19
15	M3x18	4	1.5		3.34	24
16	M3x18	4	1.5	3.34	25	

⚠ For details of S45C MechaLock, see **P.1491**.

Alterations: Part Number - Pulley Shape - Shaft Bore Dia. - (FC, NFC, LFC, RFC, BMC, BMR)  
HHTA 34S3M150 - F - 6 - BMC

Alteration Code	Flange Cut	Flange Not Swaged	Flange Swaged on One Side	Surface Treatment
FC	FC	NFC	LFC, RFC	BMC, BMR
Spec.	<p>Lowers flange by cutting. FC: 0.5mm increment ⚠ No surface treatment is applied on flange circumference.</p>  <p>FC ≥ (O.D.) + 1 FC ≤ F - 2 (Ordering Code) FC35</p>	<p>Flange is not installed. (Flange Included)</p> 	<p>Flange is installed on either the bushing side (LFC) or the opposite side (RFC) prior to shipping. (Flange 1 pc. Included)</p> 	<p>Applies electroless nickel plating on a MechaLock. (Antitrust treatment is applied to screws.) ⚠ Electroless nickel plated bushing decreases allowable torque by 20 ~ 30%. HHAA is not applicable. BMC: Not RoHS Compliant (Screw: SCM435 Dacrotized Treatment) BMR: RoHS Compliant (Screw: SCM435 GeoMet Coating)</p>