

# Keyless High Torque Timing Pulleys - S3M

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

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## 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**.

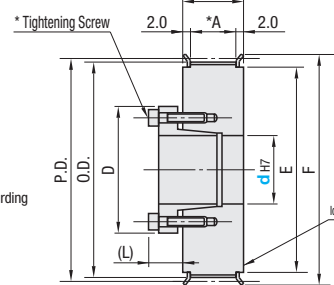


Type	Part Number		Material	Surface Treatment		
	Belt Width: 10mm A:11 W:15	Belt Width: 15mm A:17 W:21		Pulley	Flange	Bushing
HTLA	●	●	A7075	A5052	S45C	Clear Anodize
HTLK	●	●				Hard Clear Anodize
HTLN	●	●				Electroless Nickel Plating
HTPL	●	●	S45C Equivalent	SPCC	S45C	Black Oxide
HTLG	●	●				Electroless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

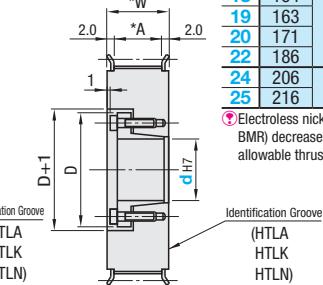
\*1. The above material and accessory might be changed to the ones equivalent to the originals.  
\*2. Hard Clear Anodize: Film Hardness 300HV ~

### Pulley Shape

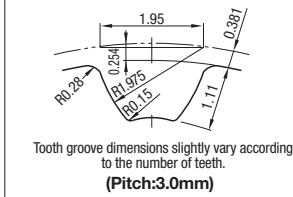
**E Shape**



**F Shape**



### Standard Tooth Profile



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%.

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

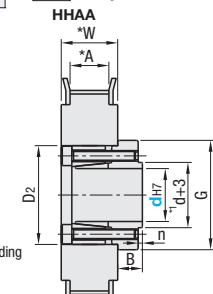


Type	Part Number		Material	Surface Treatment		
	Belt Width: 10mm A:11 W:15	Belt Width: 15mm A:17 W:21		Pulley	Flange	MechaLock
HHAA	●	●	Aluminum Alloy	A5052	A2014	Clear Anodize
HHTA	●	●	A7075	A5052	S45C	Clear Anodize
HHTK	●	●				Hard Clear Anodize

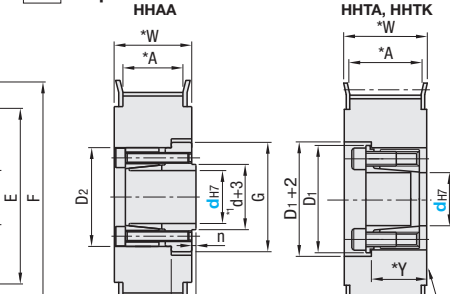
\*1. The above material and accessory might be changed to the ones equivalent to the originals.  
\*2. Hard Clear Anodize: Film Hardness 300HV ~

### Pulley Shape

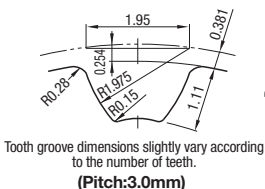
**E Shape**



**F Shape**



### Standard Tooth Profile



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**.

Part Number	Type	Pulley Shape	dH7 Range (,): Select the former or latter, (-): Specify in 1mm Increment						Body Price 1 ~ 10 pc(s).						MechaLock Assembly Charge (+Body Price)																													
			HHAA		HHTA, HHTK		HTLA, HTLK, HTLN		HTPL, HTLG		HHAA		HHTA, HHTK																															
HHAA HHTA HHTK	Number of Teeth	Type, Nominal Width	Shape E	Shape F	S3M100	S3M150	S3M100	S3M150	S3M100	S3M150	S3M100	S3M150	S3M100	S3M150	S3M100	S3M150	S3M100	S3M150	S3M100	S3M150	dH7	Aluminum (HHAA)	S45C (HHTA, HHTK)																					
																								30	34	36	40	44	48	50	60	72	6	8	10	12	14	15	16	17	18	19		
																								30	34	36	40	44	48	50	60	72	6	8	10	12	14	15	16	17	18	19		
																								30	34	36	40	44	48	50	60	72	6	8	10	12	14	15	16	17	18	19		
																								30	34	36	40	44	48	50	60	72	6	8	10	12	14	15	16	17	18	19		
																								30	34	36	40	44	48	50	60	72	6	8	10	12	14	15	16	17	18	19		
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																								30	34	36	40	44	48	50	60	72	6	8	10	12	14	15	16	17	18	19		
																								30	34	36	40	44	48	50	60	72	6	8	10	12	14	15	16	17	18	19		
																								30	34	36	40	44	48	50	60	72	6	8	10	12	14	15	16	17	18	19		

Ordering Example: HHTA60S3M150 - F - 6 - BMC

### 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**.

Ordering Example: HTPL60S3M100 - E - 18

Alterations Part Number - Pulley Shape - Shaft Bore Dia. - (FC, NFC, LFC, RFC, BMC, BMR)  
HTLA60S3M100 - E - 18 - FC59

Alterations Code	Flange Cut	No Flange	Single Flange	Surface Treatment
FC	FC	NFC	LFC, RFC	BMC, BMR
Spec.	<p>Lowers flange by cutting. FC: 0.5mm increment</p> <p>No surface treatment is applied on flange circumference.</p> <p>FC ≥ (O.D.) + 1</p> <p>FC ≤ F - 2</p> <p>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>(LFC) (RFC)</p>	<p>Applies electroless nickel plating on a bushing. (Antitrust treatment is applied to screws.)</p> <p>Electroless nickel plated bushing decreases allowable torque by 20 ~ 30%.</p> <p>BMC: Not RoHS Compliant (Screw: SCM435 Dacrotized Treatment)</p> <p>BMR: RoHS Compliant (Screw: SCM435 GeoMet Coating)</p>

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

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