

# Keyless High Torque Timing Pulleys - S5M

Compatible with S5M type from Mitsubishi Belting Ltd. as well as Bando Chemical Industries Ltd.

# Keyless High Torque Timing Pulleys - S5M MechaLock Standard Type Incorporated (with Centering Function)

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

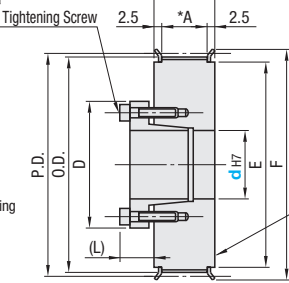


Type	Part Number			Material	Surface Treatment			
	Belt Width: 10mm A:11 W:16	Belt Width: 15mm A:17 W:22	Belt Width: 25mm A:27 W:32					
HTLA	S5M100	S5M150	S5M250	A7075	A5052	S45C	Clear Anodize	-
HTLK	●	●	●	-	-	-	Hard Clear Anodize*	-
HTLN	●	●	●	-	-	-	Electroless Nickel Plating	-
HTPL	●	●	●	S45C Equivalent	SPCC	S45C	Black Oxide	-
HTLG	●	●	●	-	-	-	Electroless Nickel Plating	-

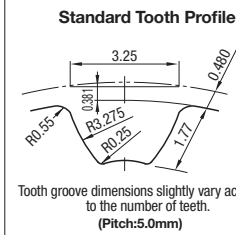
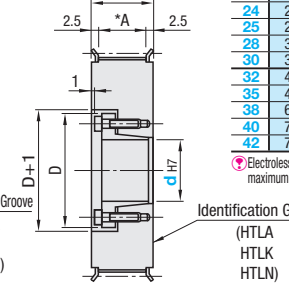
\*1. The above material and accessory might be changed to the ones equivalent to the originals.  
\*2. Hard Clear Anodize: Film Hardness 300HV ~

### Pulley Shape

**E Shape**



**F Shape**



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

Number of Teeth	22	24	25	26	28	30	32	34	36	40	44	48	50	60	72
P.D.	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.	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
F	40	45	45	48	48	52	55	61	61	67	74	83	87	99	119
E	27	30	30	35	35	36	40	45	45	50	58	63	67	80	100

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**.  
For quantity and size of tightening screws with flange installed, 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		
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	-

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 (-): Specify in 1mm Increment, (,): Select the former or latter					
				Shape E			Shape F		
HTLA HTLK HTLN HTPL HTLG	22	S5M100 *A:11 *W:16	E	ST Bushing	ST Bushing	ST Bushing	SH Bushing	SH Bushing	SH Bushing
	24			8, 10	10	10	8	8	8
	25			8, 10-12	10-12	10-12	8, 10-12	8, 10-12	
	26	S5M150 *A:17 *W:22	E	10-12, 14, 15	10-12, 14, 15	10-12, 14, 15	-	10-12	10-12
	28			10-12, 14-17	10-12, 14-17	10-12, 14-17	-	10-12	10-12
	30			10-12, 14-17	10-12, 14-17	10-12, 14-17	-	10-12	10-12, 14-17
	32	S5M250 *A:27 *W:32	F	12, 14-20, 22, 24, 25	-	12	12, 14-20, 22, 24, 25	-	-
	34			12, 14-20, 22, 24, 25, 28	-	12	12, 14-20, 22, 24, 25, 28	-	-
	36			12, 14-20, 22, 24, 25, 28, 30, 32	-	12	12, 14-20, 22, 24, 25, 28, 30, 32	-	-
	40	-	-	-	12	12, 14-20, 22, 24, 25, 28, 30, 32, 35, 38, 40	-	-	
	44	-	-	-	12	12, 14-20, 22, 24, 25, 28, 30, 32, 35, 38, 40, 42	-	-	

Ordering Example: Part Number - Pulley Shape - Shaft Bore Dia.  
HTPL 60S5M100 - E - 32

Alterations: Part Number - Pulley Shape - Shaft Bore Dia. - (BMC, BMR, FC, NFC, LFC, RFC)  
HTLA 48S5M150 - F - 12 - FC72

Number of Teeth	Unit Price					
	HTLA (x1.0)	HTLK (x1.1)	HTLN (x1.2)	HTPL (x1.0)	HTLG (x1.1)	
	S5M100	S5M150	S5M250	S5M100	S5M150	S5M250
	Shape E	Shape F	Shape E	Shape F	Shape E	Shape F
22	-	-	-	-	-	-
24	-	-	-	-	-	-
25	-	-	-	-	-	-
26	-	-	-	-	-	-
28	-	-	-	-	-	-
30	-	-	-	-	-	-
32	-	-	-	-	-	-
34	-	-	-	-	-	-
36	-	-	-	-	-	-
40	-	-	-	-	-	-
44	-	-	-	-	-	-
48	-	-	-	-	-	-
50	-	-	-	-	-	-
60	-	-	-	-	-	-
72	-	-	-	-	-	-

Alterations	Surface Treatment
Code	BMC, BMR
Spec.	Applies electroless nickel plating on a bushing. (Antirusting treatment is applied to screws.) Electroless nickel plated bushing decreases allowable torque by 20 ~ 30%. BMC: Not RoHS Compliant (Screw: SCM435 Dacromet Treatment) BMR: RoHS Compliant (Screw: SCM435 GeoMet Coating)

Alterations	Flange Cut	Flange Not Swaged	Flange Swaged on One Side
Code	FC	NFC	LFC, RFC
Spec.	Lowers flange by cutting. FC: 0.5mm Increment No surface treatment is applied on flange circumference. FC: (O.D.)+1 FC: F-2 Ordering Code FC35	Flange is not installed. (Flange Included)	Flange is installed on either the bushing side (LFC) or the opposite side (RFC) prior to shipping. (Flange 1 pc. Included)

HHAA, Aluminum MechaLock Incorporated Type, is approx. 45% lighter than S45C MechaLock, and thus, is applicable for high speed rotation-based operations.

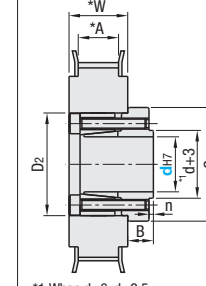


Type	Part Number			Material	Surface Treatment			
	Belt Width: 10mm A:11 W:16	Belt Width: 15mm A:17 W:22	Belt Width: 25mm A:27 W:32					
HHAA	S5M100	S5M150	S5M250	Aluminum Alloy	A5052	A2014	Clear Anodize	-
HHTA	●	●	●	-	-	-	Clear Anodize	-
HHTK	●	●	●	A7075	A5052	S45C	Hard Clear Anodize*	-
HHTN	●	●	●	-	-	-	Electroless Nickel Plating	-
HHTT	●	●	●	S45C Equivalent	SPCC	S45C	Black Oxide	-
HHTM	●	●	●	-	-	-	Electroless Nickel Plating	-
HHTP	●	●	●	-	-	-	Electroless Nickel Plating	-

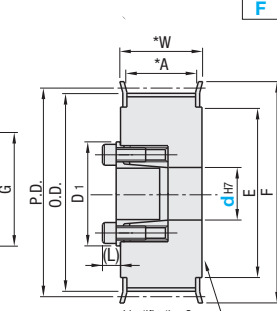
\*1. The above material and accessory might be changed to the ones equivalent to the originals.  
\*2. Hard Clear Anodize: Film Hardness 300HV ~

### Pulley Shape

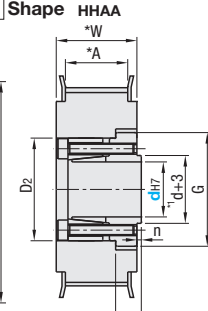
**E Shape HHAA**



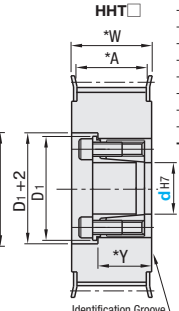
**HHT Shape**



**F Shape HHAA**

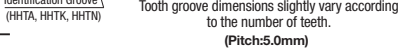


**HHT Shape**



\*1. When d=6, d+2.5; and when d=15, 16, d+3.5

Number of Teeth	20	22	24	25	26	28	30	32	34	36	40	44	48	50	60	72
	P.D.	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
O.D.	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
F	36	40	45	45	48	48	52	55	61	61	67	74	83	87	99	119
E	24	27	30	30	35	35	36	40	45	45	50	58	63	67	80	100



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

Surface treatment may not be applied to shaft bores.  
Flange is installed.  
Y dimensions in ( ) require the shaft bore diameter of 12 or more.  
For installation, see **P.1489**.

Type	Number of Teeth	Type, Nominal Width	Pulley Shape	dH7 Range (-): Specify in 1mm Increment, (,): Select the former or latter							
				HHAA		HHTA, HHTK, HHTN, HHTT, HHTM, HHTP		Shape F			
HHAA HHTA HHTK HHTN HHTT HHTM HHTP	20	S5M100 *A:11 *W:16	E	Shape E	Shape F	S5M100	S5M150	S5M150	S5M250	S5M150	S5M250
	22			8, 10	8, 10	8, 10	8, 10	8, 10	8, 10	8, 10	
	24			8, 10	8, 10	8, 10	8, 10	8, 10	8, 10	8, 10	
	25	S5M150 *A:17 *W:22	E	10, 12	10, 12	10	10	10	10	10	10
	26			10, 12, 14, 15	10, 12, 14, 15	10, 12, 14	10, 12, 14	10, 12, 14	10, 12, 14	10, 12, 14	
	28			10, 12, 14-16	10, 12, 14-16	10, 12, 14	10, 12, 14-16	10, 12, 14-16	10	10, 12, 14-16	
	30	S5M250 *A:27 *W:32	F	10, 12, 14-16	10, 12, 14-16	10, 12, 14	10, 12, 14	10, 12, 14-19	10, 12, 14-19	10	10, 12, 14-19
	32			-	12, 14	12, 14-20, 22	12, 14-20, 22	-	12, 14-20, 22		
	34			-	12, 14	12, 14-20, 22	12, 14-20, 22	-	12, 14-20, 22		
	36	-	-	12, 14	12, 14-20, 22	12, 14-20, 22	-	12, 14-20, 22			
	40	-	-	-	12, 14	12, 14-20, 22	12, 14-20, 22	-	12, 14-20, 22		
	44	-	-	-	12, 14	12, 14-20, 22	12, 14-20, 22	12, 14-20, 22	12, 14-20, 22	25, 28	
48	-	-	-	12, 14	12, 14-20, 22	12, 14-20, 22	12, 14-20, 22	12, 14-20, 22	25, 28		
60	-	-	-	12, 14	12, 14-20, 22	12, 14-20, 22	12, 14-20, 22	12, 14-20, 22	25, 28, 30		
72	-	-	-	12, 14	12, 14-20, 22	12, 14-20, 22	12, 14-20, 22	12, 14-20, 22	25, 28, 30		

For Aluminum MechaLock Performance, see **P.1432**. For details of S45C MechaLock, see **P.1491**.

Ordering Example: Part Number - Pulley Shape - Shaft Bore Dia.  
HHTA 60S5M250 - F - 30

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

Alteration Code	Surface Treatment	Flange Cut
	BMC+BMR	FC
Spec.	Applies electroless nickel plating on a MechaLock. (Antirusting treatment is applied to screws.) Electroless nickel plating decreases bushing's allowable torque by 20 ~ 30%. HHAA is not applicable. BMC: Not RoHS Compliant (Screw: SCM435 Dacromet Treatment) BMR: RoHS Compliant (Screw: SCM435 GeoMet Coating)	Lowers flange by cutting. FC: 0.5mm Increment No surface treatment is applied on flange circumference. FC: (O.D.)+1 FC: F-2 Ordering Code FC35

Alterations	Flange Not Swaged	Flange Swaged on One Side
Code	NFC	LFC, RFC
Spec.	Flange is not installed. (Flange Included)	Flange is installed on either the bushing side (LFC) or the opposite side (RFC) prior to shipping. (Flange 1 pc. Included)

Number of Teeth	Body Price 1 ~ 10 pc(s).						
	HHAA (x1.0)	HHTA (x1.0)	HHTK (x1.1)	HHTN (x1.2)	HHTT (x1.0)	HHTM (x1.0)	HHTP (x1.1)
	S5M100	S5M150	S5M100	S5M150	S5M250	S5M100	S5M150
20							