STS Pulleys

We offer STS standard pulleys for more convenient use of STS. The STS standard pulleys are standardized in two types, bushing type and shaft-hole-machined type, as shown in the following tables. Please use them in accordance with your purpose.
The pulleys for KPS have the same dimensions as those for the STS standard pulleys. When you order KPS pulleys, please use the designation for STS pulleys.

(1) STS Standard Pulley System

STS Pulleys with BAN-LOCK	Pulley tooth profile	Stock	Pulley nominal width	No. of teeth of pulley	Material
● No need for troublesome shaft hole machining and keyway machining. They provide a strong fastening force by the wedge effect. ● The frictional fastening structure eliminates backlash and such concerns as thinning or seizure of the shaft by vibration or shock. ● The key-less structure allows installation at any position on the shaft, making positioning and phase alignment simple and free. ● Excellent centering effect. ● The installation on a shaft only requires tightening of the clamping screws. Removal can also easily be done by loosening the screws and tightening the clamping screws into the screw holes for removal.	S5M	Made-to-order	0150, 0200, 0250	26～60	Carbon steel for machine construction
	S8M	Made-to-order	0150, 0250, 0400	19～60	
	S14M	Made-to-order	0400, 0600	28～50	

TL STS Pulleys (bushing type)	Pulley tooth profile	Stock	Pulley nominal width	No. of teeth of pulley	Material
The TL STS pulleys are designed to provide the performance of STS sufficiently and provide many benefits. ● The simple structure allows very simple installation on and removal from a shaft. ● The slit in the entire bushing allows easy movement of the bushing on the shaft. ● JIS keys can be used without any modification. ● The absence of projections such as a bolt head makes the pulley simple and allows effective use of the space.	S8M	Standard stock	0150	28～96	Cast iron or carbon steel for machine construction
		Made-to-order		120～156	
		Standard stock	0250	32～96	
		Made-to-order		120～156	
		Standard stock	0400	36～96	
		Made-to-order		120～156	
		Standard stock	0600	48～96	
		Made-to-order		120～156	
	S14M	Standard stock	0400	28～84	Cast iron or carbon steel for machine construction
		Made-to-order		96～156	
		Standard stock	0600	28～84	
		Made-to-order		96～156	
		Standard stock	0800, 1000	36～84	
		Made-to-order		96～156	
		Made-to-order	1200	40～156	

STS Pulleys (shaft-hole-machined type)	Pulley tooth profile	Stock	Pulley nominal width	No. of teeth of pulley	Material
They are very beneficial as they can adapt to shafts of special sizes by machining and are available in a wide range of pulley sizes. ● For details such as the machining method and the flange installation method, refer to **P. 134 to P. 135 and P. 189 to P. 190**. In addition to the standard pulleys, we also manufacture pulleys with a requested number of teeth and a requested profile. Please contact us.	S1.5M	Made-to-order	0040, 0060, 0100	16～60	High-strength aluminum alloy
	S2M	Made-to-order	0040, 0060, 0100	14～60	
	S3M	Made-to-order	0060, 0100, 0150	14～60	
	S4.5M	Standard stock	0060, 0100, 0150	12～44	Carbon steel for machine construction
		Made-to-order		48～72	
	S5M	Standard stock	0100, 0150, 0200, 0250	14～60	
	S8M	Standard stock	0150, 0250, 0400, 0600	18～60	
		Made-to-order		72～156	
	S14M	Standard stock	0400, 0600, 0800, 1000	28～50	
		Made-to-order		60～156	
			1200	28～156	

(2) Designation for STS Pulleys

Type	Designation example
Pulley with BAN-LOCK	**24** (No. of teeth of pulley (24 teeth)) **S5M** (Pulley tooth profile (Type S5M)) **0150** (Belt width (15mm)) **AF-S** (Pulley profile (Type AF-S)) **14** (Shaft dia. (14mm)) Material Pulley, inner ring ..... S45C Clamping screw SCM435
TL STS pulley (bushing type)	Pulley body: **40** (No. of teeth of pulley (40 teeth)) **S14M** (Pulley tooth profile (Type S14M)) **1200** (Pulley nominal width (For a belt width of 120 mm)) Applicable bushing: **11080** (TL bushing type number) × **75** (Shaft hole dia. (75mm)) **N** (Keyway for new JIS keys (Previous JIS keys: F))
STS pulley (shaft-hole-machined type)	**30** (No. of teeth of pulley (30 teeth)) **S8M** (Pulley tooth profile (Type S8M)) **0150** (Pulley nominal width (For a belt width of 15 mm)) **AF** (Pulley profile (Type A, with flange))
STS pulley (rod-shaped pulley)	**M** (M (As per Manual)) - **A** (Material (A: Aluminum)) - **18** (No. of teeth of pulley (18 teeth)) - **S2M** (Pulley tooth profile (Type S2M)) - **100L** (Length (100mm))

(Note) When you need a backlash-less pulley, please contact us.

STS Pulley Dimensional Accuracy

For pulley dimensional accuracy, use pulleys with the following dimensional accuracies to sufficiently obtain the belt function.

■ Outside diameter

(Unit: mm)

Pulley outside diameter do	Tolerance	
	S2M/S3M	S4.5M/S5M/S8M/S14M
Over 5.96 to 25.40 or less	±0.025	+0.05 0
Over 25.40 to 50.80 or less	±0.030	+0.08 0
Over 50.80 to 101.60 or less	±0.035	+0.10 0
Over 101.60 to 177.80 or less	±0.040	+0.13 0
Over 177.80 to 304.80 or less	—	+0.15 0
Over 304.80 to 508.00 or less	—	+0.18 0
Over 508.00 to 762.00 or less	—	+0.20 0
Over 762.00 to 967.16 or less	—	+0.23 0

■ Shaft hole diameter

(Unit: mm)

Shaft hole dia.	Tolerance	
	TL bushing (H8)	Shaft-hole-machined type
Over 3 to 6 or less	+0.018 0	The shaft holes for the shaft-hole-machined type are pilot holes.
Over 6 to 10 or less	+0.022 0	
Over 10 to 18 or less	+0.027 0	
Over 18 to 30 or less	+0.033 0	
Over 30 to 50 or less	+0.039 0	
Over 50 to 80 or less	+0.046 0	
Over 80 to 120 or less	+0.054 0	
Over 120 to 180 or less	+0.063 0	

■ Run-out of the outside diameter in relation to the shaft hole

(Unit: mm)

Pulley outside diameter do	Run-out tolerance (TIR) (Note)
203.20 or less	0.13 or less
Over 203.20 to 967.16 or less	0.13 + {(Pulley outside diameter - 203.20) × 0.0005}

■ Run-out of the pulley side face in relation to the shaft hole

(Unit: mm)

Pulley outside diameter do	Run-out tolerance (TIR) (Note)
101.60 or less	0.10
Over 101.60 to 254.00 or less	Pulley outside diameter × 0.001
Over 254.00 to 967.16 or less	0.25 + {(Pulley outside diameter - 254.00) × 0.0005}

(Note) TIR is an abbreviation for Total Indicator Reading and refers to a difference between the maximum value and the minimum value in readings of run-out measurement.

■ Cylindricity of outside diameter

(Unit: mm)

Pulley nominal width	Tolerance
~0100	0.01
0150~0400	0.02
0600~1000	0.04
1200	0.06

■ Parallelism between teeth and shaft hole center line

(Unit: mm)

Pulley nominal width	Tolerance
~0400	0.03
0600~1000	0.04
1200	0.05

■ Adjacent pitch error and cumulative pitch error

(Unit: mm)

Pulley outside diameter do	Tolerance	
	Adjacent pitch error	Cumulative pitch error (90° or more)
Over 5.96 to 25.40 or less	0.03	0.05
Over 25.40 to 50.80 or less	0.03	0.08
Over 50.80 to 101.60 or less	0.05	0.10
Over 101.60 to 177.80 or less	0.05	0.13
Over 177.80 to 304.80 or less	0.05	0.15
Over 304.80 to 508.00 or less	0.08	0.18
Over 508.00 to 762.00 or less	0.08	0.20
Over 762.00 to 967.16 or less	0.08	0.23

■ Keyway

Refer to keyway dimensions (parallel keys) on **P. 195**.

■ Pulley's blank outside diameter

As pulley's gear cutting is a topping process, the blank outside diameter is a value with the value in the following table (topping range) added.

■ Topping range for pulley outside diameter

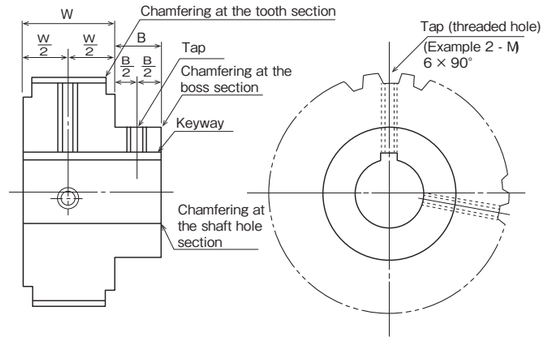
(Unit: mm)

Pulley outside diameter	Topping range
50.80 or less	0.5
Over 50.80 to 101.60 or less	0.6
Over 101.60 to 177.80 or less	0.7
Over 177.80 to 304.80 or less	0.8
Over 304.80 to 508.00 or less	1.0
Over 508.00 to 700.00 or less	1.2
Over 700.00	1.4

(Example) Blank outside diameter of STS pulley 60S8M0250A
Blank outside diameter = pulley outside diameter + topping range
$= \phi 151.42^{+0.13}_{0} + 0.7 = \phi 152.12^{+0.13}_{0}$

STS Pulley Machining

We perform the following machining as standards unless otherwise specified in a manufacturing request based on drawings provided by the customer, a request for additional machining of standard pulleys, etc.



■ Screw-cutting (tapping)

- Screw-cutting from the tooth section will be performed from the tooth bottom (root of the teeth).
  When screw-cutting is required for two sections at an angle of 90° (or 120°), screw-cutting will be performed at 90° (or 120°) or more and from the tooth bottom closest to 90° (or 120°).
- When screw-cutting at two sections at the tooth section or the boss section has a direction, (e.g.: rotating direction in relation to the keyway position), screw-cutting will be performed clockwise as seen from the boss side.
- Screw-cutting at the tooth section and the boss section will be performed at the center of the tooth section (W) and the boss section (B).
  If you specify a screw-cutting position from the end face, the standard position accuracy will be ±0.3 mm.
- The standard depth of thread is the effective thread diameter × (1.5 to 2.0).
- Screw-cutting on an end face (tapping) is specified, the standard position accuracy is the pitch diameter ±0.3 mm and ±0.3 mm in the rotating direction.

■ Keyway machining

A keyway is machined to match the tooth bottom (the root of teeth).

■ Chamfering (C-chamfering)

Chamfering of each section will be performed as follows.

● Tooth section

(Unit: mm)

Outside diameter	Chamfering (C-chamfering)
30 or less	C 0.3
Over 30 to 100 or less	C 0.5
Over 100	C 1

● Shaft hole section

(Unit: mm)

Inside diameter	Chamfering (C-chamfering)
25 or less	C 0.5
Over 25	C 1

● Boss section

(Unit: mm)

Inside diameter	Chamfering (C-chamfering)
50 or less	C 0.5
Over 50	C 1

■ Tolerance of retaining ring grooves (ring grooves)

This follows JIS B2804, 2805, and 2806.

■ Major surface treatment names and the amount of coating

Although we provide surface treatment if requested, the surface treatment on backlash-less pulleys in particular requires caution due to relation with the amount of coating.

(Reference) (Unit: μ)

Name	Amount of coating
Carbon black dyeing	1~ 2
Phosphating	5~ 6
Unichrome plating	5~ 7
Chromate plating	5~ 7
Nickel plating	10~12
Chromium plating	13~15
Hard chromium plating	13~15
White anodizing treatment	9~12
Hard anodizing treatment	15~20

Note: The amount of coating will be thick at corners (two to three-fold).

How to Install a Pulley Flange

STS and Synchronous Belts can be used at high torques and high speeds; hence, to prevent accidents, installation of flanges should be performed securely with the following procedure.

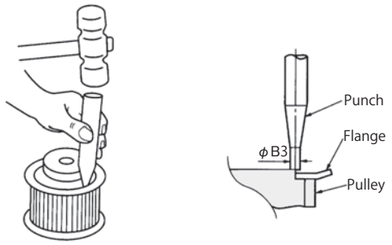
(1) Crimping method (standard flange)

Follow the steps below.

① Prepare an eye punch, a flat disk, a cylindrical fixture, and a hammer.

② When a foreign object is adhering to the flange-fitting section of the pulley, a gap is created between the pulley and the flange, preventing crimping; clean the flange-fitting section.

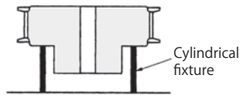
③ As shown in the following figure, place the pulley body on the flat disk and crimp the pulley body over the flange with the eye punch.



● When crimping a sintered pulley of Type XL, exercise due caution.
(Hitting it in the same way as you do for S45C may cause chipping.)

(Note)

* When crimping a Type-B pulley, the boss makes an unstable condition; use a cylindrical fixture so that the pulley can be crimped uniformly.



④ When crimping a flange, be sure to crimp it in diagonal order.

⑤ The number of crimping should be as follows.

■ STS pulley flange

Pulley outside diameter (mm)	No. of crimping (one side)
31 or less	6 sections or more
Over 31 to 50 or less	8 sections or more
Over 50 to 80 or less	10 sections or more
Over 80 to 150 or less	12 sections or more
Over 150 to 220 or less	16 sections or more
Over 220	20 sections or more

■ Synchronous pulley flange

Pulley outside diameter (mm)	No. of crimping (one side)
51 or less	4 sections or more
Over 51 to 80 or less	6 sections or more
Over 80 to 100 or less	8 sections or more
Over 100 to 120 or less	10 sections or more
Over 120 to 150 or less	12 sections or more
Over 150	16 sections or more

(Note) Flanges for a cast pulley should be installed with screws.

⑥ After installing flanges, check for looseness.

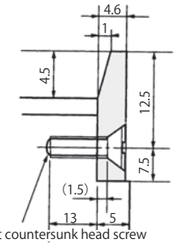
When a flange comes in the way due to a fixed center distance etc. and prevents belt installation, fastening with screws is effective. In this case, however, the standard flanges cannot be used; please contact us.

(2) Screw-fastening method

Flanges for large-diameter pulleys of Types S8M/S14M and pulleys of Types XH/XXH should be cut flanges, and fasten them on the pulley body using flat countersunk head screws.

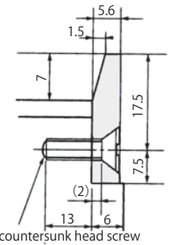
(Reference)

●Type S8M



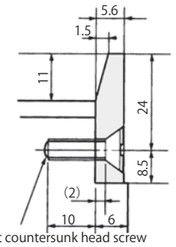
Flat countersunk head screw M5×0.8

●Type S14M



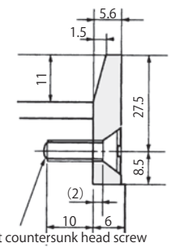
Flat countersunk head screw M5×0.8

●Type XH



Flat countersunk head screw M6

●Type XXH



Flat countersunk head screw M6

■ STS pulleys (KPS): No. of screws for fastening a flange (one side)

No. of fastening screws \ Pulley tooth profile	Type S8M	Type S14M
8 sections or more	72S8M～95S8M	—
10 sections or more	96S8M～143S8M	60S14M～ 71S14M
12 sections or more	144S8M～156S8M	72S14M～ 84S14M
16 sections or more	157 S8M or more	85S14M～120S14M
18 sections or more	—	121S14M～156S14M
20 sections or more	—	157 S14M or more

■ Synchronous pulleys: No. of screws for fastening a flange (one side)

No. of fastening screws \ Pulley tooth profile	Type XH	Type XXH
4 sections or more	25 XH or less	—
6 sections or more	26XH～ 35XH	24 XXH or less
8 sections or more	36XH～ 49XH	25XXH～ 31XXH
10 sections or more	50XH～ 60XH	32XXH～ 39XXH
12 sections or more	61XH～ 77XH	40XXH～ 47XXH
16 sections or more	78XH～109XH	48XXH～ 61XXH
18 sections or more	110 XH or more	62XXH～ 72XXH
20 sections or more	—	73 XXH or more

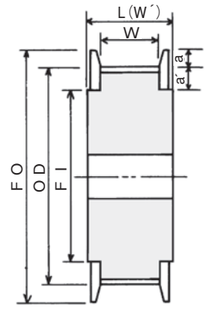
(3) Knurling method

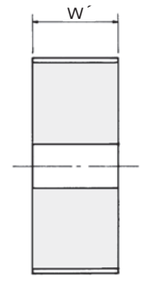
Crimping by knurling using a lathe is also often used.

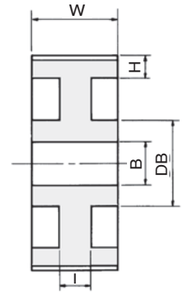
Non-Standard Pulley Design

For non-standard pulley designs, refer to the following proportion of dimensions.

(Reference)







■ Belt width, pulley tooth width, and inside and outside flange diameters

A) STS Pulleys

(Unit: mm)

Pulley type	Belt standard widths		Pulley with flanges	Pulley without flanges	FO=OD+2a	FI = OD - 2a'
	Nominal width	Belt width (mm)	W	L=W'	a	a'
S2M	0040	4	6	10	2	2
	0060	6	8	12	2	2
	0100	10	12	16	2	2
S3M	0060	6	8	12	3	2
	0100	10	12	16	3	2
	0150	15	17	21	3	2
S4.5M	0060	6	8	12	3	3
	0100	10	12	16	3	3
	0150	15	17	21	3	3
S5M	0100	10	12	17	4	4
	0150	15	17	22	4	4
	0200	20	23	28	4	4
	0250	25	28	33	4	4
S8M	0150	15	17	23(27)	5(4.5)	5(15.5)
	0250	25	28	34(38)	5(4.5)	5(15.5)
	0400	40	44	50(54)	5(4.5)	5(15.5)
	0600	60	65	71(75)	5(4.5)	5(15.5)
S14M	0400	40	46	52(58)	8(7)	8(18)
	0600	60	67	73(79)	8(7)	8(18)
	0800	80	88	94(100)	8(7)	8(18)
	1000	100	109	115(121)	8(7)	8(18)
	1200	120	130	136(142)	8(7)	8(18)

Note: The dimensions within the parentheses ( ) indicate those when flanges are fastened on a large-diameter pulley with screws.

b) Synchronous pulleys

(Unit: mm)

Pulley type	Belt standard widths		Pulley with flanges	Pulley without flanges	FO=OD+2a	FI = OD - 2a'
	Nominal width	Belt width (mm)	W	L=W'	a	a'
MXL	3.2	3.2	4.0	8.0	2	2
	4.8	4.8	5.5	9.5	2	2
	6.4	6.4	7.5	11.5	2	2
	9.5	9.5	10.5	14.5	2	2
	12.7	12.7	14.0	16.0	2	2
XL	025	6.4	8.0	13.0	4	3
	031	7.9	9.5	14.5	4	3
	037	9.5	11.0	16.0	4	3
	050	12.7	14.0	19.0	4	3
L	050	12.7	14.0	19.0	4	5
	075	19.1	21.0	26.0	4	5
	100	25.4	27.0	32.0	4	5
	150	38.1	40.0	45.0	4	5
H	075	19.1	22.0	27.0	4	5
	100	25.4	27.0	32.0	4	5
	150	38.1	40.0	45.0	4	5
	200	50.8	54.0	59.0	4	5
	300	76.2	80.0	85.0	4	5
XH	200	50.8	57.0	69.0	11	21.5
	300	76.2	84.0	96.0	11	21.5
	400	101.6	111.0	123.0	11	21.5
XXH	200	50.8	57.0	69.0	11	25
	300	76.2	84.0	96.0	11	25
	400	101.6	111.0	123.0	11	25
	500	127.0	139.0	151.0	11	25

■ Dimensional proportion of each section of a pulley

a) Dimensional proportion of each section of an STS pulley

(Unit: mm)

W		30～50	51～70	71～90	91～170
H	S4.5M・S5M	10			
	S8M	15	18	20	25
	S14M	20	25	25	30
I	S4.5M・S5M	10			
	S8M	15	18	20	25
	S14M		20	25	35
DB		B×1.8～1.9			

b) Dimensional proportion of each section of a synchronous pulley

(Unit: mm)

W		30～50	51～70	71～90	91～170	171～
H	XL・L	13				
	H	15	15	18		
	XH		35	35	35	35
	XXH			40	40	40
I	H	15	15	20		
	XH・XXH			25	30	35
DB		B×1.8～1.9				

STS Pulleys with BAN-LOCK

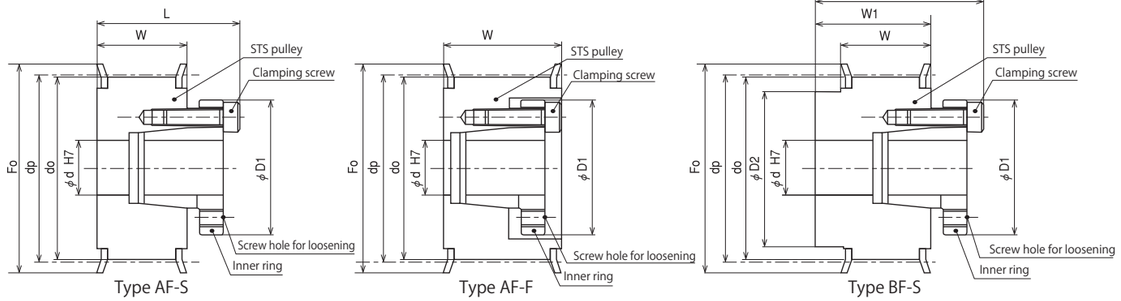
Features

1. No need for troublesome shaft hole machining and keyway machining. They provide a strong fastening force by the wedge effect.
2. The frictional fastening structure eliminates backlash and such concerns as thinning or seizure of the shaft by vibration or shock.
3. The key-less structure allows installation at any position on the shaft, making positioning and phase alignment simple and free.
4. Excellent centering effect.
5. The installation on a shaft only requires tightening of the clamping screws. Removal can also easily be done by loosening the screws and tightening the clamping screws into the screw holes for removal.

Structure and Principles

When clamping screws are tightened, the pulley is pulled and moves in the axial direction.
At this time, the wedge effect at the taper surface with the inner ring* generates a pressure force in the axial direction and the direction of the pulley inner periphery, causing the shaft and the pulley to be fastened. (*Manufactured by Sanki)

Profiles of Pulleys with BAN-LOCK



Designations for Pulleys with BAN-LOCK

(Example)

24 S5M 0150 AF - S - 14

- 24: No. of teeth of pulley (24 teeth)
- S5M: Pulley tooth profile (Type S5M)
- 0150: Belt width (15mm)
- AF - S: Pulley profile (Type AF-S)
- 14: Shaft dia. (14mm)

○ Material: Pulley, inner ring ••• S45C
Clamping screw ••• SCM435

- For details on each section of the STS pulley body, **refer to our Power Transmission Belts Product Design Manual.**
- For details on the inner rings by shaft hole type, **refer to pages 140 to 142.**
- Flanges are packaged with the flanges installed on the pulley body.
- When the transmission torque falls short, please consult us.

Selection Criteria for Pulleys with BAN-LOCK

1. **Selecting a belt and a pulley**
   Refer to **Bando Power Transmission Belts Product Design Manual** and select a belt and pulleys in accordance with the selection procedures.
2. **Selecting an STS pulley with BAN-LOCK**
   Select a type of an STS pulley with BAN-LOCK from the respective table of dimensions.
3. **Checking the maximum torque of BAN-LOCK**
   Allow for the peak torque in addition to the torque in normal operation in the design maximum torque.
   In particular, exercise due caution when selecting a pulley that involves forward and reverse revolutions, large inertia, and shock.
4. **Considering BAN-LOCK (inner ring)**
   From the selected shaft diameter, compare the maximum torque from the **list of inner rings (→ P. 140 to P. 142)** with the calculated maximum torque Tmax.
   Maximum torque ≧ Tmax: Usable
   Maximum torque < Tmax: Reconsider

$$Tmax = \frac{9550 \times P}{N} \times K[N \cdot m]$$

Tmax	: Maximum torque (including peak torque)	(N•m)
P	: Transmission power	(kW)
N	: Revolution	(min^{-1})
K	: Load factor	

Load factors (reference)

Load condition	K
Fixed load not involving shocks	1.25～2.0
Load involving light shocks	2.0～3.0
Load involving large shocks	3.0～5.0

5. Consideration of shafts

① Checking the material strength
Check that the material strength of the shaft satisfies the following equation.

$$\sigma s > P$$

σs	: Yield point stress of shaft material	(MPa)
P	: Pressure on the shaft side surface	(MPa)

② Checking the inside diameter of a hollow shaft
Check that the inside diameter of the hollow shaft satisfies the following equation.

$$di \leqq d\sqrt{\frac{\sigma s - 2P \times 0.6}{\sigma s}}$$

di	: Inside diameter of hollow shaft	(mm)
d	: Shaft diameter	(mm)
0.6	: Factor	

Installation and Removal Procedures and Precautions

1. Installation

1) The fitting with the shaft is H7/h7. Finish the shaft surface roughness to 12.5S or less.
2) Wipe off dirt from the inner peripheral surface of the pulley and the surface of the inner ring and the shaft, and thinly apply machine oil. Perform the same for the head, seating surface, and screw holes of the clamping screws.
   Never use oils or greases containing molybdenum disulfide or extreme-pressure additives.
3) Lightly tighten the clamping screws and temporarily set the inner ring on the pulley.
4) Insert the pulley with BAN-LOCK temporarily set in 3) onto the shaft, lightly tighten the clamping screws, and position the pulley.
5) Tighten the clamping screws gradually using a torque wrench. At first, tighten the clamping screws to approximately one third of the tightening torque MS **(Table 1)** for clamping screws in diagonal order **(Fig. 1)**.
6) Perform the same as 5) with a two-third value of the tightening torque MS and then tighten the clamping screws again to the tightening torque MS.
7) Finally, check that all clamping screws have been tightened to the tightening torque MS one by one. Now the installation is complete.

Fig. 1 Order of tightening of clamping screws

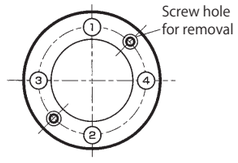


Table 1 Clamping screw tightening torque MS

Clamping screw size	Tightening torque Ms (N•m)
M5	5.8
M6	14
M8	34

*Tightening exceeding the MS value can cause clamping screw breakage, difficulty with pulley removal, and other problems; be particularly careful.
*When you install a pulley on a shaft with a machined keyway, the transmission torque decreases by approximately 10%.

2. Removal

1) Be sure to turn off the power supply and power, and after making sure that rotary objects (pulleys) have stopped, confirm the safety before starting the work, by checking if a torque, a thrust load, etc. is not applied on the pulleys and shafts and checking that there is no danger of falling on their own weights, for example.
2) Gradually loosen the clamping screws in diagonal order. Loosen all clamping screws until there is a gap of approximately 5 mm from the seating surface.
3) When you pull out the same number of clamping screws as the screw holes for removal and tighten the clamping screws into the screw holes for flange removal, the pulley will be unfastened.

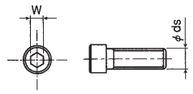
*When a long period of use has caused the taper section to run in tightly and prevents disassembly, lightly hit the heads of the screws and the pulley to apply a shock.

3. Precautions for installation and removal

1) Before installation and removal, be sure to turn off the power and wait until the machine stops completely.
2) Be sure to use a torque wrench to tighten the clamping screws.
   Never use a wrench to which a torque value cannot be set as the tightening torque becomes inaccurate and causes trouble.
   Do not sandwich a pipe or the like with the lever of the torque wrench for tightening as an appropriate tightening torque may not be obtained and it can cause torque wrench breakage.
3) Do not use other clamping screws than those installed in the product. When you need clamping screws because you lost or replace them, please contact us.
4) Although BAN-LOCK (inner ring) can be reused, the inner ring or clamping screws may have deformed or may have been abraded depending on the installation or use conditions. If there is any abnormality, do not reuse it.

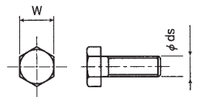
Applicable Torque Wrenches

For hexagon socket head bolts



Clamping screw size		A. For installation at the end of a shaft			B. For installation at the center of a shaft		
ds	W	Torque wrench type	Adjustable torque range (N•m)	Hexagon socket square drive × W	Torque wrench type	Adjustable torque range (N•m)	Hexagon type replacement head
M5	4	N120QLK 120QL-N	4～12 〃	6.35×4	N120LCK 120CL-N	4～12 〃	230HCK-4 4×120HH
M6	5	N230QLK 225QL-N	7～23 5～22.5	9.53×5	N230LCK 225CL-N	7～23 5～22.5	230HCK-5 5×225HH
M8	6	N450QLK 450QL-N	10～45 〃	9.53×6	N450LCK 450CL-N	10～45 〃	450HCK-6 6×450HH

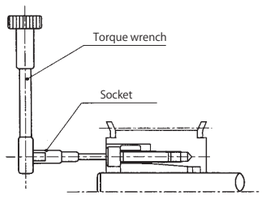
For hexagon head bolts

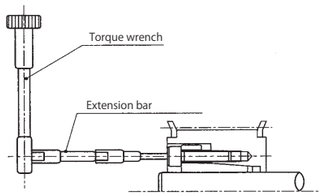


Clamping screw size		A. For installation at the end of a shaft		B. For installation at the center of a shaft	
ds	W	Torque wrench type	Socketsquare drive × W	Torque wrench type	スパナ形交換ヘッド
M5	8	N60QLK 60QL-N	6.35×8	N60LCK 60CL-N	230SCK-8 8×120SH
M6	10	N120QLK 120QL-N	6.35×10	N120LCK 120CL-N	230SCK-10 10×120SH
M8	13	N450QLK 450QL-N	9.53×13	N450LCK 450CL-N	450SCK-13 13×450SH

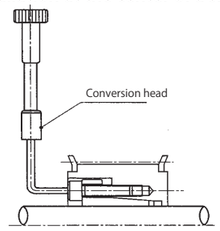
Notes) 1. The torque wrench types indicate products from Nakamura Mfg. Co., Ltd. in the upper row and products from Tohnichi Mfg. Co., Ltd. in the lower row.
2. The hexagon sockets and sockets indicate the sizes of commercially available products.
3. The hexagon type replacement heads and the spanner type replacement heads are products exclusively from the torque wrench manufacturer.

A. For installation at the end of a shaft





B. For installation at the center of a shaft



Precautions for Safe Use of Synchronous Belts and Pulleys

Before using our products, please read Bando Power Transmission Belts Product Design Manual and other necessary documents carefully, pay close attention to the following items, and handle the products properly. The degree of impact of each item on safety is classified as follows.

Symbols and terms	Description
⚠ Danger	When the product is mishandled, it is expected to cause an imminent danger of death or serious injury to the user.
⚠ Warning	When the product is mishandled, it is expected that it may cause death or serious injury to the user.
⚠ Caution	When the product is mishandled, it is expected to cause a danger that causes injury to the user or an occurrence of property damage only.

Application/Purpose of Use

⚠ Warning When static electricity generated by a belt power transmission device is expected to cause a fire or a malfunction of control equipment, provide a static elimination mechanism on the device side.

Functions and Performance

⚠ Caution Do not use belts for other applications or outside the allowable ranges described in the catalog, design data, etc. of the respective belt. It may cause early breakage.

⚠ Caution Adhesion of water, oil, chemicals, paints, or dust particles on a belt or pulley causes a reduced transmission force or early breakage.

⚠ Caution Synchronous belts may emit large noise in high-speed operation.
In that case, install a sound-proofing cover.

Storage and Transport

⚠ Caution When you transport or handle a heavy belt or pulley, use a transporting apparatus or device suitable for the weight. Lifting up with hands may hurt your lower back etc.

Installation and Operation

⚠ Danger Install safety covers for all rotating sections, including belts and pulleys. Hair, gloves, or clothing may be entangled with a belt or pulley. When a belt or a pulley broke, a projecting piece may cause injury.

⚠ Danger When you maintain, inspect, or replace our products, follow the items below.
(1) e sure to turn off the switch and wait until the belts and pulleys stop before performing the work.
(2) Take measures to prevent the switch from being turned on unintentionally during the work.

⚠ Caution When replacing a belt or a pulley, use an equivalent part type to the one that had been used.

⚠ Caution A misaligned pulley causes early breakage of the belt or falling off of a flange. Perform adjustment.

⚠ Caution Loosen the belt tension before replacing a belt. Forcing a belt to climb over a flange or plying the belt in using a screwdriver or the like causes early breakage.

⚠ Caution When replacing our products containing bolts or screws, use an equivalent part type to the one that had been used. A different part type leads to early breakage.

⚠ Caution Using our products beyond specified transmission torques may cause breakage of the product itself or may affect the device; be sure to use our products within the specified transmission torques.

⚠ Caution Using our products with the fastening section slipping causes the product itself to heat up or break, potentially affecting the device; never use our products with the fastening section slipping.

⚠ Caution When abnormal noise or vibration occurred, an abnormality may have occurred with the device or products and may cause the device itself to break if left unaddressed; immediately stop the operation and inspect the device and the product.

Handling of Used Products

⚠ Caution To avoid affecting the environment, please request disposal by a specialized contractor.

S5M0150 (for a belt width of 15 mm) W = 22 mm W1 = 34 mm

Pulley				Shaft diameter d / D1 / L (mm)																	
No. of teeth	dp	do	Fo	Shaft dia. d	14	15	16	17	18	19	20	22	24	25	28	30	32	35	38	40	42	45
				D1	34	35	36	37	38	46	46	46	49	49	54	54	59	59	64	64	74	74
				L	47.5	47.5	47.5	47.5	47.5	52	52	52	52	52	52	52	52	52	52	52	58	58
				Transmission torque (N•m)	69	74	79	84	89	240	260	285	310	325	365	390	415	455	495	520	990	1060
26	41.38	40.42	48	No. of clamping screws (Shaft dia.) ϕ14 to 18 3-M5 (Shaft dia.) ϕ19 to 40 4-M6 (Shaft dia.) ϕ42 to 45 4-M8	◎	◎	◎	◎														
28	44.56	43.60	48		◎	◎	◎	◎	◎													
30	47.75	46.79	55		◎	◎	◎	◎	◎													
32	50.93	49.97	55		◎	◎	◎	◎	◎													
34	54.11	53.15	61		◎	◎	◎	◎	◎													
36	57.30	56.34	61		◎	◎	◎	◎	◎													
40	63.66	62.70	70		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎								
42	66.85	65.89	70		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎						
44	70.03	69.07	77		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				
48	76.39	75.43	83		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
50	79.58	78.62	88		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
60	95.49	94.53	103		◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

◎ : Type BF-S

S5M0200 (for a belt width of 20 mm) W = 28 mm

Pulley				Shaft diameter d / D1 / L (mm)																	
No. of teeth	dp	do	Fo	Shaft dia. d	14	15	16	17	18	19	20	22	24	25	28	30	32	35	38	40	42	45
				D1	34	35	36	37	38	46	46	46	49	49	54	54	59	59	64	64	74	74
				L	41.5	41.5	41.5	41.5	41.5	46	46	46	46	46	46	46	46	46	46	46	52	52
				Transmission torque (N•m)	69	74	79	84	89	240	260	285	310	325	365	390	415	455	495	520	990	1060
26	41.38	40.42	48	No. of clamping screws (Shaft dia.) ϕ14 to 18 3-M5 (Shaft dia.) ϕ19 to 40 4-M6 (Shaft dia.) ϕ42 to 45 4-M8																		
28	44.56	43.60	48																			
30	47.75	46.79	55																			
32	50.93	49.97	55																			
34	54.11	53.15	61																			
36	57.30	56.34	61																			
40	63.66	62.70	70																			
42	66.85	65.89	70																			
44	70.03	69.07	77																			
48	76.39	75.43	83																			
50	79.58	78.62	88																			
60	95.49	94.53	103																			

: Type AF-S

S5M0250 (for a belt width of 25 mm) W = 33 mm

Pulley				Shaft diameter d / D1 / L (mm)																	
No. of teeth	dp	do	Fo	Shaft dia. d	14	15	16	17	18	19	20	22	24	25	28	30	32	35	38	40	42	45
				D1	34	35	36	37	38	46	46	46	49	49	54	54	59	59	64	64	74	74
				L	46.5	46.5	46.5	46.5	46.5	51	51	51	51	51	51	51	51	51	51	51	57	57
				Transmission torque (N•m)	69	74	79	84	89	240	260	285	310	325	365	390	415	455	495	520	990	1060
26	41.38	40.42	48	No. of clamping screws (Shaft dia.) ϕ14 to 18 3-M5 (Shaft dia.) ϕ19 to 40 4-M6 (Shaft dia.) ϕ42 to 45 4-M8																		
28	44.56	43.60	48																			
30	47.75	46.79	55		○	○																
32	50.93	49.97	55		○	○																
34	54.11	53.15	61		○	○	○	○	○													
36	57.30	56.34	61		○	○	○	○	○													
40	63.66	62.70	70		○	○	○	○	○													
42	66.85	65.89	70		○	○	○	○	○													
44	70.03	69.07	77		○	○	○	○	○													
48	76.39	75.43	83		○	○	○	○	○													
50	79.58	78.62	88			○	○	○	○													
60	95.49	94.53	103			○	○	○	○													

: Type AF-S ○ : Types AF-S/AF-F

S8M0150 (for a belt width of 15 mm) W = 23 mm W1 = 24 to 40 teeth - 38 mm 44 to 60 teeth - 46 mm

Pulley				Shaft diameter d / D1 / L (mm)																							
No. of teeth	dp	do	Fo	Shaft dia. d	14	15	16	17	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55	60	65
				D1	34	35	36	37	38	46	46	46	49	49	54	54	59	59	64	64	74	74	79	79	84	89	94
				* L	36.5	36.5	36.5	36.5	36.5	41	41	41	41	41	41	41	41	41	41	47	47	47	47	47	47	47	47
				Transmission torque (N•m)	69	74	79	84	89	240	260	285	310	325	365	390	415	455	495	520	990	1060	1130	1180	1300	1410	1530
19	48.38	47.01	56	No. of clamping screws																							
20	50.93	49.56	59																								
21	53.48	52.10	59																								
22	56.02	54.65	62		○	○	○	○																			
24	61.12	59.74	68	(Shaft dia.) ϕ14 to 18	○	○	○	○	○	◎	◎	◎															
26	66.21	64.84	75		○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎											
28	71.30	69.93	77	3-M5		○	○	○	○	◎	◎	◎	◎	◎	◎	◎											
30	76.39	75.02	83			○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎									
32	81.49	80.12	89	(Shaft dia.) ϕ19 to 40		○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎							
34	86.58	85.21	92			○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎							
36	91.67	90.30	98	4-M6		○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		
40	101.86	100.49	108							◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
44	112.05	110.67	120	(Shaft dia.) ϕ42 to 65								◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
48	122.23	120.86	129									◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
50	127.32	125.95	136	4-M8								◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
60	152.79	151.42	160									◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

: Type AF-S ○ : Types AS-S/AF-F ◎ : Type BF-S *L indicates dimension L of Type BF-S; 24 to 40 teeth: L + 15 mm and 44 to 60 teeth: L + 23 mm.

S8M0250 (for a belt width of 25 mm) W = 34 mm

Pulley				Shaft diameter d / D1 / L (mm)																							
No. of teeth	dp	do	Fo	Shaft dia. d	14	15	16	17	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55	60	65
				D1	34	35	36	37	38	46	46	46	49	49	54	54	59	59	64	64	74	74	79	79	84	89	94
				L	47.5	47.5	47.5	47.5	47.5	52	52	52	52	52	52	52	52	52	52	52	58	58	58	58	58	58	58
				Transmission torque (N•m)	69	74	79	84	89	240	260	285	310	325	365	390	415	455	495	520	990	1060	1130	1180	1300	1410	1530
19	48.38	47.01	56	No. of clamping screws																							
20	50.93	49.56	59																								
21	53.48	52.10	59																								
22	56.02	54.65	62		○	○	○	○																			
24	61.12	59.74	68	(Shaft dia.) ϕ14 to 18	○	○	○	○	○																		
26	66.21	64.84	75			○	○	○	○																		
28	71.30	69.93	77	3-M5		○	○	○	○																		
30	76.39	75.02	83			○	○	○	○																		
32	81.49	80.12	89	(Shaft dia.) ϕ19 to 40		○	○	○	○																		
34	86.58	85.21	92					○	○																		
36	91.67	90.30	98	4-M6				○	○																		
40	101.86	100.49	108																								
44	112.05	110.67	120	(Shaft dia.) ϕ42 to 65																							
48	122.23	120.86	129																								
50	127.32	125.95	136	4-M8																							
60	152.79	151.42	160																								

: Type AF-S ○ : Types AS-S/AF-F

S8M0400 (for a belt width of 40 mm) W = 50 mm

Pulley				Shaft diameter d / D1 / L (mm)																							
No. of teeth	dp	do	Fo	Shaft dia. d	14	15	16	17	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55	60	65
				D1	34	35	36	37	38	46	46	46	49	49	54	54	59	59	64	64	74	74	79	79	84	89	94
				L	63.5	63.5	63.5	63.5	63.5	68	68	68	68	68	68	68	68	68	68	68	74	74	74	74	74	74	74
				Transmission torque (N•m)	69	74	79	84	89	240	260	285	310	325	365	390	415	455	495	520	990	1060	1130	1180	1300	1410	1530
19	48.38	47.01	56	No. of clamping screws																							
20	50.93	49.56	59																								
21	53.48	52.10	59																								
22	56.02	54.65	62			○	○																				
24	61.12	59.74	68	(Shaft dia.) ϕ14 to 18		○	○	○	○																		
26	66.21	64.84	75				○	○	○	○	○	○															
28	71.30	69.93	77	3-M5					○	○	○	○	○	○													
30	76.39	75.02	83								○	○	○	○	○	○											
32	81.49	80.12	89	(Shaft dia.) ϕ19 to 40							○	○	○	○	○	○	○	○									
34	86.58	85.21	92											○	○	○	○	○	○	○							
36	91.67	90.30	98	4-M6										○	○	○	○	○	○	○							
40	101.86	100.49	108											○	○	○	○	○	○	○	○	○					
44	112.05	110.67	120	(Shaft dia.) ϕ42 to 65												○	○	○	○	○	○	○	○	○	○	○	○
48	122.23	120.86	129															○	○	○	○	○	○	○	○	○	○
50	127.32	125.95	136	4-M8														○	○	○	○	○	○	○	○	○	○
60	152.79	151.42	160															○	○	○	○	○	○	○	○	○	○

: Type AF-S ○ : Types AS-S/AF-F

S14M0400 (for a belt width of 40 mm) W = 52 mm

Pulley				Shaft diameter d / D1 / L (mm)													
No. of teeth	dp	do	Fo	Shaft dia. d	28	30	32	35	38	40	42	45	48	50	55	60	65
				D1	54	54	59	59	64	64	74	74	79	79	84	89	94
				L	70	70	70	70	70	70	76	76	76	76	76	76	76
				Transmission torque (N•m)	365	390	415	455	495	520	990	1060	1130	1180	1300	1410	1530
28	124.78	121.98	136	No. of clamping screws	○	○	○	○	○	○	○	○	○	○	○	○	○
30	133.69	130.90	145			○	○	○	○	○	○	○	○	○	○	○	○
32	142.60	139.81	154				○	○	○	○	○	○	○	○	○	○	○
34	151.52	148.72	163	(Shaft dia.) ϕ28 to 40						○	○	○	○	○	○	○	○
36	160.43	157.63	172							○	○	○	○	○	○	○	○
40	178.25	175.46	189	4-M6						○	○	○	○	○	○	○	○
42	187.17	184.37	198							○	○	○	○	○	○	○	○
44	196.08	193.28	207	(Shaft dia.) ϕ42 to 65						○	○	○	○	○	○	○	○
48	213.90	211.11	225							○	○	○	○	○	○	○	○
50	222.82	220.02	234	4-M8						○	○	○	○	○	○	○	○

○ : Types AF-S/AF-F

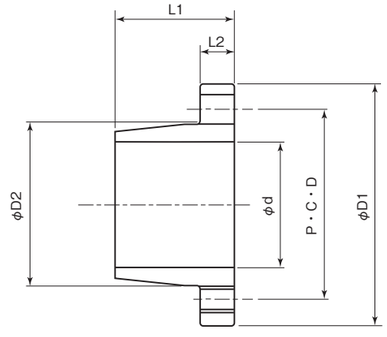
S14M0600 (for a belt width of 60 mm) W = 73 mm

Pulley				Shaft diameter d / D1 / L (mm)										
No. of teeth	dp	do	Fo	Shaft dia. d	35	38	40	42	45	48	50	55	60	65
				D1	59	64	64	74	74	79	79	84	89	94
				L	91	91	91	97	97	97	97	97	97	97
				Transmission torque (N•m)	455	495	520	990	1060	1130	1180	1300	1410	1530
28	124.78	121.98	136	No. of clamping screws	○	○	○	○	○	○	○	○	○	○
30	133.69	130.90	145		○	○	○	○	○	○	○	○	○	○
32	142.60	139.81	154		○	○	○	○	○	○	○	○	○	○
34	151.52	148.72	163	(Shaft dia.) ϕ28 to 40			○	○	○	○	○	○	○	○
36	160.43	157.63	172				○	○	○	○	○	○	○	○
40	178.25	175.46	189	4-M6				○	○	○	○	○	○	○
42	187.17	184.37	198					○	○	○	○	○	○	○
44	196.08	193.28	207	(Shaft dia.) ϕ42 to 65				○	○	○	○	○	○	○
48	213.90	211.11	225					○	○	○	○	○	○	○
50	222.82	220.02	234	4-M8					○	○	○	○	○	○

○ : Types AF-S/AF-F

List of BAN-LOCK (Inner Ring) Specifications

Profile

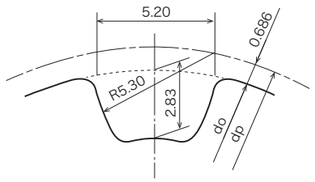


Dimensions						Clamping screw number × Size (mm)	Tightening torque Ms (N•m)	Tightening force Fs (N)	Transmission torque M (N•m)	Surface pressure on the shaft side Ps(MPa)
Shaft dia. d mm	D1 mm	P.C.D mm	D2 mm	L1 mm	L2 mm					
14	34	24	17.8	17	5	3×M5	5.8	6400	69	245
15	35	25	18.8	17	5	3×M5	5.8	6400	74	228
16	36	26	19.8	17	5	3×M5	5.8	6400	79	214
17	37	27	20.8	17	5	3×M5	5.8	6400	84	202
18	38	28	21.8	17	5	3×M5	5.8	6400	89	190
19	46	34.5	27.3	27	8	4×M6	14	12700	240	271
20	46	34.5	27.3	27	8	4×M6	14	12700	260	257
22	46	34.5	27.3	27	8	4×M6	14	12700	285	234
24	49	37.5	30.3	27	8	4×M6	14	12700	310	214
25	49	37.5	30.3	27	8	4×M6	14	12700	325	206
28	54	42.5	35.3	27	8	4×M6	14	12700	365	184
30	54	42.5	35.3	27	8	4×M6	14	12700	390	172
32	59	47.5	40.3	27	8	4×M6	14	12700	415	161
35	59	47.5	40.3	27	8	4×M6	14	12700	455	147
38	64	52.5	45.3	27	8	4×M6	14	12700	495	136
40	64	52.5	45.3	27	8	4×M6	14	12700	520	129
42	74	60	50.8	34	11	4×M8	34	23000	990	185
45	74	60	50.8	34	11	4×M8	34	23000	1060	173
48	79	65	55.8	34	11	4×M8	34	23000	1130	162
50	79	65	55.8	34	11	4×M8	34	23000	1180	156
55	84	70	60.8	34	11	4×M8	34	23000	1300	141
60	89	75	65.8	34	11	4×M8	34	23000	1410	130
65	94	80	70.8	34	11	4×M8	34	23000	1530	120

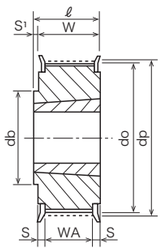
● The transmission torques are the maximum values.

Table of TL STS Pulley Standard Dimensions (Bushing Type)
Type S8M

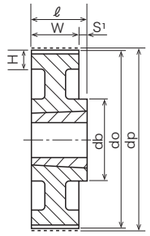
(Pulley Tooth Profile Dimensions)



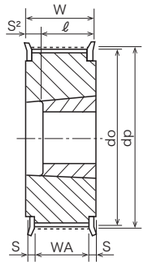
(Pulley Profile) Type 1-1BF



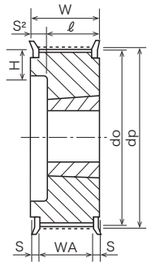
Type 1-2



Type 4-1BF



Type 4-1CF



(Pulley Designation)

(Example) 32 S8M 0250

- 32: No. of teeth of pulley (32 teeth)
- S8M: Pulley tooth profile (S8M)
- 0250: Pulley nominal width (For a belt width of 25 mm)

(Bushing Designation)

(Example) 5035 × 28 N

- 5035: TL bushing type number
- 28: Shaft hole dia. (28 mm)
- N: Keyway for new JIS keys (Previous JIS keys: F)

S8M0150 (For a belt width of 15 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S_1	S_2	S_3	H	Roughly calculated pulley mass (kg)	Flange part No.
28	71.30	69.93	1-1BF	Carbon steel for machine construction	4225	28	23	17	3	47	25	2				0.45	FS 7753
30	76.39	75.02	1-1BF		4225	28	23	17	3	57	25	2				0.57	FS 8363
32	81.49	80.12	1-1BF		4225	28	23	17	3	60	25	2				0.69	FS 8969
34	86.59	85.21	1-1BF		4225	28	23	17	3	60	25	2				0.79	FS 9272
36	91.67	90.30	1-1BF		5035	32	23	17	3	70	35	12				0.99	FS 9878
40	101.86	100.49	1-1BF		5035	32	23	17	3	75	35	12				1.3	FS 10887
44	112.05	110.67	1-1BF		5035	32	23	17	3	80	35	12				1.7	FS120100
48	122.23	120.86	1-1BF	Cast iron or carbon steel for machine construction	5035	32	23	17	3	80	35	12				2.1	FS129108
50	127.32	125.95	1-1BF		5035	32	23	17	3	80	35	12				2.4	FS136116
60	152.79	151.42	1-1BF		5035	32	23	17	3	80	35	12				3.4	FS160140
72	183.35	181.97	1-2		6340	42	23			100	40	17			15	4.9	
84	213.90	212.53	1-2		6340	42	23			100	40	17			15	5.1	
96	244.46	243.09	1-2		6340	42	23			100	40	17			15	5.8	
120	305.58	304.21	1-2		8545	60	23			140	45	22			15	9.4	
156	397.25	395.88	1-2		8545	60	23			140	45	22			15	13.7	

S8M0250 (For a belt width of 25 mm)

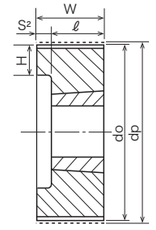
: Standard stock **The other sizes are made to order.**

(Unit: mm)

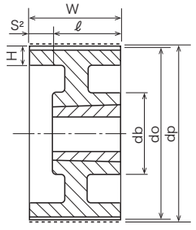
No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S_1	S_2	S_3	H	Roughly calculated pulley mass (kg)	Flange part No.
32	81.49	80.12	1-1BF	Carbon steel for machine construction	5035	32	34	28	3	63	35	1				0.83	FS 8969
34	86.59	85.21	1-1BF		5035	32	34	28	3	63	35	1				0.99	FS 9272
36	91.67	90.30	1-1BF		5035	32	34	28	3	63	35	1				1.2	FS 9878
40	101.86	100.49	1-1BF		6340	42	34	28	3	80	40	6				1.4	FS 10887
44	112.05	110.67	1-1BF		6340	42	34	28	3	80	40	6				1.9	FS120100
48	122.23	120.86	1-1BF	Cast iron or carbon steel for machine construction	6340	42	34	28	3	90	40	6				2.4	FS129108
50	127.32	125.95	1-1BF		6340	42	34	28	3	90	40	6				2.7	FS136116
60	152.79	151.42	1-1BF		6340	42	34	28	3	90	40	6				4.2	FS160140
72	183.35	181.97	1-2		6340	42	34			100	40	6			15	6.3	
84	213.90	212.53	1-2		8545	60	34			140	45	11			15	8.6	
96	244.46	243.09	1-2		8545	60	34			140	45	11			15	8.6	
120	305.58	304.21	1-2		8545	60	34			140	45	11			16	11.0	
156	397.25	395.88	1-2		8545	60	34			140	45	11			16	15.6	

Table of TL STS Pulley Standard Dimensions (Bushing Type)
Type S8M

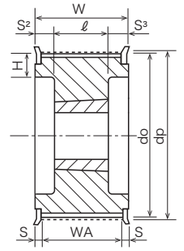
(Pulley Profile) Type 4-1C



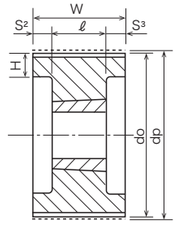
Type 4-2B



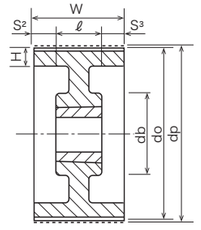
Type 5-1F



Type 5-1



Type 5-2



S8M0400 (For a belt width of 40 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S_1	S_2	S_3	H	Roughly calculated pulley mass (kg)	Flange part No.
36	91.67	90.30	4-1BF	Carbon steel for machine construction	6340	42	50	44	3		40		10			1.3	FS 9878
40	101.86	100.49	4-1BF		6340	42	50	44	3		40		10			1.9	FS 10887
44	112.05	110.67	4-1BF		6340	42	50	44	3		40		10			2.5	FS120100
48	122.23	120.86	4-1BF		8545	60	50	44	3		45		5			2.3	FS129108
50	127.32	125.95	4-1BF		8545	60	50	44	3		45		5			2.7	FS136116
60	152.79	151.42	4-1CF	Cast iron or carbon steel for machine construction	8545	60	50	44	3		45		5		15	4.9	FS160140
72	183.35	181.97	4-1C		8545	60	50				45		5		15	7.2	
84	213.90	212.53	4-2B		8545	60	50			125	45		5		15	10.4	
96	244.46	243.09	4-2B		8545	60	50			140	45		5		15	11.2	
120	305.58	304.21	4-2B		8545	60	50			140	45		5		16	13.5	
156	397.25	395.88	1-2		11055	75	50			180	55	5			16	21	

S8M0600 (For a belt width of 60 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

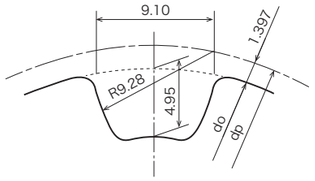
No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S_1	S_2	S_3	H	Roughly calculated pulley mass (kg)	Flange part No.
48	122.23	120.86	4-1BF	*	8545	60	71	65	3		45		26			3.2	FS129108
50	127.32	125.95	4-1BF		8545	60	71	65	3		45		26			3.7	FS136116
60	152.79	151.42	5-1F	Cast iron or carbon steel for machine construction	8545	60	71	65	3		45		15	11	16	6.1	FS160140
72	183.35	181.97	5-1		8545	60	71				45		15	11	16	8.8	
84	213.90	212.53	5-2		8545	60	71			125	45		15	11	16	12.3	
96	244.46	243.09	5-2		11055	75	71			160	55		5	11	16	16.7	
120	305.58	304.21	5-2		11055	75	71			180	55		5	11	16	19.8	
156	397.25	395.88	5-2		11055	75	71			180	55		5	11	16	25	

* Carbon steel for machine construction

Table of TL STS Pulley Standard Dimensions (Bushing Type)

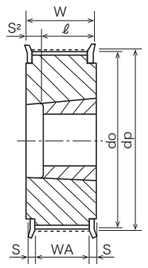
Type S14M

(Pulley Tooth Profile Dimensions)

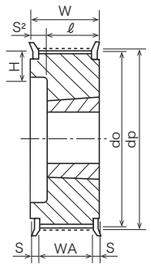


(Pulley Profile)

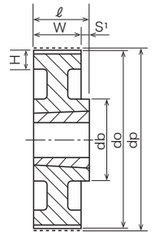
Type 4-1BF



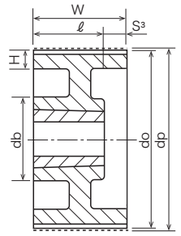
Type 4-1CF



Type 1-2



Type 4-2A



(Pulley Designation)

(Example) 40 S14M 1200

- 40: No. of teeth of pulley (40 teeth)
- S14M: Pulley tooth profile (S14M)
- 1200: Pulley nominal width (For a belt width of 120 mm)

(Bushing Designation)

(Example) 1108 × 75 N

- 1108: TL bushing type number
- 75: Shaft hole dia. (75 mm)
- N: Keyway for new JIS keys (Previous JIS keys: F)

S14M0400 (For a belt width of 40 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S1	S2	S3	H	Roughly calculated pulley mass (kg)	Flange part No.
28	124.78	121.98	4-1BF	Carbon steel for machine construction	8545	60	52	46	3		45		7			2.3	FS136106
30	133.69	130.90	4-1BF		8545	60	52	46	3		45		7			3.0	FS145115
32	142.60	139.81	4-1BF		8545	60	52	46	3		45		7			3.8	FS154124
34	151.52	148.72	4-1BF		8545	60	52	46	3		45		7			4.6	FS163133
36	160.43	157.63	4-1BF		8545	60	52	46	3		45		7			5.4	FS172142
40	178.25	175.46	5-1F	Cast iron or carbon steel for machine construction	8545	60	52	46	3		45		5	2	18	7.5	FS189159
42	187.17	184.37	5-1F		8545	60	52	46	3		45		5	2	18	8.5	FS198168
44	196.08	193.28	5-1F		8545	60	52	46	3		45		5	2	18	9.6	FS207177
48	213.90	211.11	5-2F		8545	60	52	46	3	125	45		5	2	18	11.9	FS225195
50	222.82	220.02	5-2F		8545	60	52	46	3	125	45		5	2	18	10.4	FS234204
60	267.38	264.59	5-2		8545	60	52			140	45		5	2	18	12.2	
72	320.86	318.06	1-2		11055	75	52			180	55	3			18	18.1	
84	374.33	371.54	1-2		11055	75	52			180	55	3			18	21	
96	427.81	425.01	1-2		11055	75	52			180	55	3			18	24	
120	534.76	531.97	6		11080	75	52			180	80	14			18	37	
156	695.19	692.39	6		13090	90	52			212	90	19			18	58	

S14M0600 (For a belt width of 60 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

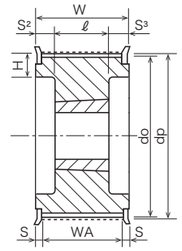
No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S1	S2	S3	H	Roughly calculated pulley mass (kg)	Flange part No.
28	124.78	121.98	4-1CF	Carbon steel for machine construction	8545	60	73	67	3		45		28		18	3.2	FS136106
30	133.69	130.90	4-1CF		8545	60	73	67	3		45		28		18	4.2	FS145115
32	142.60	139.81	4-1CF		8545	60	73	67	3		45		28		18	5.2	FS154124
34	151.52	148.72	5-1F		8545	60	73	67	3		45		20	8	18	5.5	FS163133
36	160.43	157.63	5-1F		8545	60	73	67	3		45		20	8	18	6.3	FS172142
40	178.25	175.46	5-1F		8545	60	73	67	3		45		20	8	18	8.1	FS189159
42	187.17	184.37	5-1F	Cast iron or carbon steel for machine construction	11055	75	73	67	3		55		10	8	18	9.0	FS198168
44	196.08	193.28	5-1F		11055	75	73	67	3		55		10	8	18	9.8	FS207177
48	213.90	211.11	5-1F		11055	75	73	67	3		55		10	8	18	12.3	FS225195
50	222.82	220.02	5-1F		11055	75	73	67	3		55		10	8	18	13.6	FS234204
60	267.38	264.59	5-2		11055	75	73			180	55		10	8	18	20	
72	320.86	318.06	5-2		11055	75	73			180	55		10	8	18	22	
84	374.33	371.54	1-2		11080	75	73			180	80	7			18	29	
96	427.81	425.01	1-2		11080	75	73			180	80	7			18	34	
120	534.76	531.97	1-2		13090	90	73			212	90	17			20	49	
156	695.19	692.39	1-2		13090	90	73			212	90	17			20	71	

Table of TL STS Pulley Standard Dimensions (Bushing Type)

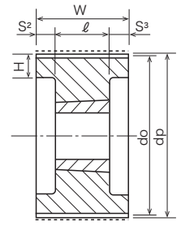
Type S14M

(Pulley Profile)

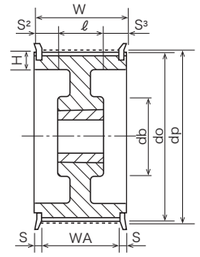
Type 5-1F



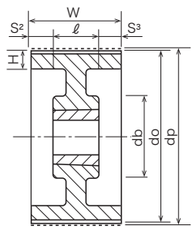
Type 5-1



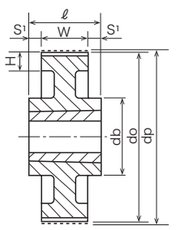
Type 5-2F



Type 5-2



Type 6



S14M0800 (For a belt width of 80 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S1	S2	S3	H	Roughly calculated pulley mass (kg)	Flange part No.
36	160.43	157.63	4-1BF	*	11055	75	94	88	3		55		39			6.8	FS172142
40	178.25	175.46	4-1BF		11055	75	94	88	3		55		39			10.1	FS189159
42	187.17	184.37	5-1F	Cast iron or carbon steel for machine construction	11055	75	94	88	3		55		25	14	20	11.1	FS198168
44	196.08	193.28	5-1F		11055	75	94	88	3		55		25	14	20	11.4	FS207177
48	213.90	211.11	5-1F		11055	75	94	88	3		55		25	14	20	14.1	FS225195
50	222.82	220.02	5-1F		11055	75	94	88	3		55		25	14	20	15.5	FS234204
60	267.38	264.59	5-2		11080	75	94			160	80		10	4	20	25	
72	320.86	318.06	5-2		11080	75	94			180	80		10	4	20	29	
84	374.33	371.54	4-2A		13090	90	94			212	90			4	20	39	
96	427.81	425.01	4-2A		13090	90	94			212	90			4	20	44	
120	534.76	531.97	4-2A		13090	90	94			212	90			4	20	56	
156	695.19	692.39	4-2A		14090	100	94			236	90			4	20	85	

S14M1000 (For a belt width of 100 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S1	S2	S3	H	Roughly calculated pulley mass (kg)	Flange part No.
36	160.43	157.63	4-1BF	*	11080	75	115	109	3		80		35			8.7	FS172142
40	178.25	175.46	5-1F		11080	75	115	109	3		80		25	10	20	12.3	FS189159
42	187.17	184.37	5-1F	Cast iron or carbon steel for machine construction	11080	75	115	109	3		80		25	10	20	14.4	FS198168
44	196.08	193.28	5-1F		11080	75	115	109	3		80		20	15	20	14.8	FS207177
48	213.90	211.11	5-1F		11080	75	115	109	3		80		20	15	20	18.5	FS225195
50	222.82	220.02	5-1F		11080	75	115	109	3		80		20	15	20	20	FS234204
60	267.38	264.59	5-1		13090	90	115				90		10	15	20	30	
72	320.86	318.06	5-2		13090	90	115			200	90		10	15	20	38	
84	374.33	371.54	5-2		13090	90	115			212	90		10	15	20	43	
96	427.81	425.01	5-2		14090	100	115			236	90		10	15	20	54	
120	534.76	531.97	5-2		14090	100	115			236	90		10	15	20	68	
156	695.19	692.39	4-2A		160110	110	115			265	110			5	20	102	

S14M1200 (For a belt width of 120 mm)

Made-to-order

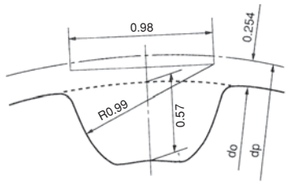
(Unit: mm)

No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S1	S2	S3	H	Roughly calculated pulley mass (kg)	Flange part No.
40	178.25	175.46	5-1F	*	11080	75	136	130	3		80		40	16	20	12.6	FS189159
42	187.17	184.37	5-1F		11080	75	136	130	3		80		40	16	20	14.3	FS198168
44	196.08	193.28	5-1F	Cast iron or carbon steel for machine construction	11080	75	136	130	3		80		40	16	20	16.6	FS207177
48	213.90	211.11	5-1F		11080	75	136	130	3		80		40	16	20	20	FS225195
50	222.82	220.02	5-1F		11080	75	136	130	3		80		40	16	20	22	FS234204
60	267.38	264.59	5-1		13090	90	136				90		30	16	20	33	
72	320.86	318.06	5-2		13090	90	136			200	90		30	16	20	50	
84	374.33	371.54	5-2		14090	100	136			236	90		30	16	20	52	
96	427.81	425.01	5-2		14090	100	136			236	90		30	16	20	61	
120	534.76	531.97	5-2		160110	110	136			265	110		10	16	20	87	
156	695.19	692.39	5-2		160110	110	136			265	110		10	16	20	117	

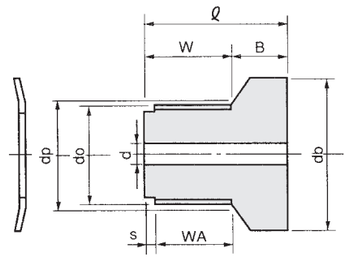
* Carbon steel for machine construction

Table of STS Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type S1.5M

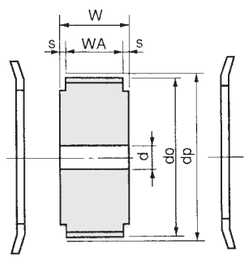
(Pulley Tooth Profile Dimensions)



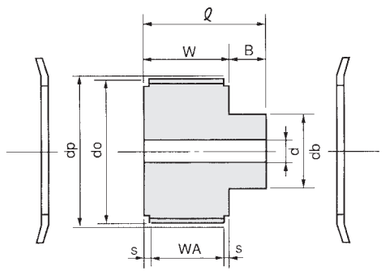
(Pulley Profile) Type SF



Type AF



Type BF



(Pulley Designation)

(Example) 24 S1.5M 0040 AF

- 24: No. of teeth of pulley (24 teeth)
- S1.5M: Pulley tooth profile (Type S1.5M)
- 0040: Pulley nominal width (For a belt width of 4.0 mm)
- AF: Pulley profile (Type AF)

For the flange installation procedure, refer to **P. 135 and P. 190**.

S1.5M0040 (For a belt width of 4 mm)

Made-to-order

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W		ℓ	WA	S	B	db	d			Roughly calculated pulley mass (g)		Flange part No.
												MAX		MIN			
					SF	AF,BF						AF	SF,BF	AF,SF,BF	AF	SF,BF	
16	SF,AF	High-strength aluminum alloy	7.64	7.13	8	10	15	6	2	7	11	3	3	3	1	3	FM1105
18	SF,AF		8.59	8.09	8	10	15	6	2	7	13	4	4	3	1	3	FM1306
20	SF,AF		9.55	9.04	8	10	15	6	2	7	13	4	4	3	2	4	FM1306
22	SF,AF		10.50	10.00	8	10	15	6	2	7	14	5	5	3	2	5	FM1407
24	SF,AF		11.46	10.95	8	10	15	6	2	7	14	5	5	3	2	5	FM1407
26	SF,AF		12.41	11.91	8	10	15	6	2	7	16	7	7	3	3	6	FM1609
28	SF,AF		13.37	12.86	8	10	15	6	2	7	17	7	7	3	3	7	FM1710
30	SF,AF		14.32	13.82	8	10	15	6	2	7	17	7	7	3	4	8	FM1710
32	SF,AF		15.28	14.77	8	10	17	6	2	7	18	8	8	4	4	8	FM1811
34	BF,AF		16.23	15.73	-	10	17	6	2	7	11	10	6	4	5	7	FM2013
36	BF,AF		17.19	16.68	-	10	17	6	2	7	11	10	6	4	6	7	FM2113
40	BF,AF		19.10	18.59	-	10	17	6	2	7	13	12	6	4	7	10	FM2215
44	BF,AF		21.01	20.50	-	10	17	6	2	7	14	13	8	4	9	12	FM2516
48	BF,AF		22.92	22.41	-	10	17	6	2	7	17	16	11	4	11	15	FM2919
50	BF,AF		23.87	23.37	-	10	17	6	2	7	17	16	11	5	11	16	FM2919
60	BF,AF		28.65	28.14	-	10	17	6	0	7	22	21	16	5	17	24	FM3424

- We manufacture rod-shaped pulleys with a length of 100 mm if requested.
- We manufacture Type S1.5M with 14 teeth at the minimum if requested.

Table of STS Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type S1.5M

S1.5M0060 (For a belt width of 6 mm)

Made-to-order

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W		ℓ	WA	S	B	db	d			Roughly calculated pulley mass (g)		Flange part No.
												MAX		MIN			
					SF	AF,BF						AF	SF,BF	AF,SF,BF	AF	SF,BF	
16	SF,AF	High-strength aluminum alloy	7.64	7.13	10	12	17	8	2	7	11	3	3	3	1	3	FM1105
18	SF,AF		8.59	8.09	10	12	17	8	2	7	13	4	4	3	2	4	FM1306
20	SF,AF		9.55	9.04	10	12	17	8	2	7	13	4	4	3	2	4	FM1306
22	SF,AF		10.50	10.00	10	12	17	8	2	7	14	5	5	3	2	5	FM1407
24	SF,AF		11.46	10.95	10	12	17	8	2	7	14	5	5	3	3	5	FM1407
26	SF,AF		12.41	11.91	10	12	17	8	2	7	16	7	7	3	4	7	FM1609
28	SF,AF		13.37	12.86	10	12	17	8	2	7	17	7	7	3	4	8	FM1710
30	SF,AF		14.32	13.82	10	12	17	8	2	7	17	7	7	4	5	8	FM1710
32	SF,AF		15.28	14.77	10	12	17	8	2	7	18	8	8	4	5	9	FM1811
34	BF,AF		16.23	15.73	-	12	19	8	2	7	11	10	6	4	6	8	FM2013
36	BF,AF		17.19	16.68	-	12	19	8	2	7	11	10	6	4	7	9	FM2113
40	BF,AF		19.10	18.59	-	12	19	8	2	7	13	12	6	4	9	11	FM2215
44	BF,AF		21.01	20.50	-	12	19	8	2	7	14	13	8	4	11	13	FM2516
48	BF,AF		22.92	22.41	-	12	19	8	2	7	17	16	11	4	13	17	FM2919
50	BF,AF		23.87	23.37	-	12	19	8	2	7	17	16	11	5	14	18	FM2919
60	BF,AF		28.65	28.14	-	12	19	8	2	7	22	21	16	5	20	27	FM3424

- We manufacture rod-shaped pulleys with a length of 100 mm if requested.
- We manufacture Type S1.5M with 14 teeth at the minimum if requested.

S1.5M0100 (For a belt width of 10 mm)

Made-to-order

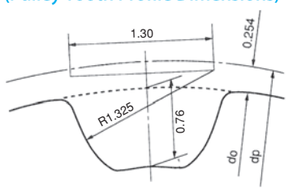
(Unit: mm)

No. of teeth	Profile	Material	dp	do	W		ℓ	WA	S	B	db	d			Roughly calculated pulley mass (g)		Flange part No.
												MAX		MIN			
					SF	AF,BF						AF	SF,BF	AF,SF,BF	AF	SF,BF	
16	SF,AF	High-strength aluminum alloy	7.64	7.13	14	16	21	12	2	7	11	3	3	3	2	3	FM1105
18	SF,AF		8.59	8.09	14	16	21	12	2	7	13	4	4	3	2	4	FM1306
20	SF,AF		9.55	9.04	14	16	21	12	2	7	13	4	4	3	3	5	FM1306
22	SF,AF		10.50	10.00	14	16	21	12	2	7	14	5	5	3	3	6	FM1407
24	SF,AF		11.46	10.95	14	16	21	12	2	7	14	5	5	3	4	6	FM1407
26	SF,AF		12.41	11.91	14	16	21	12	2	7	16	7	7	3	5	8	FM1609
28	SF,AF		13.37	12.86	14	16	21	12	2	7	17	7	7	3	6	9	FM1710
30	SF,AF		14.32	13.82	14	16	21	12	2	7	17	7	7	4	6	10	FM1710
32	SF,AF		15.28	14.77	14	16	21	12	2	7	18	8	8	4	7	11	FM1811
34	BF,AF		16.23	15.73	-	16	23	12	2	7	11	10	6	4	8	10	FM2013
36	BF,AF		17.19	16.68	-	16	23	12	2	7	11	10	6	4	9	11	FM2113
40	BF,AF		19.10	18.59	-	16	23	12	2	7	13	12	6	4	12	14	FM2215
44	BF,AF		21.01	20.50	-	16	23	12	2	7	14	13	8	4	14	17	FM2516
48	BF,AF		22.92	22.41	-	16	23	12	2	7	17	16	11	4	17	21	FM2919
50	BF,AF		23.87	23.37	-	16	23	12	2	7	17	16	11	5	18	22	FM2919
60	BF,AF		28.65	28.14	-	16	23	12	2	7	22	21	16	5	27	34	FM3424

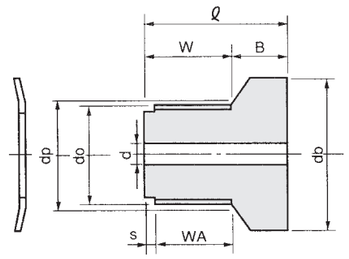
- We manufacture rod-shaped pulleys with a length of 100 mm if requested.
- We manufacture Type S1.5M with 14 teeth at the minimum if requested.

Table of STS Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type S2M

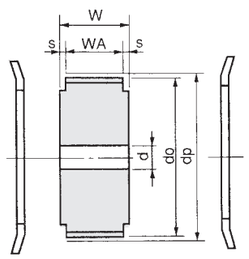
(Pulley Tooth Profile Dimensions)



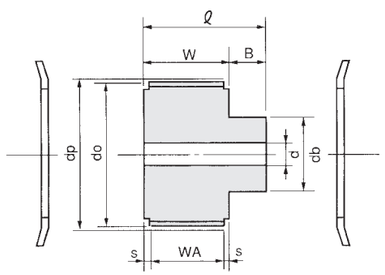
(Pulley Profile) Type SF



Type AF



Type BF



(Pulley Designation)

(Example) 24 S2M 0040 BF

- 24: No. of teeth of pulley (24 teeth)
- S2M: Pulley tooth profile (Type S2M)
- 0040: Pulley nominal width (For a belt width of 4.0 mm)
- BF: Pulley profile (Type BF)

For the flange installation procedure, refer to **P. 135 and P. 190**.

S2M0040 (For a belt width of 4 mm)

Made-to-order

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W		ℓ	WA	S	B	db	d			Roughly calculated pulley mass (g)		Flange part No.
												MAX		MIN			
					SF	AF,BF						AF	SF,BF	AF,SF,BF	AF	SF,BF	
14	SF,AF	High-strength aluminum alloy	8.91	8.40	8	10	15	6	2	7	13	4	4	3	1	3	FM1306
15	SF,AF		9.55	9.04	8	10	15	6	2	7	13	4	4	3	1	3	FM1306
16	SF,AF		10.19	9.68	8	10	15	6	2	7	14	5	5	3	2	4	FM1407
18	SF,AF		11.46	10.95	8	10	15	6	2	7	14	5	5	3	2	4	FM1407
20	SF,AF		12.73	12.22	8	10	15	6	2	7	16	7	6	3	3	6	FM1609
22	SF,AF		14.01	13.50	8	10	15	6	2	7	17	8	6	4	3	7	FM1710
24	SF,AF		15.28	14.77	8	10	15	6	2	7	19	9	6	4	4	8	FM1912
26	BF,AF		16.55	16.04	-	10	17	6	2	7	11	10	6	4	5	6	FM2013
28	BF,AF		17.83	17.32	-	10	17	6	2	7	11	11	6	5	5	7	FM2113
30	BF,AF		19.10	18.59	-	10	17	6	2	7	13	12	7	5	6	8	FM2215
32	BF,AF		20.37	19.86	-	10	17	6	2	7	14	14	8	5	7	10	FM2516
34	BF,AF		21.65	21.14	-	10	17	6	2	7	14	14	8	5	8	11	FM2516
36	BF,AF		22.92	22.41	-	10	17	6	2	7	17	16	10	5	9	13	FM2919
40	BF,AF		25.46	24.96	-	10	17	6	2	7	19	18	10	5	12	17	FM3121
44	BF,AF		28.01	27.50	-	10	17	6	2	7	20	20	10	5	15	20	FM3222
48	BF,AF		30.56	30.05	-	10	17	6	2	7	24	24	10	5	18	26	FM3626
50	BF,AF		31.83	31.32	-	10	17	6	2	7	25	25	12	5	19	28	FM3727
60	BF,AF		38.20	37.69	-	10	17	6	2	7	26	25	12	5	29	38	FM4328

- We manufacture rod-shaped pulleys with a length of 100 mm if requested.
- We manufacture Type S2M with 10 teeth at the minimum if requested.

STS Pulleys
Pulley Data

Table of STS Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type S2M

S2M0060 (For a belt width of 6 mm)

Made-to-order

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W		ℓ	WA	S	B	db	d			Roughly calculated pulley mass (g)		Flange part No.
												MAX		MIN			
					SF	AF,BF						AF	SF,BF	AF,SF,BF	AF	SF,BF	
14	SF,AF	High-strength aluminum alloy	8.91	8.40	10	12	17	8	2	7	13	4	4	3	1	3	FM1306
15	SF,AF		9.55	9.04	10	12	17	8	2	7	13	4	4	3	2	4	FM1306
16	SF,AF		10.19	9.68	10	12	17	8	2	7	14	5	5	3	2	4	FM1407
18	SF,AF		11.46	10.95	10	12	17	8	2	7	14	5	5	3	2	5	FM1407
20	SF,AF		12.73	12.22	10	12	17	8	2	7	16	7	6	3	3	6	FM1609
22	SF,AF		14.01	13.50	10	12	17	8	2	7	17	8	6	4	4	7	FM1710
24	SF,AF		15.28	14.77	10	12	17	8	2	7	19	9	6	4	5	9	FM1912
26	BF,AF		16.55	16.04	-	12	19	8	2	7	11	10	6	4	6	7	FM2013
28	BF,AF		17.83	17.32	-	12	19	8	2	7	11	11	6	5	6	8	FM2113
30	BF,AF		19.10	18.59	-	12	19	8	2	7	13	12	7	5	8	10	FM2215
32	BF,AF		20.37	19.86	-	12	19	8	2	7	14	14	8	5	9	11	FM2516
34	BF,AF		21.65	21.14	-	12	19	8	2	7	14	14	8	5	10	13	FM2516
36	BF,AF		22.92	22.41	-	12	19	8	2	7	17	16	10	5	11	15	FM2919
40	BF,AF		25.46	24.96	-	12	19	8	2	7	19	18	10	5	14	19	FM3121
44	BF,AF		28.01	27.50	-	12	19	8	2	7	20	20	10	5	18	23	FM3222
48	BF,AF		30.56	30.05	-	12	19	8	2	7	24	24	10	5	21	30	FM3626
50	BF,AF		31.83	31.32	-	12	19	8	2	7	25	25	12	5	23	32	FM3727
60	BF,AF		38.20	37.69	-	12	19	8	2	7	26	25	12	5	34	44	FM4328

S2M0100 (For a belt width of 10 mm)

Made-to-order

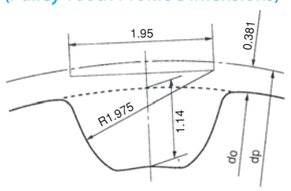
(Unit: mm)

No. of teeth	Profile	Material	dp	do	W		ℓ	WA	S	B	db	d			Roughly calculated pulley mass (g)		Flange part No.
												MAX		MIN			
					SF	AF,BF						AF	SF,BF	AF,SF,BF	AF	SF,BF	
14	SF,AF	High-strength aluminum alloy	8.91	8.40	14	16	21	12	2	7	13	4	4	3	2	4	FM1306
15	SF,AF		9.55	9.04	14	16	21	12	2	7	13	4	4	3	2	4	FM1306
16	SF,AF		10.19	9.68	14	16	21	12	2	7	14	5	5	3	2	5	FM1407
18	SF,AF		11.46	10.95	14	16	21	12	2	7	14	5	5	3	3	6	FM1407
20	SF,AF		12.73	12.22	14	16	21	12	2	7	16	7	6	3	4	7	FM1609
22	SF,AF		14.01	13.50	14	16	21	12	2	7	17	8	6	4	5	8	FM1710
24	SF,AF		15.28	14.77	14	16	21	12	2	7	19	9	6	4	6	10	FM1912
26	BF,AF		16.55	16.04	-	16	23	12	2	7	11	10	6	4	7	9	FM2013
28	BF,AF		17.83	17.32	-	16	23	12	2	7	11	11	6	5	9	10	FM2113
30	BF,AF		19.10	18.59	-	16	23	12	2	7	13	12	7	5	10	12	FM2215
32	BF,AF		20.37	19.86	-	16	23	12	2	7	14	14	8	5	12	14	FM2516
34	BF,AF		21.65	21.14	-	16	23	12	2	7	14	14	8	5	13	16	FM2516
36	BF,AF		22.92	22.41	-	16	23	12	2	7	17	16	10	5	15	19	FM2919
40	BF,AF		25.46	24.96	-	16	23	12	2	7	19	18	10	5	19	24	FM3121
44	BF,AF		28.01	27.50	-	16	23	12	2	7	20	20	10	5	24	29	FM3222
48	BF,AF		30.56	30.05	-	16	23	12	2	7	24	24	10	5	28	37	FM3626
50	BF,AF		31.83	31.32	-	16	23	12	2	7	25	25	12	5	31	40	FM3727
60	BF,AF		38.20	37.69	-	16	23	12	2	7	26	25	12	5	46	55	FM4328

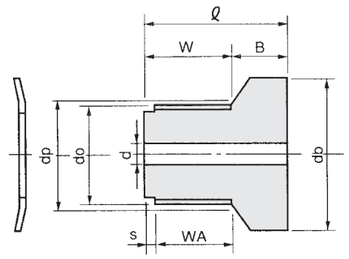
- We manufacture rod-shaped pulleys with a length of 100 mm if requested.
- We manufacture Type S2M with 10 teeth at the minimum if requested.

Table of STS Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type S3M

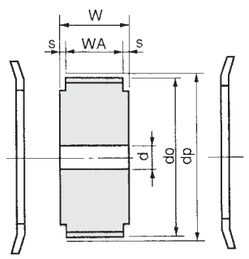
(Pulley Tooth Profile Dimensions)



(Pulley Profile) Type SF



Type AF



(Pulley Designation)

(Example) 36 S3M 0150 BF

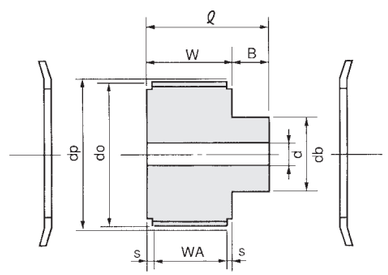
- 36: No. of teeth of pulley (36 teeth)
- S3M: Pulley tooth profile (Type S3M)
- 0150: Pulley nominal width (For a belt width of 15 mm)
- BF: Pulley profile (Type BF)

(Pulley Designation)

(Example) 36 S3M 0150 BF

- 36: No. of teeth of pulley (36 teeth)
- S3M: Pulley tooth profile (Type S3M)
- 0150: Pulley nominal width (For a belt width of 15 mm)
- BF: Pulley profile (Type BF)

Type BF



For the flange installation procedure, refer to **P. 135 and P. 190**.

S3M0060 (For a belt width of 6 mm)

Made-to-order

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W		ℓ	WA	S	B	db	d			Roughly calculated pulley mass (g)		Flange part No.
												MAX		MIN			
					SF	AF,BF						AF	SF,BF	AF,SF,BF	AF	SF,BF	
14	SF,AF	High-strength aluminum alloy	13.37	12.61	10	12	18	8	2	8	16	7	6	4	3	7	FM1609
15	SF,AF		14.32	13.56	10	12	18	8	2	8	17	8	6	4	4	8	FM1710
16	SF,AF		15.28	14.52	10	12	18	8	2	8	19	10	6	4	4	9	FM1912
18	BF,AF		17.19	16.43	-	12	20	8	2	8	11	10	6	4	6	7	FM2113
20	BF,AF		19.10	18.34	-	12	20	8	2	8	13	10	6	4	7	10	FM2215
22	BF,AF		21.01	20.25	-	12	20	8	2	8	14	12	8	4	9	12	FM2516
24	BF,AF		22.92	22.16	-	12	20	8	2	8	17	15	10	4	11	16	FM2919
26	BF,AF		24.83	24.07	-	12	20	8	2	8	17	15	10	6	13	17	FM2919
28	BF,AF		26.74	25.98	-	12	20	8	2	8	19	17	10	6	15	20	FM3121
30	BF,AF		28.65	27.89	-	12	20	8	2	8	22	20	10	6	17	25	FM3424
32	BF,AF		30.56	29.80	-	12	20	8	2	8	24	22	10	6	20	29	FM3626
34	BF,AF		32.47	31.71	-	12	20	8	2	8	25	23	12	6	23	33	FM3727
36	BF,AF		34.38	33.62	-	12	20	8	2	8	26	26	12	6	26	37	FM4030
40	BF,AF		38.20	37.44	-	12	20	8	2	8	26	26	12	8	32	43	FM4328
44	BF,AF		42.02	41.25	-	12	20	8	2	8	32	30	15	8	40	56	FM4734
48	BF,AF		45.84	45.07	-	12	20	8	2	8	34	32	15	8	48	67	FM5136
50	BF,AF		47.75	46.98	-	12	20	8	2	8	39	38	15	8	52	77	FM5442
60	BF,AF		57.30	56.53	-	12	20	8	2	8	39	38	16	8	77	102	FM6141

- We manufacture rod-shaped pulleys with a length of 100 mm if requested.
- We manufacture Type S3M with 10 teeth at the minimum if requested.

Table of STS Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type S3M

S3M0100 (For a belt width of 10 mm)

Made-to-order

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W		ℓ	WA	S	B	db	d			Roughly calculated pulley mass (g)		Flange part No.
												MAX		MIN			
					SF	AF,BF						AF	SF,BF	AF,SF,BF	AF	SF,BF	
14	SF,AF	High-strength aluminum alloy	13.37	12.61	14	16	22	12	2	8	16	7	6	4	4	8	FM1609
15	SF,AF		14.32	13.56	14	16	22	12	2	8	17	8	6	4	5	9	FM1710
16	SF,AF		15.28	14.52	14	16	22	12	2	8	19	10	6	4	6	11	FM1912
18	BF,AF		17.19	16.43	-	16	24	12	2	8	11	10	6	4	7	9	FM2113
20	BF,AF		19.10	18.34	-	16	24	12	2	8	13	10	6	4	10	12	FM2215
22	BF,AF		21.01	20.25	-	16	24	12	2	8	14	12	8	4	12	15	FM2516
24	BF,AF		22.92	22.16	-	16	24	12	2	8	17	15	10	4	15	19	FM2919
26	BF,AF		24.83	24.07	-	16	24	12	2	8	17	15	10	6	17	21	FM2919
28	BF,AF		26.74	25.98	-	16	24	12	2	8	19	17	10	6	20	25	FM3121
30	BF,AF		28.65	27.89	-	16	24	12	2	8	22	20	10	6	23	31	FM3424
32	BF,AF		30.56	29.80	-	16	24	12	2	8	24	22	10	6	27	36	FM3626
34	BF,AF		32.47	31.71	-	16	24	12	2	8	25	23	12	6	31	41	FM3727
36	BF,AF		34.38	33.62	-	16	24	12	2	8	26	26	12	6	35	46	FM4030
40	BF,AF		38.20	37.44	-	16	24	12	2	8	26	26	12	8	43	53	FM4328
44	BF,AF		42.02	41.25	-	16	24	12	2	8	32	30	15	8	53	69	FM4734
48	BF,AF		45.84	45.07	-	16	24	12	2	8	34	32	15	8	64	82	FM5136
50	BF,AF		47.75	46.98	-	16	24	12	2	8	39	38	15	8	70	95	FM5442
60	BF,AF		57.30	56.53	-	16	24	12	2	8	39	38	16	8	103	128	FM6141

S3M0150 (For a belt width of 15 mm)

Made-to-order

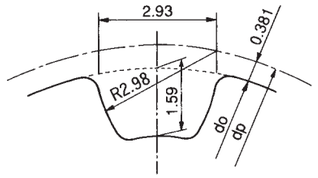
(Unit: mm)

No. of teeth	Profile	Material	dp	do	W		ℓ	WA	S	B	db	d			Roughly calculated pulley mass (g)		Flange part No.
												MAX		MIN			
					SF	AF,BF						AF	SF,BF	AF,SF,BF	AF	SF,BF	
14	SF,AF	High-strength aluminum alloy	13.37	12.61	19	21	27	17	2	8	16	7	6	4	5	9	FM1609
15	SF,AF		14.32	13.56	19	21	27	17	2	8	17	8	6	4	6	10	FM1710
16	SF,AF		15.28	14.52	19	21	27	17	2	8	19	10	6	4	7	12	FM1912
18	BF,AF		17.19	16.43	-	21	29	17	2	8	11	10	6	4	10	12	FM2113
20	BF,AF		19.10	18.34	-	21	29	17	2	8	13	10	6	4	13	15	FM2215
22	BF,AF		21.01	20.25	-	21	29	17	2	8	14	12	8	4	16	19	FM2516
24	BF,AF		22.92	22.16	-	21	29	17	2	8	17	15	10	4	19	24	FM2919
26	BF,AF		24.83	24.07	-	21	29	17	2	8	17	15	10	6	22	26	FM2919
28	BF,AF		26.74	25.98	-	21	29	17	2	8	19	17	10	6	26	32	FM3121
30	BF,AF		28.65	27.89	-	21	29	17	2	8	22	20	10	6	31	38	FM3424
32	BF,AF		30.56	29.80	-	21	29	17	2	8	24	22	10	6	35	45	FM3626
34	BF,AF		32.47	31.71	-	21	29	17	2	8	25	23	12	6	40	50	FM3727
36	BF,AF		34.38	33.62	-	21	29	17	2	8	26	26	12	6	46	57	FM4030
40	BF,AF		38.20	37.44	-	21	29	17	2	8	26	26	12	8	56	67	FM4328
44	BF,AF		42.02	41.25	-	21	29	17	2	8	32	30	15	8	69	86	FM4734
48	BF,AF		45.84	45.07	-	21	29	17	2	8	34	32	15	8	84	102	FM5136
50	BF,AF		47.75	46.98	-	21	29	17	2	8	39	38	15	8	91	116	FM5442
60	BF,AF		57.30	56.53	-	21	29	17	2	8	39	38	16	8	135	160	FM6141

- We manufacture rod-shaped pulleys with a length of 100 mm if requested.
- We manufacture Type S3M with 10 teeth at the minimum if requested.

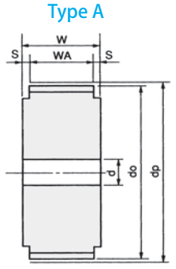
Table of STS Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type S4.5M

(Pulley Tooth Profile Dimensions)

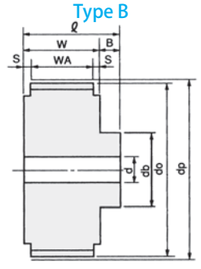


(Pulley Profile)

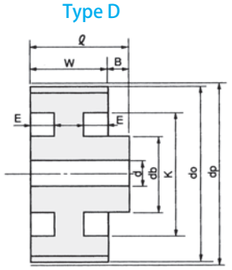
Type A



Type B



Type D



(Pulley Designation)

(Example) 20 S4.5M 0100 A

- 20: No. of teeth of pulley (20 teeth)
- S4.5M: Pulley tooth profile (Type S4.5M)
- 0100: Pulley nominal width (For a belt width of 10 mm)
- A: Pulley profile (Type A)

Although Types AF and BF come with flanges, the flanges (flange number in accordance with the number of teeth) are not installed on the pulley body. When using the flanges, install them by referring to the installation procedure **(→ P. 135 and P. 190)**.

S4.5M0060 (For a belt width of 6 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	* d MAX A	* d MAX B,D	* d MIN A,B,D	K	E	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,D	Flange part No.
12	A,B	Carbon steel for machine construction	17.19	16.43	12	20	8	2	8	10	7	5	4	-	-	0.014	0.018	FS2312
13	A,B		18.62	17.86	12	20	8	2	8	10	8	5	4	-	-	0.017	0.021	FS2312
14	A,B		20.05	19.29	12	20	8	2	8	12	9	6	5	-	-	0.020	0.026	FS2514
15	A,B		21.49	20.72	12	20	8	2	8	12	10	6	5	-	-	0.024	0.030	FS2514
16	A,B		22.92	22.16	12	20	8	2	8	13	10	6	5	-	-	0.028	0.035	FS2616
18	A,B		25.78	25.02	12	20	8	2	8	17	13	10	5	-	-	0.037	0.050	FS3120
20	A,B		28.65	27.89	12	24	8	2	12	19	15	12	6	-	-	0.047	0.071	FS3322
22	A,B		31.51	30.75	12	24	8	2	12	19	17	12	6	-	-	0.058	0.083	FS3522
24	A,B		34.38	33.62	12	24	8	2	12	25	20	17	8	-	-	0.069	0.11	FS4028
26	A,B		37.24	36.48	12	24	8	2	12	25	22	17	8	-	-	0.083	0.12	FS4328
28	A,B		40.11	39.35	12	24	8	2	12	29	24	20	10	-	-	0.096	0.15	FS4432
30	A,B		42.97	42.21	12	24	8	2	12	30	26	20	10	-	-	0.11	0.17	FS4734
32	A,B		45.84	45.07	12	24	8	2	12	32	28	20	10	-	-	0.13	0.19	FS5136
34	A,B		48.70	47.94	12	24	8	2	12	34	30	22	10	-	-	0.14	0.22	FS5136
36	A,B		51.57	50.80	12	24	8	2	12	35	32	22	12	-	-	0.16	0.24	FS5741
38	A,B		54.43	53.67	12	24	8	2	12	36	34	24	12	-	-	0.18	0.27	FS6141
40	A,B		57.30	56.53	12	24	8	2	12	38	37	24	12	-	-	0.21	0.30	FS6141
42	A,B		60.16	59.40	12	24	8	2	12	41	39	26	12	-	-	0.23	0.34	FS6950
44	A,B		63.03	62.26	12	24	8	2	12	42	41	26	12	-	-	0.25	0.37	FS6950
48	D		68.75	67.99	12	24	-	-	12	44	-	28	12	55	3.5	-	0.39	-
50	D		71.62	70.86	12	24	-	-	12	44	-	28	12	58	3.5	-	0.41	-
60	D		85.94	85.18	12	24	-	-	12	50	-	30	12	72	3.5	-	0.56	-
72	D		103.13	102.37	12	24	-	-	12	56	-	32	16	89	3.5	-	0.73	-

S4.5M0100 (For a belt width of 10 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	* d MAX A	* d MAX B,D	* d MIN A,B,D	K	E	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,D	Flange part No.
12	A,B	Carbon steel for machine construction	17.19	16.43	16	24	12	2	8	10	7	5	4	-	-	0.019	0.023	FS2312
13	A,B		18.62	17.86	16	24	12	2	8	10	8	5	4	-	-	0.023	0.027	FS2312
14	A,B		20.05	19.29	16	24	12	2	8	12	9	6	5	-	-	0.027	0.033	FS2514
15	A,B		21.49	20.72	16	24	12	2	8	12	10	6	5	-	-	0.032	0.038	FS2514
16	A,B		22.92	22.16	16	24	12	2	8	13	10	6	5	-	-	0.037	0.045	FS2616
18	A,B		25.78	25.02	16	24	12	2	8	17	13	10	5	-	-	0.050	0.063	FS3120
20	A,B		28.65	27.89	16	28	12	2	12	19	15	12	6	-	-	0.063	0.087	FS3322
22	A,B		31.51	30.75	16	28	12	2	12	19	17	12	6	-	-	0.078	0.10	FS3522
24	A,B		34.38	33.62	16	28	12	2	12	25	20	17	8	-	-	0.093	0.13	FS4028
26	A,B		37.24	36.48	16	28	12	2	12	25	22	17	8	-	-	0.11	0.15	FS4328
28	A,B		40.11	39.35	16	28	12	2	12	29	24	20	10	-	-	0.12	0.18	FS4432
30	A,B		42.97	42.21	16	28	12	2	12	30	26	20	10	-	-	0.15	0.20	FS4734
32	A,B		45.84	45.07	16	28	12	2	12	32	28	20	10	-	-	0.17	0.24	FS5136
34	A,B		48.70	47.94	16	28	12	2	12	34	30	22	10	-	-	0.19	0.27	FS5136
36	A,B		51.57	50.80	16	28	12	2	12	35	32	22	12	-	-	0.22	0.30	FS5741
38	A,B		54.43	53.67	16	28	12	2	12	36	34	24	12	-	-	0.25	0.33	FS6141
40	A,B		57.30	56.53	16	28	12	2	12	38	37	24	12	-	-	0.28	0.37	FS6141
42	A,B		60.16	59.40	16	28	12	2	12	41	39	26	12	-	-	0.31	0.42	FS6950
44	A,B		63.03	62.26	16	28	12	2	12	42	41	26	12	-	-	0.34	0.46	FS6950
48	D		68.75	67.99	16	28	-	-	12	44	-	28	12	55	4	-	0.49	-
50	D		71.62	70.86	16	28	-	-	12	44	-	28	12	58	4	-	0.51	-
60	D		85.94	85.18	16	28	-	-	12	50	-	30	12	72	4	-	0.71	-
72	D		103.13	102.37	16	28	-	-	12	56	-	32	16	89	4	-	0.94	-

* For the d MAX dimensions, please consult us when you machine keyways.

Table of STS Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type S4.5M

S4.5M0150 (For a belt width of 15 mm)

: Standard stock **The other sizes are made to order.**

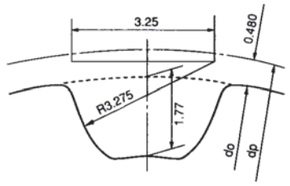
(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	* d MAX A	* d MAX B,D	* d MIN A,B,D	K	E	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,D	Flange part No.
12	A,B	Carbon steel for machine construction	17.19	16.43	21	29	17	2	8	10	7	5	4	-	-	0.024	0.029	FS2312
13	A,B		18.62	17.86	21	29	17	2	8	10	8	5	4	-	-	0.030	0.034	FS2312
14	A,B		20.05	19.29	21	29	17	2	8	12	9	6	5	-	-	0.035	0.041	FS2514
15	A,B		21.49	20.72	21	29	17	2	8	12	10	6	5	-	-	0.042	0.048	FS2514
16	A,B		22.92	22.16	21	29	17	2	8	13	10	6	5	-	-	0.049	0.056	FS2616
18	A,B		25.78	25.02	21	29	17	2	8	17	13	10	5	-	-	0.065	0.078	FS3120
20	A,B		28.65	27.89	21	33	17	2	12	19	15	12	6	-	-	0.082	0.10	FS3322
22	A,B		31.51	30.75	21	33	17	2	12	19	17	12	6	-	-	0.10	0.12	FS3522
24	A,B		34.38	33.62	21	33	17	2	12	25	20	17	8	-	-	0.12	0.16	FS4028
26	A,B		37.24	36.48	21	33	17	2	12	25	22	17	8	-	-	0.14	0.18	FS4328
28	A,B		40.11	39.35	21	33	17	2	12	29	24	20	10	-	-	0.16	0.22	FS4432
30	A,B		42.97	42.21	21	33	17	2	12	30	26	20	10	-	-	0.19	0.25	FS4734
32	A,B		45.84	45.07	21	33	17	2	12	32	28	20	10	-	-	0.22	0.29	FS5136
34	A,B		48.70	47.94	21	33	17	2	12	34	30	22	10	-	-	0.26	0.34	FS5136
36	A,B		51.57	50.80	21	33	17	2	12	35	32	22	12	-	-	0.29	0.37	FS5741
38	A,B		54.43	53.67	21	33	17	2	12	36	34	24	12	-	-	0.32	0.41	FS6141
40	A,B		57.30	56.53	21	33	17	2	12	38	37	24	12	-	-	0.36	0.46	FS6141
42	A,B		60.16	59.40	21	33	17	2	12	41	39	26	12	-	-	0.41	0.52	FS6950
44	A,B		63.03	62.26	21	33	17	2	12	42	41	26	12	-	-	0.45	0.57	FS6950
48	D		68.75	67.99	21	33	-	-	12	44	-	28	12	55	5	-	0.61	-
50	D		71.62	70.86	21	33	-	-	12	44	-	28	12	58	5	-	0.64	-
60	D		85.94	85.18	21	33	-	-	12	50	-	30	12	72	5	-	0.88	-
72	D		103.13	102.37	21	33	-	-	12	56	-	32	16	89	5	-	1.1	-

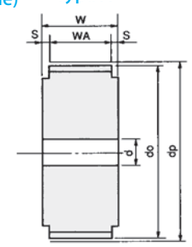
* For the d MAX dimensions, please consult us when you machine keyways.

Table of STS Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type S5M

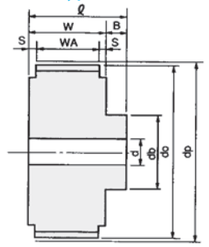
(Pulley Tooth Profile Dimensions) (Pulley Profile)



Type A



Type B



Although Types AF and BF come with flanges, the flanges (flange number in accordance with the number of teeth) are not installed on the pulley body. When using the flanges, install them by referring to the installation procedure **(→ P. 135 and P. 190)**.

(Pulley Designation)

(Example) 30 S5M 0150 A

- 30: No. of teeth of pulley (30 teeth)
- S5M: Pulley tooth profile (Type S5M)
- 0150: Pulley nominal width (For a belt width of 15 mm)
- A: Pulley profile (Type A)

S5M0100 (For a belt width of 10 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	* d MAX A	* d MAX B	* d MIN A,B	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B	Flange part No.
14	A,B	Carbon steel for machine construction	22.28	21.32	17	29	12	2.5	12	14	10	6	5	0.037	0.050	F 2817
16	A,B		25.46	24.50	17	29	12	2.5	12	17	13	10	5	0.052	0.071	F 3220
18	A,B		28.65	27.69	17	29	12	2.5	12	19	15	12	6	0.067	0.091	F 3422
20	A,B		31.83	30.87	17	29	12	2.5	12	19	17	12	6	0.085	0.10	F 3925
22	A,B		35.01	34.05	17	29	12	2.5	12	25	20	17	8	0.10	0.14	F 4228
24	A,B		38.20	37.24	17	29	12	2.5	12	29	22	17	8	0.12	0.18	F 4531
25	A,B		39.79	38.83	17	29	12	2.5	12	29	24	18	10	0.13	0.18	F 4531
26	A,B		41.38	40.42	17	29	12	2.5	12	30	26	20	10	0.14	0.20	F 4836
28	A,B		44.56	43.60	17	29	12	2.5	12	32	28	22	10	0.17	0.24	F 4836
30	A,B		47.75	46.79	17	29	12	2.5	12	35	30	24	10	0.20	0.28	F 5541
32	A,B		50.93	49.97	17	29	12	2.5	12	38	32	26	10	0.23	0.33	F 5541
34	A,B		54.11	53.15	17	29	12	2.5	12	38	34	26	10	0.26	0.36	F 6146
36	A,B		57.30	56.34	17	29	12	2.5	12	44	37	30	10	0.30	0.43	F 6146
40	A,B		63.66	62.70	17	29	12	2.5	12	48	41	32	10	0.37	0.54	F 7056
42	A,B		66.85	65.89	17	29	12	2.5	12	52	43	34	10	0.42	0.61	F 7056
44	A,B		70.03	69.07	17	29	12	2.5	12	56	45	38	12	0.46	0.68	F 7761
48	A,B		76.39	75.43	17	29	12	2.5	12	60	50	38	12	0.55	0.80	F 8366
50	A,B		79.58	78.62	17	29	12	2.5	12	64	52	42	12	0.60	0.89	F 8871
60	A,B		95.49	94.53	17	29	12	2.5	12	80	60	54	12	0.88	1.3	F 10385

S5M0150 (For a belt width of 15 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	* d MAX A	* d MAX B	* d MIN A,B	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B	Flange part No.
14	A,B	Carbon steel for machine construction	22.28	21.32	22	34	17	2.5	12	14	10	6	5	0.048	0.061	F 2817
16	A,B		25.46	24.50	22	34	17	2.5	12	17	13	10	5	0.067	0.086	F 3220
18	A,B		28.65	27.69	22	34	17	2.5	12	19	15	12	6	0.086	0.11	F 3422
20	A,B		31.83	30.87	22	34	17	2.5	12	19	17	12	6	0.11	0.13	F 3925
22	A,B		35.01	34.05	22	34	17	2.5	12	25	20	17	8	0.13	0.17	F 4228
24	A,B		38.20	37.24	22	34	17	2.5	12	29	22	17	8	0.16	0.21	F 4531
25	A,B		39.79	38.83	22	34	17	2.5	12	29	24	18	10	0.17	0.22	F 4531
26	A,B		41.38	40.42	22	34	17	2.5	12	30	26	20	10	0.18	0.24	F 4836
28	A,B		44.56	43.60	22	34	17	2.5	12	32	28	22	10	0.22	0.29	F 4836
30	A,B		47.75	46.79	22	34	17	2.5	12	35	30	24	10	0.26	0.34	F 5541
32	A,B		50.93	49.97	22	34	17	2.5	12	38	32	26	10	0.30	0.40	F 5541
34	A,B		54.11	53.15	22	34	17	2.5	12	38	34	26	10	0.34	0.44	F 6146
36	A,B		57.30	56.34	22	34	17	2.5	12	44	37	30	10	0.39	0.52	F 6146
40	A,B		63.66	62.70	22	34	17	2.5	12	48	41	32	10	0.49	0.65	F 7056
42	A,B		66.85	65.89	22	34	17	2.5	12	52	43	34	10	0.54	0.73	F 7056
44	A,B		70.03	69.07	22	34	17	2.5	12	56	45	38	12	0.59	0.81	F 7761
48	A,B		76.39	75.43	22	34	17	2.5	12	60	50	38	12	0.71	0.97	F 8366
50	A,B		79.58	78.62	22	34	17	2.5	12	64	52	42	12	0.78	1.0	F 8871
60	A,B		95.49	94.53	22	34	17	2.5	12	80	60	54	12	1.1	1.6	F 10385

* For the d MAX dimensions, please consult us when you machine keyways.

Table of STS Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type S5M

S5M0200 (For a belt width of 20 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	* d MAX A	* d MAX B	* d MIN A,B	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B	Flange part No.
14	A,B	Carbon steel for machine construction	22.28	21.32	28	40	23	2.5	12	14	10	6	5	0.062	0.074	F 2817
16	A,B		25.46	24.50	28	40	23	2.5	12	17	13	10	5	0.085	0.10	F 3220
18	A,B		28.65	27.69	28	40	23	2.5	12	19	15	12	6	0.11	0.13	F 3422
20	A,B		31.83	30.87	28	40	23	2.5	12	19	17	12	6	0.14	0.16	F 3925
22	A,B		35.01	34.05	28	40	23	2.5	12	25	20	17	8	0.16	0.21	F 4228
24	A,B		38.20	37.24	28	40	23	2.5	12	29	22	17	8	0.20	0.26	F 4531
25	A,B		39.79	38.83	28	40	23	2.5	12	29	24	18	10	0.22	0.27	F 4531
26	A,B		41.38	40.42	28	40	23	2.5	12	30	26	20	10	0.24	0.30	F 4836
28	A,B		44.56	43.60	28	40	23	2.5	12	32	28	22	10	0.28	0.35	F 4836
30	A,B		47.75	46.79	28	40	23	2.5	12	35	30	24	10	0.33	0.41	F 5541
32	A,B		50.93	49.97	28	40	23	2.5	12	38	32	26	10	0.38	0.48	F 5541
34	A,B		54.11	53.15	28	40	23	2.5	12	38	34	26	10	0.43	0.53	F 6146
36	A,B		57.30	56.34	28	40	23	2.5	12	44	37	30	10	0.49	0.63	F 6146
40	A,B		63.66	62.70	28	40	23	2.5	12	48	41	32	10	0.62	0.78	F 7056
42	A,B		66.85	65.89	28	40	23	2.5	12	52	43	34	10	0.69	0.88	F 7056
44	A,B		70.03	69.07	28	40	23	2.5	12	56	45	38	12	0.75	0.97	F 7761
48	A,B		76.39	75.43	28	40	23	2.5	12	60	50	38	12	0.91	1.1	F 8366
50	A,B		79.58	78.62	28	40	23	2.5	12	64	52	42	12	0.99	1.2	F 8871
60	A,B		95.49	94.53	28	40	23	2.5	12	80	60	54	12	1.4	1.9	F 10385

S5M0250 (For a belt width of 25 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

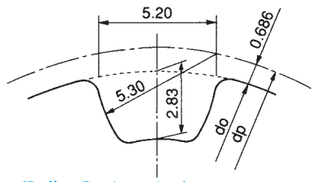
No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	* d MAX A	* d MAX B	* d MIN A,B	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B	Flange part No.
14	A,B	Carbon steel for machine construction	22.28	21.32	33	45	28	2.5	12	14	10	6	5	0.073	0.085	F 2817
16	A,B		25.46	24.50	33	45	28	2.5	12	17	13	10	5	0.10	0.12	F 3220
18	A,B		28.65	27.69	33	45	28	2.5	12	19	15	12	6	0.12	0.15	F 3422
20	A,B		31.83	30.87	33	45	28	2.5	12	19	17	12	6	0.16	0.18	F 3925
22	A,B		35.01	34.05	33	45	28	2.5	12	25	20	17	8	0.19	0.24	F 4228
24	A,B		38.20	37.24	33	45	28	2.5	12	29	22	17	8	0.24	0.30	F 4531
25	A,B		39.79	38.83	33	45	28	2.5	12	29	24	18	10	0.25	0.31	F 4531
26	A,B		41.38	40.42	33	45	28	2.5	12	30	26	20	10	0.28	0.34	F 4836
28	A,B		44.56	43.60	33	45	28	2.5	12	32	28	22	10	0.33	0.40	F 4836
30	A,B		47.75	46.79	33	45	28	2.5	12	35	30	24	10	0.39	0.47	F 5541
32	A,B		50.93	49.97	33	45	28	2.5	12	38	32	26	10	0.45	0.55	F 5541
34	A,B		54.11	53.15	33	45	28	2.5	12	38	34	26	10	0.51	0.61	F 6146
36	A,B		57.30	56.34	33	45	28	2.5	12	44	37	30	10	0.58	0.72	F 6146
40	A,B		63.66	62.70	33	45	28	2.5	12	48	41	32	10	0.73	0.89	F 7056
42	A,B		66.85	65.89	33	45	28	2.5	12	52	43	34	10	0.81	1.0	F 7056
44	A,B		70.03	69.07	33	45	28	2.5	12	56	45	38	12	0.89	1.1	F 7761
48	A,B		76.39	75.43	33	45	28	2.5	12	60	50	38	12	1.0	1.3	F 8366
50	A,B		79.58	78.62	33	45	28	2.5	12	64	52	42	12	1.1	1.4	F 8871
60	A,B		95.49	94.53	33	45	28	2.5	12	80	60	54	12	1.7	2.1	F 10385

* For the d MAX dimensions, please consult us when you machine keyways.

Table of STS Pulley Standard Dimensions (Shaft-Hole-Machined Type)

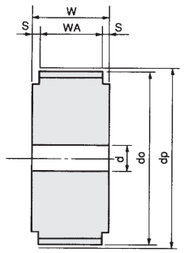
Type S8M

(Pulley Tooth Profile Dimensions)

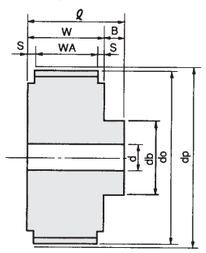


(Pulley Profile)

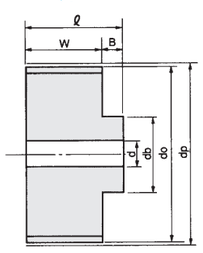
Type A



Type B



Type B_1



Although Types AF and BF come with flanges, the flanges (flange number in accordance with the number of teeth) are not installed on the pulley body. When using the flanges, install them by referring to the installation procedure **(→ P. 135 and P. 190)**.

(Pulley Designation)

(Example) 18 S8M 0150 B

- 18: No. of teeth of pulley (18 teeth)
- S8M: Pulley tooth profile (Type S8M)
- 0150: Pulley nominal width (For a belt width of 15 mm)
- B: Pulley profile (Type B)

S8M0150 (For a belt width of 15 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	* d MAX A	* d MAX B,B_1	* d MIN A,B,B_1	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,B_1	Flange part No.
18	A,B	Carbon steel for machine construction	45.84	44.46	23	38	17	3	15	29	28	19	12	0.21	0.28	FS 5333
19	A,B		48.38	47.01	23	38	17	3	15	34	30	22	12	0.24	0.34	FS 5638
20	A,B		50.93	49.56	23	38	17	3	15	35	32	23	12	0.28	0.38	FS 5939
21	A,B		53.48	52.10	23	38	17	3	15	35	34	23	12	0.31	0.41	FS 5939
22	A,B		56.02	54.65	23	38	17	3	15	35	35	23	12	0.35	0.45	FS 6242
24	A,B		61.12	59.74	23	38	17	3	15	40	39	25	12	0.43	0.56	FS 6848
26	A,B		66.21	64.84	23	38	17	3	15	40	42	25	12	0.51	0.65	FS 7555
28	A,B		71.30	69.93	23	38	17	3	15	50	44	30	12	0.60	0.82	FS 7753
30	A,B		76.39	75.02	23	38	17	3	15	50	49	30	12	0.70	0.92	FS 8363
32	A,B		81.49	80.12	23	38	17	3	15	65	51	42	12	0.81	1.1	FS 8969
34	A,B		86.58	85.21	23	38	17	3	15	65	55	42	12	0.93	1.3	FS 9272
36	A,B		91.67	90.30	23	38	17	3	15	75	58	45	12	1.0	1.5	FS 9878
40	A,B		101.86	100.49	23	38	17	3	15	80	65	50	12	1.3	1.8	FS 10887
44	A,B		112.05	110.67	23	46	17	3	23	90	72	56	20	1.5	2.6	FS120100
48	A,B		122.23	120.86	23	46	17	3	23	100	78	62	20	1.9	3.2	FS129108
50	A,B		127.32	125.95	23	46	17	3	23	100	82	62	20	2.0	3.4	FS136116
60	A,B		152.79	151.42	23	46	17	3	23	100	107	62	20	3.0	4.4	FS160140
72	B_1		183.35	181.97	27	50	-	-	23	100	-	62	25	-	6.6	-
84	B_1		213.90	212.53	27	50	-	-	23	115	-	70	25	-	9.0	-
96	B_1		244.46	243.09	27	50	-	-	23	130	-	80	30	-	11.7	-
120	B_1		305.58	304.21	27	50	-	-	23	130	-	80	30	-	17.2	-
144	B_1		366.69	365.32	27	50	-	-	23	130	-	80	30	-	24.0	-
156	B_1		397.25	395.88	27	50	-	-	23	130	-	80	30	-	27.8	-

S8M0250 (For a belt width of 25 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	* d MAX A	* d MAX B,B_1	* d MIN A,B,B_1	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,B_1	Flange part No.
18	A,B	Carbon steel for machine construction	45.84	44.46	34	49	28	3	15	29	28	19	12	0.32	0.38	FS 5333
19	A,B		48.38	47.01	34	49	28	3	15	34	30	22	12	0.36	0.46	FS 5638
20	A,B		50.93	49.56	34	49	28	3	15	35	32	23	12	0.41	0.51	FS 5939
21	A,B		53.48	52.10	34	49	28	3	15	35	34	23	12	0.46	0.56	FS 5939
22	A,B		56.02	54.65	34	49	28	3	15	35	35	23	12	0.52	0.62	FS 6242
24	A,B		61.12	59.74	34	49	28	3	15	40	39	25	12	0.63	0.77	FS 6848
26	A,B		66.21	64.84	34	49	28	3	15	40	42	25	12	0.76	0.89	FS 7555
28	A,B		71.30	69.93	34	49	28	3	15	50	44	30	12	0.90	1.1	FS 7753
30	A,B		76.39	75.02	34	49	28	3	15	50	49	30	12	1.0	1.2	FS 8363
32	A,B		81.49	80.12	34	49	28	3	15	65	51	42	12	1.2	1.5	FS 8969
34	A,B		86.58	85.21	34	49	28	3	15	65	55	42	12	1.3	1.7	FS 9272
36	A,B		91.67	90.30	34	49	28	3	15	75	58	45	12	1.5	2.0	FS 9878
40	A,B		101.86	100.49	34	49	28	3	15	80	65	50	12	1.9	2.5	FS 10887
44	A,B		112.05	110.67	34	57	28	3	23	90	72	56	20	2.3	3.4	FS120100
48	A,B		122.23	120.86	34	57	28	3	23	100	78	62	20	2.8	4.1	FS129108
50	A,B		127.32	125.95	34	57	28	3	23	100	82	62	20	3.0	4.4	FS136116
60	A,B		152.79	151.42	34	57	28	3	23	100	107	62	20	4.5	5.8	FS160140
72	B_1		183.35	181.97	38	61	-	-	23	100	-	62	25	-	8.7	-
84	B_1		213.90	212.53	38	61	-	-	23	115	-	70	25	-	11.9	-
96	B_1		244.46	243.09	38	61	-	-	23	130	-	80	30	-	15.6	-
120	B_1		305.58	304.21	38	61	-	-	23	130	-	80	30	-	23.3	-
144	B_1		366.69	365.32	38	61	-	-	23	130	-	80	30	-	32.8	-
156	B_1		397.25	395.88	38	61	-	-	23	130	-	80	30	-	38.3	-

* For the d MAX dimensions, please consult us when you machine keyways.

Table of STS Pulley Standard Dimensions (Shaft-Hole-Machined Type)

Type S8M

S8M0400 (For a belt width of 40 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	* d MAX A	* d MAX B,B_1	* d MIN A,B,B_1	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,B_1	Flange part No.
18	A,B	Carbon steel for machine construction	45.84	44.46	50	65	44	3	15	29	28	19	12	0.47	0.53	FS 5333
19	A,B		48.38	47.01	50	65	44	3	15	34	30	22	12	0.54	0.63	FS 5638
20	A,B		50.93	49.56	50	65	44	3	15	35	32	23	12	0.61	0.71	FS 5939
21	A,B		53.48	52.10	50	65	44	3	15	35	34	23	12	0.68	0.78	FS 5939
22	A,B		56.02	54.65	50	65	44	3	15	35	35	23	12	0.76	0.86	FS 6242
24	A,B		61.12	59.74	50	65	44	3	15	40	39	25	12	0.93	1.0	FS 6848
26	A,B		66.21	64.84	50	65	44	3	15	40	42	25	12	1.1	1.2	FS 7555
28	A,B		71.30	69.93	50	65	44	3	15	50	44	30	12	1.3	1.5	FS 7753
30	A,B		76.39	75.02	50	65	44	3	15	50	49	30	12	1.5	1.7	FS 8363
32	A,B		81.49	80.12	50	65	44	3	15	65	51	42	12	1.7	2.1	FS 8969
34	A,B		86.58	85.21	50	65	44	3	15	65	55	42	12	2.0	2.4	FS 9272
36	A,B		91.67	90.30	50	65	44	3	15	75	58	45	12	2.2	2.7	FS 9878
40	A,B		101.86	100.49	50	65	44	3	15	80	65	50	12	2.8	3.4	FS 10887
44	A,B		112.05	110.67	50	73	44	3	23	90	72	56	20	3.4	4.5	FS120100
48	A,B		122.23	120.86	50	73	44	3	23	100	78	62	20	4.1	5.5	FS129108
50	A,B		127.32	125.95	50	73	44	3	23	100	82	62	20	4.5	5.8	FS136116
60	A,B		152.79	151.42	50	73	44	3	23	100	107	62	20	6.6	8.0	FS160140
72	B_1		183.35	181.97	54	77	-	-	23	100	-	62	25	-	11.8	-
84	B_1		213.90	212.53	54	77	-	-	23	115	-	70	25	-	16.2	-
96	B_1		244.46	243.09	54	77	-	-	23	130	-	80	30	-	21.2	-
120	B_1		305.58	304.21	54	77	-	-	23	130	-	80	30	-	32.2	-
144	B_1		366.69	365.32	54	77	-	-	23	130	-	80	30	-	45.7	-
156	B_1		397.25	395.88	54	77	-	-	23	130	-	80	30	-	53.4	-

S8M0600 (For a belt width of 60 mm)

: Standard stock **The other sizes are made to order.**

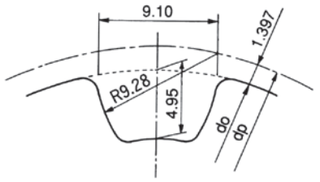
(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	* d MAX A	* d MAX B,B_1	* d MIN A,B,B_1	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,B_1	Flange part No.
18	A,B	Carbon steel for machine construction	45.84	44.46	71	86	65	3	15	29	28	19	12	0.67	0.73	FS 5333
19	A,B		48.38	47.01	71	86	65	3	15	34	30	22	12	0.77	0.86	FS 5638
20	A,B		50.93	49.56	71	86	65	3	15	35	32	23	12	0.87	0.97	FS 5939
21	A,B		53.48	52.10	71	86	65	3	15	35	34	23	12	0.97	1.0	FS 5939
22	A,B		56.02	54.65	71	86	65	3	15	35	35	23	12	1.0	1.1	FS 6242
24	A,B		61.12	59.74	71	86	65	3	15	40	39	25	12	1.3	1.4	FS 6848
26	A,B		66.21	64.84	71	86	65	3	15	40	42	25	12	1.5	1.7	FS 7555
28	A,B		71.30	69.93	71	86	65	3	15	50	44	30	12	1.8	2.0	FS 7753
30	A,B		76.39	75.02	71	86	65	3	15	50	49	30	12	2.1	2.4	FS 8363
32	A,B		81.49	80.12	71	86	65	3	15	65	51	42	12	2.5	2.8	FS 8969
34	A,B		86.58	85.21	71	86	65	3	15	65	55	42	12	2.8	3.2	FS 9272
36	A,B		91.67	90.30	71	86	65	3	15	75	58	45	12	3.2	3.7	FS 9878
40	A,B		101.86	100.49	71	86	65	3	15	80	65	50	12	4.0	4.6	FS 10887
44	A,B		112.05	110.67	71	94	65	3	23	90	72	56	20	4.9	6.1	FS120100
48	A,B		122.23	120.86	71	94	65	3	23	100	78	62	20	5.8	7.2	FS129108
50	A,B		127.32	125.95	71	94	65	3	23	100	82	62	20	6.4	7.7	FS136116
60	A,B		152.79	151.42	71	94	65	3	23	100	107	62	20	9.4	10.7	FS160140
72	B_1		183.35	181.97	75	98	-	-	23	100	-	62	25	-	15.9	-
84	B_1		213.90	212.53	75	98	-	-	23	115	-	70	25	-	21.8	-
96	B_1		244.46	243.09	75	98	-	-	23	130	-	80	30	-	28.5	-
120	B_1		305.58	304.21	75	98	-	-	23	130	-	80	30	-	43.9	-
144	B_1		366.69	365.32	75	98	-	-	23	130	-	80	30	-	62.6	-
156	B_1		397.25	395.88	75	98	-	-	23	130	-	80	30	-	73.3	-

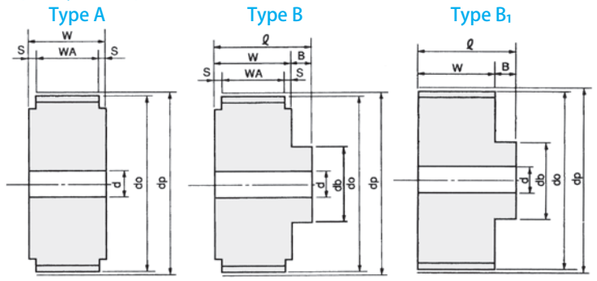
* For the d MAX dimensions, please consult us when you machine keyways.

Table of STS Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type S14M

(Pulley Tooth Profile Dimensions)



(Pulley Profile)



(Pulley Designation)

(Example) 40 S14M 0400 A

- 40: No. of teeth of pulley (40 teeth)
- S14M: Pulley tooth profile (Type S14M)
- 0400: Pulley nominal width (For a belt width of 40 mm)
- A: Pulley profile (Type A)

Although Types AF and BF come with flanges, the flanges (flange number in accordance with the number of teeth) are not installed on the pulley body. When using the flanges, install them by referring to the installation procedure **(→ P. 135 and P. 190)**.

S14M0400 (For a belt width of 40 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	* d MAX A	* d MAX B,B1	* d MIN A,B,B1	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,B1	Flange part No.
28	A,B	Carbon steel for machine construction	124.78	121.98	52	72	46	3	20	100	82	62	25	4.1	5.2	FS136106
30	A,B		133.69	130.90	52	72	46	3	20	110	90	62	25	4.8	6.2	FS145115
32	A,B		142.60	139.81	52	72	46	3	20	110	100	62	25	5.5	6.9	FS154124
34	A,B		151.52	148.72	52	72	46	3	20	130	110	75	25	6.3	8.3	FS163133
36	A,B		160.43	157.63	52	72	46	3	20	130	117	75	25	7.2	9.2	FS172142
40	A,B		178.25	175.46	52	72	46	3	20	130	135	75	30	8.9	10.9	FS189159
42	A,B		187.17	184.37	52	72	46	3	20	160	140	90	30	9.9	13.0	FS198168
44	A,B		196.08	193.28	52	77	46	3	25	160	143	90	30	11.0	14.8	FS207177
48	A,B		213.90	211.11	52	77	46	3	25	160	160	90	30	13.2	17.0	FS225195
50	A,B		222.82	220.02	52	77	46	3	25	160	170	90	30	14.4	18.2	FS234204
60	B1		267.38	264.59	58	88	-	-	30	155	-	90	35	-	27.9	-
64	B1		285.21	282.41	58	88	-	-	30	155	-	90	35	-	31.3	-
72	B1		320.86	318.06	58	88	-	-	30	155	-	90	35	-	38.8	-
84	B1		374.33	371.54	58	88	-	-	30	165	-	90	40	-	52.2	-
96	B1		427.81	425.01	58	88	-	-	30	165	-	90	40	-	67.3	-
120	B1		534.76	531.97	58	93	-	-	35	175	-	95	40	-	105.0	-
144	B1		641.71	638.92	58	93	-	-	35	180	-	100	40	-	149.8	-
156	B1		695.19	692.39	58	93	-	-	35	180	-	100	40	-	175.1	-

S14M0600 (For a belt width of 60 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	* d MAX A	* d MAX B,B1	* d MIN A,B,B1	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,B1	Flange part No.
28	A,B	Carbon steel for machine construction	124.78	121.98	73	93	67	3	20	100	82	62	25	5.8	6.9	FS136106
30	A,B		133.69	130.90	73	93	67	3	20	110	90	62	25	6.7	8.1	FS145115
32	A,B		142.60	139.81	73	93	67	3	20	110	100	62	25	7.8	9.2	FS154124
34	A,B		151.52	148.72	73	93	67	3	20	130	110	75	25	8.9	10.9	FS163133
36	A,B		160.43	157.63	73	93	67	3	20	130	117	75	25	10.1	12.1	FS172142
40	A,B		178.25	175.46	73	93	67	3	20	130	135	75	30	12.5	14.5	FS189159
42	A,B		187.17	184.37	73	93	67	3	20	160	140	90	30	13.9	17.0	FS198168
44	A,B		196.08	193.28	73	98	67	3	25	160	143	90	30	15.4	19.2	FS207177
48	A,B		213.90	211.11	73	98	67	3	25	160	160	90	30	18.6	22.4	FS225195
50	A,B		222.82	220.02	73	98	67	3	25	160	170	90	30	20.2	24.1	FS234204
60	B1		267.38	264.59	79	109	-	-	30	155	-	90	35	-	36.5	-
64	B1		285.21	282.41	79	109	-	-	30	155	-	90	35	-	41.4	-
72	B1		320.86	318.06	79	109	-	-	30	155	-	90	35	-	51.4	-
84	B1		374.33	371.54	79	109	-	-	30	165	-	90	40	-	69.4	-
96	B1		427.81	425.01	79	109	-	-	30	165	-	90	40	-	89.9	-
120	B1		534.76	531.97	79	114	-	-	35	175	-	95	40	-	140.8	-
144	B1		641.71	638.92	79	114	-	-	35	180	-	100	40	-	201.6	-
156	B1		695.19	692.39	79	114	-	-	35	180	-	100	40	-	236.0	-

* For the d MAX dimensions, please consult us when you machine keyways.

Table of STS Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type S14M

S14M0800 (For a belt width of 80 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	* d MAX A	* d MAX B,B1	* d MIN A,B,B1	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,B1	Flange part No.
28	A,B	Carbon steel for machine construction	124.78	121.98	94	114	88	3	20	100	82	62	25	7.4	8.6	FS136106
30	A,B		133.69	130.90	94	114	88	3	20	110	90	62	25	8.7	10.1	FS145115
32	A,B		142.60	139.81	94	114	88	3	20	110	100	62	25	10.0	11.4	FS154124
34	A,B		151.52	148.72	94	114	88	3	20	130	110	75	25	11.5	13.5	FS163133
36	A,B		160.43	157.63	94	114	88	3	20	130	117	75	25	13.0	15.0	FS172142
40	A,B		178.25	175.46	94	114	88	3	20	130	135	75	30	16.1	18.1	FS189159
42	A,B		187.17	184.37	94	114	88	3	20	160	140	90	30	18.0	21.0	FS198168
44	A,B		196.08	193.28	94	119	88	3	25	160	143	90	30	19.8	23.7	FS207177
48	A,B		213.90	211.11	94	119	88	3	25	160	160	90	30	23.9	27.7	FS225195
50	A,B		222.82	220.02	94	119	88	3	25	160	170	90	30	26.1	29.9	FS234204
60	B1		267.38	264.59	100	130	-	-	30	155	-	90	35	-	45.0	-
64	B1		285.21	282.41	100	130	-	-	30	155	-	90	35	-	50.9	-
72	B1		320.86	318.06	100	130	-	-	30	155	-	90	35	-	63.9	-
84	B1		374.33	371.54	100	130	-	-	30	165	-	90	40	-	86.6	-
96	B1		427.81	425.01	100	130	-	-	30	165	-	90	40	-	112.5	-
120	B1		534.76	531.97	100	135	-	-	35	175	-	95	40	-	176.5	-
144	B1		641.71	638.92	100	135	-	-	35	180	-	100	40	-	253.5	-
156	B1		695.19	692.39	100	135	-	-	35	180	-	100	40	-	297.0	-

S14M1000 (For a belt width of 100 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	* d MAX A	* d MAX B,B1	* d MIN A,B,B1	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,B1	Flange part No.
28	A,B	Carbon steel for machine construction	124.78	121.98	115	135	109	3	20	100	82	62	25	9.1	10.3	FS136106
30	A,B		133.69	130.90	115	135	109	3	20	110	90	62	25	10.6	12.0	FS145115
32	A,B		142.60	139.81	115	135	109	3	20	110	100	62	25	12.3	13.7	FS154124
34	A,B		151.52	148.72	115	135	109	3	20	130	110	75	25	14.0	16.0	FS163133
36	A,B		160.43	157.63	115	135	109	3	20	130	117	75	25	15.9	17.9	FS172142
40	A,B		178.25	175.46	115	135	109	3	20	130	135	75	30	19.8	21.7	FS189159
42	A,B		187.17	184.37	115	135	109	3	20	160	140	90	30	22.0	25.0	FS198168
44	A,B		196.08	193.28	115	140	109	3	25	160	143	90	30	24.3	28.1	FS207177
48	A,B		213.90	211.11	115	140	109	3	25	160	160	90	30	29.3	33.1	FS225195
50	A,B		222.82	220.02	115	140	109	3	25	160	170	90	30	31.9	35.7	FS234204
60	B1		267.38	264.59	121	151	-	-	30	155	-	90	35	-	53.6	-
64	B1		285.21	282.41	121	151	-	-	30	155	-	90	35	-	60.7	-
72	B1		320.86	318.06	121	151	-	-	30	155	-	90	35	-	76.4	-
84	B1		374.33	371.54	121	151	-	-	30	165	-	90	40	-	103.8	-
96	B1		427.81	425.01	121	151	-	-	30	165	-	90	40	-	135.2	-
120	B1		534.76	531.97	121	156	-	-	35	175	-	95	40	-	212.3	-
144	B1		641.71	638.92	121	156	-	-	35	180	-	100	40	-	305.3	-
156	B1		695.19	692.39	121	156	-	-	35	180	-	100	40	-	358.0	-

S14M1200 (For a belt width of 120 mm) Made-to-order

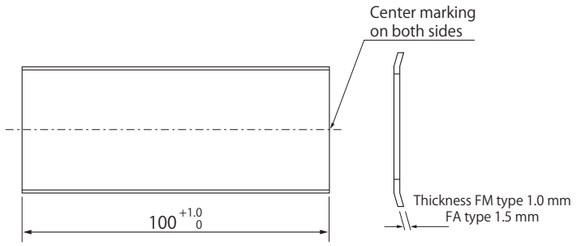
(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	* d MAX A	* d MAX B,B1	* d MIN A,B,B1	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,B1	Flange part No.
28	A,B	Carbon steel for machine construction	124.78	121.98	136	156	130	3	20	100	82	62	25	10.8	11.9	FS136106
30	A,B		133.69	130.90	136	156	130	3	20	110	90	62	25	12.6	14.0	FS145115
32	A,B		142.60	139.81	136	156	130	3	20	110	100	62	25	14.5	15.9	FS154124
34	A,B		151.52	148.72	136	156	130	3	20	130	110	75	25	16.6	18.6	FS163133
36	A,B		160.43	157.63	136	156	130	3	20	130	117	75	25	18.8	20.8	FS172142
40	A,B		178.25	175.46	136	156	130	3	20	130	135	75	30	23.4	25.4	FS189159
42	A,B		187.17	184.37	136	156	130	3	20	160	140	90	30	26.0	29.0	FS198168
44	A,B		196.08	193.28	136	161	130	3	25	160	143	90	30	28.7	32.5	FS207177
48	A,B		213.90	211.11	136	161	130	3	25	160	160	90	30	34.6	38.4	FS225195
50	A,B		222.82	220.02	136	161	130	3	25	160	170	90	30	37.8	41.6	FS234204
60	B1		267.38	264.59	142	172	-	-	30	155	-	90	35	-	62.2	-
64	B1		285.21	282.41	142	172	-	-	30	155	-	90	35	-	70.5	-
72	B1		320.86	318.06	142	172	-	-	30	155	-	90	35	-	89.0	-
84	B1		374.33	371.54	142	172	-	-	30	165	-	90	40	-	121.0	-
96	B1		427.81	425.01	142	172	-	-	30	165	-	90	40	-	157.8	-
120	B1		534.76	531.97	142	177	-	-	35	175	-	95	40	-	248.0	-
144	B1		641.71	638.92	142	177	-	-	35	180	-	100	40	-	357.1	-
156	B1		695.19	692.39	142	177	-	-	35	180	-	100	40	-	419.0	-

* For the d MAX dimensions, please consult us when you machine keyways.

Rod-shaped pulleys
S2M/S3M/S5M Aluminum rod-shaped type

(Pulley Profile)



■ Pulley and flange size indications

Body indication example **M-A-18S2M100L**
(M: As per manual - Material - No. of teeth, Type, Length 100L)

Flange indication example **M-A-FM1306**
(M: As per manual - Material - Flange size)

List of the number of teeth of pulleys (standard stock)

S2M

No. of teeth	Length (mm)	Flange
14	100	FM1306
15		FM1306
16		FM1407
18		FM1407
20		FM1609
22		FM1710
24		FM1912
26		FM2013
28		FM2113
30		FM2215
32		FM2516
34		FM2516
36		FM2919
40		FM3121

S3M

No. of teeth	Length (mm)	Flange
14	100	FM1609
15		FM1710
16		FM1912
18		FM2113
20		FM2215
22		FM2516
24		FM2919
26		FM2919
28		FM3121
30		FM3424
32		FM3626
34		FM3727
36		FM4030
40		FM4328

S5M

No. of teeth	Length (mm)	Flange
14	100	FA2817
16		FA3220
18		FA3422
20		FA3925
22		FA4228
24		FA4531
26		FA4836
28		FA4836
30		FA5541

○ Pulley material: High-strength aluminum alloy
○ Pulley delivery period: Please contact us.

HTS Pulleys

(1) HTS Pulley System

Pulley tooth profile	Stock	Pulley nominal width	No. of teeth of pulley	Material
H8M	Made-to-order	0200, 0300, 0500	22～56	Carbon steel for machine construction
H14M	Made-to-order	0400, 0550, 0850	28～44	

(2) Designations for HTS Pulleys

Designation example

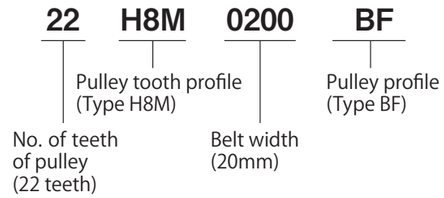
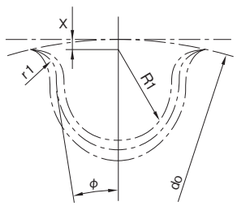


Table of HTS Pulley Standard Dimensions (Shaft-Hole-Machined Type) Type 8M

(Pulley Tooth Profile Dimensions)

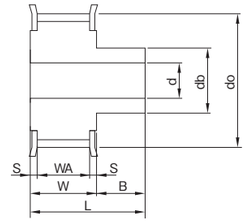


■ JIS-B 1857-2 Type H

(Dimension unit: mm, Angle unit: °)

No. of teeth		R1	r1	X	ϕ
22～27	Basic	2.675	0.874	0.62	11.3
	Max	2.764	1.052	0.62	11.3
	Min	2.598	0.798	0.62	11.3
28～89	Basic	2.629	1.024	0.975	7
	Max	2.718	1.201	0.975	7
	Min	2.553	0.947	0.975	7

(Pulley Profile) Type BF



(Pulley Designation) **(Example)**

22 H8M 0200 BF

- 22: No. of teeth of pulley (22 teeth)
- H8M: Pulley tooth profile (Type H8M)
- 0200: Pulley nominal width (For a belt width of 20 mm)
- BF: Pulley profile (Type BF)

H8M0200 (For a belt width of 20 mm) Made-to-order

(Unit: mm)

No. of teeth	Material	dp	do	W	L	WA	S	B	d	db	Profile	Roughly calculated pulley mass (kg)	Flange part No.
22	Carbon steel for machine construction	56.02	54.65	28	48	21.7	3.15	20	16	40	BF	0.6	FS20064045
24		61.12	59.74	28	48	21.7	3.15	20	16	44	BF	0.7	FS20070050
25		63.66	62.29	28	48	21.7	3.15	20	16	46	BF	0.8	FS20072052
26		66.21	64.84	28	48	21.7	3.15	20	16	48	BF	0.9	FS20075054
28		71.30	69.93	28	48	21.7	3.15	20	16	52	BF	1.1	FS20080059
30		76.39	75.02	28	48	21.7	3.15	20	16	56	BF	1.2	FS20085064
32		81.49	80.12	28	48	21.7	3.15	20	20	60	BF	1.4	FS20090069
34		86.58	85.21	28	48	21.7	3.15	20	20	64	BF	1.6	FS20095074
36		91.67	90.30	28	48	21.7	3.15	20	20	68	BF	1.8	FS20100079
38		96.77	95.39	28	48	21.7	3.15	20	20	72	BF	2.0	FS20105084
40		101.86	100.49	28	48	21.7	3.15	20	20	74	BF	2.2	FS20110089
44		112.05	110.67	28	48	21.7	3.15	20	20	78	BF	2.7	FS20121099
48		122.23	120.86	28	48	21.7	3.15	20	20	80	BF	3.1	FS20131109
56		142.60	141.23	28	48	21.7	3.15	20	20	86	BF	4.1	FS20151130

H8M0300 (For a belt width of 30 mm) Made-to-order

(Unit: mm)

No. of teeth	Material	dp	do	W	L	WA	S	B	d	db	Profile	Roughly calculated pulley mass (kg)	Flange part No.
22	Carbon steel for machine construction	56.02	54.65	38	58	31.7	3.15	20	16	40	BF	0.8	FS20064045
24		61.12	59.74	38	58	31.7	3.15	20	16	44	BF	0.9	FS20070050
25		63.66	62.29	38	58	31.7	3.15	20	16	46	BF	1.0	FS20072052
26		66.21	64.84	38	58	31.7	3.15	20	16	48	BF	1.1	FS20075054
28		71.30	69.93	38	58	31.7	3.15	20	16	52	BF	1.3	FS20080059
30		76.39	75.02	38	58	31.7	3.15	20	16	56	BF	1.5	FS20085064
32		81.49	80.12	38	58	31.7	3.15	20	20	60	BF	1.7	FS20090069
34		86.58	85.21	38	58	31.7	3.15	20	20	64	BF	2.0	FS20095074
36		91.67	90.30	38	58	31.7	3.15	20	20	68	BF	2.2	FS20100079
38		96.77	95.39	38	58	31.7	3.15	20	20	72	BF	2.5	FS20105084
40		101.86	100.49	38	58	31.7	3.15	20	20	74	BF	2.8	FS20110089
44		112.05	110.67	38	58	31.7	3.15	20	20	78	BF	3.4	FS20121099
48		122.23	120.86	38	58	31.7	3.15	20	20	80	BF	4.0	FS20131109
56		142.60	141.23	38	58	31.7	3.15	20	20	86	BF	5.3	FS20151130

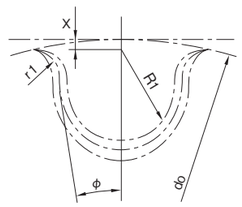
H8M0500 (For a belt width of 50 mm) Made-to-order

(Unit: mm)

No. of teeth	Material	dp	do	W	L	WA	S	B	d	db	Profile	Roughly calculated pulley mass (kg)	Flange part No.
22	Carbon steel for machine construction	56.02	54.65	59	79	52.7	3.15	20	16	40	BF	1.1	FS20064045
24		61.12	59.74	59	79	52.7	3.15	20	16	44	BF	1.3	FS20070050
25		63.66	62.29	59	79	52.7	3.15	20	16	46	BF	1.4	FS20072052
26		66.21	64.84	59	79	52.7	3.15	20	16	48	BF	1.6	FS20075054
28		71.30	69.93	59	79	52.7	3.15	20	16	52	BF	1.8	FS20080059
30		76.39	75.02	59	79	52.7	3.15	20	16	56	BF	2.2	FS20085064
32		81.49	80.12	59	79	52.7	3.15	20	20	60	BF	2.4	FS20090069
34		86.58	85.21	59	79	52.7	3.15	20	20	64	BF	2.8	FS20095074
36		91.67	90.30	59	79	52.7	3.15	20	20	68	BF	3.2	FS20100079
38		96.77	95.39	59	79	52.7	3.15	20	20	72	BF	3.6	FS20105084
40		101.86	100.49	59	79	52.7	3.15	20	20	74	BF	3.9	FS20110089
44		112.05	110.67	59	79	52.7	3.15	20	20	78	BF	4.8	FS20121099
48		122.23	120.86	59	79	52.7	3.15	20	20	80	BF	5.7	FS20131109
56		142.60	141.23	59	79	52.7	3.15	20	20	86	BF	7.7	FS20151130

Table of HTS Pulley Standard Dimensions (Shaft-Hole-Machined Type) Type 14M

(Pulley Tooth Profile Dimensions)

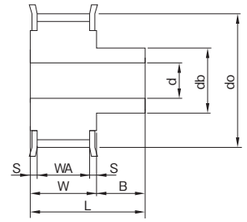


■ JIS-B 1857-2 Type H

(Dimension unit: mm, Angle unit: °)

No. of teeth		R1	r1	X	φ
28～32	Basic	4.859	1.544	1.468	7.1
	Max	4.948	1.722	1.468	7.1
	Min	4.783	1.468	1.468	7.1
33～36	Basic	4.834	1.613	1.494	5.2
	Max	4.923	1.791	1.494	5.2
	Min	4.757	1.537	1.494	5.2
37～57	Basic	4.737	1.654	1.461	9.3
	Max	4.826	1.831	1.461	9.3
	Min	4.661	1.577	1.461	9.3

(Pulley Profile) Type BF



(Pulley Designation) **(Example)**

28 H14M 0400 BF

- 28: No. of teeth of pulley (28 teeth)
- H14M: Pulley tooth profile (Type H14M)
- 0400: Pulley nominal width (For a belt width of 40 mm)
- BF: Pulley profile (Type BF)

H14M0400 (For a belt width of 40 mm) Made-to-order

(Unit: mm)

No. of teeth	Material	dp	do	W	L	WA	S	B	d	db	Profile	Roughly calculated pulley mass (kg)	Flange part No.
28	Carbon steel for machine construction	124.78	121.98	50	75	42	4	25	25	92	BF	5.3	FS26137106
29		129.23	126.44	50	75	42	4	25	25	94	BF	5.7	FS26141111
30		133.69	130.90	50	75	42	4	25	25	96	BF	6.1	FS26146115
32		142.60	139.81	50	75	42	4	25	25	100	BF	6.9	FS26155123
34		151.52	148.72	50	75	42	4	25	25	104	BF	7.8	FS26164132
36		160.43	157.63	50	75	42	4	25	30	108	BF	8.6	FS26173140
38		169.34	166.55	50	75	42	4	25	30	112	BF	9.6	*FS26182149
40		178.25	175.46	50	75	42	4	25	30	114	BF	10.6	FS26190158
44		196.08	193.28	50	75	42	4	25	30	118	BF	12.7	FS26208176

H14M0550 (For a belt width of 55 mm) Made-to-order

(Unit: mm)

No. of teeth	Material	dp	do	W	L	WA	S	B	d	db	Profile	Roughly calculated pulley mass (kg)	Flange part No.
28	Carbon steel for machine construction	124.78	121.98	66	91	58	4	25	25	92	BF	6.5	FS26137106
29		129.23	126.44	66	91	58	4	25	25	94	BF	7.0	FS26141111
30		133.69	130.90	66	91	58	4	25	25	96	BF	7.5	FS26146115
32		142.60	139.81	66	91	58	4	25	25	100	BF	8.6	FS26155123
34		151.52	148.72	66	91	58	4	25	25	104	BF	9.7	FS26164132
36		160.43	157.63	66	91	58	4	25	30	108	BF	10.8	FS26173140
38		169.34	166.55	66	91	58	4	25	30	112	BF	12.1	*FS26182149
40		178.25	175.46	66	91	58	4	25	30	114	BF	13.3	FS26190158
44		196.08	193.28	66	91	58	4	25	30	118	BF	16.1	FS26208176

H14M0850 (For a belt width of 85 mm) Made-to-order

(Unit: mm)

No. of teeth	Material	dp	do	W	L	WA	S	B	d	db	Profile	Roughly calculated pulley mass (kg)	Flange part No.
28	Carbon steel for machine construction	124.78	121.98	97	122	89	4	25	25	92	BF	9.0	FS26137106
29		129.23	126.44	97	122	89	4	25	25	94	BF	9.7	FS26141111
30		133.69	130.90	97	122	89	4	25	25	96	BF	10.4	FS26146115
32		142.60	139.81	97	122	89	4	25	25	100	BF	11.9	FS26155123
34		151.52	148.72	97	122	89	4	25	25	104	BF	13.5	FS26164132
36		160.43	157.63	97	122	89	4	25	30	108	BF	15.0	FS26173140
38		169.34	166.55	97	122	89	4	25	30	112	BF	16.8	*FS26182149
40		178.25	175.46	97	122	89	4	25	30	114	BF	18.6	FS26190158
44		196.08	193.28	97	122	89	4	25	30	118	BF	22.6	FS26208176

*Available with a cut straight flange. For other sizes than the above, please contact us.

HTS Pulley Dimensional Tolerance

■ Tip diameter (do)

(Unit: mm)

Tip diameter do	Tolerance
25.4 or less	+0.05 0
Over 25.4 to 50.8 or less	+0.08 0
Over 50.8 to 101.6 or less	+0.10 0
Over 101.6 to 177.8 or less	+0.13 0
Over 177.8 to 304.8 or less	+0.15 0
Over 304.8 to 508.0 or less	+0.18 0
Over 508.0	+0.20 0

■ Cylindricity of tip diameter

(Unit: mm)

Per a tooth width of 10	Within 0.01

■ Run-out tolerance for shaft hole and tip diameter

(Unit: mm)

Tip diameter	Run-out tolerance
203.2 or less	0.13
Over 203.2	0.13 + ((tip diameter - 203.2) × 0.0005)

■ Parallelism between teeth and shaft hole center line

(Unit: mm)

Per a tooth width of 10	Within 0.01

■ Run-out tolerance for shaft hole and side face

(Unit: mm)

Tip diameter	Run-out tolerance
101.6 or less	0.10
Over 101.6 to 254.0 or less	Tip diameter × 0.001
Over 254.0	0.25 + ((tip diameter - 254.0) × 0.0005)

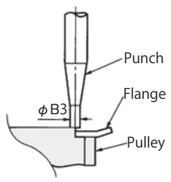
■ Outside diameter tolerance for a pulley's stepped sections and flange inside diameter tolerance

(Unit: mm)

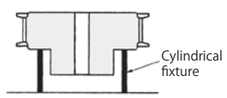
Outside diameter at a pulley's stepped sections and flange inside diameter	Outside diameter tolerance for a pulley's stepped sections		Flange inside diameter tolerance	
18 or less	+0	−0.03	+0.07	−0
Over 18 to 30 or less	+0	−0.03	+0.08	−0
Over 30 to 50 or less	+0	−0.04	+0.10	−0
Over 50 to 80 or less	+0	−0.05	+0.12	−0
Over 80 to 120 or less	+0	−0.05	+0.14	−0
Over 120 to 180 or less	+0	−0.06	+0.16	−0
Over 180 to 250 or less	+0	−0.07	+0.19	−0
Over 250 to 315 or less	+0	−0.08	+0.21	−0
Over 315 to 400 or less	+0	−0.09	+0.23	−0
Over 400 to 500 or less	+0	−0.10	+0.25	−0
Over 500 to 630 or less	+0	−0.11	+0.28	−0
Over 630 to 800 or less	+0	−0.13	+0.32	−0
Over 800 to 1000 or less	+0	−0.14	+0.36	−0
Over 1000	+0	−0.17	+0.42	−0

Crimping Method (Standard Flange) Follow the steps below.

① Prepare an eye punch, a flat disk, a cylindrical fixture, and a hammer.
② When a foreign object is adhering to the flange-fitting section of the pulley, a gap is created between the pulley and the flange, preventing crimping; clean the flange-fitting section.
③ As shown in the following figure, place the pulley body on the flat disk and crimp the pulley body over the flange with the eye punch.



(Note) When crimping a Type-B pulley, the boss causes an unstable condition; use a cylindrical fixture so that the pulley can be crimped uniformly.



④ When crimping a flange, be sure to crimp it in diagonal order.
⑤ The number of crimping should be as follows.

■ HTS pulley flange

Pulley outside diameter (mm)	No. of crimping (one side)
31 or less	6 sections or more
Over 31 to 50 or less	8 sections or more
Over 50 to 80 or less	10 sections or more
Over 80 to 150 or less	12 sections or more
Over 150 to 220 or less	16 sections or more
Over 220	20 sections or more

⑥ After installing flanges, check for looseness.

When a flange comes in the way due to a fixed center distance etc. and prevents belt installation, fastening with screws is effective. In this case, however, the standard flanges cannot be used; please contact us.

memo

Synchronous Pulleys

We offer synchronous standard pulleys for more convenient use of synchronous belts. The standard pulleys are standardized in two types, bushing type and shaft-hole-machined type, as shown in the following tables. Please use them in accordance with your purpose.

(1) Synchronous Standard Pulley System

TL synchronous pulleys (bushing type)

The TL synchronous pulleys are designed to provide the performance of synchronous belts sufficiently and provide many benefits.

- The simple structure allows very simple installation on and removal from a shaft.
- The slit in the entire bushing allows easy movement of the bushing on the shaft.
- JIS keys can be used without any modification.
- The absence of projections such as a bolt head makes the pulley simple and allows effective use of the space.

Pulley tooth profile	Stock	Pulley nominal width	No. of teeth of pulley	Material
L	Standard stock	050, 075, 100	19～84	Cast iron or carbon steel for machine construction
H	Standard stock	100	18～96	Cast iron or carbon steel for machine construction
	Standard stock	150	20～96	
	Standard stock	200	24～96	
	Standard stock	300	40～72	
XH	Made-to-order	200, 300, 400	22～30	Cast iron or carbon steel for machine construction
	Made-to-order		32～120	

Synchronous Pulleys (Shaft-Hole-Machined Type)

They are very beneficial as they can adapt to shafts of special sizes by machining and are available in a wide range of pulley sizes.

- For details such as the machining method and the flange installation method, refer to **P. 134 to P. 136** and **P. 189 to P. 191**.

In addition to the standard pulleys, we also manufacture pulleys with a requested number of teeth and a requested profile. Please contact us.

Pulley tooth profile	Stock	Pulley nominal width	No. of teeth of pulley	Material
TN15	Made-to-order	5.0, 10.0	20～96	High-strength aluminum alloy
MXL	Standard stock	6.4	12～100	
	Made-to-order	9.5	16～100	
XL	Standard stock	037	10～72	Carbon steel for machine construction
	Made-to-order	050	10～72	
	Standard stock	037S	10～30	Sintered alloy
L	Standard stock	050, 075	12～50	Cast iron or carbon steel for machine construction
	Made-to-order		60, 72, 84	
	Standard stock	100	14～50	
	Made-to-order		60, 72, 84	
H	Standard stock	100, 150	14～36	Cast iron or carbon steel for machine construction
	Made-to-order		40～96	
	Standard stock	200	14～38	
	Made-to-order		40～96	
	Standard stock	300	16～36	
	Made-to-order		40～72	
XH	Made-to-order	200, 300, 400	18～120	Carbon steel for machine construction
XXH	Made-to-order	200, 300, 400, 500	18～60	
T5	Made-to-order	10, 15	12～72	
T10	Made-to-order	15, 25	12～72	

(2) Designation for Synchronous Pulleys

Type	Designation example
TL synchronous pulley (bushing type)	Pulley body: 30 (No. of teeth of pulley (30 teeth)) L (Pulley tooth profile (Type L)) 100 (Pulley nominal width (For a belt width of 1 inch: 25.4 mm)) / Applicable bushing: 4225 (TL bushing type number) × 20 (Shaft hole dia. (20mm)) N (Keyway for new JIS keys (Previous JIS keys: F))
Synchronous pulley (shaft-hole-machined type)	40 (No. of teeth of pulley (40 teeth)) H (Pulley tooth profile (Type H)) 100 (Pulley nominal width (For a belt width of 1 inch: 25.4 mm)) B (Pulley profile (Type B))

(Note) When you need a backlash-less pulley, please contact us.

Pulley Dimensional Accuracy

For pulley dimensional accuracy, use pulleys with the following dimensional accuracies to sufficiently obtain the belt function.

■ Outside diameter

(Unit: mm)

Pulley outside diameter do	Tolerance	
	MXL/XXL/XL/L/H/XH/XXH	T5/T10
Over 5.96 to 25.40 or less	+0.05, 0	±0.05 regardless of the diameter
Over 25.40 to 50.80 or less	+0.08, 0	
Over 50.80 to 101.60 or less	+0.10, 0	
Over 101.60 to 177.80 or less	+0.13, 0	
Over 177.80 to 304.80 or less	+0.15, 0	
Over 304.80 to 508.00 or less	+0.18, 0	
Over 508.00 to 762.00 or less	+0.20, 0	
Over 762.00 to 967.16 or less	+0.23, 0	

■ Shaft hole diameter

(Unit: mm)

Shaft hole dia.	Tolerance	
	TL bushing (H8)	Shaft-hole-machined type
Over 3 to 6 or less	+0.018, 0	The shaft holes for the shaft-hole-machined type are pilot holes.
Over 6 to 10 or less	+0.022, 0	
Over 10 to 18 or less	+0.027, 0	
Over 18 to 30 or less	+0.033, 0	
Over 30 to 50 or less	+0.039, 0	
Over 50 to 80 or less	+0.046, 0	
Over 80 to 120 or less	+0.054, 0	
Over 120 to 180 or less	+0.063, 0	

■ Run-out of the outside diameter in relation to the shaft hole

(Unit: mm)

Pulley outside diameter do	Run-out tolerance (TIR) (Note)
203.20 or less	0.13 or less
Over 203.20 to 967.16 or less	0.13 + {(Pulley outside diameter - 203.20) × 0.0005}

■ Run-out of the pulley side face in relation to the shaft hole

(Unit: mm)

Pulley outside diameter do	Run-out tolerance (TIR) (Note)
101.60 or less	0.10
Over 101.60 to 254.00 or less	Pulley outside diameter × 0.001
Over 254.00 to 967.16 or less	0.25 + {(Pulley outside diameter - 254.00) × 0.0005}

(Note) TIR is an abbreviation for Total Indicator Reading and refers to a difference between the maximum value and the minimum value in readings of run-out measurement.

■ Cylindricity of outside diameter

(Unit: mm)

Pulley nominal width		Tolerance
XL・L・H・XH・XXH	T5・T10	
025～050	～ 19	0.01
075～150	20～ 40	0.02
200・300	41～100	0.04
400・500		0.06

■ Parallelism between teeth and shaft hole center line

(Unit: mm)

Pulley nominal width		Tolerance
XL・L・H・XH・XXH	T5・T10	
025～150	～40	0.03
200・300	41～100	0.04
400・500		0.05

■ Adjacent pitch error and cumulative pitch error

(Unit: mm)

Pulley outside diameter do	Tolerance	
	Adjacent pitch error	Cumulative pitch error (90° or more)
Over 5.96 to 25.40 or less	0.03	0.05
Over 25.40 to 50.80 or less	0.03	0.08
Over 50.80 to 101.60 or less	0.03	0.10
Over 101.60 to 177.80 or less	0.05	0.13
Over 177.80 to 304.80 or less	0.05	0.15
Over 304.80 to 508.00 or less	0.08	0.18
Over 508.00 to 762.00 or less	0.08	0.20
Over 762.00 to 967.16 or less	0.08	0.23

■ Keyway

Refer to keyway dimensions (parallel keys) on **P. 195**.

■ Pulley's blank outside diameter

As pulley's gear cutting is a topping process, the blank outside diameter is a value with the value in the following table (topping range) added.

■ Topping range for pulley outside diameter

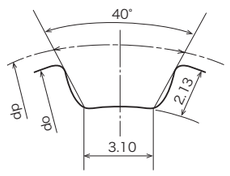
(Unit: mm)

Pulley outside diameter	Topping range
50.80 or less	0.5
Over 50.80 to 101.60 or less	0.6
Over 101.60 to 177.80 or less	0.7
Over 177.80 to 304.80 or less	0.8
Over 304.80 to 508.00 or less	1.0
Over 508.00 to 700.00 or less	1.2
Over 700.00	1.4

(Example) Blank outside diameter of synchronous pulley 30H100A
Blank outside diameter = pulley outside diameter + topping range
$=119.90^{+0.13}_{0}+0.7=120.60^{+0.13}_{0}$

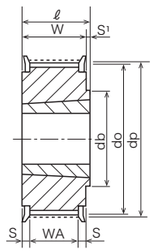
Table of TL Synchronous Pulley Standard Dimensions (Bushing Type)
Type L

(Pulley Tooth Profile Dimensions)

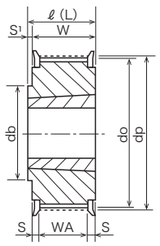


(Pulley Profile)

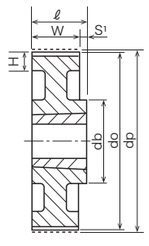
Type 1-1AF



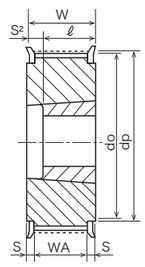
Type 1-1B



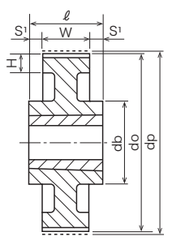
Type 1-2



Type 4-1BF



Type 6



(Pulley Designation)

(Example) 30 L 100

- 30: No. of teeth of pulley (30 teeth)
- L: Pulley tooth profile (Type L)
- 100: Pulley nominal width (For a belt width of 1 inch: 25.4 mm)

(Bushing Designation)

(Example) 4225 × 20 N

- 4225: TL bushing type number
- 20: Shaft hole dia. (20 mm)
- N: Keyway for new JIS keys (Previous JIS keys: F)

L 050 (For a belt width of 12.7 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S_1	S_2	S_3	H	Roughly calculated pulley mass (kg)	Flange part No.
19	57.61	56.84	1-1BF	Carbon steel for machine construction	3622	22	19	14	2.5	45	22	3	-	-	-	0.23	F 6751
20	60.64	59.88	1-1BF		3622	22	19	14	2.5	45	22	3	-	-	-	0.27	F 6751
21	63.67	62.91	1-1BF		4225	28	19	14	2.5	50	25	6	-	-	-	0.3	F 7056
22	66.70	65.94	1-1BF		4225	28	19	14	2.5	50	25	6	-	-	-	0.36	F 7761
23	69.73	68.97	1-1BF		4225	28	19	14	2.5	50	25	6	-	-	-	0.39	F 7761
24	72.77	72.00	1-1BF		4225	28	19	14	2.5	50	25	6	-	-	-	0.45	F 8366
25	75.80	75.04	1-1BF		4225	28	19	14	2.5	50	25	6	-	-	-	0.5	F 8366
26	78.83	78.07	1-1BF		4225	28	19	14	2.5	63	25	6	-	-	-	0.61	F 8871
28	84.89	84.13	1-1BF		4225	28	19	14	2.5	63	25	6	-	-	-	0.73	F 9575
30	90.96	90.20	1-1BF		4225	28	19	14	2.5	63	25	6	-	-	-	0.84	F 9980
32	97.02	96.26	1-1BF		4225	28	19	14	2.5	63	25	6	-	-	-	0.97	F 10385
34	103.08	102.32	1-1BF		4225	28	19	14	2.5	63	25	6	-	-	-	1.1	F 11595
36	109.15	108.39	1-1BF		4225	28	19	14	2.5	63	25	6	-	-	-	1.3	F119100
40	121.28	120.51	1-1AF	Cast iron or carbon steel for machine construction	4225	28	19	14	2.5	63	25	6	-	-	-	1.5	F131110
42	127.34	126.58	1-1AF		4225	28	19	14	2.5	63	25	6	-	-	-	1.7	F135115
44	133.40	132.64	1-1AF		5035	32	19	14	2.5	80	35	16	-	-	-	2.0	F140120
48	145.53	144.77	1-1AF		5035	32	19	14	2.5	80	35	16	-	-	-	2.4	F152130
50	151.60	150.83	1-1AF		5035	32	19	14	2.5	80	35	16	-	-	-	2.6	F160140
60	181.90	181.15	1-2		5035	32	19	-	-	80	35	16	-	-	11	2.2	-
72	218.30	217.53	1-2		5035	32	19	-	-	80	35	16	-	-	11	2.5	-
84	254.68	253.92	6		6340	42	19	-	-	100	40	10.5	-	-	11	3.6	-

Table of TL Synchronous Pulley Standard Dimensions (Bushing Type)
Type L

L 075 (For a belt width of 19.0 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S_1	S_2	S_3	H	Roughly calculated pulley mass (kg)	Flange part No.
19	57.61	56.84	4-1BF	Carbon steel for machine construction	3622	22	26	21	2.5	-	22	-	4	-	-	0.3	F 6751
20	60.64	59.88	4-1BF		3622	22	26	21	2.5	-	22	-	4	-	-	0.35	F 6751
21	63.67	62.91	4-1BF		4225	28	26	21	2.5	-	25	-	1	-	-	0.36	F 7056
22	66.70	65.94	4-1BF		4225	28	26	21	2.5	-	25	-	1	-	-	0.43	F 7761
23	69.73	68.97	4-1BF		4225	28	26	21	2.5	-	25	-	1	-	-	0.49	F 7761
24	72.77	72.00	4-1BF		4225	28	26	21	2.5	-	25	-	1	-	-	0.56	F 8366
25	75.80	75.04	4-1BF		4225	28	26	21	2.5	-	25	-	1	-	-	0.62	F 8366
26	78.83	78.07	4-1BF		4225	28	26	21	2.5	-	25	-	1	-	-	0.7	F 8871
28	84.89	84.13	4-1BF		4225	28	26	21	2.5	-	25	-	1	-	-	0.86	F 9575
30	90.96	90.20	4-1BF		4225	28	26	21	2.5	-	25	-	1	-	-	1.0	F 9980
32	97.02	96.26	4-1BF		4225	28	26	21	2.5	-	25	-	1	-	-	1.2	F 10385
34	103.08	102.32	4-1BF		4225	28	26	21	2.5	-	25	-	1	-	-	1.4	F 11595
36	109.15	108.39	4-1BF		4225	28	26	21	2.5	-	25	-	1	-	-	1.6	F119100
40	121.28	120.51	4-1BF		4225	28	26	21	2.5	-	25	-	1	-	-	1.9	F131110
42	127.34	126.58	1-1AF	Cast iron or carbon steel for machine construction	5035	32	26	21	2.5	80	35	9	-	-	-	2.2	F135115
44	133.40	132.64	1-1AF		5035	32	26	21	2.5	80	35	9	-	-	-	2.5	F140120
48	145.53	144.77	1-1AF		5035	32	26	21	2.5	80	35	9	-	-	-	3.0	F152130
50	151.60	150.83	1-1AF		5035	32	26	21	2.5	80	35	9	-	-	-	3.2	F160140
60	181.90	181.15	1-2		5035	32	26	-	-	80	35	9	-	-	11	2.5	-
72	218.30	217.53	1-2		6340	42	26	-	-	100	40	14	-	-	11	3.5	-
84	254.68	253.92	1-2		6340	42	26	-	-	100	40	14	-	-	11	4.1	-

L 100 (For a belt width of 25.4 mm)

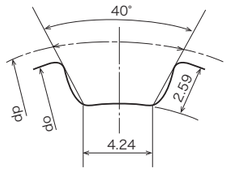
: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S_1	S_2	S_3	H	Roughly calculated pulley mass (kg)	Flange part No.
19	57.61	56.84	4-1BF	Carbon steel for machine construction	3622	22	32	27	2.5	-	22	-	10	-	-	0.37	F 6751
20	60.64	59.88	4-1BF		3622	22	32	27	2.5	-	22	-	10	-	-	0.43	F 6751
21	63.67	62.91	4-1BF		4225	28	32	27	2.5	-	25	-	7	-	-	0.44	F 7056
22	66.70	65.94	4-1BF		4225	28	32	27	2.5	-	25	-	7	-	-	0.52	F 7761
23	69.73	68.97	4-1BF		4225	28	32	27	2.5	-	25	-	7	-	-	0.59	F 7761
24	72.77	72.00	4-1BF		4225	28	32	27	2.5	-	25	-	7	-	-	0.68	F 8366
25	75.80	75.04	4-1BF		4225	28	32	27	2.5	-	25	-	7	-	-	0.76	F 8366
26	78.83	78.07	4-1BF		4225	28	32	27	2.5	-	25	-	7	-	-	0.86	F 8871
28	84.89	84.13	4-1BF		4225	28	32	27	2.5	-	25	-	7	-	-	1.1	F 9575
30	90.96	90.20	4-1BF		4225	28	32	27	2.5	-	25	-	7	-	-	1.3	F 9980
32	97.02	96.26	4-1BF		4225	28	32	27	2.5	-	25	-	7	-	-	1.5	F 10385
34	103.08	102.32	1-1BF		5035	32	32	27	2.5	80	35	3	-	-	-	1.7	F 11595
36	109.15	108.39	1-1BF		5035	32	32	27	2.5	80	35	3	-	-	-	1.9	F119100
40	121.28	120.51	1-1BF	Cast iron or carbon steel for machine construction	5035	32	32	27	2.5	80	35	3	-	-	-	2.3	F131110
42	127.34	126.58	1-1BF		5035	32	32	27	2.5	80	35	3	-	-	-	2.6	F135115
44	133.40	132.64	1-1BF		5035	32	32	27	2.5	80	35	3	-	-	-	2.8	F140120
48	145.53	144.77	1-1BF		5035	32	32	27	2.5	80	35	3	-	-	-	3.5	F152130
50	151.60	150.83	1-1BF		5035	32	32	27	2.5	80	35	3	-	-	-	3.8	F160140
60	181.90	181.15	1-2		6340	42	32	-	-	100	40	8	-	-	11	3.5	-
72	218.30	217.53	1-2		6340	42	32	-	-	100	40	8	-	-	11	3.9	-
84	254.68	253.92	1-2		6340	42	32	-	-	100	40	8	-	-	11	4.5	-

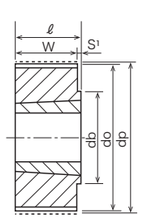
Table of TL Synchronous Pulley Standard Dimensions (Bushing Type)
Type H

(Pulley Tooth Profile Dimensions)

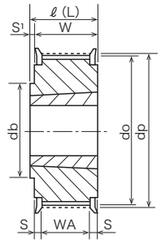


(Pulley Profile)

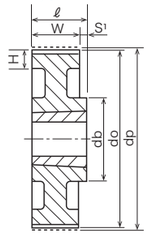
Type 1-1A



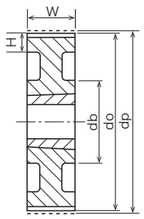
Type 1-1BF



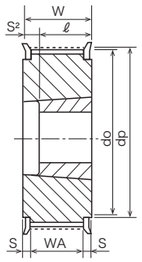
Type 1-2



Type 3-2



Type 4-1BF



(Pulley Designation) **(Example)** 20 H 100

- 20: No. of teeth of pulley (20 teeth)
- H: Pulley tooth profile (Type H)
- 100: Pulley nominal width (For a belt width of 1 inch: 25.4 mm)

(Bushing Designation) **(Example)** 4225 × 20 N

- 4225: TL bushing type number
- 20: Shaft hole dia. (20 mm)
- N: Keyway for new JIS keys (Previous JIS keys: F)

H 100 (For a belt width of 25.4 mm) are available in stock.

(Unit: mm)

No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S_1	S_2	S_3	H	Roughly calculated pulley mass (kg)	Flange part No.
18	72.77	71.39	4-1BF	Carbon steel for machine construction	4225	28	32	27	2.5	-	25	-	7	-	-	0.67	F 7761
19	76.81	75.44	4-1BF		4225	28	32	27	2.5	-	25	-	7	-	-	0.77	F 8366
20	80.85	79.48	4-1BF		4225	28	32	27	2.5	-	25	-	7	-	-	0.89	F 8871
21	84.89	83.52	1-1BF		5035	32	32	27	2.5	63	35	3	-	-	-	0.93	F 9575
22	88.94	87.56	1-1BF		5035	32	32	27	2.5	63	35	3	-	-	-	1.1	F 9575
24	97.02	95.65	1-1BF		5035	32	32	27	2.5	63	35	3	-	-	-	1.3	F 10385
25	101.06	99.69	1-1BF		5035	32	32	27	2.5	63	35	3	-	-	-	1.5	F 11190
26	105.11	103.73	1-1BF		5035	32	32	27	2.5	63	35	3	-	-	-	1.6	F 11190
28	113.19	111.82	1-1BF		5035	32	32	27	2.5	63	35	3	-	-	-	2.0	F119100
30	121.28	119.90	1-1BF	Cast iron or carbon steel for machine construction	5035	32	32	27	2.5	80	35	3	-	-	-	2.2	F127105
32	129.36	127.99	1-1BF		5035	32	32	27	2.5	80	35	3	-	-	-	2.6	F135115
34	137.45	136.07	1-1BF		5035	32	32	27	2.5	80	35	3	-	-	-	3.0	F144125
36	145.53	144.16	1-1BF		5035	32	32	27	2.5	80	35	3	-	-	-	3.4	F152130
40	161.70	160.33	1-1A		6340	42	32	-	-	100	40	8	-	-	-	4.2	-
42	169.79	168.41	1-1A		6340	42	32	-	-	100	40	8	-	-	-	4.7	-
44	177.87	176.50	1-2		6340	42	32	-	-	100	40	8	-	-	12	3.5	-
48	194.04	192.67	1-2		6340	42	32	-	-	100	40	8	-	-	12	3.6	-
50	202.13	200.76	1-2		6340	42	32	-	-	100	40	8	-	-	12	3.8	-
60	242.55	241.18	1-2		6340	42	32	-	-	100	40	8	-	-	12	4.5	-
72	291.06	289.69	1-2		8545	60	32	-	-	140	45	13	-	-	13	7.3	-
84	339.57	338.20	1-2		8545	60	32	-	-	140	45	13	-	-	13	8.4	-
96	388.08	386.71	1-2		8545	60	32	-	-	140	45	13	-	-	13	9.8	-

H 150 (For a belt width of 38.1 mm) are available in stock.

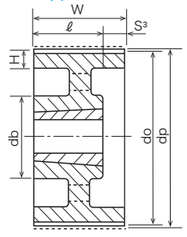
(Unit: mm)

No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S_1	S_2	S_3	H	Roughly calculated pulley mass (kg)	Flange part No.
20	80.85	79.48	4-1BF	Carbon steel for machine construction	5035	32	45	40	2.5	-	35	-	10	-	-	1.1	F 8871
21	84.89	83.52	4-1BF		5035	32	45	40	2.5	-	35	-	10	-	-	1.3	F 9575
22	88.94	87.56	4-1BF		5035	32	45	40	2.5	-	35	-	10	-	-	1.4	F 9575
24	97.02	95.65	4-1BF		5035	32	45	40	2.5	-	35	-	10	-	-	1.8	F 10385
25	101.06	99.69	4-1BF		6340	42	45	40	2.5	-	40	-	5	-	-	1.7	F 11190
26	105.11	103.73	4-1BF		6340	42	45	40	2.5	-	40	-	5	-	-	1.9	F 11190
28	113.19	111.82	4-1BF		6340	42	45	40	2.5	-	40	-	5	-	-	2.4	F119100
30	121.28	119.90	4-1BF		6340	42	45	40	2.5	-	40	-	5	-	-	2.7	F127105
32	129.36	127.99	4-1BF		6340	42	45	40	2.5	-	40	-	5	-	-	3.2	F135115
34	137.45	136.07	4-1BF		6340	42	45	40	2.5	-	40	-	5	-	-	3.7	F144125
36	145.53	144.16	4-1BF	Cast iron or carbon steel for machine construction	6340	42	45	40	2.5	-	40	-	5	-	-	4.3	F152130
40	161.70	160.33	4-2B		6340	42	45	-	-	90	40	-	5	-	12	3.5	-
42	169.79	168.41	4-2B		6340	42	45	-	-	90	40	-	5	-	12	3.8	-
44	177.87	176.50	4-2B		6340	42	45	-	-	100	40	-	5	-	12	4.1	-
48	194.04	192.67	4-2B		6340	42	45	-	-	100	40	-	5	-	12	4.2	-
50	202.13	200.76	3-2		8545	60	45	-	-	125	-	-	-	-	13	5.9	-
60	242.55	241.18	3-2		8545	60	45	-	-	140	-	-	-	-	13	7.3	-
72	291.06	289.69	3-2		8545	60	45	-	-	140	-	-	-	-	13	8.5	-
84	339.57	338.20	3-2		8545	60	45	-	-	140	-	-	-	-	13	10.0	-
96	388.08	386.71	3-2		8545	60	45	-	-	140	-	-	-	-	13	11.7	-

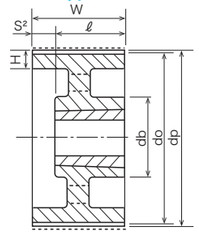
Table of TL Synchronous Pulley Standard Dimensions (Bushing Type)
Type H

(Pulley Profile)

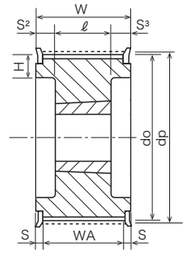
Type 4-2A



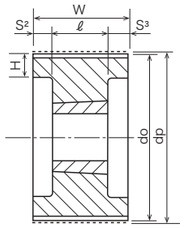
Type 4-2B



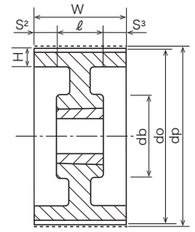
Type 5-1F



Type 5-1



Type 5-2



H 200 (For a belt width of 50.8 mm) : Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S_1	S_2	S_3	H	Roughly calculated pulley mass (kg)	Flange part No.
24	97.02	95.65	4-1BF	Carbon steel for machine construction	6340	42	59	54	2.5	-	40	-	19	-	-	1.9	F 10385
25	101.06	99.69	4-1BF		6340	42	59	54	2.5	-	40	-	19	-	-	2.2	F 11190
26	105.11	103.73	4-1BF		6340	42	59	54	2.5	-	40	-	19	-	-	2.5	F 11190
28	113.19	111.82	4-1BF		6340	42	59	54	2.5	-	40	-	19	-	-	3.1	F119100
30	121.28	119.90	4-1BF		6340	42	59	54	2.5	-	40	-	19	-	-	3.5	F127105
32	129.36	127.99	5-1F	Cast iron or carbon steel for machine construction	6340	42	59	54	2.5	-	40	-	10	9	13	3.6	F135115
34	137.45	136.07	5-1F		6340	42	59	54	2.5	-	40	-	10	9	13	4.1	F144125
36	145.53	144.16	5-1F		6340	42	59	54	2.5	-	40	-	10	9	13	4.7	F152130
40	161.70	160.33	5-1		8545	60	59	-	-	-	45	-	10	4	13	5.3	-
42	169.79	168.41	5-1		8545	60	59	-	-	-	45	-	10	4	13	6.0	-
44	177.87	176.50	5-1		8545	60	59	-	-	-	45	-	10	4	13	6.8	-
48	194.04	192.67	5-1		8545	60	59	-	-	-	45	-	10	4	13	8.4	-
50	202.13	200.76	5-2		8545	60	59	-	-	125	45	-	10	4	13	6.7	-
60	242.55	241.18	5-2		8545	60	59	-	-	140	45	-	10	4	13	8.4	-
72	291.06	289.69	5-2		8545	60	59	-	-	140	45	-	10	4	13	9.6	-
84	339.57	338.20	5-2		8545	60	59	-	-	140	45	-	10	4	13	11.3	-
96	388.08	386.71	4-2A		11055	75	59	-	-	180	55	-	-	4	13	16.8	-

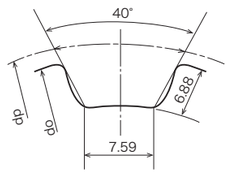
H 300 (For a belt width of 76.2 mm) : Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S_1	S_2	S_3	H	Roughly calculated pulley mass (kg)	Flange part No.
40	161.70	160.33	5-1	Cast iron or carbon steel for machine construction	8545	60	85	-	-	-	45	-	25	15	14	6.5	-
42	169.79	168.41	5-1		8545	60	85	-	-	-	45	-	25	15	14	7.3	-
44	177.87	176.50	5-1		8545	60	85	-	-	-	45	-	25	15	14	8.1	-
48	194.04	192.67	5-1		8545	60	85	-	-	-	45	-	25	15	14	9.8	-
50	202.13	200.76	5-1		8545	60	85	-	-	-	45	-	25	15	14	10.7	-
60	242.55	241.18	5-2		8545	60	85	-	-	140	45	-	25	15	14	10.6	-
72	291.06	289.69	5-2		11055	75	85	-	-	180	55	-	15	15	14	15.9	-

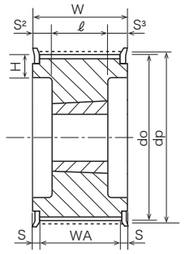
Table of TL Synchronous Pulley Standard Dimensions (Bushing Type)
Type XH

(Pulley Tooth Profile Dimensions)

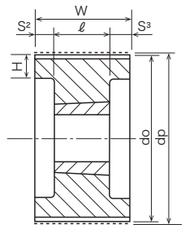


(Pulley Profile)

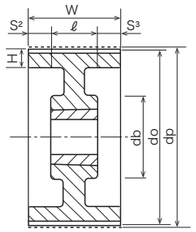
Type 5-1F



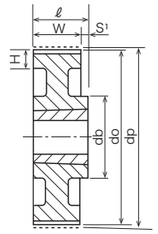
Type 5-1



Type 5-2



Type 1-2



(Pulley Designation) **(Example) 36 XH 200**

- 36: No. of teeth of pulley (36 teeth)
- XH: Pulley tooth profile (Type XH)
- 200: Pulley nominal width (For a belt width of 2 inches: 50.8 mm)

(Bushing Designation) **(Example) 8545×50 N**

- 8545: TL bushing type number
- 50: Shaft hole dia. (50 mm)
- N: Keyway for new JIS keys (Previous JIS keys: F)

X H 200 (For a belt width of 50.8 mm)

Made-to-order

(Unit: mm)

No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S_1	S_2	S_3	H	Flange Outside diameter	Flange Inside diameter
22	155.64	152.84	5-1F	Carbon steel for machine construction	8545	60	67	57	5	-	45	-	15	7	20	168	128
24	169.79	166.99	5-1F		8545	60	67	57	5	-	45	-	15	7	20	182	142
26	183.94	181.14	5-1F		8545	60	67	57	5	-	45	-	15	7	20	196	156
28	198.08	195.29	5-1F		8545	60	67	57	5	-	45	-	15	7	20	210	170
30	212.23	209.44	5-1F		8545	60	67	57	5	-	45	-	15	7	20	224	184
32	226.38	223.59	5-2	Cast iron or carbon steel for machine construction	8545	60	67	-	-	125	45	-	15	7	20	-	-
34	240.53	237.74	5-2		8545	60	67	-	-	125	45	-	15	7	20	-	-
36	254.68	251.89	5-2		8545	60	67	-	-	140	45	-	15	7	20	-	-
40	282.98	280.18	5-2		8545	60	67	-	-	140	45	-	15	7	20	-	-
42	297.13	294.33	5-2		8545	60	67	-	-	140	45	-	15	7	20	-	-
44	311.28	308.48	5-2		8545	60	67	-	-	140	45	-	15	7	20	-	-
48	339.57	336.78	5-2		11055	75	67	-	-	180	55	-	5	7	21	-	-
60	424.47	421.67	5-2		11055	75	67	-	-	180	55	-	5	7	21	-	-
72	509.36	506.57	5-2		11055	75	67	-	-	180	55	-	5	7	21	-	-
84	594.25	591.46	1-2		13070	90(85)	67	-	-	212	70	3	-	-	23	-	-
96	679.15	676.35	6		13090	90(85)	67	-	-	200	90	11.5	-	-	23	-	-
120	848.93	846.14	6		13090	90(85)	67	-	-	200	90	11.5	-	-	25	-	-

X H 300 (For a belt width of 76.2 mm)

Made-to-order

(Unit: mm)

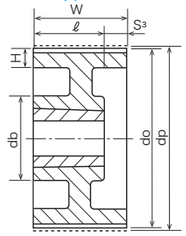
No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S_1	S_2	S_3	H	Flange Outside diameter	Flange Inside diameter
22	155.64	152.84	5-1F	Carbon steel for machine construction	8545	60	94	84	5	-	45	-	35	14	20	168	128
24	169.79	166.99	5-1F		8545	60	94	84	5	-	45	-	35	14	20	182	142
26	183.94	181.14	5-1F		8545	60	94	84	5	-	45	-	35	14	20	196	156
28	198.08	195.29	5-1F		8545	60	94	84	5	-	45	-	35	14	20	210	170
30	212.23	209.44	5-1F		8545	60	94	84	5	-	45	-	35	14	20	224	184
32	226.38	223.59	5-1	Cast iron or carbon steel for machine construction	11055	75	94	-	-	-	55	-	25	14	20	-	-
34	240.53	237.74	5-1		11055	75	94	-	-	-	55	-	25	14	20	-	-
36	254.68	251.89	5-1		11055	75	94	-	-	-	55	-	25	14	20	-	-
40	282.98	280.18	5-2		11055	75	94	-	-	180	55	-	25	14	21	-	-
42	297.13	294.33	5-2		11055	75	94	-	-	180	55	-	25	14	21	-	-
44	311.28	308.48	5-2		11055	75	94	-	-	180	55	-	25	14	21	-	-
48	339.57	336.78	5-2		11055	75	94	-	-	180	55	-	25	14	21	-	-
60	424.47	421.67	5-2		13070	90(85)	94	-	-	212	70	-	10	14	23	-	-
72	509.36	506.57	5-2		13070	90(85)	94	-	-	212	70	-	10	14	23	-	-
84	594.25	591.46	4-2A		13090	90(85)	94	-	-	200	90	-	-	4	23	-	-
96	679.15	676.35	4-2A		13090	90(85)	94	-	-	200	90	-	-	4	23	-	-
120	848.93	846.14	4-2A		13090	90(85)	94	-	-	200	90	-	-	4	25	-	-

(Note): ① The dimensions within ( ) in the maximum shaft hole diameter indicate those when previous JIS keys are used.
② Flanges are installed by welding (spot-welded).

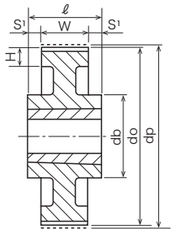
Table of TL Synchronous Pulley Standard Dimensions (Bushing Type)
Type XH

(Pulley Profile)

Type 4-2A



Type 6



X H 400 (For a belt width of 101.6 mm)

Made-to-order

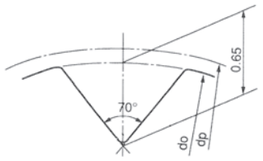
(Unit: mm)

No. of teeth	dp	do	Profile	Pulley material	TL bushing Type No.	TL bushing Maximum shaft hole dia.	W	WA	S	db	ℓ	S_1	S_2	S_3	H	Flange Outside diameter	Flange Inside diameter
22	155.64	152.84	5-1F	Carbon steel for machine construction	8545	60	121	111	5	-	45	-	55	21	20	168	128
24	169.79	166.99	5-1F		8545	60	121	111	5	-	45	-	55	21	20	182	142
26	183.94	181.14	5-1F		11055	75	121	111	5	-	55	-	45	21	20	196	156
28	198.08	195.29	5-1F		11055	75	121	111	5	-	55	-	45	21	20	210	170
30	212.23	209.44	5-1F		11055	75	121	111	5	-	55	-	45	21	20	224	184
32	226.38	223.59	5-1	Cast iron or carbon steel for machine construction	11055	75	121	-	-	-	55	-	45	21	20	-	-
34	240.53	237.74	5-1		11055	75	121	-	-	-	55	-	45	21	20	-	-
36	254.68	251.89	5-1		11055	75	121	-	-	-	55	-	45	21	20	-	-
40	282.98	280.18	5-2		11055	75	121	-	-	180	55	-	45	21	21	-	-
42	297.13	294.33	5-2		11055	75	121	-	-	180	55	-	45	21	21	-	-
44	311.28	308.48	5-2		11055	75	121	-	-	180	55	-	45	21	21	-	-
48	339.57	336.78	5-2		13090	90(85)	121	-	-	200	90	-	10	21	23	-	-
60	424.47	421.67	5-2		13090	90(85)	121	-	-	200	90	-	10	21	23	-	-
72	509.36	506.57	5-2		13090	90(85)	121	-	-	200	90	-	10	21	23	-	-
84	594.25	591.46	5-2		13090	90(85)	121	-	-	200	90	-	10	21	23	-	-
96	679.15	676.35	5-2		13090	90(85)	121	-	-	200	90	-	10	21	23	-	-
120	848.93	846.14	5-2		13090	90(85)	121	-	-	200	90	-	10	21	25	-	-

(Note): ① The dimensions within ( ) in the maximum shaft hole diameter indicate those when previous JIS keys are used.
② Flanges are installed by welding (spot-welded).

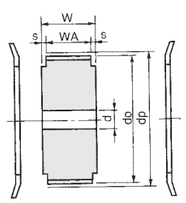
Table of Synchronous Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type TN15

(Pulley Tooth Profile Dimensions)

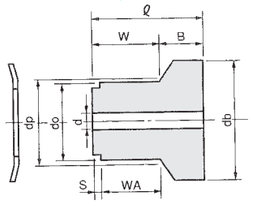


(Pulley Profile)

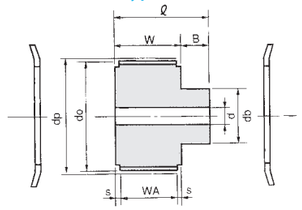
Type AF



Type SF



Type BF



(Pulley Designation) **(Example)** 20 TN15 — 5.0 AF

- 20: No. of teeth of pulley (20 teeth)
- TN15: Pulley tooth profile (Type TN15)
- 5.0: Pulley nominal width (For a belt width of 5 mm)
- AF: Pulley profile (Type A, with flange)

TN15-5.0 (For a belt width of 5 mm)

Made-to-order

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W		ℓ	WA	S	B	db	d			Roughly calculated-pulley mass (g)		Flange part No.
					SF	AF,BF						MAX		MIN			
												AF	SF,BF	AF,SF,BF	AF	SF,BF	
20	AF,SF	High-strength aluminum alloy	9.55	8.91	8	10	14.5	6	2	6.5	13	4	4	3	1	4	FM1306
22	AF,SF		10.50	9.86	8	10	14.5	6	2	6.5	14	5	5	3	2	4	FM1407
24	AF,SF		11.46	10.82	8	10	14.5	6	2	6.5	14	5	5	4	2	4	FM1407
26	AF,SF		12.41	11.77	8	10	14.5	6	2	6.5	16	7	5	4	2	6	FM1609
28	AF,SF		13.37	12.73	8	10	14.5	6	2	6.5	17	8	6	4	3	7	FM1710
30	AF,SF		14.32	13.68	8	10	14.5	6	2	6.5	17	8	6	4	3	7	FM1710
32	AF,SF		15.28	14.64	8	10	14.5	6	2	6.5	18	9	6	5	4	8	FM1811
34	AF,BF		16.23	15.59	-	10	17.0	6	2	7	11	10	6	5	4	6	FM2013
36	AF,BF		17.19	16.55	-	10	17.0	6	2	7	11	10	6	5	5	6	FM2013
40	AF,BF		19.10	18.46	-	10	17.0	6	2	7	13	12	7	5	6	8	FM2215
44	AF,BF		21.01	20.37	-	10	17.0	6	2	7	14	12	8	5	8	10	FM2516
48	AF,BF		22.92	22.28	-	10	17.0	6	2	7	14	12	8	5	9	12	FM2516
52	AF,BF		24.83	24.19	-	10	17.0	6	2	7	15	15	8	5	10	14	FM2919
56	AF,BF		26.74	26.10	-	10	17.0	6	2	7	16	15	10	5	13	17	FM3121
60	AF,BF		28.65	28.01	-	10	17.0	6	2	7	16	15	10	5	15	19	FM3422
64	AF,BF		30.56	29.92	-	10	17.0	6	2	7	18	20	10	5	18	22	FM3424
68	AF,BF		32.47	31.83	-	10	17.0	6	2	7	18	20	10	5	20	25	FM3727
72	AF,BF		34.38	33.74	-	10	17.0	6	2	7	18	20	10	5	23	27	FM3828
80	AF,BF		38.20	37.56	-	10	17.0	6	2	7	20	25	14	5	29	34	FM4328
88	AF,BF		42.02	41.38	-	10	17.0	6	2	7	20	25	14	5	35	41	FM4734
96	AF,BF		45.84	45.20	-	10	17.0	6	2	7	20	25	14	5	42	47	FM5136

TN15-10.0 (For a belt width of 10 mm)

Made-to-order

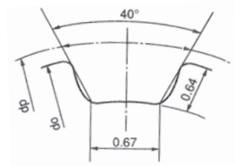
(Unit: mm)

No. of teeth	Profile	Material	dp	do	W		ℓ	WA	S	B	db	d			Roughly calculated-pulley mass (g)		Flange part No.
					SF	AF,BF						MAX		MIN			
												AF	SF,BF	AF,SF,BF	AF	SF,BF	
20	AF,SF	High-strength aluminum alloy	9.55	8.91	13.5	15.5	21	11.5	2	7.5	13	4	4	3	2	5	FM1306
22	AF,SF		10.50	9.86	13.5	15.5	21	11.5	2	7.5	14	5	5	3	3	6	FM1407
24	AF,SF		11.46	10.82	13.5	15.5	21	11.5	2	7.5	14	5	5	4	3	6	FM1407
26	AF,SF		12.41	11.77	13.5	15.5	21	11.5	2	7.5	16	7	5	4	4	7	FM1609
28	AF,SF		13.37	12.73	13.5	15.5	21	11.5	2	7.5	17	8	6	4	4	9	FM1710
30	AF,SF		14.32	13.68	13.5	15.5	21	11.5	2	7.5	17	8	6	4	5	10	FM1710
32	AF,SF		15.28	14.64	13.5	15.5	21	11.5	2	7.5	18	9	6	5	6	11	FM1811
34	AF,BF		16.23	15.59	-	15.5	22.5	11.5	2	7	11	10	6	5	7	8	FM2013
36	AF,BF		17.19	16.55	-	15.5	22.5	11.5	2	7	11	10	6	5	8	9	FM2013
40	AF,BF		19.10	18.46	-	15.5	22.5	11.5	2	7	13	12	7	5	10	12	FM2215
44	AF,BF		21.01	20.37	-	15.5	22.5	11.5	2	7	14	12	8	5	12	15	FM2516
48	AF,BF		22.92	22.28	-	15.5	22.5	11.5	2	7	14	12	8	5	15	17	FM2516
52	AF,BF		24.83	24.19	-	15.5	22.5	11.5	2	7	15	15	8	5	18	20	FM2919
56	AF,BF		26.74	26.10	-	15.5	22.5	11.5	2	7	16	15	10	5	21	24	FM3121
60	AF,BF		28.65	28.01	-	15.5	22.5	11.5	2	7	16	15	10	5	24	27	FM3422
64	AF,BF		30.56	29.92	-	15.5	22.5	11.5	2	7	18	20	10	5	28	32	FM3424
68	AF,BF		32.47	31.83	-	15.5	22.5	11.5	2	7	18	20	10	5	31	36	FM3727
72	AF,BF		34.38	33.74	-	15.5	22.5	11.5	2	7	18	20	10	5	35	40	FM3828
80	AF,BF		38.20	37.56	-	15.5	22.5	11.5	2	7	20	25	14	5	44	50	FM4328
88	AF,BF		42.02	41.38	-	15.5	22.5	11.5	2	7	20	25	14	5	54	60	FM4734
96	AF,BF		45.84	45.20	-	15.5	22.5	11.5	2	7	20	25	14	5	65	70	FM5136

- We manufacture rod-shaped pulleys with a length of 100 mm if requested.

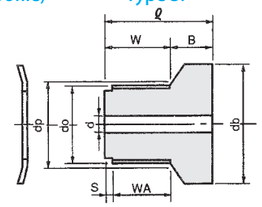
Table of Synchronous Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type MXL

(Pulley Tooth Profile Dimensions)

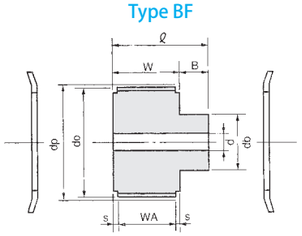


(Pulley Profile)

Type SF



Type BF



(Pulley Designation) **(Example)** 20 MXL 6.4 SF

- 20: No. of teeth of pulley (20 teeth)
- MXL: Pulley tooth profile (Type MXL)
- 6.4: Pulley nominal width (For a belt width of 6.4 mm)
- SF: Pulley profile (Type S, with flange)

MXL6.4 (For a belt width of 6.4 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	d		Roughly calculated pulley mass (g)	Flange part No.
											MAX	MIN		
12	SF	High-strength aluminum alloy	7.76	7.25	9.5	16.5	7.5	2	7	11	3	3	3	FM1105
14	SF		9.06	8.55	9.5	16.5	7.5	2	7	13	4	3	4	FM1306
15	SF		9.70	9.19	9.5	16.5	7.5	2	7	13	4	3	4	FM1306
16	SF		10.35	9.84	9.5	16.5	7.5	2	7	14	5	4	5	FM1407
18	SF		11.64	11.14	9.5	16.5	7.5	2	7	14	5	4	5	FM1407
20	SF		12.94	12.43	9.5	16.5	7.5	2	7	16	6	4	7	FM1609
22	SF		14.23	13.72	9.5	16.5	7.5	2	7	17	6	4	8	FM1710
24	BF		15.52	15.02	11.5	18.5	7.5	2	7	11	6	5	6	FM2013
25	BF		16.17	15.66	11.5	18.5	7.5	2	7	11	6	5	6	FM2013
26	BF		16.82	16.31	11.5	18.5	7.5	2	7	11	6	5	7	FM2013
28	BF		18.11	17.60	11.5	18.5	7.5	2	7	13	8	5	9	FM2215
30	BF		19.40	18.90	11.5	18.5	7.5	2	7	13	8	5	10	FM2215
32	BF		20.70	20.19	11.5	18.5	7.5	2	7	14	8	5	11	FM2516
34	BF		21.99	21.48	11.5	18.5	7.5	2	7	14	8	5	13	FM2516
36	BF		23.29	22.78	11.5	18.5	7.5	2	7	16	10	5	15	FM2919
40	BF		25.87	25.36	11.5	18.5	7.5	2	7	16	10	5	18	FM3121
42	BF		27.17	26.66	11.5	18.5	7.5	2	7	16	10	5	19	FM3222
44	BF		28.46	27.95	11.5	18.5	7.5	2	7	16	10	5	21	FM3424
48	BF		31.05	30.54	11.5	18.5	7.5	2	7	16	10	5	25	FM3626
50	BF		32.34	31.83	11.5	18.5	7.5	2	7	18	12	5	28	FM3828
52	BF		33.63	33.13	11.5	18.5	7.5	2	7	18	12	5	30	FM3828
56	BF		36.22	35.71	11.5	18.5	7.5	2	7	18	12	5	34	FM4030
60	BF		38.81	38.30	11.5	18.5	7.5	2	7	18	12	5	39	FM4432
64	BF		41.40	40.89	11.5	18.5	7.5	2	7	20	14	5	45	FM4734
68	BF		43.98	43.48	11.5	18.5	7.5	2	7	20	14	5	50	FM4938
72	BF		46.57	46.06	11.5	18.5	7.5	2	7	20	14	5	56	FM5136
76	BF		49.16	48.65	11.5	18.5	7.5	2	7	24	16	5	64	FM5442
80	BF		51.74	51.24	11.5	18.5	7.5	2	7	24	16	5	71	FM5741
88	BF		56.92	56.41	11.5	18.5	7.5	2	7	24	16	5	84	FM6141
96	BF		62.09	61.59	11.5	18.5	7.5	2	7	24	16	5	99	FM6957
100	BF		64.68	64.17	11.5	18.5	7.5	2	7	24	16	5	107	FM7260

MXL9.5 (For a belt width of 9.5 mm)

Made-to-order

(Unit: mm)

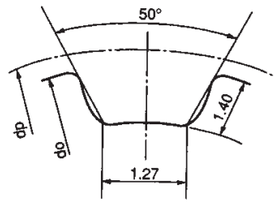
No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	d		Roughly calculated pulley mass (g)	Flange part No.
											MAX	MIN		
16	SF	High-strength aluminum alloy	10.35	9.84	12.5	20	10.5	2	7.5	14	5	4	5	FM1407
18	SF		11.64	11.14	12.5	20	10.5	2	7.5	14	5	4	5	FM1407
20	SF		12.94	12.43	12.5	20	10.5	2	7.5	16	6	4	7	FM1609
22	SF		14.73	13.72	12.5	20	10.5	2	7.5	17	6	4	9	FM1710
24	BF		15.52	15.02	14.5	22	10.5	2	7.5	11	6	5	7	FM2013
25	BF		16.17	15.66	14.5	22	10.5	2	7.5	11	6	5	8	FM2013
26	BF		16.82	16.31	14.5	22	10.5	2	7.5	11	6	5	8	FM2013
28	BF		18.11	17.60	14.5	22	10.5	2	7.5	13	8	5	10	FM2215
30	BF		19.40	18.90	14.5	22	10.5	2	7.5	13	8	5	12	FM2215
32	BF		20.70	20.19	14.5	22	10.5	2	7.5	14	8	5	14	FM2516
34	BF		21.99	21.48	14.5	22	10.5	2	7.5	14	8	5	16	FM2516
36	BF		23.29	22.78	14.5	22	10.5	2	7.5	16	10	5	18	FM2919
40	BF		25.87	25.36	14.5	22	10.5	2	7.5	16	10	5	22	FM3121
42	BF		27.17	26.66	14.5	22	10.5	2	7.5	16	10	5	24	FM3222
44	BF		28.46	27.95	14.5	22	10.5	2	7.5	16	10	5	27	FM3424
48	BF		31.05	30.54	14.5	22	10.5	2	7.5	16	10	5	31	FM3626
50	BF		32.34	31.83	14.5	22	10.5	2	7.5	18	12	5	34	FM3828
52	BF		33.63	33.13	14.5	22	10.5	2	7.5	18	12	5	37	FM3828
56	BF		36.22	35.71	14.5	22	10.5	2	7.5	18	12	5	42	FM4030
60	BF		38.81	38.30	14.5	22	10.5	2	7.5	18	12	5	48	FM4432
64	BF		41.40	40.89	14.5	22	10.5	2	7.5	20	14	5	55	FM4734
68	BF		43.98	43.48	14.5	22	10.5	2	7.5	20	14	5	62	FM4938
72	BF		46.57	46.06	14.5	22	10.5	2	7.5	20	14	5	69	FM5136
76	BF		49.16	48.65	14.5	22	10.5	2	7.5	24	16	5	79	FM5442
80	BF		51.74	51.24	14.5	22	10.5	2	7.5	24	16	5	87	FM5741
88	BF		56.92	56.41	14.5	22	10.5	2	7.5	24	16	5	104	FM6141
96	BF		62.03	61.59	14.5	22	10.5	2	7.5	24	16	5	123	FM6957
100	BF		64.68	64.17	14.5	22	10.5	2	7.5	24	16	5	133	FM7260

- We manufacture rod-shaped pulleys with a length of 100 mm if requested.

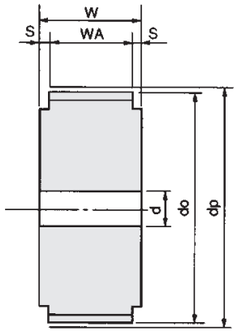
For the d MAX dimensions, please consult us when you machine keyways.

Table of Synchronous Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type XL

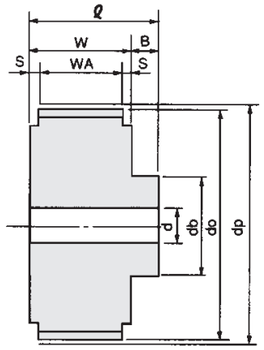
(Pulley Tooth Profile Dimensions)



(Pulley Profile) Type A



Type B



(Pulley Designation) **(Example)** 20 XL 037 A

- 20: No. of teeth of pulley (20 teeth)
- XL: Pulley tooth profile (Type XL)
- 037: Pulley nominal width (For a belt width of 0.37 inches: 9.5 mm)
- A: Pulley profile (Type A)

The flanges for Types AF and BF are not installed on the pulley body. When using the flanges, install them by referring to the **installation procedure (→ P. 190)**.

XL037 (Common to belt widths of 6.4 mm, 7.9 mm, and 9.5 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	d MAX A	d MAX B	d MIN A,B	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B	Flange part No.
10	A	Carbon steel for machine construction	16.17	15.66	16	-	11	2.5	-	-	8	-	5	0.017	-	F 2412
11	A		17.79	17.28	16	-	11	2.5	-	-	8	-	5	0.022	-	F 2412
12	A		19.40	18.90	16	-	11	2.5	-	-	11	-	5	0.027	-	F 2515
13	A		21.02	20.51	16	-	11	2.5	-	-	13	-	6	0.032	-	F 2817
14	A		22.64	22.13	16	-	11	2.5	-	-	13	-	6	0.038	-	F 2817
15	A		24.26	23.75	16	-	11	2.5	-	-	16	-	6	0.045	-	F 3220
16	A,B		25.87	25.36	16	25	11	2.5	9	16	17	9	6	0.053	0.065	F 3220
18	A,B		29.11	28.60	16	25	11	2.5	9	20	18	13	6	0.069	0.089	F 3525
19	A,B		30.72	30.22	16	25	11	2.5	9	22	20	15	6	0.078	0.10	F 3525
20	A,B		32.34	31.83	16	25	11	2.5	9	22	22	15	8	0.084	0.10	F 3525
21	A,B		33.96	33.45	16	25	11	2.5	9	22	23	16	8	0.094	0.11	F 3925
22	A,B		35.57	35.07	16	25	11	2.5	9	25	25	17	8	0.10	0.13	F 4531
24	A,B		38.81	38.30	16	25	11	2.5	9	25	28	17	8	0.12	0.15	F 4531
25	A,B		40.43	39.92	16	25	11	2.5	9	25	30	17	10	0.13	0.16	F 4836
26	A,B		42.04	41.53	16	25	11	2.5	9	25	31	17	10	0.14	0.17	F 4836
27	A,B		43.66	43.15	16	25	11	2.5	9	28	33	20	10	0.16	0.19	F 4836
28	A,B		45.28	44.77	16	25	11	2.5	9	28	34	20	10	0.17	0.21	F 5541
30	A,B		48.51	48.00	16	25	11	2.5	9	28	38	20	10	0.20	0.24	F 5541
32	A,B		51.74	51.24	16	25	11	2.5	9	28	41	20	10	0.23	0.27	F 6146
34	A,B		54.98	54.47	16	25	11	2.5	9	32	43	23	10	0.26	0.31	F 6146
36	A,B		58.21	57.70	16	25	11	2.5	9	32	46	23	10	0.30	0.35	F 6751
38	A,B		61.45	60.94	16	25	11	2.5	9	32	50	23	10	0.33	0.39	F 7056
40	A,B		64.68	64.17	16	25	11	2.5	9	32	53	23	10	0.37	0.42	F 7056
42	A,B		67.91	67.41	16	25	11	2.5	9	32	56	23	10	0.41	0.47	F 7761
44	A,B		71.15	70.64	16	25	11	2.5	9	32	59	23	10	0.46	0.51	F 7761
48	A,B		77.62	77.11	16	25	11	2.5	9	32	63	23	12	0.55	0.59	F 8366
50	A,B		80.85	80.34	16	25	11	2.5	9	34	68	25	12	0.60	0.65	F 8871
60	A,B		97.02	96.51	16	25	11	2.5	9	36	84	27	15	0.86	0.92	F 11190
72	A,B		116.43	115.92	16	25	11	2.5	9	38	102	29	15	1.2	1.3	F123105

For the d MAX dimensions, please consult us when you machine keyways.

Table of Synchronous Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type XL

XL050 (For a belt width of 12.7 mm) **Made-to-order**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	d MAX A	d MAX B	d MIN A,B	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B	Flange part No.
10	A	Carbon steel for machine construction	16.17	15.66	19	-	14	2.5	-	-	8	-	5	0.021	-	F 2412
11	A		17.79	17.28	19	-	14	2.5	-	-	8	-	5	0.027	-	F 2412
12	A		19.40	18.90	19	-	14	2.5	-	-	11	-	5	0.033	-	F 2515
13	A		21.02	20.51	19	-	14	2.5	-	-	13	-	6	0.039	-	F 2817
14	A		22.64	22.13	19	-	14	2.5	-	-	13	-	6	0.046	-	F 2817
15	A		24.26	23.75	19	-	14	2.5	-	-	16	-	6	0.054	-	F 3220
16	A,B		25.87	25.36	19	28	14	2.5	9	16	17	9	6	0.063	0.075	F 3220
18	A,B		29.11	28.60	19	28	14	2.5	9	20	18	13	6	0.082	0.10	F 3525
19	A,B		30.72	30.22	19	28	14	2.5	9	22	20	15	6	0.093	0.11	F 3525
20	A,B		32.34	31.83	19	28	14	2.5	9	22	22	15	8	0.10	0.12	F 3525
21	A,B		33.96	33.45	19	28	14	2.5	9	22	23	16	8	0.11	0.13	F 3925
22	A,B		35.57	35.07	19	28	14	2.5	9	25	25	17	8	0.12	0.15	F 4531
24	A,B		38.81	38.30	19	28	14	2.5	9	25	28	17	8	0.15	0.18	F 4531
25	A,B		40.43	39.92	19	28	14	2.5	9	25	30	17	10	0.16	0.19	F 4836
26	A,B		42.04	41.53	19	28	14	2.5	9	25	31	17	10	0.17	0.20	F 4836
27	A,B		43.66	43.15	19	28	14	2.5	9	28	33	20	10	0.19	0.23	F 4836
28	A,B		45.28	44.77	19	28	14	2.5	9	28	34	20	10	0.20	0.24	F 5541
30	A,B		48.51	48.00	19	28	14	2.5	9	28	38	20	10	0.24	0.28	F 5541
32	A,B		51.74	51.24	19	28	14	2.5	9	28	41	20	10	0.27	0.31	F 6146
34	A,B		54.98	54.47	19	28	14	2.5	9	32	43	23	10	0.31	0.36	F 6146
36	A,B		58.21	57.70	19	28	14	2.5	9	32	46	23	10	0.35	0.41	F 6751
38	A,B		61.45	60.94	19	28	14	2.5	9	32	50	23	10	0.40	0.45	F 7056
40	A,B		64.68	64.17	19	28	14	2.5	9	32	53	23	10	0.45	0.50	F 7056
42	A,B		67.91	67.41	19	28	14	2.5	9	32	56	23	10	0.49	0.55	F 7761
44	A,B		71.15	70.64	19	28	14	2.5	9	32	59	23	10	0.55	0.60	F 7761
48	A,B		77.62	77.11	19	28	14	2.5	9	32	66	23	12	0.65	0.70	F 8366
50	A,B		80.85	80.34	19	28	14	2.5	9	34	69	25	12	0.71	0.76	F 8871
60	A,B		97.02	96.51	19	28	14	2.5	9	36	84	27	15	1.0	1.0	F 11190
72	A,B		116.43	115.92	19	28	14	2.5	9	38	104	29	15	1.5	1.5	F123105

For the d MAX dimensions, please consult us when you machine keyways.

Type XL sintered alloy pulley (for light duty)

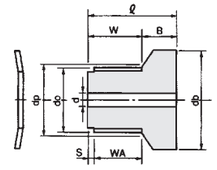
The synchronous pulley S is a pulley made of a sintered alloy that has an equivalent level of performance to cut pulleys and that can be immediately delivered at low prices.

(Pulley Designation) **(Example)** 20 XL 037 BF – S

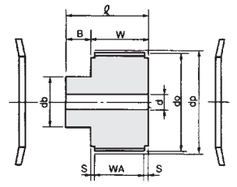
- 20: No. of teeth of pulley (20 teeth)
- XL: Pulley tooth profile (Type XL)
- 037: Pulley nominal width (For a belt width of 0.37 inches: 9.5 mm)
- BF: Pulley profile (Type B, with flange)
- S: Symbol for sintering

(Pulley Profile)

Type SF



Type BF



XL037S (Common to belt widths of 6.4 mm, 7.9 mm, and 9.5 mm)

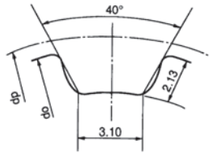
: Standard stock **The other sizes are made to order.**

(Unit: mm)

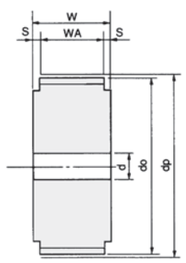
No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	d MAX	d MIN	Roughly calculated pulley mass (kg)	Flange part No.
10	SF	Sintered alloy	16.17	15.66	13.5	23.5	11	2.5	10	24	8	4	0.039	F 2412
11	SF		17.79	17.28	13.5	23.5	11	2.5	10	24	9	5	0.041	F 2412
12	SF		19.40	18.90	13.5	23.5	11	2.5	10	25	10	5	0.048	F 2515
13	SF		21.02	20.51	13.5	23.5	11	2.5	10	28	14	6	0.058	F 2817
14	SF		22.64	22.13	13.5	23.5	11	2.5	10	28	14	6	0.061	F 2817
15	SF		24.26	23.75	13.5	23.5	11	2.5	10	32	14	6	0.079	F 3220
16	BF		25.87	25.36	16	25	11	2.5	9	16	10	6	0.048	F 3220
18	BF		29.11	28.60	16	25	11	2.5	9	20	12	6	0.069	F 3525
19	BF		30.72	30.22	16	25	11	2.5	9	22	14	6	0.081	F 3525
20	BF		32.34	31.83	16	25	11	2.5	9	22	14	8	0.080	F 3525
21	BF		33.96	33.45	16	25	11	2.5	9	22	16	8	0.087	F 3925
22	BF		35.57	35.07	16	25	11	2.5	9	25	17	8	0.10	F 4531
24	BF		38.81	38.30	16	25	11	2.5	9	25	17	8	0.12	F 4531
25	BF		40.43	39.92	16	25	11	2.5	9	30	20	8	0.14	F 4836
26	BF		42.04	41.53	16	25	11	2.5	9	30	20	8	0.15	F 4836
27	BF		43.66	43.15	16	25	11	2.5	9	30	20	8	0.16	F 4836
28	BF		45.28	44.77	16	25	11	2.5	9	33	20	8	0.18	F 5541
30	BF		48.51	48.00	16	25	11	2.5	9	33	20	8	0.20	F 5541

Table of Synchronous Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type L

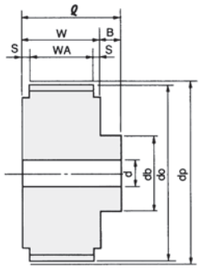
(Pulley Tooth Profile Dimensions)



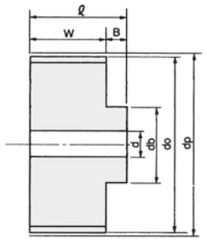
(Pulley Profile) Type A



Type B



Type B1



(Pulley Designation) **(Example)** 30 L 050 B

- 30: No. of teeth of pulley (30 teeth)
- L: Pulley tooth profile (Type L)
- 050: Pulley nominal width (For a belt width of 0.5 inches: 12.7 mm)
- B: Pulley profile (Type B)

The flanges for Types AF and BF are not installed on the pulley body. When using the flanges, install them by referring to the **installation procedure (→ P. 190)**.

L050 (For a belt width of 12.7 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	d MAX A	d MAX B,B1	d MIN A,B,B1	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,B1	Flange part No.
10	A,B	Carbon steel for machine construction	30.32	29.56	19	31	14	2.5	12	22	19	12	8	0.08	0.11	F 3925
12	A,B		36.38	35.62	19	31	14	2.5	12	27	22	17	8	0.12	0.17	F 4531
14	A,B		42.45	41.68	19	31	14	2.5	12	30	27	20	10	0.17	0.22	F 4836
15	A,B		45.48	44.72	19	31	14	2.5	12	30	29	20	10	0.19	0.25	F 4836
16	A,B		48.51	47.75	19	31	14	2.5	12	32	32	20	10	0.23	0.29	F 5541
18	A,B		54.57	53.81	19	31	14	2.5	12	36	37	24	12	0.29	0.38	F 6146
19	A,B		57.61	56.84	19	31	14	2.5	12	40	40	26	12	0.33	0.44	F 6751
20	A,B		60.64	59.88	19	31	14	2.5	12	40	42	26	12	0.37	0.48	F 6751
21	A,B		63.67	62.91	19	31	14	2.5	12	45	45	30	12	0.41	0.55	F 7056
22	A,B		66.70	65.94	19	31	14	2.5	12	45	47	30	12	0.45	0.59	F 7761
23	A,B		69.73	68.97	19	31	14	2.5	12	45	50	30	12	0.50	0.64	F 7761
24	A,B		72.77	72.00	19	31	14	2.5	12	50	52	34	12	0.55	0.72	F 8366
25	A,B		75.80	75.04	19	31	14	2.5	12	50	55	34	12	0.60	0.77	F 8366
26	A,B		78.83	78.07	19	31	14	2.5	12	50	57	34	12	0.65	0.83	F 8871
28	A,B		84.89	84.13	19	31	14	2.5	12	50	62	34	12	0.76	0.94	F 9575
30	A,B		90.96	90.20	19	31	14	2.5	12	56	67	36	15	0.88	1.0	F 9980
32	A,B		97.02	96.26	19	31	14	2.5	12	56	73	36	15	1.0	1.2	F 10385
34	A,B		103.08	102.32	19	31	14	2.5	12	63	77	39	15	1.1	1.4	F 11595
36	A,B		109.15	108.39	19	31	14	2.5	12	63	82	39	15	1.2	1.5	F119100
40	A,B		121.28	120.51	19	31	14	2.5	12	63	93	39	20	1.5	1.8	F131110
42	A,B		127.34	126.58	19	31	14	2.5	12	63	98	39	20	1.7	2.0	F135115
44	A,B		133.40	132.64	19	31	14	2.5	12	71	103	44	20	1.9	2.2	F140120
48	A,B		145.53	144.77	19	31	14	2.5	12	71	113	44	20	2.3	2.6	F152130
50	A,B		151.60	150.83	19	31	14	2.5	12	71	118	44	20	2.5	2.8	F160140
60	B1		181.91	181.15	19	31	-	-	12	71	-	44	20	-	4.0	-
72	B1		218.30	217.53	19	31	-	-	12	80	-	50	25	-	5.8	-
84	B1		254.68	253.92	19	31	-	-	12	80	-	50	25	-	7.8	-

For the d MAX dimensions, please consult us when you machine keyways.

Table of Synchronous Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type L

L075 (For a belt width of 19.0 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	d MAX A	d MAX B,B1	d MIN A,B,B1	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,B1	Flange part No.
12	A,B	Carbon steel for machine construction	36.38	35.62	26	38	21	2.5	12	27	22	17	8	0.16	0.21	F 4531
14	A,B		42.45	41.68	26	38	21	2.5	12	30	27	20	10	0.23	0.29	F 4836
15	A,B		45.48	44.72	26	38	21	2.5	12	30	29	20	10	0.27	0.33	F 4836
16	A,B		48.51	47.75	26	38	21	2.5	12	32	32	20	10	0.31	0.38	F 5541
18	A,B		54.57	53.81	26	38	21	2.5	12	36	37	24	12	0.40	0.48	F 6146
19	A,B		57.61	56.84	26	38	21	2.5	12	40	40	26	12	0.45	0.56	F 6751
20	A,B		60.64	59.88	26	38	21	2.5	12	40	42	26	12	0.50	0.61	F 6751
21	A,B		63.67	62.91	26	38	21	2.5	12	45	45	28	12	0.56	0.70	F 7056
22	A,B		66.70	65.94	26	38	21	2.5	12	45	47	28	12	0.62	0.76	F 7761
23	A,B		69.73	68.97	26	38	21	2.5	12	45	50	28	12	0.69	0.83	F 7761
24	A,B		72.77	72.00	26	38	21	2.5	12	50	52	30	12	0.75	0.93	F 8366
25	A,B		75.80	75.04	26	38	21	2.5	12	50	55	30	12	0.82	1.0	F 8366
26	A,B		78.83	78.07	26	38	21	2.5	12	50	57	30	12	0.89	1.0	F 8871
28	A,B		84.89	84.13	26	38	21	2.5	12	50	62	30	12	1.0	1.2	F 9575
30	A,B		90.96	90.20	26	38	21	2.5	12	56	67	32	15	1.2	1.4	F 9980
32	A,B		97.02	96.26	26	38	21	2.5	12	56	73	32	15	1.3	1.5	F 10385
34	A,B		103.08	102.32	26	38	21	2.5	12	63	77	36	15	1.5	1.8	F 11595
36	A,B		109.15	108.39	26	38	21	2.5	12	63	82	36	15	1.7	2.0	F119100
40	A,B		121.28	120.51	26	38	21	2.5	12	63	93	36	20	2.1	2.4	F131110
42	A,B		127.34	126.58	26	38	21	2.5	12	63	98	36	20	2.4	2.6	F135115
44	A,B		133.40	132.64	26	38	21	2.5	12	71	103	40	20	2.6	3.0	F140120
48	A,B		145.53	144.77	26	38	21	2.5	12	71	113	40	20	3.1	3.5	F152130
50	A,B		151.60	150.83	26	38	21	2.5	12	71	118	40	20	3.4	3.8	F160140
60	B1		181.91	181.15	26	38	-	-	12	71	-	40	20	-	5.4	-
72	B1		218.30	217.53	26	38	-	-	12	80	-	50	25	-	7.8	-
84	B1		254.68	253.92	26	38	-	-	12	80	-	50	25	-	10.5	-

L100 (For a belt width of 25.4 mm)

: Standard stock **The other sizes are made to order.**

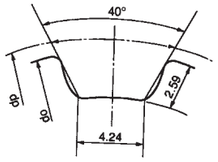
(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	d MAX A	d MAX B, B1	d MIN A, B, B1	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B, B1	Flange part No.
14	A,B	Carbon steel for machine construction	42.45	41.68	32	44	27	2.5	12	30	27	20	10	0.28	0.34	F 4836
15	A,B		45.48	44.72	32	44	27	2.5	12	30	29	20	10	0.33	0.39	F 4836
16	A,B		48.51	47.75	32	44	27	2.5	12	32	32	20	10	0.38	0.45	F 5541
18	A,B		54.57	53.81	32	44	27	2.5	12	36	37	24	12	0.49	0.58	F 6146
19	A,B		57.61	56.84	32	44	27	2.5	12	40	40	26	12	0.56	0.66	F 6751
20	A,B		60.64	59.88	32	44	27	2.5	12	40	42	26	12	0.62	0.73	F 6751
21	A,B		63.67	62.91	32	44	27	2.5	12	45	45	28	12	0.69	0.83	F 7056
22	A,B		66.70	65.94	32	44	27	2.5	12	45	47	28	12	0.77	0.91	F 7761
23	A,B		69.73	68.97	32	44	27	2.5	12	45	50	28	12	0.85	0.98	F 7761
24	A,B		72.77	72.00	32	44	27	2.5	12	50	52	30	12	0.93	1.1	F 8366
25	A,B		75.80	75.04	32	44	27	2.5	12	50	55	30	12	1.0	1.1	F 8366
26	A,B		78.83	78.07	32	44	27	2.5	12	50	57	30	12	1.1	1.2	F 8871
28	A,B		84.89	84.13	32	44	27	2.5	12	50	62	30	12	1.2	1.4	F 9575
30	A,B		90.96	90.20	32	44	27	2.5	12	56	67	32	15	1.4	1.6	F 9980
32	A,B		97.02	96.26	32	44	27	2.5	12	56	73	32	15	1.7	1.9	F 10385
34	A,B		103.08	102.32	32	44	27	2.5	12	63	77	36	15	1.9	2.2	F 11595
36	A,B		109.15	108.39	32	44	27	2.5	12	63	82	36	15	2.1	2.4	F119100
40	A,B		121.28	120.51	32	44	27	2.5	12	63	93	36	20	2.6	2.9	F131110
42	A,B		127.34	126.58	32	44	27	2.5	12	63	98	36	20	2.9	3.2	F135115
44	A,B		133.40	132.64	32	44	27	2.5	12	71	103	40	20	3.2	3.6	F140120
48	A,B		145.53	144.77	32	44	27	2.5	12	71	113	40	20	3.9	4.2	F152130
50	A,B		151.60	150.83	32	44	27	2.5	12	71	118	40	20	4.2	4.6	F160140
60	B1		181.91	181.15	32	44	-	-	12	71	-	40	20	-	6.6	-
72	B1		218.30	217.53	32	44	-	-	12	80	-	50	25	-	9.5	-
84	B1		254.68	253.92	32	44	-	-	12	80	-	50	25	-	12.8	-

For the d MAX dimensions, please consult us when you machine keyways.

Table of Synchronous Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type H

(Pulley Tooth Profile Dimensions)

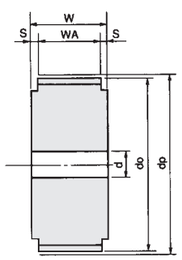


(Pulley Designation)

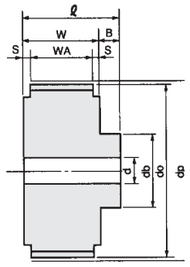
(Example) 15 H 100 A

- 15: No. of teeth of pulley (15 teeth)
- H: Pulley tooth profile (Type H)
- 100: Pulley nominal width (For a belt width of 1 inch: 25.4 mm)
- A: Pulley profile (Type A)

(Pulley Profile) Type A



Type B



H100 (For a belt width of 25.4 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	d MAX A	d MAX B,B1	d MIN A,B,B1	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,B1	Flange part No.
14	A,B	Carbon steel for machine construction	56.60	55.22	32	47	27	2.5	15	39	35	26	15	0.50	0.62	F 6146
15	A,B		60.64	59.27	32	47	27	2.5	15	45	38	30	15	0.58	0.75	F 6751
16	A,B		64.68	63.31	32	47	27	2.5	15	48	42	30	15	0.68	0.87	F 7056
18	A,B		72.77	71.39	32	47	27	2.5	15	50	48	32	15	0.88	1.0	F 7761
19	A,B		76.81	75.44	32	47	27	2.5	15	50	52	32	15	1.0	1.2	F 8366
20	A,B		80.85	79.48	32	47	27	2.5	15	56	55	38	15	1.1	1.3	F 8871
21	A,B		84.89	83.52	32	47	27	2.5	15	56	58	38	15	1.2	1.5	F 9575
22	A,B		88.94	87.56	32	47	27	2.5	15	56	62	38	15	1.3	1.6	F 9575
24	A,B		97.02	95.65	32	47	27	2.5	15	56	68	38	15	1.6	1.9	F 10385
25	A,B		101.06	99.69	32	47	27	2.5	15	63	72	38	20	1.7	2.1	F 11190
26	A,B		105.11	103.73	32	47	27	2.5	15	63	75	38	20	1.9	2.2	F 11190
28	A,B		113.19	111.82	32	47	27	2.5	15	63	82	38	20	2.2	2.6	F119100
30	A,B		121.28	119.90	32	47	27	2.5	15	63	88	38	20	2.6	2.9	F127105
32	A,B		129.36	127.99	32	47	27	2.5	15	63	95	38	20	3.0	3.3	F135115
34	A,B		137.45	136.07	32	47	27	2.5	15	63	102	38	20	3.4	3.7	F144125
36	A,B		145.53	144.16	32	47	27	2.5	15	71	108	40	20	3.8	4.3	F152130
40	B1		161.70	160.33	32	47	-	-	15	90	-	52	20	-	5.5	-
42	B1		169.79	168.41	32	47	-	-	15	90	-	52	25	-	6.0	-
44	B1		177.87	176.50	32	47	-	-	15	90	-	52	25	-	6.5	-
48	B1		194.04	192.67	32	47	-	-	15	90	-	52	25	-	7.7	-
50	B1		202.13	200.76	32	47	-	-	15	90	-	52	25	-	8.3	-
60	B1		242.55	241.18	32	47	-	-	15	90	-	52	30	-	11.7	-
72	B1		291.06	289.69	32	47	-	-	15	90	-	52	30	-	16.7	-
84	B1		339.57	338.20	32	47	-	-	15	90	-	52	30	-	22.7	-
96	B1		388.08	386.71	32	47	-	-	15	90	-	52	30	-	29.6	-

H150 (For a belt width of 38.1 mm)

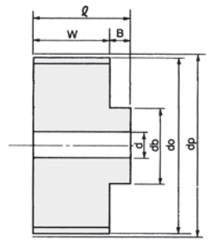
: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	d MAX A	d MAX B,B1	d MIN A,B,B1	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,B1	Flange part No.
14	A,B	Carbon steel for machine construction	56.60	55.22	45	60	40	2.5	15	39	35	26	15	0.70	0.82	F 6146
15	A,B		60.64	59.27	45	60	40	2.5	15	45	38	30	15	0.82	0.99	F 6751
16	A,B		64.68	63.31	45	60	40	2.5	15	48	42	30	15	0.95	1.1	F 7056
18	A,B		72.77	71.39	45	60	40	2.5	15	50	48	32	15	1.2	1.4	F 7761
19	A,B		76.81	75.44	45	60	40	2.5	15	50	52	32	15	1.4	1.6	F 8366
20	A,B		80.85	79.48	45	60	40	2.5	15	56	55	38	15	1.5	1.8	F 8871
21	A,B		84.89	83.52	45	60	40	2.5	15	56	58	38	15	1.7	2.0	F 9575
22	A,B		88.94	87.56	45	60	40	2.5	15	56	62	38	15	1.9	2.2	F 9575
24	A,B		97.02	95.65	45	60	40	2.5	15	56	68	38	15	2.3	2.6	F 10385
25	A,B		101.06	99.69	45	60	40	2.5	15	63	72	38	20	2.5	2.8	F 11190
26	A,B		105.11	103.73	45	60	40	2.5	15	63	75	38	20	2.7	3.0	F 11190
28	A,B		113.19	111.82	45	60	40	2.5	15	63	82	38	20	3.1	3.5	F119100
30	A,B		121.28	119.90	45	60	40	2.5	15	63	88	38	20	3.7	4.0	F127105
32	A,B		129.36	127.99	45	60	40	2.5	15	63	95	38	20	4.2	4.5	F135115
34	A,B		137.45	136.07	45	60	40	2.5	15	63	102	38	20	4.8	5.1	F144125
36	A,B		145.53	144.16	45	60	40	2.5	15	71	108	40	20	5.4	5.8	F152130
40	B1		161.70	160.33	45	60	-	-	15	90	-	52	20	-	7.5	-
42	B1		169.79	168.41	45	60	-	-	15	90	-	52	25	-	8.1	-
44	B1		177.87	176.50	45	60	-	-	15	90	-	52	25	-	8.9	-
46	B1		185.96	184.59	45	60	-	-	15	90	-	52	25	-	9.7	-
48	B1		194.04	192.67	45	60	-	-	15	90	-	52	25	-	10.5	-
50	B1		202.13	200.76	45	60	-	-	15	90	-	52	25	-	11.4	-
60	B1		242.55	241.18	45	60	-	-	15	90	-	52	30	-	16.2	-
72	B1		291.06	289.69	45	60	-	-	15	90	-	52	30	-	23.3	-
84	B1		339.57	338.20	45	60	-	-	15	90	-	52	30	-	31.7	-
96	B1		388.08	386.71	45	60	-	-	15	90	-	52	30	-	41.4	-

Table of Synchronous Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type H

Type B1



Although Types AF and BF come with flanges, the flange (flange number in accordance with the number of teeth) is not installed on the pulley body. When using the flanges, install them by referring to the **installation procedure (→ P. 190)**.

H200 (For a belt width of 50.8 mm)

: Standard stock **The other sizes are made to order.**

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	d MAX A	d MAX B,B1	d MIN A,B,B1	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,B1	Flange part No.
14	A,B	Carbon steel for machine construction	56.60	55.22	59	74	54	2.5	15	39	35	26	15	0.92	1.0	F 6146
15	A,B		60.64	59.27	59	74	54	2.5	15	45	38	30	15	1.0	1.2	F 6751
16	A,B		64.68	63.31	59	74	54	2.5	15	48	42	30	15	1.2	1.4	F 7056
18	A,B		72.77	71.39	59	74	54	2.5	15	50	48	32	15	1.6	1.8	F 7761
19	A,B		76.81	75.44	59	74	54	2.5	15	50	52	32	15	1.8	2.0	F 8366
20	A,B		80.85	79.48	59	74	54	2.5	15	56	55	38	15	2.0	2.3	F 8871
21	A,B		84.89	83.52	59	74	54	2.5	15	56	58	38	15	2.2	2.5	F 9575
22	A,B		88.94	87.56	59	74	54	2.5	15	56	62	38	15	2.5	2.8	F 9575
24	A,B		97.02	95.65	59	74	54	2.5	15	56	68	38	15	3.0	3.3	F 10385
25	A,B		101.06	99.69	59	74	54	2.5	15	63	72	38	20	3.2	3.6	F 11190
26	A,B		105.11	103.73	59	74	54	2.5	15	63	75	38	20	3.5	3.9	F 11190
28	A,B		113.19	111.82	59	74	54	2.5	15	63	82	38	20	4.1	4.5	F119100
30	A,B		121.28	119.90	59	74	54	2.5	15	63	88	38	20	4.8	5.1	F127105
32	A,B		129.36	127.99	59	74	54	2.5	15	63	95	38	20	5.5	5.9	F135115
34	A,B		137.45	136.07	59	74	54	2.5	15	63	102	38	20	6.3	6.6	F144125
36	A,B		145.53	144.16	59	74	54	2.5	15	71	108	40	20	7.1	7.5	F152130
38	A,B		153.62	152.24	59	74	54	2.5	15	71	114	52	20	7.9	8.4	F160140
40	B1		161.70	160.33	59	74	-	-	15	90	-	52	20	-	9.6	-
42	B1		169.79	168.41	59	74	-	-	15	90	-	52	25	-	10.5	-
44	B1		177.87	176.50	59	74	-	-	15	90	-	52	25	-	11.5	-
48	B1		194.04	192.67	59	74	-	-	15	90	-	52	25	-	13.6	-
50	B1		202.13	200.76	59	74	-	-	15	90	-	52	25	-	14.7	-
60	B1		242.55	241.18	59	74	-	-	15	100	-	60	30	-	21.0	-
72	B1		291.06	289.69	59	74	-	-	15	100	-	60	30	-	30.3	-
84	B1		339.57	338.20	59	74	-	-	15	100	-	60	30	-	41.3	-
96	B1		388.08	386.71	59	74	-	-	15	100	-	60	30	-	54.0	-

H300 (For a belt width of 76.2 mm)

: Standard stock **The other sizes are made to order.**

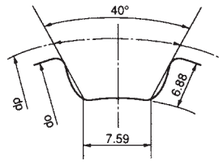
(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	d MAX A	d MAX B,B1	d MIN A,B,B1	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,B1	Flange part No.
16	A,B	Carbon steel for machine construction	64.68	63.31	85	100	80	2.5	15	48	42	30	15	1.8	2.0	F 7056
18	A,B		72.77	71.39	85	100	80	2.5	15	50	48	32	15	2.3	2.5	F 7761
19	A,B		76.81	75.44	85	100	80	2.5	15	50	52	32	15	2.6	2.8	F 8366
20	A,B		80.85	79.48	85	100	80	2.5	15	56	55	38	15	2.9	3.2	F 8871
21	A,B		84.89	83.52	85	100	80	2.5	15	56	58	38	15	3.3	3.5	F 9575
22	A,B		88.94	87.56	85	100	80	2.5	15	56	62	38	15	3.6	3.9	F 9575
24	A,B		97.02	95.65	85	100	80	2.5	15	56	68	38	15	4.4	4.6	F 10385
25	A,B		101.06	99.69	85	100	80	2.5	15	63	72	38	20	4.7	5.0	F 11190
26	A,B		105.11	103.73	85	100	80	2.5	15	63	75	38	20	5.1	5.4	F 11190
28	A,B		113.19	111.82	85	100	80	2.5	15	63	82	38	20	6.0	6.3	F119100
30	A,B		121.28	119.90	85	100	80	2.5	15	63	88	38	20	6.9	7.3	F127105
32	A,B		129.36	127.99	85	100	80	2.5	15	63	95	38	20	8.0	8.3	F135115
34	A,B		137.45	136.07	85	100	80	2.5	15	63	102	38	20	9.1	9.4	F144125
36	A,B		145.53	144.16	85	100	80	2.5	15	71	108	40	20	10.2	10.7	F152130
40	B1		161.70	160.33	85	100	-	-	15	90	-	52	20	-	13.5	-
42	B1		169.79	168.41	85	100	-	-	15	90	-	52	25	-	14.8	-
44	B1		177.87	176.50	85	100	-	-	15	90	-	52	25	-	16.2	-
48	B1		194.04	192.67	85	100	-	-	15	90	-	52	25	-	19.3	-
60	B1		242.55	241.18	85	100	-	-	15	100	-	60	30	-	30.0	-
72	B1		291.06	289.69	85	100	-	-	15	100	-	60	30	-	43.4	-

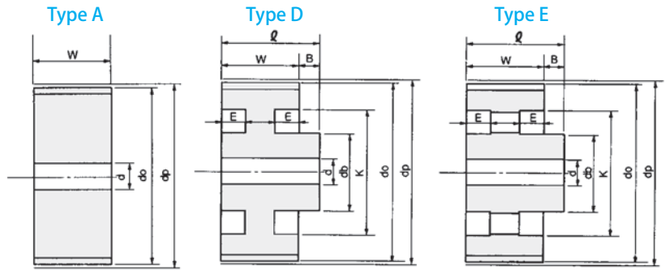
For the d MAX dimensions, please consult us when you machine keyways.

Table of Synchronous Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type XH

(Pulley Tooth Profile Dimensions)



(Pulley Profile)



*When you need flanges, flanges are installed using screws: refer to **P. 190**.

(Pulley Designation) **(Example)** 40 XH 200 D

- 40: No. of teeth of pulley (40 teeth)
- XH: Pulley tooth profile (Type XH)
- 200: Pulley nominal width (For a belt width of 2 inches: 50.8 mm)
- D: Pulley profile (Type D)

XH200 (For a belt width of 50.8 mm) — Made-to-order

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	B	db	d MAX	d MIN	K	E	Roughly calculated pulley mass (kg)
18	A	Carbon steel for machine construction	127.34	124.55	69	-	-	-	60	25	-	-	5.3
20	A		141.49	138.69	69	-	-	-	60	25	-	-	6.7
22	A		155.64	152.84	69	-	-	-	70	25	-	-	8.2
24	A		169.79	166.99	69	-	-	-	80	25	-	-	9.9
26	A		183.94	181.14	69	-	-	-	100	30	-	-	11.7
28	A		198.08	195.29	69	-	-	-	110	30	-	-	13.8
30	A		212.23	209.44	69	-	-	-	120	30	-	-	16.0
32	D		226.38	223.59	69	100	31	110	65	35	172	25	16.8
36	D		254.68	251.89	69	100	31	116	70	35	200	25	19.9
40	D		282.98	280.18	69	100	31	116	70	35	228	25	22.5
44	D		311.28	308.48	69	100	31	125	75	35	256	24	27.1
48	D		339.57	336.78	69	100	31	130	80	40	284	24	30.7
60	E		424.47	421.67	69	100	31	135	85	40	370	24	38.6
72	E		509.36	506.57	69	100	31	145	95	40	454	23	51.3
84	E		594.25	591.46	69	100	31	152	100	45	538	23	64.4
96	E		679.15	676.35	69	100	31	160	105	45	624	23	76.3
120	E		848.93	846.14	69	100	31	170	115	45	790	22	118

Table of Synchronous Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type XH

XH300 (For a belt width of 76.2 mm) — Made-to-order

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	B	db	d MAX	d MIN	K	E	Roughly calculated pulley mass (kg)
18	A	Carbon steel for machine construction	127.34	124.55	96	-	-	-	60	25	-	-	7.4
20	A		141.49	138.69	96	-	-	-	60	25	-	-	9.3
22	A		155.64	152.84	96	-	-	-	70	25	-	-	11.5
24	A		169.79	166.99	96	-	-	-	80	25	-	-	13.9
26	A		183.94	181.14	96	-	-	-	100	30	-	-	16.4
28	A		198.08	195.29	96	-	-	-	110	30	-	-	19.3
30	A		212.23	209.44	96	-	-	-	120	30	-	-	22.4
32	D		226.38	223.59	96	130	34	110	65	35	172	35	22.6
36	D		254.68	251.89	96	130	34	116	70	35	200	35	26.8
40	D		282.98	280.18	96	130	34	116	70	35	228	35	30.4
44	D		311.28	308.48	96	130	34	125	75	35	256	34	36.3
48	D		339.57	336.78	96	130	34	130	80	40	284	34	41.1
60	E		424.47	421.67	96	130	34	135	85	40	370	34	51.9
72	E		509.36	506.57	96	130	34	145	95	40	454	32.5	69.2
84	E		594.25	591.46	96	130	34	152	100	45	538	32.5	86.9
96	E		679.15	676.35	96	130	34	160	105	45	624	32.5	103
120	E		848.93	846.14	96	130	34	170	115	45	790	32.5	152.4

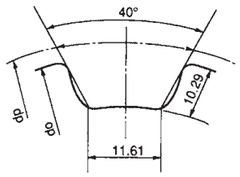
XH400 (For a belt width of 101.6 mm) — Made-to-order

(Unit: mm)

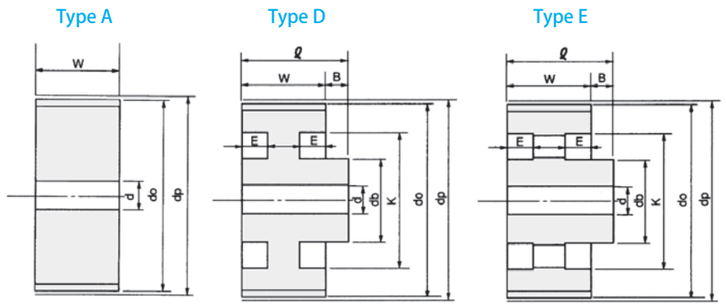
No. of teeth	Profile	Material	dp	do	W	ℓ	B	db	d MAX	d MIN	K	E	Roughly calculated pulley mass (kg)
18	A	Carbon steel for machine construction	127.34	124.55	123	-	-	-	60	25	-	-	9.4
20	A		141.49	138.69	123	-	-	-	60	25	-	-	12.0
22	A		155.64	152.84	123	-	-	-	70	25	-	-	14.8
24	A		169.79	166.99	123	-	-	-	80	25	-	-	17.9
26	A		183.94	181.14	123	-	-	-	100	30	-	-	21.0
28	A		198.08	195.29	123	-	-	-	110	30	-	-	24.7
30	A		212.23	209.44	123	-	-	-	120	30	-	-	28.6
32	D		226.38	223.59	123	157	34	110	65	35	172	45	28.2
36	D		254.68	251.89	123	157	34	116	70	35	200	45	33.5
40	D		282.98	280.18	123	157	34	116	70	35	228	45	38
44	D		311.28	308.48	123	157	34	125	75	35	256	44	45.3
48	D		339.57	336.78	123	157	34	130	80	40	284	44	51.3
60	E		424.47	421.67	123	157	34	135	85	40	370	44	64.8
72	E		509.36	506.57	123	157	34	145	95	40	454	42	86.7
84	E		594.25	591.46	123	157	34	152	100	45	538	42	109
96	E		679.15	676.35	123	157	34	160	105	45	624	42	129.3
120	E		848.93	846.14	123	157	34	170	115	45	790	42	191.6

Table of Synchronous Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type XXH

(Pulley Tooth Profile Dimensions)



(Pulley Profile)



(Pulley Designation) **(Example)** 20 XXH 300 A

- 20: No. of teeth of pulley (20 teeth)
- XXH: Pulley tooth profile (Type XXH)
- 300: Pulley nominal width (For a belt width of 3 inches: 76.2 mm)
- A: Pulley profile (Type A)

*When you need flanges, flanges are installed using screws: refer to **P. 190**.

XXH200 (For a belt width of 50.8 mm) — Made-to-order

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	B	db	d MAX	d MIN	K	E	Roughly calculated pulley mass (kg)
18	A	Carbon steel for machine construction	181.91	178.87	69	-	-	-	100	30	-	-	10.9
20	A		202.13	199.08	69	-	-	-	120	30	-	-	13.8
22	A		222.34	219.29	69	-	-	-	140	30	-	-	17.0
24	A		242.55	239.50	69	-	-	-	160	30	-	-	20.5
26	A		262.76	259.72	69	-	-	-	180	30	-	-	24.1
28	D		282.98	279.93	69	106	37	165	110	45	220	23	30.9
32	D		323.40	320.35	69	106	37	170	110	45	260	23	36.4
34	D		343.62	340.57	69	106	37	170	115	50	280	23	38.6
36	D		363.83	360.78	69	106	37	175	120	50	300	23	42.1
40	D		404.25	401.21	69	106	37	180	125	50	340	23	48.7
44	D		444.68	441.63	69	106	37	185	130	50	380	22	57.1
48	E		485.10	482.06	69	106	37	190	135	50	420	22	61.3
60	E		606.38	603.33	69	106	37	200	140	60	540	22	81.1

XXH300 (For a belt width of 76.2 mm) — Made-to-order

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	B	db	d MAX	d MIN	K	E	Roughly calculated pulley mass (kg)
18	A	Carbon steel for machine construction	181.91	178.87	96	-	-	-	100	30	-	-	15.2
20	A		202.13	199.08	96	-	-	-	120	30	-	-	19.2
22	A		222.34	219.29	96	-	-	-	140	30	-	-	23.7
24	A		242.55	239.50	96	-	-	-	160	30	-	-	28.6
26	A		262.76	259.72	96	-	-	-	180	30	-	-	33.5
28	D		282.98	279.93	96	133	37	165	110	45	220	34	40.0
32	D		323.40	320.35	96	133	37	170	110	45	260	34	47.1
34	D		343.62	340.57	96	133	37	170	115	50	280	34	49.9
36	D		363.83	360.78	96	133	37	175	120	50	300	34	54.4
40	D		404.25	401.21	96	133	37	180	125	50	340	34	62.7
44	D		444.68	441.63	96	133	37	185	130	50	380	33	73.1
48	E		485.10	482.06	96	133	37	190	135	50	420	33	77.7
60	E		606.38	603.33	96	133	37	200	140	60	540	33	109.3

Table of Synchronous Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type XXH

XXH400 (For a belt width of 101.6 mm) — Made-to-order

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	B	db	d MAX	d MIN	K	E	Roughly calculated pulley mass (kg)
18	A	Carbon steel for machine construction	181.91	178.87	123	-	-	-	100	40	-	-	19.0
20	A		202.13	199.08	123	-	-	-	120	40	-	-	24.1
22	A		222.34	219.29	123	-	-	-	140	40	-	-	29.8
24	A		242.55	239.50	123	-	-	-	160	40	-	-	36.1
26	A		262.76	259.72	123	-	-	-	180	50	-	-	42.3
28	D		282.98	279.93	123	160	37	165	110	45	220	45	49.2
32	D		323.40	320.35	123	160	37	170	110	45	260	45	57.8
34	D		343.62	340.57	123	160	37	170	115	50	280	45	61.3
36	D		363.83	360.78	123	160	37	175	120	50	300	45	66.7
40	D		404.25	401.21	123	160	37	180	125	50	340	45	76.8
44	D		444.68	441.63	123	160	37	185	130	50	380	44	87.7
48	E		485.10	482.06	123	160	37	190	135	50	420	44	94.8
60	E		606.38	603.33	123	160	37	200	140	60	540	44	125

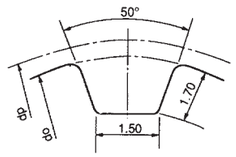
XXH500 (For a belt width of 127.0 mm) — Made-to-order

(Unit: mm)

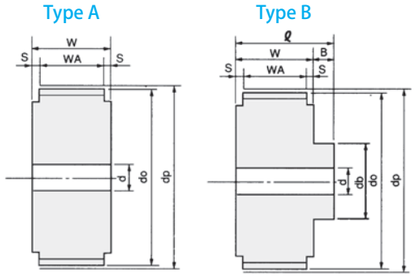
No. of teeth	Profile	Material	dp	do	W	ℓ	B	db	d MAX	d MIN	K	E	Roughly calculated pulley mass (kg)
18	A	Carbon steel for machine construction	181.91	178.87	151	-	-	-	100	40	-	-	23.3
20	A		202.13	199.08	151	-	-	-	120	40	-	-	29.6
22	A		222.34	219.29	151	-	-	-	140	40	-	-	36.6
24	A		242.55	239.50	151	-	-	-	160	40	-	-	44.3
26	A		262.76	259.72	151	-	-	-	180	50	-	-	52
28	D		282.98	279.93	151	188	37	165	110	45	220	55	59.5
32	D		323.40	320.35	151	188	37	170	110	45	260	55	69.6
34	D		343.62	340.57	151	188	37	170	115	50	280	55	73.9
36	D		363.83	360.78	151	188	37	175	120	50	300	55	80.5
40	D		404.25	401.21	151	188	37	180	125	50	340	55	92.9
44	D		444.68	441.63	151	188	37	185	130	50	380	53	100.8
48	E		485.10	482.06	151	188	37	190	135	50	420	53	115.9
60	E		606.38	603.33	151	188	37	200	140	60	540	53	153.7

Table of Synchronous Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type T 5

(Pulley Tooth Profile Dimensions)



(Pulley Profile)



Although Types AF and BF come with flanges, the flanges (flange number in accordance with the number of teeth) are not installed on the pulley body. When using the flanges, install them by referring to the **installation procedure (→ P. 190)**.

(Pulley Designation) **(Example)** 20 T5 — 10 AF

- 20: No. of teeth of pulley (20 teeth)
- T5: Pulley tooth profile (Type T5)
- 10: Pulley nominal width (For a belt width of 10 mm)
- AF: Pulley profile (Type A, with flange)

T5-10 (For a belt width of 10 mm)

Made-to-order

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	d MAX	d MIN	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B	Flange part No.
12	A	Carbon steel for machine construction	19.10	18.25	16	-	11	2.5	-	-	8	5	0.025	-	F 2412
14	A		22.28	21.45	16	-	11	2.5	-	-	10	6	0.035	-	F 2515
15	A		23.87	23.05	16	-	11	2.5	-	-	10	6	0.041	-	F 2817
16	B		25.46	24.60	16	25	11	2.5	9	15	8	6	-	0.059	F 2817
18	B		28.65	27.80	16	25	11	2.5	9	18	10	6	-	0.080	F 3220
20	B		31.83	31.00	16	25	11	2.5	9	19	11	6	-	0.099	F 3525
22	B		35.01	34.25	16	25	11	2.5	9	22	15	8	-	0.12	F 3925
24	B		38.20	37.40	16	25	11	2.5	9	25	15	8	-	0.15	F 4531
25	B		39.79	39.00	16	25	11	2.5	9	25	15	8	-	0.16	F 4531
26	B		41.38	40.60	16	25	11	2.5	9	28	20	8	-	0.18	F 4531
28	B		44.56	43.75	16	25	11	2.5	9	30	20	8	-	0.21	F 4836
30	B		47.75	46.95	16	25	11	2.5	9	30	20	8	-	0.24	F 5541
32	B		50.93	50.10	16	25	11	2.5	9	30	20	10	-	0.26	F 5541
36	B		57.30	56.45	16	25	11	2.5	9	30	20	10	-	0.33	F 6146
40	B		63.66	62.85	16	25	11	2.5	9	35	25	10	-	0.42	F 6751
44	B		70.03	69.20	16	25	11	2.5	9	35	25	10	-	0.50	F 7761
48	B		76.39	75.55	16	25	11	2.5	9	35	25	10	-	0.59	F 8366
50	B		79.58	78.75	16	25	11	2.5	9	35	25	10	-	0.63	F 8366
60	B		95.49	94.65	16	25	11	2.5	9	35	25	10	-	0.90	F 9980
72	B		114.59	113.75	16	25	11	2.5	9	35	25	12	-	1.2	F119100

T5-15 (For a belt width of 15 mm)

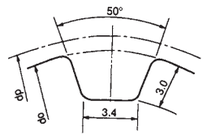
Made-to-order

(Unit: mm)

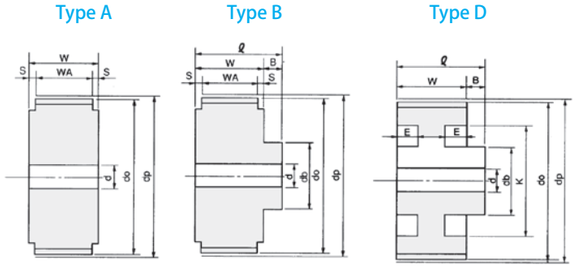
No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	d MAX	d MIN	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B	Flange part No.
12	A	Carbon steel for machine construction	19.10	18.25	22	-	17	2.5	-	-	8	5	0.034	-	F 2412
14	A		22.28	21.45	22	-	17	2.5	-	-	10	6	0.048	-	F 2515
15	A		23.87	23.05	22	-	17	2.5	-	-	10	6	0.057	-	F 2817
16	B		25.46	24.60	22	31	17	2.5	9	15	8	6	-	0.088	F 2817
18	B		28.65	27.80	22	31	17	2.5	9	18	10	6	-	0.11	F 3220
20	B		31.83	31.00	22	31	17	2.5	9	19	11	6	-	0.14	F 3525
22	B		35.01	34.25	22	31	17	2.5	9	22	15	8	-	0.18	F 3925
24	B		38.20	37.40	22	31	17	2.5	9	25	15	8	-	0.22	F 4531
25	B		39.79	39.00	22	31	17	2.5	9	25	15	8	-	0.24	F 4531
26	B		41.38	40.60	22	31	17	2.5	9	28	20	8	-	0.27	F 4531
28	B		44.56	43.75	22	31	17	2.5	9	30	20	8	-	0.32	F 4836
30	B		47.75	46.95	22	31	17	2.5	9	30	20	8	-	0.36	F 5541
32	B		50.93	50.10	22	31	17	2.5	9	30	20	10	-	0.39	F 5541
36	B		57.30	56.45	22	31	17	2.5	9	30	20	10	-	0.48	F 6146
40	B		63.66	62.85	22	31	17	2.5	9	35	25	10	-	0.61	F 6751
44	B		70.03	69.20	22	31	17	2.5	9	35	25	10	-	0.72	F 7761
48	B		76.39	75.55	22	31	17	2.5	9	35	25	10	-	0.84	F 8366
50	B		79.58	78.75	22	31	17	2.5	9	35	25	10	-	0.91	F 8366
60	B		95.49	94.65	22	31	17	2.5	9	35	25	10	-	1.2	F 9980
72	B		114.59	113.75	22	31	17	2.5	9	35	25	12	-	1.8	F119100

Table of Synchronous Pulley Standard Dimensions (Shaft-Hole-Machined Type)
Type T 10

(Pulley Tooth Profile Dimensions)



(Pulley Profile)



Although Types AF and BF come with flanges, the flanges (flange number in accordance with the number of teeth) are not installed on the pulley body. When using the flanges, install them by referring to the **installation procedure (→ P. 190)**.

(Pulley Designation) **(Example)** 28 T10 — 25 BF

- 28: No. of teeth of pulley (28 teeth)
- T10: Pulley tooth profile (Type T10)
- 25: Pulley nominal width (For a belt width of 25 mm)
- BF: Pulley profile (Type B, with flange)

T10-15 (For a belt width of 15 mm)

Made-to-order

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	d MAX	d MIN	K	E	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,D	Flange part No.
12	A,B	Carbon steel for machine construction	38.20	36.35	22	32	17	2.5	10	25	15	8	-	-	0.14	0.17	FT 4828
14	A,B		44.56	42.70	22	32	17	2.5	10	30	20	10	-	-	0.20	0.24	FT 5333
15	A,B		47.75	45.90	22	32	17	2.5	10	33	22	10	-	-	0.23	0.29	FT 5939
16	A,B		50.93	49.05	22	32	17	2.5	10	35	24	10	-	-	0.27	0.34	FT 6242
18	A,B		57.30	55.45	22	32	17	2.5	10	37	26	12	-	-	0.35	0.42	FT 6848
20	A,B		63.66	61.80	22	32	17	2.5	10	40	28	12	-	-	0.44	0.53	FT 7555
22	A,B		70.03	68.15	22	32	17	2.5	10	40	28	12	-	-	0.55	0.64	FT 7753
24	A,B		76.39	74.55	22	32	17	2.5	10	40	28	12	-	-	0.67	0.76	FT 8363
25	A,B		79.58	77.70	22	32	17	2.5	10	40	28	12	-	-	0.73	0.82	FT 8969
26	A,B		82.76	80.90	22	32	17	2.5	10	45	30	12	-	-	0.80	0.91	FT 9272
28	A,B		89.13	87.25	22	32	17	2.5	10	45	30	12	-	-	0.94	1.0	FT 9878
30	A,B		95.49	93.65	22	32	17	2.5	10	45	30	12	-	-	1.0	1.2	FT 10887
32	A,B		101.86	100.00	22	35	17	2.5	13	50	32	14	-	-	1.2	1.4	FT 10887
36	A,B		114.59	112.75	22	35	17	2.5	13	50	32	14	-	-	1.6	1.7	FT120100
40	A,B		127.32	125.45	22	35	17	2.5	13	50	32	14	-	-	2.0	2.1	FT136116
44	D		140.06	138.20	22	35	-	-	13	55	34	16	120	8	-	1.5	-
48	D		152.79	150.95	22	35	-	-	13	55	34	16	132	8	-	1.7	-
50	D		159.15	157.30	22	35	-	-	13	60	35	16	140	8	-	1.8	-
60	D		190.99	189.10	22	35	-	-	13	60	35	16	170	8	-	2.4	-
72	D		229.18	227.30	22	35	-	-	13	60	35	16	180	8	-	4.2	-

T10-25 (For a belt width of 25 mm)

Made-to-order

(Unit: mm)

No. of teeth	Profile	Material	dp	do	W	ℓ	WA	S	B	db	d MAX	d MIN	K	E	Roughly calculated pulley mass (kg) A	Roughly calculated pulley mass (kg) B,D	Flange part No.
12	A,B	Carbon steel for machine construction	38.20	36.35	32	45	27	2.5	13	25	15	8	-	-	0.20	0.25	FT 4828
14	A,B		44.56	42.70	32	45	27	2.5	13	30	20	10	-	-	0.29	0.35	FT 5333
15	A,B		47.75	45.90	32	45	27	2.5	13	33	22	10	-	-	0.34	0.42	FT 5939
16	A,B		50.93	49.05	32	45	27	2.5	13	35	24	10	-	-	0.39	0.48	FT 6242
18	A,B		57.30	55.45	32	45	27	2.5	13	37	26	12	-	-	0.51	0.61	FT 6848
20	A,B		63.66	61.80	32	45	27	2.5	13	40	28	12	-	-	0.65	0.77	FT 7555
22	A,B		70.03	68.15	32	45	27	2.5	13	40	28	12	-	-	0.80	0.92	FT 7753
24	A,B		76.39	74.55	32	45	27	2.5	13	40	28	12	-	-	0.98	1.0	FT 8363
25	A,B		79.58	77.70	32	45	27	2.5	13	40	28	12	-	-	1.0	1.1	FT 8969
26	A,B		82.76	80.90	32	45	27	2.5	13	45	30	12	-	-	1.1	1.3	FT 9272
28	A,B		89.13	87.25	32	45	27	2.5	13	45	30	12	-	-	1.3	1.5	FT 9878
30	A,B		95.49	93.65	32	45	27	2.5	13	45	30	12	-	-	1.5	1.7	FT 10887
32	A,B		101.86	100.00	32	45	27	2.5	13	50	32	14	-	-	1.8	2.0	FT 10887
36	A,B		114.59	112.75	32	45	27	2.5	13	50	32	14	-	-	2.3	2.5	FT120100
40	A,B		127.32	125.45	32	45	27	2.5	13	50	32	14	-	-	2.9	3.1	FT136116
44	D		140.06	138.20	32	50	-	-	18	55	34	16	120	11	-	2.3	-
48	D		152.79	150.95	32	50	-	-	18	55	34	16	132	11	-	2.6	-
50	D		159.15	157.30	32	50	-	-	18	60	35	16	140	11	-	2.8	-
60	D		190.99	189.10	32	50	-	-	18	60	35	16	170	11	-	3.7	-
72	D		229.18	227.30	32	50	-	-	18	60	35	16	180	11	-	6.3	-

STS Pulley and Synchronous Pulley Materials

Although the materials of standard pulleys are indicated in the table of dimensions for each type, we recommend the following materials for the pulleys.

- Carbon steel for machine construction S15C to S55C
- Spheroidal graphite cast iron FCD450 to 500
- Gray cast iron FC200 to 250
- High tensile aluminum alloy A2017 etc.
- Sintered alloy Iron type / Copper type
- Die-cast zinc alloy ZDC

*For light duty

In addition to the above, we also manufacture products made of stainless-steel bar steel, rolled steel for general structure, and various types of resins; please consult us.

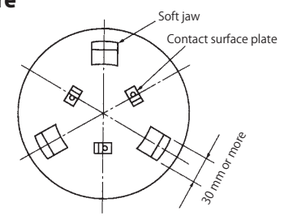
Post-Processing Method for Standard Pulley Shaft Holes

When you machine the shaft hole of a pulley, use the pulley's outside diameter as the reference.
When you machine the shaft hole of our pulleys, refer to the following operation procedure.

■ Machining procedure

Chuck the workpiece's outer periphery when you machine a shaft hole.

(1) Shaping soft jaws and contacts



① **Soft jaw shaping**
Machine the soft jaws in accordance with the workpiece dimensions each time.
(-0.1 to 0.2 mm from the outside diameter is appropriate.)
② **Machining of the contact surface plate**
For installation, make the three points uniform.
③ **After machining, check for run-out using a dial gauge.**

(2) Cleaning the workpiece
Wipe off dirt from workpieces cleanly.
Check the outer periphery and side faces (contact faces) of the workpiece to check that there is no hitting damage and if there is any swelling due to hitting damage, smooth it out with a file.

(3) Chucking the workpiece
Attach the workpiece, making sure that it is in contact with the contacts.

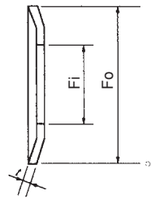
(4) Performing shaft hole machining

(Note)
When you perform machining using hard jaws, apply copper plates on the jaws, chuck the outer periphery of the workpiece, and center the workpiece using a dial gauge before machining.

Pulley Flanges

■ How to indicate standard flange part numbers

(Profile) Bending-pressed flange



(Indication example) FS 136 106
Flange inside diameter (Fi) 106 mm
Flange outside diameter (Fo) 136 mm

■ Materials and thicknesses (t) of standard flanges

The materials, thicknesses, and profiles of flanges used in standard pulleys are as follows.

(Standard flange)

Product type	Type	Material	Thickness t (mm)	Profile (Note)
STS Pulleys	S2M	A ℓ	1.0	Bending
	S3M	A ℓ	1.0	Bending
	S4.5M	SPC1	1.0	Bending
	S5M	SPC1	1.6	Bending
	S8M	SPC1	2.3	Bending
	S14M	SPC1	2.3	Bending
Synchronous pulley	MXL	A ℓ	1.0	Bending
	XL	SPC1	1.6	Bending
	L	SPC1	1.6	Bending
	H	SPC1	1.6	Bending
	T5	SPC1	1.6	Bending
	T10	SPC1	1.6	Bending

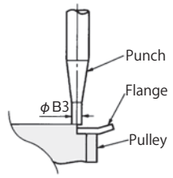
How to Install a Pulley Flange

STS and Synchronous Belts can be used at high torques and high speeds; hence, to prevent accidents, installation of a flange should be performed securely with the following procedure.

(1) Crimping method (standard flange)

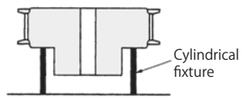
Follow the steps below.

① Prepare an eye punch, a flat disk, a cylindrical fixture, and a hammer.
② When a foreign object is adhering to the flange-fitting section of the pulley, a gap is created between the pulley and the flange, preventing crimping; clean the flange-fitting section.
③ As shown in the following figure, place the pulley body on the flat disk and crimp the pulley body over the flange with the eye punch.



- When crimping a sintered pulley of Type XL, exercise due caution.
  (Hitting it in the same way as you do for S45C may cause chipping.)

(Note)
* When crimping a Type-B pulley, the boss makes an unstable condition; use a cylindrical fixture so that the pulley can be crimped uniformly.



④ When crimping a flange, be sure to crimp it in diagonal order.
⑤ The number of crimping should be as follows.

■ STS pulley flange

Pulley outside diameter (mm)	No. of crimping (one side)
31 or less	6 sections or more
Over 31 to 50 or less	8 sections or more
Over 50 to 80 or less	10 sections or more
Over 80 to 150 or less	12 sections or more
Over 150 to 220 or less	16 sections or more
Over 220	20 sections or more

■ Synchronous pulley flange

Pulley outside diameter (mm)	No. of crimping (one side)
51 or less	4 sections or more
Over 51 to 80 or less	6 sections or more
Over 80 to 100 or less	8 sections or more
Over 100 to 120 or less	10 sections or more
Over 120 to 150 or less	12 sections or more
Over 150	16 sections or more

(Note) Flanges for a cast pulley should be installed with screws.

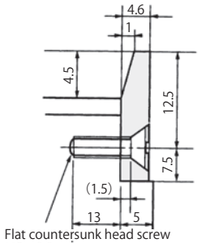
⑥ After installing flanges, check for looseness.

When a flange comes in the way due to a fixed center distance etc. and prevents belt installation, fastening with screws is effective. In this case, however, the standard flanges cannot be used; please contact us.

(2) Screw-fastening method

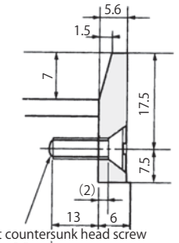
Flanges for large-diameter pulleys of Types S8M/S14M and pulleys of Types XH/XXH should be cut flanges, and fasten them on the pulley body using flat countersunk head screws.
(Reference)

●Type S8M



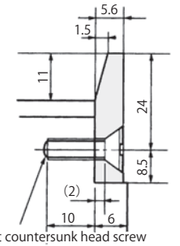
Flat countersunk head screw M5×0.8

●Type S14M



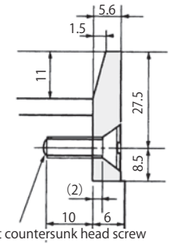
Flat countersunk head screw M5×0.8

●Type XH



Flat countersunk head screw M6

●Type XXH



Flat countersunk head screw M6

■ STS pulleys (KPS): No. of screws for fastening a flange (one side)

No. of fastening screws \ Pulley tooth profile	Type S8M	Type S14M
8 sections or more	72S8M～95S8M	—
10 sections or more	96S8M～143S8M	60S14M～ 71S14M
12 sections or more	144S8M～156S8M	72S14M～ 84S14M
16 sections or more	157S8M or more	85S14M～120S14M
18 sections or more	—	121S14M～156S14M
20 sections or more	—	157 S14M or more

■ Synchronous pulleys: No. of screws for fastening a flange (one side)

No. of fastening screws \ Pulley tooth profile	Type XH	Type XXH
4 sections or more	25XH or less	—
6 sections or more	26XH～ 35XH	24 XXH or less
8 sections or more	36XH～ 49XH	25XXH～ 31XXH
10 sections or more	50XH～ 60XH	32XXH～ 39XXH
12 sections or more	61XH～ 77XH	40XXH～ 47XXH
16 sections or more	78XH～109XH	48XXH～ 61XXH
18 sections or more	110XH or more	62XXH～ 72XXH
20 sections or more	—	73 XXH or more

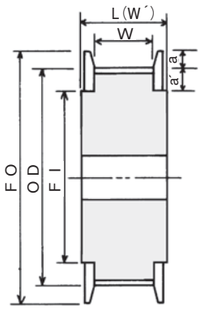
(3) Knurling method

Crimping by knurling using a lathe is also often used.

Non-Standard Pulley Design

For non-standard pulley designs, refer to the following proportion of dimensions.

(Reference)



■ Belt width, pulley tooth width, and inside and outside flange diameters

A) STS Pulleys

(Unit: mm)

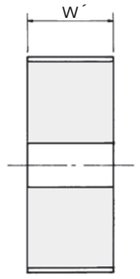
Pulley type	Belt standard widths		Pulley with flanges	Pulley without flanges	FO=OD+2a	FI=OD−2a'
	Nominal width	Belt width (mm)	W	L=W'	a	a'
S2M	0040	4	6	10	2	2
	0060	6	8	12	2	2
	0100	10	12	16	2	2
S3M	0060	6	8	12	3	2
	0100	10	12	16	3	2
	0150	15	17	21	3	2
S4.5M	0060	6	8	12	3	3
	0100	10	12	16	3	3
	0150	15	17	21	3	3
S5M	0100	10	12	17	4	4
	0150	15	17	22	4	4
	0200	20	23	28	4	4
	0250	25	28	33	4	4
S8M	0150	15	17	23(27)	5(4.5)	5(15.5)
	0250	25	28	34(38)	5(4.5)	5(15.5)
	0400	40	44	50(54)	5(4.5)	5(15.5)
	0600	60	65	71(75)	5(4.5)	5(15.5)
S14M	0400	40	46	52(58)	8(7)	8(18)
	0600	60	67	73(79)	8(7)	8(18)
	0800	80	88	94(100)	8(7)	8(18)
	1000	100	109	115(121)	8(7)	8(18)
	1200	120	130	136(142)	8(7)	8(18)

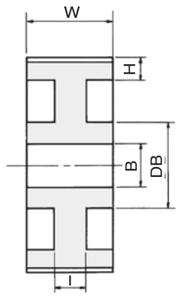
Note: The dimensions within the parentheses ( ) indicate those when flanges are fastened on a large-diameter pulley with screws.

b) Synchronous pulleys

(Unit: mm)

Pulley type	Belt standard widths		Pulley with flanges	Pulley without flanges	FO=OD+2a	FI=OD−2a'
	Nominal width	Belt width (mm)	W	L=W'	a	a'
MXL	3.2	3.2	4.0	8.0	2	2
	4.8	4.8	5.5	9.5	2	2
	6.4	6.4	7.5	11.5	2	2
	9.5	9.5	10.5	14.5	2	2
	12.7	12.7	14.0	16.0	2	2
XL	025	6.4	8.0	13.0	4	3
	031	7.9	9.5	14.5	4	3
	037	9.5	11.0	16.0	4	3
	050	12.7	14.0	19.0	4	3
L	050	12.7	14.0	19.0	4	5
	075	19.1	21.0	26.0	4	5
	100	25.4	27.0	32.0	4	5
	150	38.1	40.0	45.0	4	5
H	075	19.1	22.0	27.0	4	5
	100	25.4	27.0	32.0	4	5
	150	38.1	40.0	45.0	4	5
	200	50.8	54.0	59.0	4	5
	300	76.2	80.0	85.0	4	5
XH	200	50.8	57.0	69.0	11	21.5
	300	76.2	84.0	96.0	11	21.5
	400	101.6	111.0	123.0	11	21.5
XXH	200	50.8	57.0	69.0	11	25
	300	76.2	84.0	96.0	11	25
	400	101.6	111.0	123.0	11	25
	500	127.0	139.0	151.0	11	25





■ Dimensional proportion of each section of a pulley

a) Dimensional proportion of each section of an STS pulley

(Unit: mm)

W		30~50	51~70	71~90	91~170
H	S4.5M/S5M	10			
	S8M	15	18	20	25
	S14M	20	25	25	30
I	S4.5M/S5M	10			
	S8M	15	18	20	25
	S14M		20	25	35
DB		B×1.8~1.9			

b) Dimensional proportion of each section of a synchronous pulley

(Unit: mm)

W		30~50	51~70	71~90	91~170	171~
H	XL/L	13				
	H	15	15	18		
	XH		35	35	35	35
	XXH			40	40	40
I	H	15	15	20		
	XH/XXH			25	30	35
DB		B×1.8~1.9				

TL Bushing System

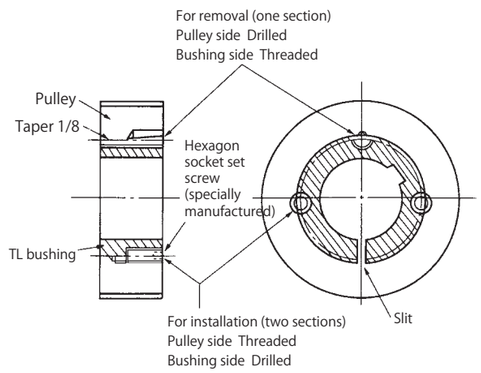
The TL Bushing System is a bushing system consisting of two products: a pulley body (product name: TL STS pulley/TL synchronous pulley) and a taper lock part bushing (product name: TL bushing).
The TL Bushing System is designed in the same way as bushing systems that are widely used in the U.S. and Europe and therefore can be used with a sense of security.

Features

- **Easy to install on and remove from a shaft.**
  Easy to remove and install a pulley at a position with poor workability and easy to replace a pulley when changing the revolution.
- **JIS keys can be used without any modification.**
  As the maximum shaft hole diameter is set targeting JIS keys, new and previous JIS keys can be used without any modification within the range of standard shaft diameters.
- **Facilitates machine maintenance and inspection.**
  It facilitates pulley removal for machine maintenance and inspection and allows significantly faster work.
- **Secure fastening with a shaft.**
  The bushing installation thread plays a role of a key in tightening and prevents the taper section from slipping.
- **Can be used in a small space.**
  The absence of projections, such as a bolt head, on the bushing allows effective use of the space.

TL Bushing Structure

- **Type X (Type Nos. 3622 to 11080)**



- **Type Y (Type Nos. 13090 to 160110)**

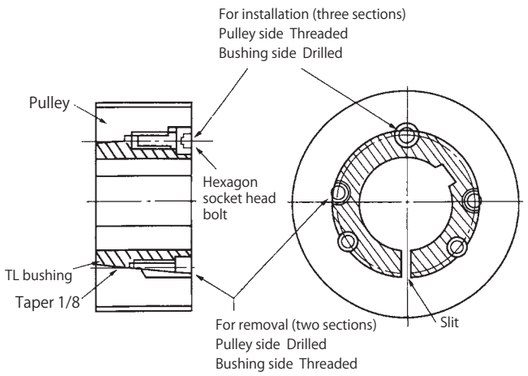
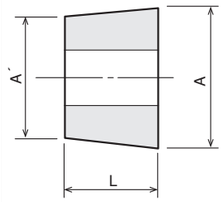


Table of TL Bushing Dimensions

Type No. (AL)	Maximum shaft dia. dmax		Bushing type	A	A'	L	Set screw or bolt		Mass (kg)		GD² (kg•m²)	
	(New JIS key)	(Previous JIS key)					Size	Qty.	(dmax)	(dmax/2)	(dmax)	(dmax/2)
3622	22	22	X	36	33.25	22	Ⓐ M6×12	2	0.09	0.13	0.00007	0.00008
4225	28	28	X	42	38.88	25	Ⓐ M6×12	2	0.12	0.21	0.00014	0.00018
5035	32	32	X	50	45.63	35	Ⓐ M8×16	2	0.25	0.41	0.00042	0.00052
6340	42	42	X	63	58.00	40	Ⓐ M10×18	2	0.44	0.74	0.00117	0.00150
8545	60	60	X	85	79.38	45	Ⓐ M12×25	2	0.82	1.51	0.00414	0.00570
11055	75	75	X	110	103.13	55	Ⓐ M16×32	2	1.8	3.1	0.0148	0.0195
11080	75	75	X	110	100.00	80	Ⓐ M16×32	2	2.5	4.4	0.0205	0.0273
13070	90	85	Y	130	121.25	70	Ⓑ M14×40	3	3.1	5.5	0.0356	0.0480
13090	90	85	Y	130	118.75	90	Ⓑ M14×40	3	3.8	6.9	0.0442	0.0590
14090	100	95	Y	140	128.75	90	Ⓑ M16×45	3	4.2	8.0	0.057	0.080
160110	110	110	Y	160	146.25	110	Ⓑ M20×50	3	7.2	13	0.122	0.164

(Note) Ⓐ represents a hexagon socket set screw (specially manufactured screw tip).
Ⓑ represents a hexagon socket head bolt (uses the entire thread).



TL bushing type number

110 80

Bushing length (L)

Bushing dia. (A)

Table of Standard Shaft Hole Diameters of TL Bushings

Keyways are available in new and previous JIS types; please specify the new or previous JIS when you place an order.
The keyway dimensions are finished with the tolerance for Js9 for the new JIS and F7 for the previous JIS.

(Unit: mm)

TL bushing type number	Standard shaft hole dia. (d)																						
	12	14	15	16	18	19	20	24	25	28	30	32	35	38	40	42	45	48	50	55	60	65	70	75
3622	○	○	○	○	○	○	○																	
4225	○	○	○	○	○	○	○	○	○	○														
5035						○	○	○	○	○	○	○												
6340								○	○	○	○	○	○	◎	○	○								
8545										○	○	○	○	◎	○	○	○	○	○	○	○			
11055													○	◎	○	○	○	○	○	○	○	○	○	○
11080																○	○	○	○	○	○	○	○	○

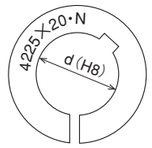
TL bushing type number	Standard shaft hole dia. (d)																
	48	50	55	60	65	70	75	80	85	90	95	100	110	120	125	130	140
13070	○	○	○	○	○	○	○	○	○	◎							
13090	○	○	○	○	○	○	○	○	○	◎							
14090				○	○	○	○	○	○	○	○	◎					
160110							○	○	○	○	○	○	○				

(Note) ● The ◎ mark above indicates that only new JIS keys are available. The ○ mark indicates that both new and previous JIS keys are available.
● The sizes shown above indicate those of standard stocks; we offer machining for other shaft hole dimensions as well.
(However, if the shaft hole diameter exceeds the maximum shaft hole diameter, please consult us.)
● When you place an order, please let us know the TL bushing part number, shaft hole diameter, and whether the keyway is for the new or previous JIS.

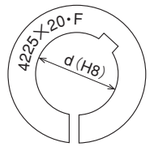
4225 × 20 N

- 4225: TL bushing type number
- 20: Shaft hole dia. (20 mm)
- N: Keyway for new JIS keys (Previous JIS keys: F)

TL bushing keyway indication



New JIS key indication (N)



Previous JIS key indication (F)

Table of Applicable Type Numbers of TL Bushings

TL STS pulleys are available with the following number of teeth.

Type S8M				
No. of teeth of pulley	Pulley nominal width			
	0150	0250	0400	0600
28	4225			
30				
32		6340		
34				
36			8545	
40				
44	5035			
48				
50				
60				
72				
84				
96				11055
120				
156				

Type S14M					
No. of teeth of pulley	Pulley nominal width				
	0400	0600	0800	1000	1200
28	8545				
30					
32					
34					
36					
40					
42		11055			
44				11080	
48					
50					
60			11080		
72					
84		11080	13090		
96				14090	
120	11080				
156			14090	160110	

TL synchronous pulleys are available with the following number of teeth.

Type L			
No. of teeth of pulley	Pulley nominal width		
	L050	L075	L100
19		3622	
20			
21			
22			
23			
24			
25			
26		4225	
28			
30			
32			
34			
36			
40			
42			
44			
48		5035	
50			
60			
72		6340	
84			

Type H				
No. of teeth of pulley	Pulley nominal width			
	H100	H150	H200	H300
18				
19	4225			
20				
21				
22		5035		
24				
25				
26				
28				
30				
32		6340		
34				
36				
40				
42				
44				
48				
50			8545	
60				
72				11055
84				
96			11055	

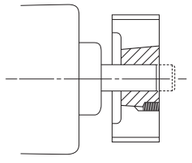
Type XH			
No. of teeth of pulley	Pulley nominal width		
	XH200	XH300	XH400
22			
24			
26			
28		8545	
30			
32			
34			
36		11055	
40			
42			
44			
48			
60		13070	
72			
84	13070		
96		13090	
120			

(Note): Type XH is all made to order.

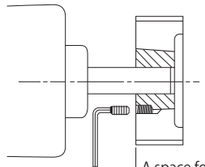
TL Pulley Installation Direction

A TL pulley can be installed in two directions, as shown in the following figure.

① Standard installation

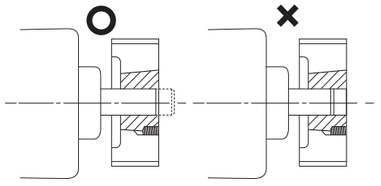


② Reverse installation



A space for attaching the screw is necessary.
(Avoid a narrow space as screw attachment and removal are difficult.)

● Precaution for installation



Set the shaft up to the entire length of the bushing or set it so that the shaft protrudes.

● Dimension and precaution for installing a stepped shaft or collar

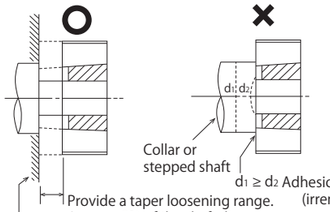
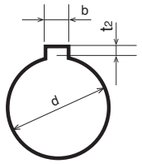


Table of Recommended Thread Tightening Torques and Transmission Torques of TL Bushings

TL bushing type number	Thread tightening torque (N•m)	Thread nominal designation	Shaft dia. d(mm)	Transmission torque (N•m)	
				Rated torque	Limit torque
3622	3.5	M6	22 18 12	65 51 31	80
4225	4	M6	28 20 12	100 71 36	120
5035	10	M8	32 25 19	210 160 110	250
6340	18	M10	42 35 24	370 310 200	450
8545	40	M12	60 45 28	920 650 380	1250
11055	80	M16	75 55 35	1700 1250 700	2400

TL bushing type number	Thread tightening torque (N•m)	Thread nominal designation	Shaft dia. d(mm)	Transmission torque (N•m)	
				Rated torque	Limit torque
11080	80	M16	75 60 42	1900 1500 900	2800
13070	100	M14	90 70 48	3200 2350 1500	4500
13090	100	M14	90 70 48	3500 2550 1600	5000
14090	160	M16	100 80 60	5000 3850 2750	7500
160110	280	M20	110 90 75	7500 6000 4700	12500

■ Reference: Table of Keyway Dimensions



1. New JIS

(Unit: mm)

Applicable shaft dia. d	Key dimensions	b Key width	b P9	b Js9	b E9	t_2 Key depth	t_2 Tolerance
Over 6 to 8 or less	2× 2	2	−0.006 −0.031	±0.0125	+0.039 +0.014	1.0	+0.1 0
Over 8 to 10 or less	3× 3	3				1.4	
Over 10 to 12 or less	4× 4	4	−0.012 −0.042	±0.015	+0.050 +0.020	1.8	
Over 12 to 17 or less	5× 5	5				2.3	
Over 17 to 22 or less	6× 6	6				2.8	
Over 22 to 25 or less	(7× 7)	7	−0.015 −0.051	±0.018	+0.061 +0.025	3.0	+0.2 0
Over 25 to 30 or less	8 × 7	8				3.3	
Over 30 to 38 or less	10× 8	10				3.3	
Over 38 to 44 or less	12× 8	12	−0.018 −0.061	±0.0215	+0.075 +0.032	3.3	
Over 44 to 50 or less	14 × 9	14				3.8	
Over 50 to 55 or less	(15×10)	15				5.0	
Over 55 to 58 or less	16×10	16				4.3	
Over 58 to 65 or less	18×11	18				4.4	
Over 65 to 75 or less	20×12	20	−0.022 −0.074	±0.026	+0.092 +0.040	4.9	
Over 75 to 85 or less	22×14	22				5.4	
Over 85 to 90 or less	(24×16)	24				8.0	
Over 90 to 95 or less	25×14	25				5.4	
Over 95 to 110 or less	28×16	28				6.4	

Note: The parentheses ( ) indicate a specially ordered part.

- TL bushings are finished only to Js9.

2. Previous JIS

(Unit: mm)

Applicable shaft dia. d	Key dimensions	b Key width	b F7	t_2 Key depth	t_2 Tolerance
Over 10 to 13 or less	4× 4	4	+0.022 +0.010	1.5	+0.1 0
Over 13 to 20 or less	5× 5	5		2	
Over 20 to 30 or less	7× 7	7	+0.028 +0.013	3	
Over 30 to 40 or less	10× 8	10		3.5	
Over 40 to 50 or less	12× 8	12	+0.034 +0.016	3.5	
Over 50 to 60 or less	15×10	15		5	
Over 60 to 70 or less	18×12	18		6	
Over 70 to 80 or less	20×13	20	+0.041 +0.020	6	
Over 80 to 95 or less	24×16	24		8	
Over 95 to 110 or less	28×18	28		9	
Over 110 to 125 or less	32×20	32	+0.050	10	

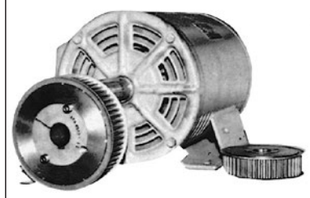
Handling of and Precautions for TL Bushing System

Wait until the machine stops completely when you install a pulley on a shaft.
Follow the steps below to install or remove a pulley.

Installation procedure

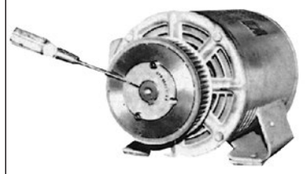
① Wipe off oil, dirt, etc. from the shaft hole and the taper section cleanly.

② Temporary assembly of the bushing and the pulley



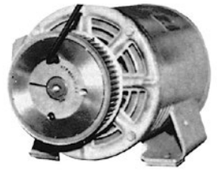
- The bushing is floating (the taper is not in close contact).
- Apply oil on the thread tip and the thread section.
- Tighten the set screws (or bolts) to about two-thirds of the entire length.

③ Insertion onto the shaft



- Slide the bushing in with the bushing floating off the taper hole of the pulley and set the bushing at a desired position.
- The bushing can be slid in more easily by inserting a slotted screwdriver or the like into the slit in the bushing and widening the slit.
- Use a parallel key (See Note 1) and with this key embedded in the keyway in the shaft in advance, set the pulley and the bushing.

④ Tightening of the set screws (or bolts)



- Tighten with a torque wrench if possible.
- Performing tightening referring to the table on **P. 195** for thread-tightening torque.
- When the set screws (or bolts) are difficult to tighten, lightly hit the boss of the pulley.
- Tighten the screws (or bolts) little by little and alternately.
- Finally, tighten each screw two to three times to a uniform torque and make sure that each screw is tightened securely. (See Note 2)
- After tightening the screws, fill the screw holes for removal with grease. (for dust and rust prevention)
- For use in a machine with frequent starts/stops or frequent changes in the rotating direction, additionally tighten the screws after a loaded test operation.
  When you cannot additionally tighten the screws, we recommend that a thread-locking agent (a removable locking agent, such as Loctite 242 or ThreeBond 1401) be applied on the threaded sections.

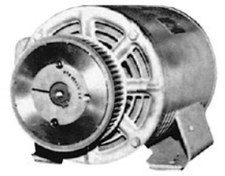
⑤ Installation complete

For assembly and disassembly of a pulley, prepare the following tools.

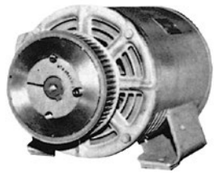
Assembly and Disassembly Tools
● Torque wrench or hexagonal wrench key (socket wrench for 220170) ● Plastic hammer ● Screwdriver (slotted) or wedge ● Other necessary tools

Removal procedure

① Pull off the fastening screws (or bolts).

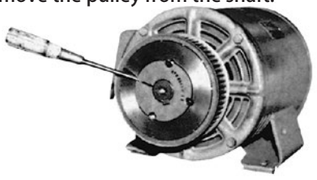


② Loosen the fitting of the taper section.



- Apply oil on the thread tip and the thread section.
- Tighten the thread until the bushing protrudes by approximately 5 mm.
- When the taper section does not come off easily, hit the boss of the pulley with a hammer.

③ Remove the pulley from the shaft.



- Widening the slit with a screwdriver allows smooth removal.

④ Removal is complete.

(Note 1) The fitting of the keyway in the TL bushings is made using new and previous JIS keys; hence, use a parallel key. In this case, make the key work in the width direction and make sure that there is clearance between the top of the keyway and the key in the depth (height) direction.

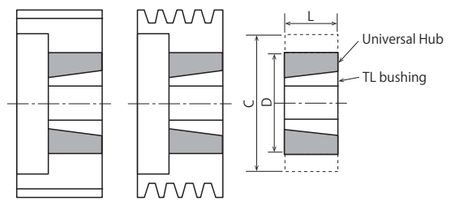
(Note 2) An inappropriate installation method may cause run-out. Be sure to follow the installation procedure. When a run-out is large, further tighten a specific or all set screws while measuring them with a dial gauge, or remove the bushing and re-install it.

Universal Adapter Series

The Universal Adapter Series is a product planned and developed for utilizing the benefits of the TL bushings for any rotary objects.
The Universal Adapter Series allows the benefits of the TL bushings to be easily utilized by selecting ① straight hole machining, ② bolt coupling, ③ welding, or other options for a rotary object that is not designed or manufactured for a bushing.
Please utilize our TL Bushing System to help you to reduce your total cost.

<Applicable rotary objects> Examples) Pulleys, sprockets, fan rotors, impellers, stirring blades

Universal Hubs



● **How to use**
The Universal Hubs can be used immediately by machining a straight hole that matches the dimension D of the universal hub in the boss section of a rotary object.

● **How to install**
When you insert the Universal Hub into the straight hole in the rotary object, set a bushing on them, and tighten the set screws, the wedge effect of the taper and the spring effect of the slit ensure the fastening among the rotary object, the hub, and the shaft.

● **Material** FC200 or more

(Unit: mm)

Universal Hub Nominal No.	Applicable bushing type No.	Applicable shaft dia.	Note 1 D	L	Note 2 C (min.)	
					FC200	Steel
UH3622	3622	12～22	46	22	70	63
UH4225	4225	12～28	53	25	80	73
UH5035	5035	19～32	63	35	95	88
UH6340	6340	24～42	80	40	115	110
UH8545	8545	28～60	105	45	150	140

Note 1 Machine the dimension D on the boss side targeting the tolerance of G7.
Note 2 When the operating condition is severe, the boss diameter needs to be increased.

Universal Adapter Design Data

TL bushing transmission torque

Type No.	Thread tightening torque (N•m)	Transmission torque (N•m)	
		Rated torque	Limit torque
3622	3.5	**See** P. 195.	80
4225	4		120
5035	10		250
6340	18		450
8545	40		1250

Note: The transmission torques indicate the ones when the thread-tightening torque was appropriately applied.

List of Standard Shaft Hole Diameters of TL Bushings

(Unit: mm)

Bushing type number	Standard shaft hole dia.																				
	12	14	15	16	18	19	20	24	25	28	30	32	35	38	40	42	45	48	50	55	60
3622	○	○	○	○	○	○	○														
4225	○	○	○	○	○	○	○	○	○	○											
5035						○	○	○	○	○	○	○									
6340								○	○	○	○	○	○	◎	○	○					
8545										○	○	○	○	◎	○	○	○	○	○	○	○

◎: New JIS key only. ○: Both new and previous JIS keys can be used.

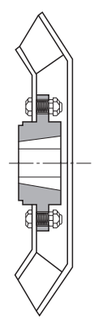
● **Select a bushing type number with an allowance for the bushing transmission torque.**

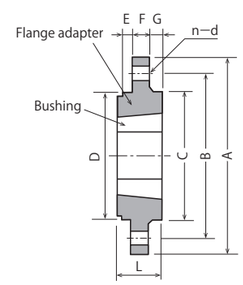
Universal Flanged Adapter

● **How to use**
You only need to machine a spigot joint and bolt holes in a rotary object.

● **How to install**
When you bolt the Universal Flanged Adapter on a rotary object, set a bushing, and fasten it with a shaft, they are securely set.

● **Material**
FC200 or more





(Non-stocked products)

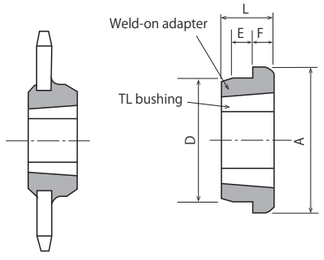
(Unit: mm)

Universal Flanged Adapter nominal No.	Applicable bushing type No.	Applicable shaft dia.	A	B	C	D (h7)	E	F	G	L	Bolt hole n-d	Nominal designation for rotary object-mounting bolt
UF5035	5035	19～32	125	100	78	80	6	14	8	35	6-8.5	M8
UF6340	6340	24～42	145	120	98	95	6	14	8	40	6-8.5	M8
UF8545	8545	28～60	190	160	130	130	8	16	10	45	8-10.5	M10

(Note) Please arrange the bolts as their length differs depending on the thickness of the rotary object.

Universal Weld-on Adapter

● **How to use and install**
The Universal Weld-on Adapter is a steel boss. When this is welded on a rotary object and a bushing is set, they can be securely fastened with a shaft.



(Unit: mm)

Universal Weld-on Adapter nominal No.	Applicable bushing type No.	Applicable shaft dia.	A	D $(^{0}_{-0.05})$	E	F	L
UW3622	3622	12～22	60	50	7	10	22
UW4225	4225	12～28	73	60	8	12	25
UW5035	5035	19～32	85	70	10	14	35
UW6340	6340	24～42	100	85	12	16	40
UW8545	8545	28～60	125	110	15	20	45

(Notes) 1. For the standard shaft hole diameters and transmission torques of TL bushings, refer to **P. 193 and P. 195**.
2. Select a type number with an allowance for the bushing transmission torque.