Shock Guard TGB Series

Features

Easy to use and reasonably priced.
Can be used with almost any machine.

A wide variety of sizes

Available in 58 sizes, ranging
from 0.3 N·m to 7154 N·m.

Easy torque adjustment

Trip torque can be easily adjusted simply
by turning the adjustment nut (bolt).

Automatic reset

After removing the cause of overload, the TGB Series automatically re-engages by rotating the drive side.

Compact and precise

(TGB08 to TGB16)
Ideal for use in compact motors, robots,
and compact precision machines.

One-position design

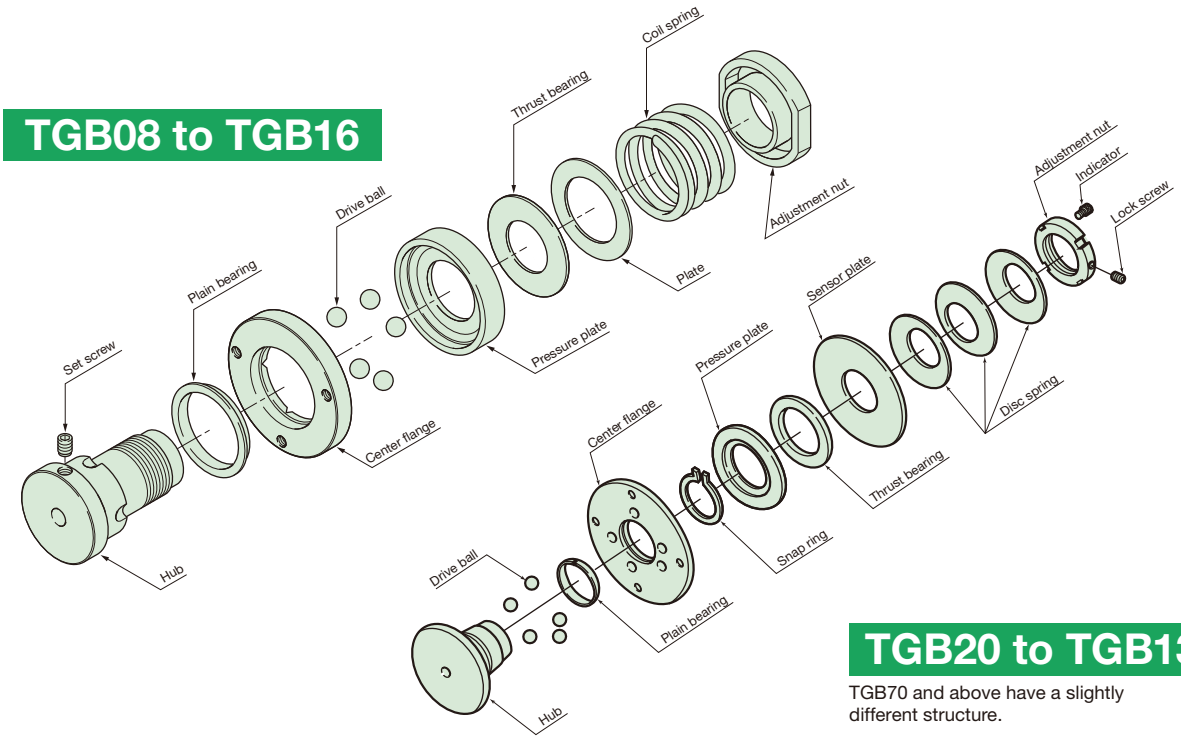
The balls and pockets, which transfer
the torque, are arranged in a unique way
in which they engage in only one position.

Backlash-free

TGB08 to TGB16 only.
Backlash may occur in the coupling portion
of a coupling type model.

Structure and Operating Principles

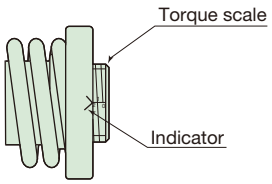
TGB08 to TGB16



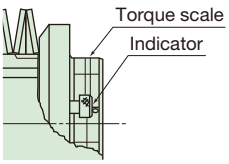
TGB20 to TGB130

TGB70 and above have a slightly different structure.

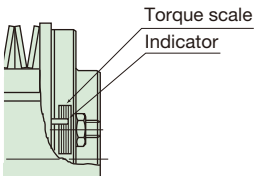
TGB08/12/16



TGB20/30/50

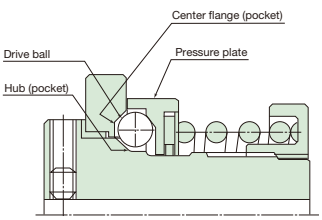


TGB70/90/110/130



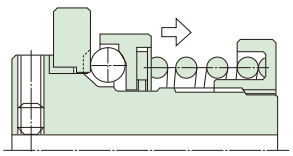
TGB08 to TGB16

During normal operation (engagement)



Torque is transmitted through multiple drive balls. The asymmetrical arrangement of the drive balls allows them to engage in only one position. There is no backlash due to the engagement of the pocket and drive balls, which are held and pressurized so that there are no gaps.
Torque is transmitted from the center flange (pocket) → drive balls → hub (pocket) → shaft (or vice versa).

During overload (tripping)

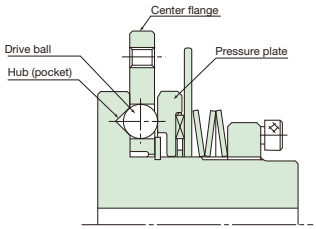


When the TGB Series trips due to overload, the drive ball pops out of the center flange pocket and slides between the pressure plate and center flange.

TGB20 to TGB50

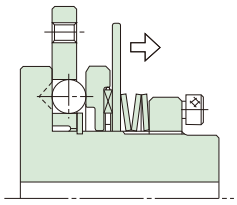
The principle of operation is the same for TGB70 to TGB130.

During normal operation (engagement)



Torque is transmitted through multiple drive balls. The asymmetrical arrangement of the drive balls allows them to engage in only one position. Torque is transmitted from the center flange → drive balls → hub (pocket) → shaft (or vice versa).

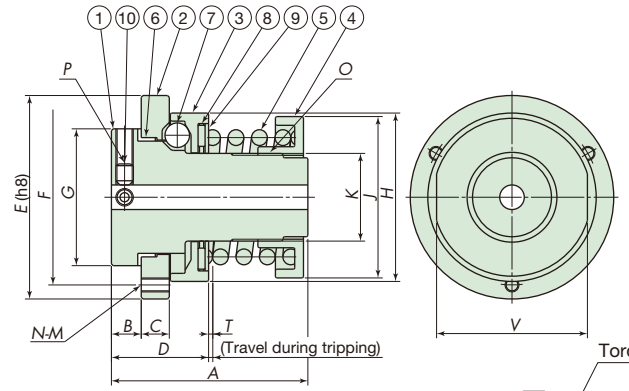
During overload (tripping)



When the TGB Series trips due to overload, the drive ball pops out of the hub pocket and rolls between the pressure plate and hub. All rotating parts are supported by the thrust bearing during tripping, ensuring easy and smooth rotation.

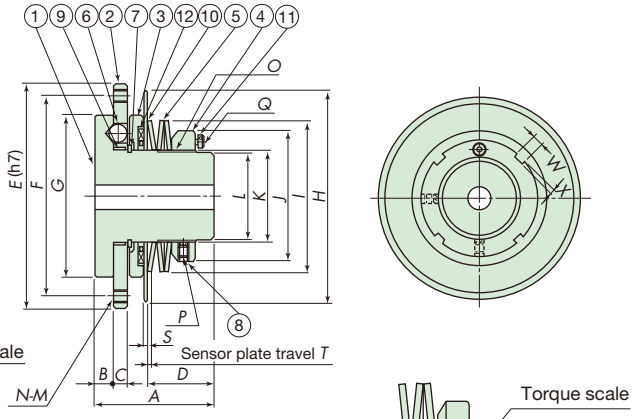
Transmission Capacity and Dimensions

■ TGB08 to TGB16



① Hub
② Center flange
③ Pressure plate
④ Adjustment nut
⑤ Coil spring
⑥ Plain bearing
⑦ Drive ball
⑧ Thrust bearing
⑨ Plate
⑩ Set screw

■ TGB20 to TGB50



① Hub
② Center flange
③ Pressure plate
④ Adjustment nut
⑤ Disc spring
⑥ Drive ball
⑦ Snap ring
⑧ Lock screw (Note)
⑨ Plain bearing
⑩ Sensor plate
⑪ Indicator
⑫ Thrust bearing

Note: The adjustment nut is temporarily fastened with one lock screw. After setting to the optimal torque, retighten the lock screw with the torque amount given below. (TGB20/30/50)
Lock screw size: M5…3.8 N·m {38.7 kgf·cm}

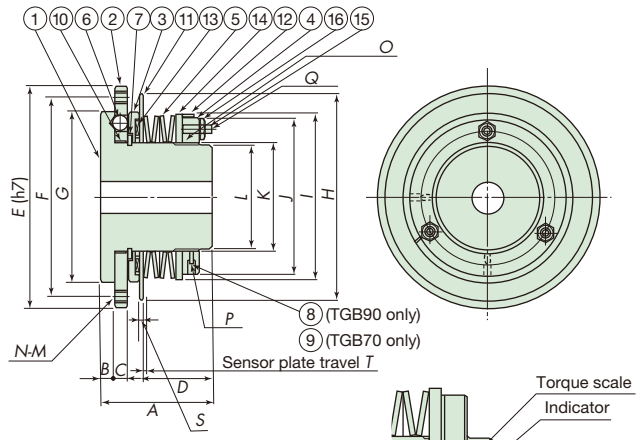
Unit: mm

Model no.	Torque range N·m	Max. rpm	Spring color	Pilot bore dia.*1	Min. bore dia.	Max. bore dia.	A	B	C	D	E	F P.C.D	G	H	I
TGB08-L	0.3 to 1.4	1200	Yellow	5	6	8	39	6.5	5	20	40	34	26	33	—
TGB08-M	0.8 to 2.1		Blue												
TGB08-H	1.2 to 2.9		Orange												
TGB12-L	0.7 to 2.9	1000	Yellow	6	8	12	47	8	6	23.5	48	40	32	40	—
TGB12-M	2.0 to 4.9		Blue												
TGB12-H	3.0 to 5.8		Orange												
TGB16-L	1.5 to 4.9	900	Yellow	7	9	16	56	8.5	8	27.7	58	50	39	48	—
TGB16-M	3.0 to 7.8		Blue												
TGB16-H	5.9 to 11		Orange												
TGB20-H	9.8 to 44	700	Orange	8	10	20	47	7.5	5.7	25	90	78	62	82	54
TGB30-L	20 to 54	500	Yellow	12	14	30	60	9.5	7	33	113	100	82	106	75
TGB30-H	54 to 167		Orange												
TGB50-L	69 to 147	300	Yellow	22	24	50	81	14.5	8.5	44.8	160	142	122	150	116.7
TGB50-M	137 to 412		Blue												
TGB50-H	196 to 539		Orange												

Model no.	J	K	L	M	N	O Screw dia. × pitch	P Screw dia. × length	Q Screw dia. × length	S	T	W	X	V	Retaining ring size Y	Mass*2 kg	Moment of inertia*2 $\times 10^{-2}$ kg·m^2
TGB08-L	29.5	15	—	M 3	3	M15×1	M3×4	—	—	0.9	—	—	28	—	0.14	0.0025
TGB08-M																
TGB08-H																
TGB12-L	35	20	—	M 4	3	M20×1	M4×6	—	—	1	—	—	35.5	—	0.24	0.0065
TGB12-M																
TGB12-H																
TGB16-L	46	25	—	M 4	3	M25×1.5	M5×6	—	—	1.2	—	—	43	—	0.44	0.018
TGB16-M																
TGB16-H																
TGB20-H	48	32	30	M 5	4	M32×1.5	M5×8	M4× 8	2	1.8	5	2	—	32	0.9	0.058
TGB30-L	65	45	42.5	M 6	6	M45×1.5	M5×8	M4×10	2	2	6	2.5	—	45	2	0.2
TGB30-H																
TGB50-L	98	75	70	M 8	6	M75×2	M5×8	M4×14	3	2.7	8	3.5	—	75	5.9	1.21
TGB50-M																
TGB50-H																

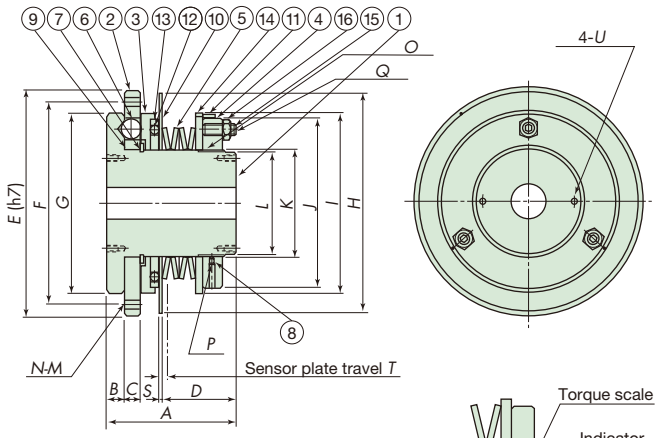
*1. All pilot-bore models are in stock.
*2. Mass and moment of inertia are based on the maximum bore diameter.

■ TGB70 to TGB90



① Hub
② Center flange
③ Pressure plate
④ Adjustment nut
⑤ Disc spring
⑥ Drive ball
⑦ Snap ring
⑧ Set screw
⑨ Lock screw (Note)
⑩ Plain bearing
⑪ Sensor plate
⑫ Indicator
⑬ Thrust bearing
⑭ Spring retainer
⑮ Adjustment bolt
⑯ Lock nut

■ TGB110 to TGB130



① Hub
② Center flange
③ Pressure plate
④ Adjustment nut
⑤ Disc spring
⑥ Drive ball
⑦ Snap ring
⑧ Set screw
⑨ Plain bearing
⑩ Sensor plate
⑪ Indicator
⑫ Ball
⑬ Retainer plate
⑭ Pilot plate
⑮ Adjustment bolt
⑯ Lock nut

Note: The adjustment nut is temporarily fastened with one lock screw. After setting to the optimal torque, retighten the lock screw with the torque amount given below. (TGB70)
Lock screw size: M5…3.8 N·m {38.7 kgf·cm}

Unit: mm

Model no.	Torque range N·m	Max. rpm	Disc spring color	Pilot bore dia.*1	Min. bore dia.	Max. bore dia.	*A*	*B*	*C*	*D*	*E*	*F* P.C.D	*G*	*H*	*I*
TGB 70-H	294 to 1080	160	Orange	32	34	70	110	14.5	12	68.5	220	200	170	205	166
TGB 90-L	441 to 1320	120	Yellow	42	44	90	157	25	22	88.6	295	265	236	290	213
TGB 90-H	931 to 3140		Orange												
TGB110-L	686 to 1960	100	Yellow	52	54	110	195	30	25	105	355	325	287	345	278
TGB110-H	1570 to 5100		Orange												
TGB130-L	1180 to 3040	80	Yellow	60	62	130	230	35	27	130	400	360	319	390	316
TGB130-H	2650 to 7150		Orange												

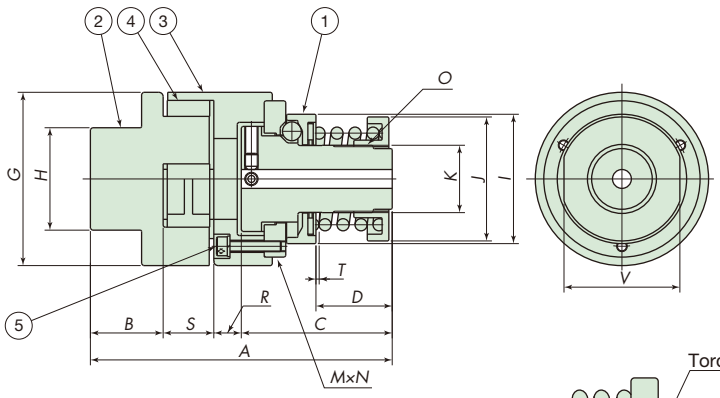
Model no.	*J*	*K*	*L*	*M*	*N*	*O* Screw dia. × pitch	*P* Screw dia. × length	*Q* Screw dia. × length	*S*	*T*	*U* Screw dia. × length	Retaining ring size *Y*	Mass*2 kg	Moment of inertia*2 ×10^{-2} kg·m^2
TGB 70-H	157	110	106	M10	6	M110×2	M 5×10	M10×28	3	3.3	—	110	17	6.3
TGB 90-L	203	130	124	M12	8	M130×2	M10×20	M16×35	5.5	5.4	M8×16	130	37.5	33.8
TGB 90-H														
TGB110-L	266	160	155	M16	6	M160×3	M12×20	M16×45	7	6	M10×20	160	69.6	91
TGB110-H														
TGB130-L	304	190	184	M16	8	M190×3	M16×30	M20×60	7	6.6	M12×24	190	102	167
TGB130-H														

*1. Pilot bore stock models are shown in bold, and non-bold models are made to order.
*2. Mass and moment of inertia are based on the maximum bore diameter.

Transmission Capacity and Dimensions

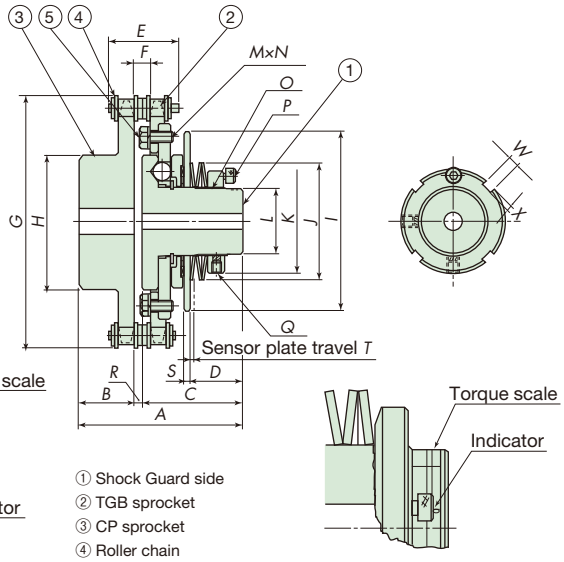
Coupling Type

■ TGB08-C to TGB16-C



① Shock Guard side
② Coupling hub A
③ Coupling hub B
④ Insert
⑤ Socket bolt

■ TGB20-C to TGB50-C



① Shock Guard side
② TGB sprocket
③ CP sprocket
④ Roller chain
⑤ Hexagon bolt

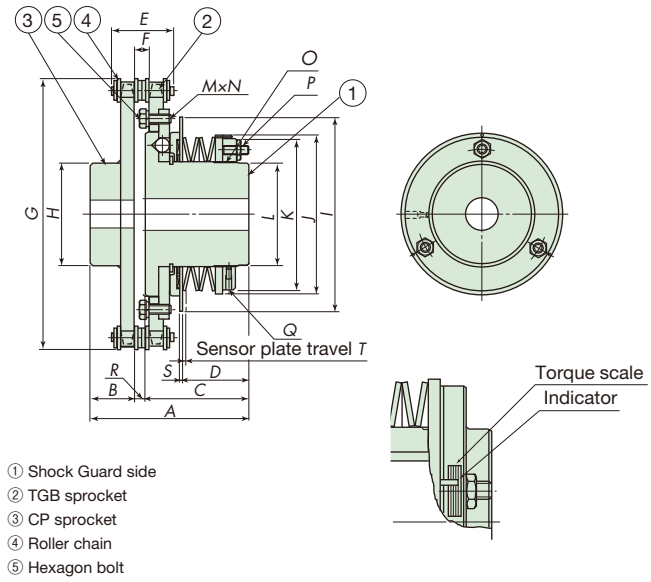
Unit: mm

Model no.	Torque range N·m	Max. rpm	Spring color	Shock Guard			Coupling			A	B	C	D	E	F	G	H	I
				Pilot bore dia.*1	Min. bore dia.	Max. bore dia.	Pilot bore dia.*1	Min. bore dia.	Max. bore dia.									
TGB08-LC	0.3 to 1.4	1200	Yellow	5	6	8	—	6	15	80	20.6	39	19	—	—	44.5	24	33
TGB08-MC	0.8 to 2.1		Blue															
TGB08-HC	1.2 to 2.9		Orange															
TGB12-LC	0.7 to 2.9	1000	Yellow	6	8	12	—	8	20	88	19.9	47	23.5	—	—	53.6	32	40
TGB12-MC	2.0 to 4.9		Blue															
TGB12-HC	3.0 to 5.8		Orange															
TGB16-LC	1.5 to 4.9	900	Yellow	7	9	16	—	9	25	112	27	56	28.3	—	—	64.3	38	48
TGB16-MC	3.0 to 7.8		Blue															
TGB16-HC	5.9 to 11		Orange															
TGB20-HC	9.8 to 44	700	Orange	8	10	20	12.5	14	42	76	25	47	25	32.6	7.4	117.4	63	82
TGB30-LC	20 to 54	500	Yellow	12	14	30	18	20	48	93	28	60	33	40.5	9.7	146.7	73	106
TGB30-HC	54 to167		Orange															
TGB50-LC	69 to147	300	Yellow	22	24	50	18	20	55	126	40	81	44.8	51	11.6	200.3	83	150
TGB50-MC	137 to412		Blue															
TGB50-HC	196 to539		Orange															

Model no.	J	K	L	M × N × quantity	O Screw dia. × pitch	P Screw dia. × length	Q Screw dia. × length	R	S	T	W	X	V	Coupling model no. or sprocket	Mass*2 kg	Moment of inertia*2 ×10^{-2} kg·m^2
TGB08-LC	29.5	15	—	M3×12ℓ×3	M15×1	—	—	7.2	13.2	0.9	—	—	28	L075A	0.235	0.005
TGB08-MC																
TGB08-HC																
TGB12-LC	37	20	—	M4×16ℓ×3	M20×1	—	—	7.9	13.2	1	—	—	35.5	L090A	0.38	0.0123
TGB12-MC																
TGB12-HC																
TGB16-LC	46	25	—	M4×20ℓ×3	M25×1.5	—	—	10.2	18.8	1.2	—	—	43	L100A	0.673	0.0324
TGB16-MC																
TGB16-HC																
TGB20-HC	54	48	30	M5×12ℓ×4	M32×1.5	M4× 8	M5×8	4	2	1.8	5	2	—	RS40-26	2.5	0.313
TGB30-LC	75	65	42.5	M6×16ℓ×6	M45×1.5	M4×10	M5×8	5	2	2	6	2.5	—	RS50-26	4.8	0.948
TGB30-HC																
TGB50-LC	116.7	98	70 5	M8×20ℓ×6	M75×2	M4×14	M5×8	5	3	2.7	8	3.5	—	RS60-30	12.2	4.43
TGB50-MC																
TGB50-HC																

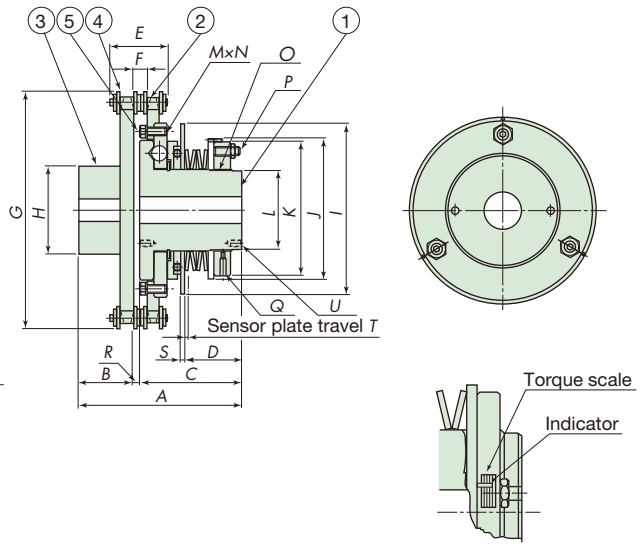
*1. Pilot bore stock models are shown in bold, and non-bold models are made to order.
*2. Mass and moment of inertia are based on the maximum bore diameter.

■ TGB70-C to TGB90-C



① Shock Guard side
② TGB sprocket
③ CP sprocket
④ Roller chain
⑤ Hexagon bolt

■ TGB110-C to TGB130-C



Unit: mm

Model no.	Torque range N·m	Max. rpm	Spring color	Shock Guard			Coupling			A	B	C	D	E	F	G	H	I
				Pilot bore dia.*1	Min. bore dia.	Max. bore dia.	Pilot bore dia.*1	Min. bore dia.	Max. bore dia.									
TGB 70-HC	294 to 1080	160	Orange	32	34	70	28	30	75	165	45	110	68.5	64.8	15.3	283.2	107	205
TGB 90-LC	441 to 1320	120	Yellow	42	44	90	33	35	103	242	80	157	88.6	78.5	18.2	394.4	147	290
TGB 90-HC	931 to 3140		Orange															
TGB110-LC	686 to 1960	100	Yellow	52	54	110	38	40	113	303	100	195	105	99.2	21.9	473.4	157	345
TGB110-HC	1570 to 5100		Orange															
TGB130-LC	1180 to 3040	80	Yellow	60	62	130	53	55	145	365	120	230	130	127.3	29.1	534.2	197	390
TGB130-HC	2650 to 7150		Orange															

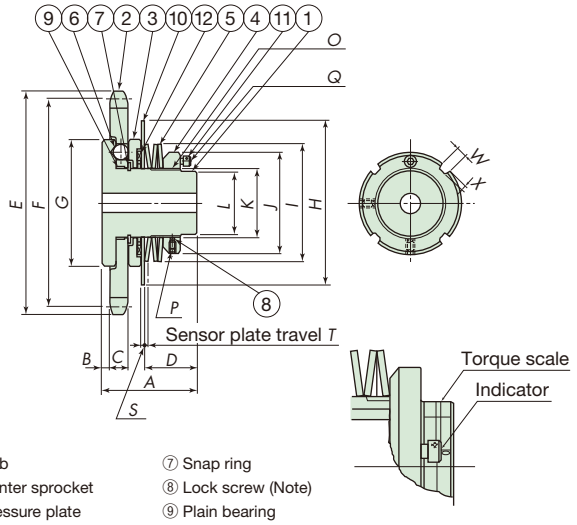
Model no.	J	K	L	M × N × quantity	O Screw dia. × pitch	P Screw dia. × length	Q Screw dia. × length	R	S	T	U Screw dia. × length	Sprocket	Mass*2 kg	Moment of inertia*2 ×10^{-2} kg·m^2
TGB 70-HC	166	157	106	M10×25ℓ×6	M110×2	M10×28	M 5× 8	10	3	3.3	—	RS80-32	32.0	22.43
TGB 90-LC	213	203	124	M12×35ℓ×8	M130×2	M16×35	M10×20	5	5.5	5.4	M 8×16	RS100-36	71.1	117.32
TGB 90-HC														
TGB110-LC	278	266	155	M16×45ℓ×6	M160×3	M16×45	M12×20	8	7	6	M10×20	RS120-36	130.5	314.15
TGB110-HC														
TGB130-LC	316	304	184	M16×50ℓ×8	M190×3	M20×60	M16×30	15	7	6.6	M12×24	RS160-30	202.3	632.66
TGB130-HC														

*1. Pilot bore stock models are shown in bold, and non-bold models are made to order.
*2. Mass and moment of inertia are based on the maximum bore diameter.

Transmission Capacity and Dimensions

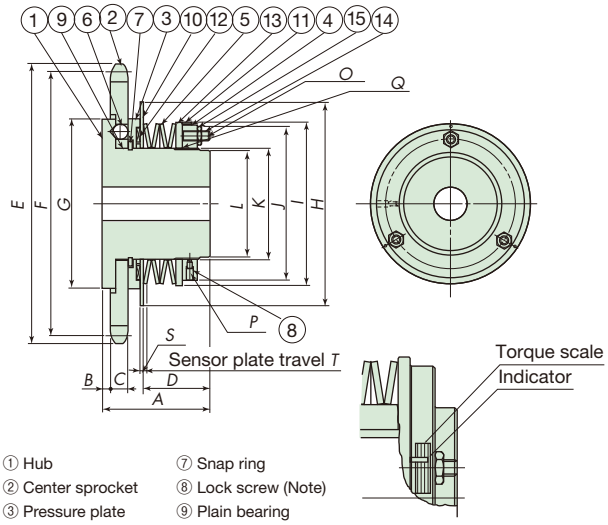
TGB with Sprocket

■ TGB20- □ to TGB50- □



① Hub
② Center sprocket
③ Pressure plate
④ Adjustment nut
⑤ Disc spring
⑥ Drive ball
⑦ Snap ring
⑧ Lock screw (Note)
⑨ Plain bearing
⑩ Sensor plate
⑪ Indicator
⑫ Thrust bearing

■ TGB70- □



① Hub
② Center sprocket
③ Pressure plate
④ Adjustment nut
⑤ Disc spring
⑥ Drive ball
⑦ Snap ring
⑧ Lock screw (Note)
⑨ Plain bearing
⑩ Sensor plate
⑪ Indicator
⑫ Thrust bearing
⑬ Pilot plate
⑭ Adjustment bolt
⑮ Lock nut

Note: The adjustment nut is temporarily fastened with one lock screw. After setting to the optimal torque, retighten the lock screw with the torque amount given below.
Lock screw size: M5···3.8 N·m {38.7 kgf·cm} M8···16 N·m {163 kgf·cm}

Unit: mm

Model no.	Torque range N·m	Max. rpm	Sprocket*1	Disc spring color	Pilot bore dia.	Min. bore dia.	Max. bore dia.	A	B	C	D	E	F P.C.D	G	H	I
TGB20-H-□	9.8 to 44	700	RS40-22T	Orange	8	10	20	47	5.9	7.2	25	96	89.24	62	82	54
			RS40-27T									116	109.4			
TGB30-L-□	20 to 54	500	RS60-19T	Yellow	12	14	30	60	4.8	11.6	33	126	115.74	82	106	75
TGB30-H-□	54 to 167		RS60-24T	Orange								156	145.95			
TGB50-L-□	69 to 147	300	RS80-20T	Yellow	22	24	50	81	8.4	14.5	44.8	176	162.37	122	150	116.7
TGB50-M-□	137 to 412			Blue												
TGB50-H-□	196 to 539		RS80-25T	Orange								216	202.66			
TGB70-H-□	294 to1080	160	RS100-22T	Orange	32	34	70	110	8.9	17.5	68.5	240	223.10	170	205	166
			RS100-26T									281	263.40			

Model no.	J	K	L	O Screw dia. × pitch	P Screw dia. × length	Q Screw dia. × length	S	T	W	X	Retaining ring size Y	Mass*2 kg	Moment of inertia*2 ×10² kg·m²
TGB20-H-□	48	32	30	M 32×1.5	M5× 6	M 4× 8	2	1.8	5	2	32	0.94	0.255
												1.15	0.486
TGB30-L-□	65	45	42.5	M 45×1.5	M5× 6	M 4×10	2	2	6	2.5	45	2.21	1.06
TGB30-H-□												2.78	2.07
TGB50-L-□	98	75	70	M 75×2	M5×10	M 4×14	3	2.7	8	3.5	75	6.35	6.10
TGB50-M-□													
TGB50-H-□												7.66	10.7
TGB70-H-□	157	110	106	M110×2	M5×10	M10×28	3	3.3	—	—	110	17.8	29.4
												19.9	42.5

*1. Specify your preferred sprocket size.
*2. Mass and moment of inertia are based on the maximum bore diameter.
Note: Sprocket model numbers go in the box (□). Refer to the table below for model numbering.

Sprocket Model Numbering

Model no.	TGB20		TGB30		TGB50		TGB70	
Sprocket	RS40-22T	RS40-27T	RS60-19T	RS60-24T	RS80-20T	RS80-25T	RS100-22T	RS100-26T
Model numbering	04022	04027	06019	06024	08020	08025	10022	10026

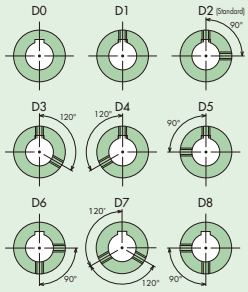
Shock Guard Finished Bore TGB and Coupling Type TGB-C

Model Numbering Example

New model numbering As of April 2, 2018

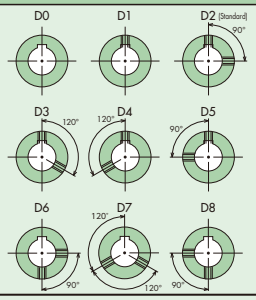
■ Single-unit type

TGB30-H-TH30JD2-N147

Series	Size	Spring strength	Shock Guard side	Bore tolerance	Bore dia. (1 mm increments)	Keyway tolerance	Set screw position (seen from adjustment nut side)	Torque range
TGB	08 12 16 20 30 50 70 90 110 130	L: Weak M: Medium H: Strong	T	F : F7 G : G7 H : H7 J : JS7 P : P7 M : M7 N : N7 K : K7 R : R7 • TGB08 to TGB16 have grade 8 tolerance.	Size Min. to max. 08 : 6 to 8 12 : 8 to 12 16 : 9 to 16 20 : 10 to 20 30 : 14 to 30 50 : 24 to 50 70 : 34 to 70 90 : 44 to 90 110 : 54 to 110 130 : 62 to 130	J: New JIS Js9 P: New JIS P9 F: Old JIS F7 E: Old JIS E9 • Old JIS keys ϕ9 or smaller are not supported.	 • TGB08 to TGB16 are limited to D2.	Size N·m 08 : 0.3 to 2.9 12 : 0.7 to 5.8 16 : 1.5 to 11 20 : 9.8 to 44 30 : 20 to 167 50 : 69 to 539 70 : 294 to 1080 90 : 441 to 3140 110 : 686 to 5100 130 : 1180 to 7150 • Torque less than 10 N·m is shown to one decimal place. • Specify torque range only if required.

■ Coupling type

TGB50-LC-TH35JD2XCH45ED2-N98

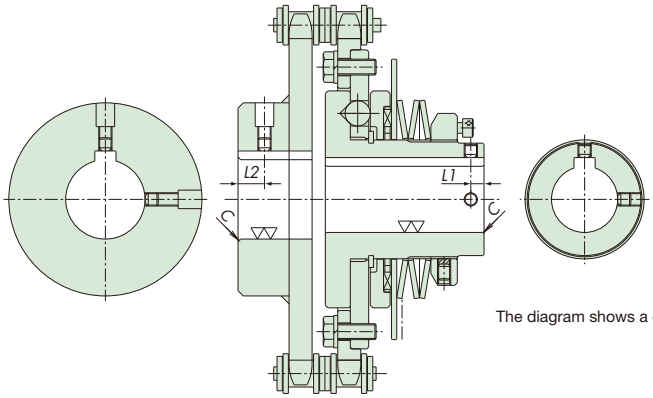
Series Size Spring strength	Coupling type	Shock Guard side, bore tolerance, bore dia., keyway tolerance, set screw position	Coupling side	Bore tolerance	Bore dia. (1 mm increments)	Keyway tolerance	Set screw position (seen from adjustment nut side)	Torque range
Same as single-unit type	C	Same as single-unit type TR for pilot bore	C	F : F7 G : G7 H : H7 J : JS7 P : P7 M : M7 N : N7 K : K7 R : R7	Size Min. to max. 08 : 6 to 15 12 : 8 to 20 16 : 9 to 25 20 : 14 to 42 30 : 20 to 48 50 : 20 to 55 70 : 30 to 75 90 : 35 to 103 110 : 40 to 113 130 : 55 to 145	J: New JIS Js9 P: New JIS P9 F: Old JIS F7 E: Old JIS E9 • Old JIS keys ϕ9 or smaller are not supported.		Size N·m 08 : 0.3 to 2.9 12 : 0.7 to 5.8 16 : 1.5 to 11 20 : 9.8 to 44 30 : 20 to 167 50 : 69 to 539 70 : 294 to 1080 90 : 441 to 3140 110 : 686 to 5100 130 : 1180 to 7150 • Torque less than 10 N·m is shown to one decimal place. • Specify torque range only if required.
				Pilot bore: R				

■ With sprocket

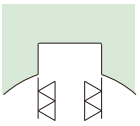
TGB50-H-08025□-TH50JD2-N294

Series	Size	Spring strength	Sprocket model no.	Sprocket installation method	Shock Guard side	Bore tolerance	Bore dia. (1 mm increments)	Keyway tolerance	Set screw position (seen from adjustment nut side)	Torque range
TGB	20 30 50 70	L: Weak M: Medium H: Strong	See page 25	A: Adapter B: Mounted externally Blank: Center sprocket	T	F : F7 G : G7 H : H7 J : JS7 P : P7 M : M7 N : N7 K : K7 R : R7	Same as single-unit type	J: New JIS Js9 P: New JIS P9 F: Old JIS F7 E: Old JIS E9	Same as single-unit type	Same as single-unit type • Specify torque range only if required.

Set Screw Position and Size



The diagram shows a coupling type model.



Keyway enlarged

Shock Guard TGB		Shock Guard side		Coupling side (coupling type only)	
Single-unit type model no.	Coupling type model no.	Set screw	Set screw position *(L1)*	Set screw	Set screw position *(L2)*
TGB08	**TGB08-C**	M 3× 4	36.25	M 3× 4	7
TGB12	**TGB12-C**	M 4× 6	43.5	M 4× 6	6
TGB16	**TGB16-C**	M 5× 6	52.25	M 5× 6	8
TGB20	**TGB20-C**	M 4× 4	4	M 4× 4	8
TGB30	**TGB30-C**	M 5× 5	5	M 5× 5	10
TGB50	**TGB50-C**	M 6× 6	6	M 6× 6	12
TGB70	**TGB70-C**	M 8×12	6	M 8×12	15
TGB90	**TGB90-C**	M10×10	8	M10×10	25
TGB110	**TGB110-C**	M12×12	10	M12×12	30
TGB130	**TGB130-C**	M12×12	10	M12×12	40

• Roller chain and sprocket selection

For more information on roller chain and sprocket selection and handling, refer to the *Tsubaki Drive Chains & Sprockets* catalog.

• Sprocket lubrication

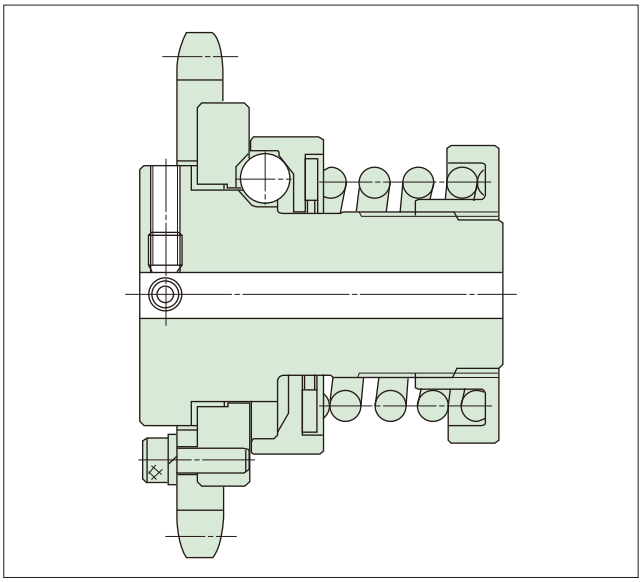
· Refer to the *Tsubaki Drive Chains & Sprockets* catalog for sprocket lubrication.
· Lubricating the Shock Guard using an oil bath, rotary disc, or forced pump may cause the torque scale or model number sticker to come off.

• Use of V-belt pulleys and timing pulleys

· Confirm that the radial load caused by belt tension does not exceed the allowable load.

Bore diameter	Chamfer dimensions
ϕ 25 or less	C0.5
ϕ 50 or less	C1
ϕ 125 or less	C1.5
ϕ More than 125	C2

■ Installation Example



Handling

1. Setting Trip Torque

(1) All TGB Shock Guards are shipped with torque value set at the minimum. Confirm that the torque scale is set at “0.” (Refer to the diagrams for each size.)

(2) For TGB70 to TGB130, loosen the lock nuts on the three adjustment bolts. (The adjustment nuts of TGB08 to TGB50 can be turned as is.)

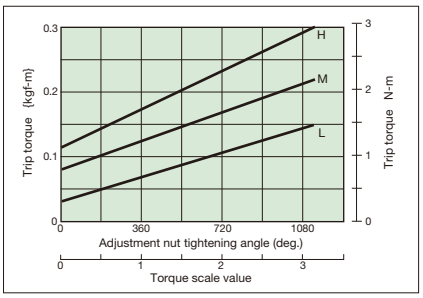
(3) From the Tightening Amount–Torque Correlation Charts below, find the adjustment nut’s (bolt’s) tightening angle equivalent to the predetermined trip torque. First, set at 60° toward the determined tightening value, then install onto the machine and conduct a trip test. Gradually tighten and set at the optimum trip torque. Tightening Amount–Torque Correlation Charts should be used as a rough guide only, as the trip torque may not correspond with the chart values.

(4) For TGB20 to TGB50, tighten the lock screw on the adjustment nut to prevent loosening.
For TGB70 to TGB130, tighten the hexagon nut to prevent loosening. (The adjustment nut on TGB08 to TGB16 is coated to prevent loosening.)

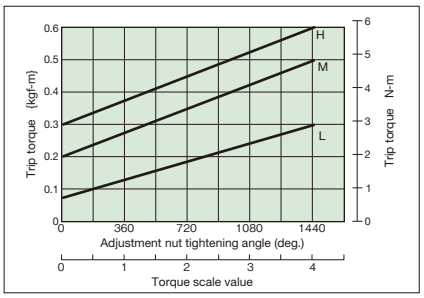
(5) Do not exceed the maximum torque scale value when turning the adjustment nut (bolt). Going beyond this limit will cause the disc spring to lose flexibility during trips and become stuck. (TGB08 to TGB16 use coil springs.)

2. Tightening Amount–Torque Correlation Charts

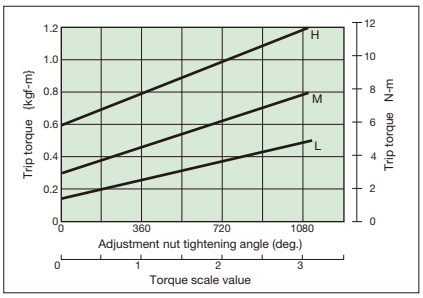
TGB08



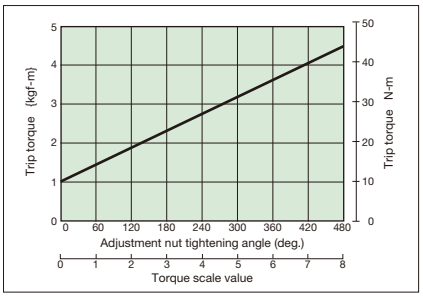
TGB12



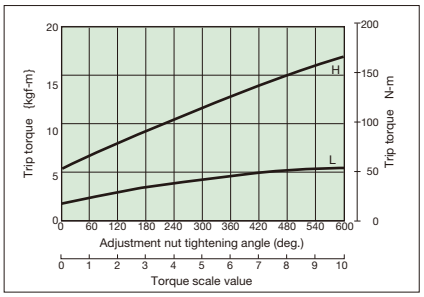
TGB16



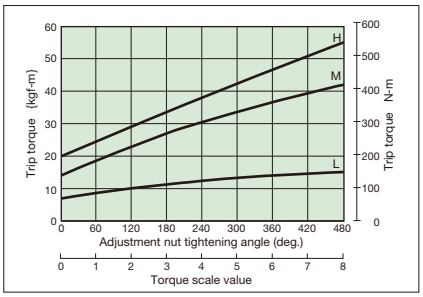
TGB20



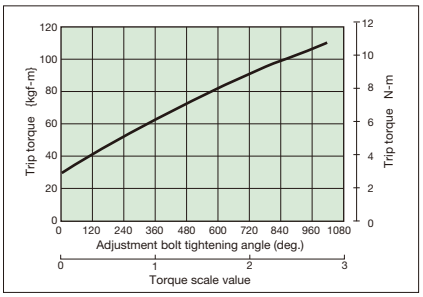
TGB30



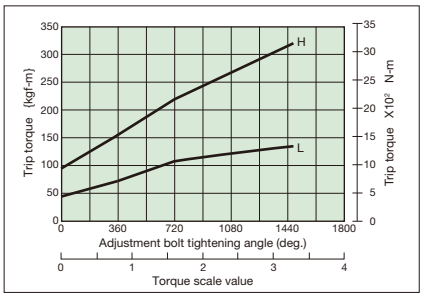
TGB50



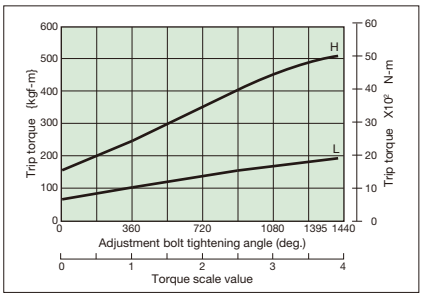
TGB70



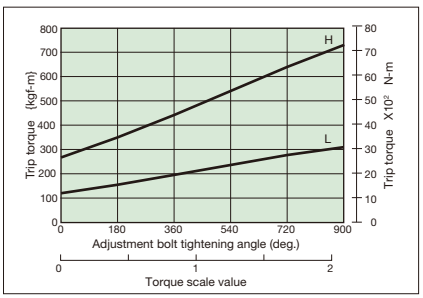
TGB90



TGB110



TGB130

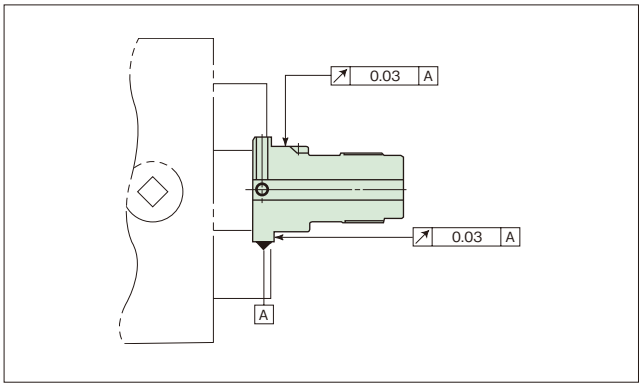


3. Bore Finishing

TGB08 to TGB16

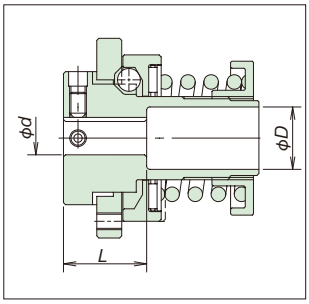
- **The hub's material is a surface-hardened iron-based sintered alloy.**

(1) Loosen the adjustment nut to disassemble all components. Make sure not to get any dust or dirt on the components.
(2) Hold the hub flange's outer diameter with a chuck and center the hub portion. The hub's material is a surface-hardened iron-based sintered alloy, so we recommend using a carbide cutting tool (JIS 9-20, K-01).
(3) The keyway should be machined directly below the tapped hole for the set screw.
(4) After bore finishing, apply grease to the drive balls and thrust bearing before reassembling.
(5) For bore finishing, refer to the table and drawings below to create stepped bores.

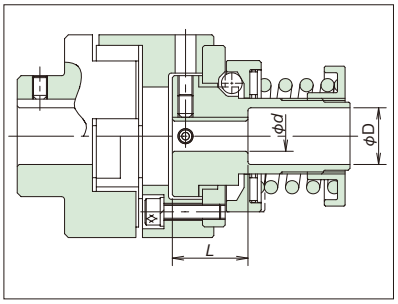


Bore Lengths

Model no.	Bore diameter (ϕd)	Bore length (L mm)	Counterbore diameter (ϕD)
TGB08 TGB08-C	ϕ6 or more; ϕ8 or less	20 mm	ϕ11
TGB12 TGB12-C	ϕ7 or more; less than ϕ10	20 mm	ϕ15
	ϕ10 or more; less than ϕ12	30 mm	
	ϕ12	Total length	Not needed
TGB16 TGB16-C	ϕ8 or more; less than ϕ10	20 mm	ϕ15
	ϕ10 or more; less than ϕ12	30 mm	
	ϕ12 or more; ϕ16 or less	Total length	Not needed



TGB08 to TGB16

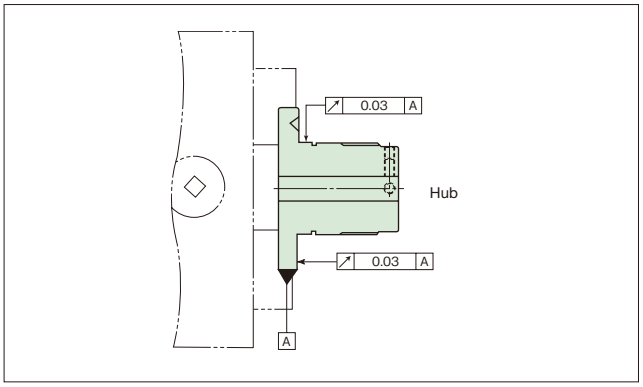


TGB08C to TGB16C

TGB20 to TGB130

- **The hub has been thermally refined.**

(1) Loosen the adjustment nut to disassemble all components. Remove the shaft's snap ring and the center flange. Make sure not to get any dust or dirt on the components.
(2) Hold the hub flange's outer diameter with a chuck and center the hub portion.
(3) Tapping for the set screws should be machined so they are spaced 90° from each other around the keyway.
(4) After bore finishing, apply grease to the drive balls and thrust bearing before reassembling.



4. Resetting

Auto-resetting type only requires restarting the motor and other parts of the drive unit to reengage.

(1) When the Shock Guard trips due to overload, stop the motor and remove the cause of the overload.
(2) Reset the Shock Guard and operate at less than 50 r/min or by "jogging" the motor.
⚠ Do not manually reset the Shock Guard by turning the main unit or shaft as this can be dangerous.
(3) Clicking sounds indicate that the drive balls have rolled back into the pockets.

Selection and Manufacture of Drive Members

A sprocket, gear, or pulley can be attached to the Shock Guard as a drive member (center member).
When selecting and manufacturing a drive member, refer to the following points.

(1) Fit the drive member to the outer diameter of the center flange and secure with a bolt.
Check Shock Guard dimensions to see if the drive member can be fitted.
Each spigot joint diameter is as listed in the table below.

Unit: mm

Model no.	Spigot dia.	Model no.	Spigot dia.
TGB08-L,M,H	40 (h8)	**TGB50-L,M,H**	160 (h7)
TGB12-L,M,H	48 (h8)	**TGB70-H**	220 (h7)
TGB16-L,M,H	58 (h8)	TGB90-L,H	295 (h7)
TGB20-H	90 (h7)	TGB110-L,H	355 (h7)
TGB30-L,H	113 (h7)	TGB130-L,H	400 (h7)

(2) Installing the center flange

- **TGB08 to TGB16**
  The tapped holes for installing the center flange pass through to the other side. If the bolt is longer than the center flange thickness, it will make contact with the plate. Make sure the bolts do not protrude to the plate side.

- **TGB20 to TGB130**
  The tapped holes for installing the center flange pass through to the other side. If the bolt is too long, it may make contact with the sensor plate. The recommended bolt screw lengths are listed in the table below.

Unit: mm

Model no.	Bolt screw length	Model no.	Bolt screw length
TGB08-L,M,H	4	**TGB50-L,M,H**	9 to 11
TGB12-L,M,H	5	**TGB70-H**	13 to 15
TGB16-L,M,H	7	TGB90-L,H	23 to 25
TGB20-H	6 to 7	TGB110-L,H	26 to 28
TGB30-L,H	8 to 10	TGB130-L,H	28 to 30

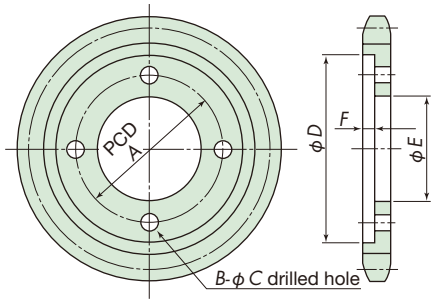
(3) Refer to the table below for drive member bolt bore diameters (JIS B1001-1985).

• Bolt Bore Diameter JIS B1001–1985

Unit: mm

Nominal screw diameter	3	4	5	6	8	10	12	16
Bolt bore diameter	3.4	4.5	5.5	6.6	9	11	13.5	17.5

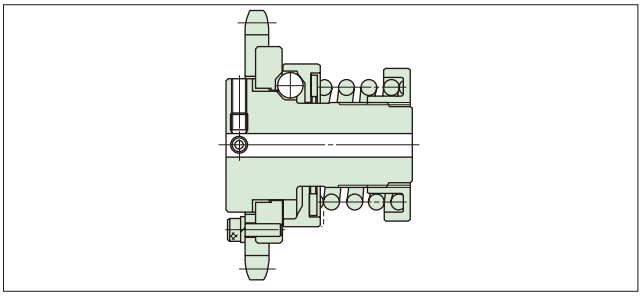
• Recommended drive member finishing dimensions



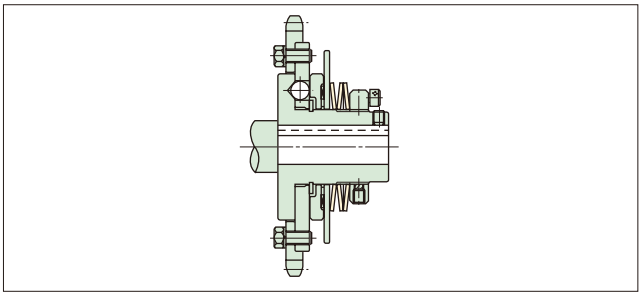
Series	Drive member finishing dimensions					
	A	*B*	*C*	*D*	E	F
TGB08-L,M,H	34	3	3.4	40_{H7}	28	3
TGB12-L,M,H	40	3	4.5	48_{H7}	33	3
TGB16-L,M,H	50	3	4.5	58_{H7}	41	3
TGB20-H	78	4	5.5	90_{H7}	64	3
TGB30-L,H	100	6	6.6	113_{H7}	84	4
TGB50-L,M,H	142	6	9.0	160_{H7}	124	5
TGB70-H	200	6	11	220_{H7}	172	5
TGB90-L,H	265	8	13.5	295_{H8}	240	5
TGB110-L,H	325	6	17.5	355_{H8}	292	5
TGB130-L,H	360	8	17.5	400_{H8}	325	5

■ Installation Examples

TGB08 to TGB16 (Externally mounted sprocket [B])



TGB20 to TGB50 (Externally mounted sprocket [B])



Lock Screw Tightening Torques

Hexagon socket head set screw	Tightening torque N·m{kgf·cm}
M5	3.8 { 38.7}
M8	16 {163 }

Precautions

When re-tightening lock screws that had been removed, make sure to take the following precautions:

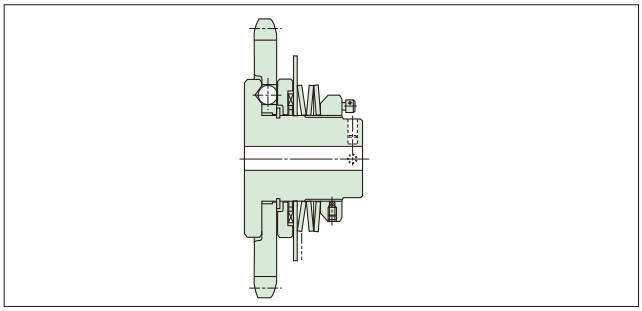
1. Confirm that the plug tip has not been detached. If the lock screw has the plug tip detached, it may damage the hub thread or get caught in the hub notch.
2. Confirm that the plug tip has not been heavily deformed. If the lock screw has a heavily deformed plug tip, it may damage the hub thread.

If 1. or 2. is found to be the case, replace the damaged parts with new ones.

Special Specifications

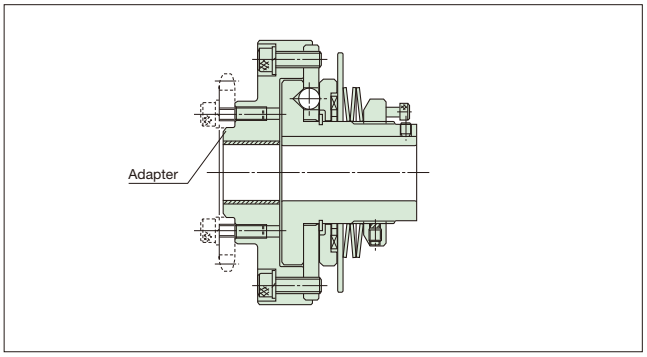
1. Sprocket-integrated model

We accept orders for sprocket-integrated models, which are not included among our standard products. Select a sprocket and contact a Tsubaki representative.



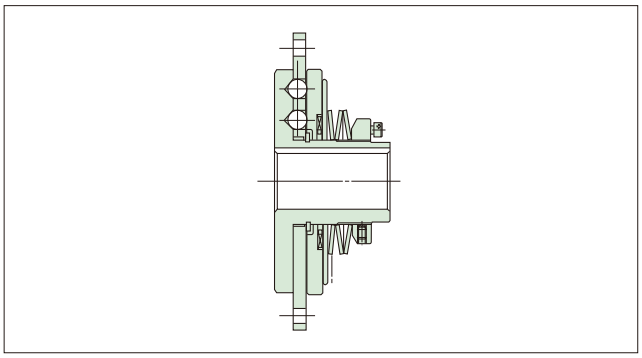
2. Adapter specifications (A)

This type is convenient for use with small-diameter sprockets and pulleys. Specify the specifications of the sprocket and pulley to be attached, and contact a Tsubaki representative.



3. Forward-reverse model

The trip torque range can be changed according to the rotational direction of the Shock Guard. Contact a Tsubaki representative.



Innovation in Motion

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