

Shock Guard TGX Series

Features

No backlash and unsurpassed operation rigidity.
Ideal for machines that require accurate positioning.

Highly accurate tripping

The lost motion during trip is minimal.

Backlash-free

The innovative ball and wedge mechanism eliminates backlash.

Coupling function

For the coupling type model, the ball and wedge mechanism absorbs the misalignment in angular, parallel, and axial displacement.

Easy torque adjustment

Trip torque can be freely adjusted simply by turning the adjustment nut.

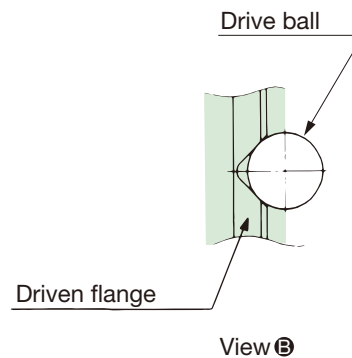
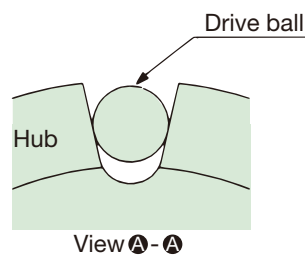
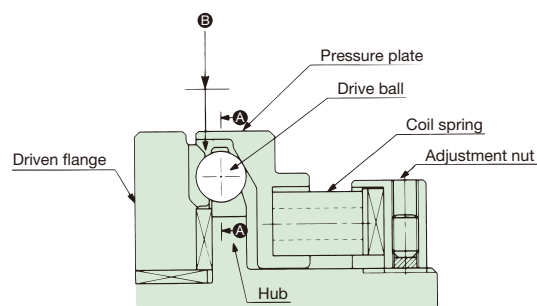
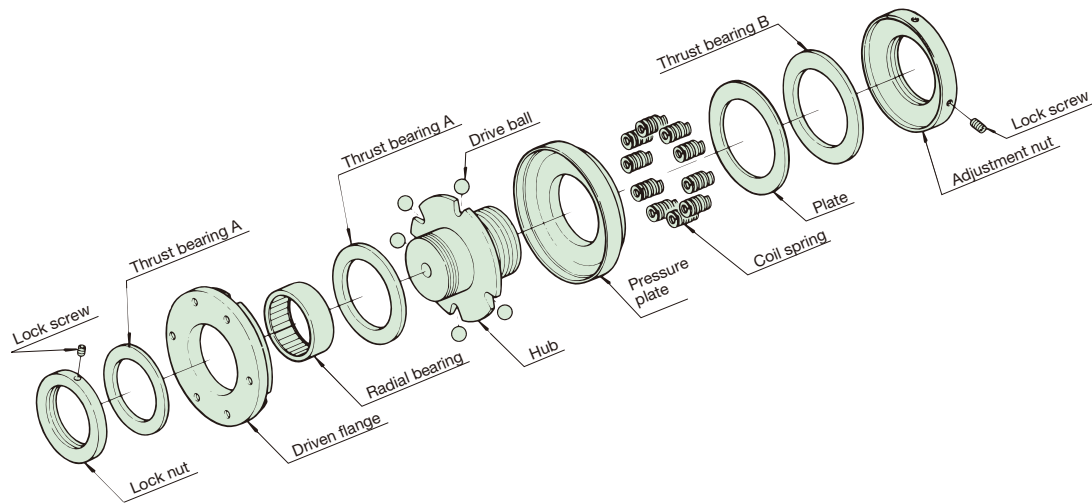
One-position design

The balls and wedge are arranged in a unique way in which they engage in only one position.



TG Sensor

Structure and Operating Principles



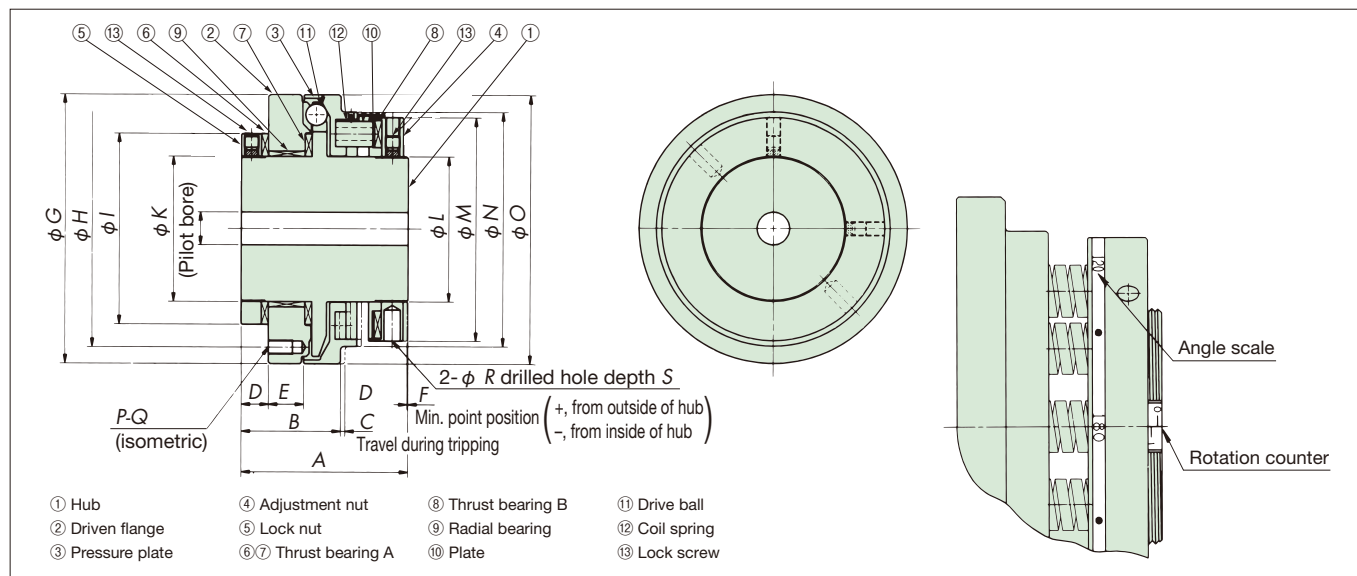
Ball and Wedge Mechanism

Torque is transmitted from the hub → drive balls → driven flange (or vice versa).

The coil spring is used to apply pressure to the drive ball to hold it against the hub and driven flange. The contact area between the pressure plate and the drive ball is tapered, to ensure that there is always zero backlash between the drive ball and the driven flange's V-shaped pocket (View A-A). This two-point contact of the drive ball with the driven flange's V-shaped pocket eliminates any possibility of backlash (View B). During overload, the drive balls pop out of their pockets and start rolling. Since there is no sliding, only rolling, the friction torque at idle is extremely small. This results in a highly durable mechanism. The resetting is automatic. When the operation resumes, the drive balls return to their pockets. Similar to the TGB Series, the five drive balls and pockets are arranged asymmetrically, which allows them to engage in only one position, guaranteeing that there will be no phase misalignment.

Shock Guard TGX Series

Transmission Capacity and Dimensions



- Note: 1. TGX35 consists of ⑦ thrust bearing B, ⑧ thrust bearing C, and ⑨ radial bearing.
 2. TGX10 does not have ⑥/⑦ thrust bearing A and ⑨ radial bearing. It consists only of the balls. (35 pieces × 2 rows)
 3. One adjustment nut for fixing the lock screw is included with the Shock Guard. After setting to the optimal torque, tighten the lock screw with the following torque to avoid interference with the hub's notch. Lock screw size: TGX10 to TGX35 M5...3.8 N·m {38.7 kgf·cm} TGX50/70 M8...16 N·m {163 kgf·cm}

Unit: mm

Shock Guard model no.	Torque range N·m	Max. rpm	Coil spring color × number	Pilot bore dia.*1	Min. bore dia.	Max. bore dia.*2	A	B	C Travel during tripping	D	E	F Min. point position	G h7	H PCD	I
TGX10-L	1.7 to 6.4	1400	Yellow × 3	7	9	15	53	22	1.4	7.5	6.6	+ 0.3	62	54	42
TGX10-M	5.4 to 15		Red × 3												
TGX10-H	11 to 29		Red × 6												
TGX20-L	6.5 to 24	1100	Yellow × 6	8.5	10	25	64	35	1.6	10	13.4	+ 0.7	86	74	60
TGX20-M	13 to 34		Red × 3												
TGX20-H	25 to 68		Red × 6												
TGX35-L	23 to 68	800	Red × 5	12	14	35	68	37.5	2.0	11	11.6	- 0.5	107	88	70
TGX35-M	43 to 98		Green × 5												
TGX35-H	87 to 196		Green × 10												
TGX50-L	45 to 118	600	Red × 5	18	20	55	92	54.8	2.6	15	19.5	+ 0.3	148	130	105
TGX50-M	90 to 196		Green × 5												
TGX50-H	176 to 392		Green × 10												
TGX70-L	127 to 363	480	Red × 8	23	25	70	98	61	3.5	15	19.2	+ 1.0	185	164	135
TGX70-M	265 to 510		Green × 8												
TGX70-H	392 to 784		Green × 12												

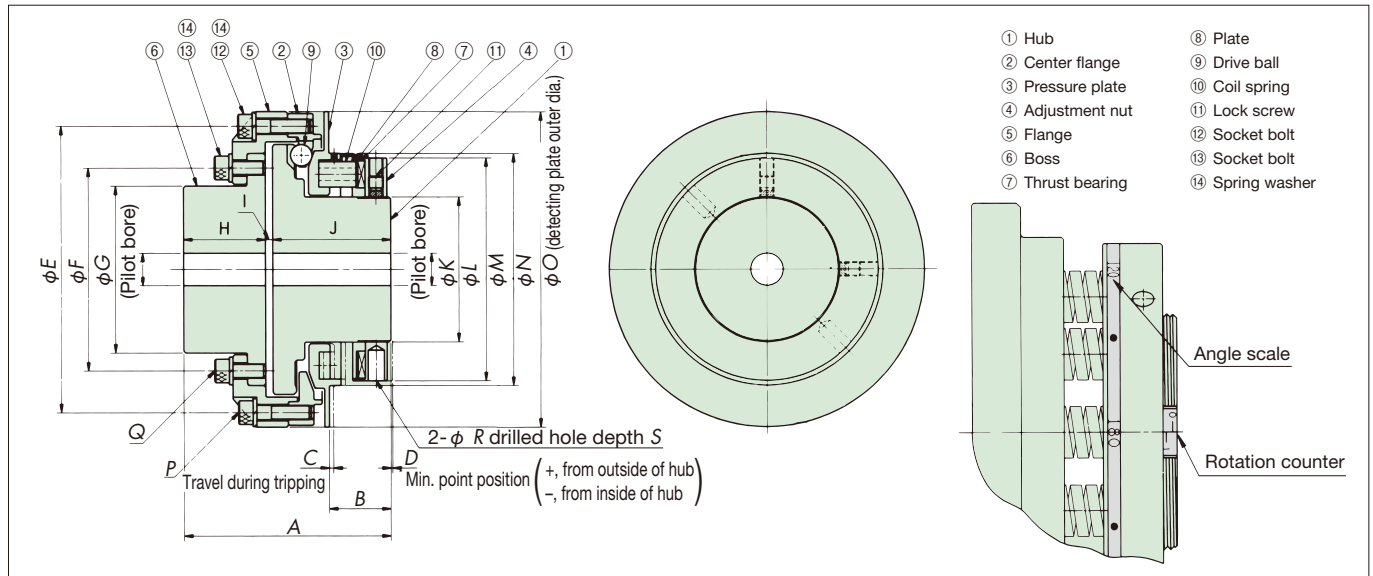
Shock Guard model no.	K Screw dia. × pitch	L Screw dia. × pitch	M	N	O	P	Q Screw dia. × depth	R	S	Mass*3 kg	Moment of inertia*3 × 10 ⁻² kg·m ²
TGX10-L	M 25×1.5	M 30×1.5	56	58	61.8	4	M 4× 6	5	10	0.75	0.0293
TGX10-M											
TGX10-H											
TGX20-L	M 40×1.5	M 40×1.5	70	73	86	6	M 5× 8	5	10	1.67	0.134
TGX20-M											
TGX20-H											
TGX35-L	M 50×1.5	M 55×1.5	88	91	107	6	M 6× 7	6	10	2.51	0.333
TGX35-M											
TGX35-H											
TGX50-L	M 80×1.5	M 80×1.5	123	129	148	6	M 8×13	9	17	7.03	1.83
TGX50-M											
TGX50-H											
TGX70-L	M100×2.0	M100×2.0	148	153	185	6	M10×13	10	18	11.4	4.88
TGX70-M											
TGX70-H											

*1. Pilot bore stock models are shown in bold, and non-bold models are made to order.

*2. Maximum bore diameter is for when a key is installed. Refer to page 46 when installing a Power-Lock.

*3. Mass and moment of inertia are based on the maximum bore diameter.

Coupling Type



Note: One adjustment nut for fixing the lock screw is included with the Shock Guard. After setting to the optimal torque, tighten the lock screw with the following torque to avoid interference with the hub's notch. Lock screw size: TGX10 to TGX35 M5...3.8 N·m (38.7 kgf·cm) TGX50/70 M8...16 N·m (163 kgf·cm)

Unit: mm

Coupling type model no.	Torque range N·m	Max. rpm	Coil spring color x number	Shock Guard			Coupling			A	B	C	D Travel during tripping	E PCD	F PCD	G	H
				Pilot bore dia.*1	Min. bore dia.	Max. bore dia.*2	Pilot bore dia.*1	Min. bore dia.	Max. bore dia.*2								
TGX10-LC	1.5 to 5.4	700	Yellow x 3	7	9	15	7	9	19	69	24	1.3	+ 0.3	62	42	33	25
TGX10-MC	4.6 to 13		Red x 3														
TGX10-HC	9.3 to 25		Red x 6														
TGX20-LC	5.2 to 19	550	Yellow x 6	8.5	10	25	8.5	10	35	84	24	1.6	+ 0.3	89	66	55	35
TGX20-MC	9.8 to 27		Red x 3														
TGX20-HC	21 to 55		Red x 6														
TGX35-LC	19 to 57	400	Red x 5	12	14	35	12	14	50	88	24	1.9	- 0.5	113	83	70	35
TGX35-MC	36 to 84		Green x 5														
TGX35-HC	74 to 167		Green x 10														
TGX50-LC	40 to 98	300	Red x 5	18	20	55	18	20	60	114	34	2.4	+ 0.9	158	112	92	45
TGX50-MC	81 to 176		Green x 5														
TGX50-HC	167 to 343		Green x 10														
TGX70-LC	118 to 323	240	Red x 8	23	25	70	23	25	80	124	36	3.3	+ 0.6	200	145	116	50
TGX70-MC	235 to 461		Green x 8														
TGX70-HC	353 to 696		Green x 12														

Coupling type model no.	I	J	K Screw dia. x pitch	L	M	N	O	P Screw dia. x length	Q Screw dia. x length	R	S	Mass ³ kg	Moment of inertia ³ x 10 ² kg·m ²	Allowable misalignment		
														Angular (deg.)	Parallel	Axial
TGX10-LC	2	42	M 30x1.5	56	-	74	74	M 4x18	M 4x10	5	10	1.07	0.0555	0.6	0.1	±0.5
TGX10-MC																
TGX10-HC																
TGX20-LC	3	46	M 40x1.5	70	-	98	98	M 5x20	M 5x12	5	10	2.38	0.231	0.6	0.1	±0.5
TGX20-MC																
TGX20-HC																
TGX35-LC	3	50	M 55x1.5	88	-	125	125	M 6x25	M 6x15	6	10	3.92	0.663	0.6	0.1	±0.5
TGX35-MC																
TGX35-HC																
TGX50-LC	4	65	M 80x1.5	123	128	174	174	M 8x32	M 8x20	9	17	10.9	3.35	0.6	0.1	±0.6
TGX50-MC																
TGX50-HC																
TGX70-LC	4	70	M100x2.0	148	152	218	218	M10x38	M10x22	10	18	16.3	8.93	0.6	0.1	±0.7
TGX70-MC																
TGX70-HC																

*1. Pilot bore stock models are shown in bold, and non-bold models are made to order.

*2. Maximum bore diameter is for when a key is installed. Refer to page 46 when installing a Power-Lock.

*3. Mass and moment of inertia are based on the maximum bore diameter.

Shock Guard TGX Series

Shock Guard Finished Bore TGX and Coupling Type TGX-C

Model Numbering Example

New model numbering As of April 2, 2018

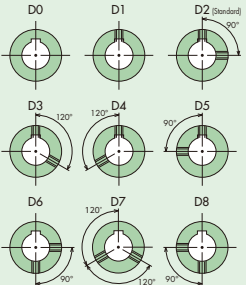
■ Single-unit type

TGX35-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
TGX	10	L: Weak	T	F : F7	Size Min. to max.	J: New JIS Js9		Size N·m
	G : G7			P: New JIS P9				
	20	H : H7		10 : 9 to 15		F: Old JIS F7	20 : 6.5 to 68	
	35	M: Medium		J : JS7			35 : 23 to 196	
	50	H: Strong		P : P7			50 : 45 to 392	
70	M : M7		70 : 127 to 784					
				N : N7	50 : 20 to 55	E: Old JIS E9		• Torque less than 10 N·m is shown to one decimal place.
				K : K7	70 : 25 to 70	• Old JIS keys $\phi 9$ or smaller are not supported.		
				R : R7				
								
								
								

■ Coupling type

TGX50-LC-TH35JD2XCH45ED2-N98

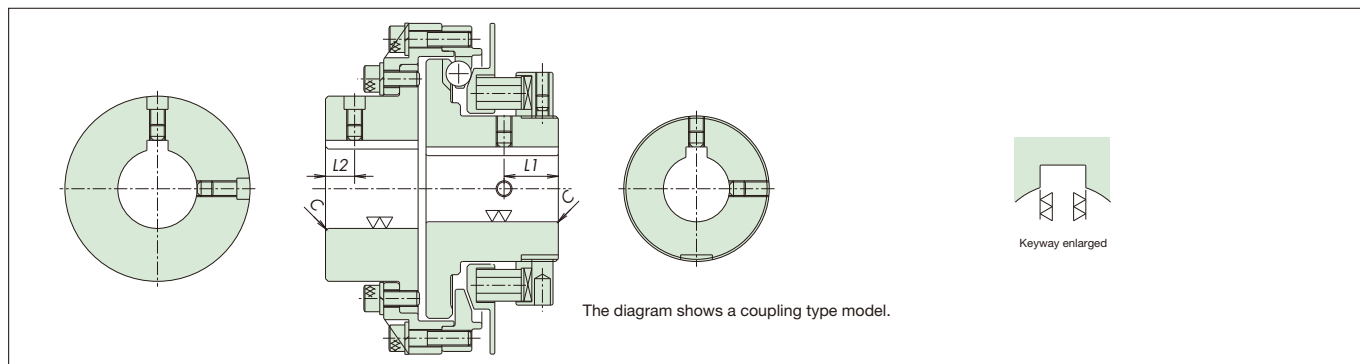
Series Size Spring strength	Coupling type	Shock Guard side, bore tolerance, bore dia., set screw position	Coupling side	Bore tolerance	Bore dia. (1 mm increments)	Keyway tolerance	Set screw position (seen from hub end)	Torque range
Same as single-unit type	C	Same as single-unit type TR for pilot bore	C	F : F7 G : G7 H : H7 J : JS7 P : P7 M : M7 N : N7 K : K7 R : R7	Size Min. to max.	J: New JIS Js9 P: New JIS P9 F: Old JIS F7 E: Old JIS E9 • Old JIS keys $\phi 9$ or smaller are not supported.		Size N·m 10 : 1.5 to 25 20 : 5.2 to 55 35 : 19 to 167 50 : 40 to 343 70 : 118 to 696 • Torque less than 10 N·m is shown to one decimal place. • Specify torque range only if required.
				Pilot bore: R				

■ Power-Lock type

TGX50-L-T35 2

Series	Size	Coil spring strength	Shock Guard side	Bore dia.	Number of Power-Locks
TGX	10 20 35 50 70	L: Weak M: Medium H: Strong	T	Size Min. to max. 10 : 10 to 12 20 : 10 to 20 35 : 15 to 35 50 : 20 to 50 70 : 25 to 70	1: One 2: Two

Set Screw Position and Size



Shock Guard TGX		Shock Guard side			Coupling side (coupling type only)		
Single-unit type model no.	Coupling type model no.	Bore dia.	Set screw	Set screw position (L1)	Bore dia.	Set screw	Set screw position (L2)
TGX10	TGX10-C	φ 15 or less	2-M4 × 4	21	φ 19 or less	2-M4 × 4	8
TGX20	TGX20-C	φ 23 or less	2-M5 × 5	20.5	φ 35 or less	2-M5 × 5	12
		φ 24, 25	2-M4 × 4				
TGX35	TGX35-C	φ 35 or less	2-M6 × 6	20.5	φ 50 or less	2-M6 × 6	11
TGX50	TGX50-C	φ 55 or less	2-M6 × 6	24.5	φ 60 or less	2-M6 × 6	13
TGX70	TGX70-C	φ 70 or less	2-M6 × 6	25	φ 80 or less	2-M6 × 6	15

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

Note: 1. Set screws are located at two positions, one on the keyway and the other 90° clockwise from it.
2. On the coupling-type TGX10-C, the phase of the key differs between the Shock Guard side and the coupling side.

Handling

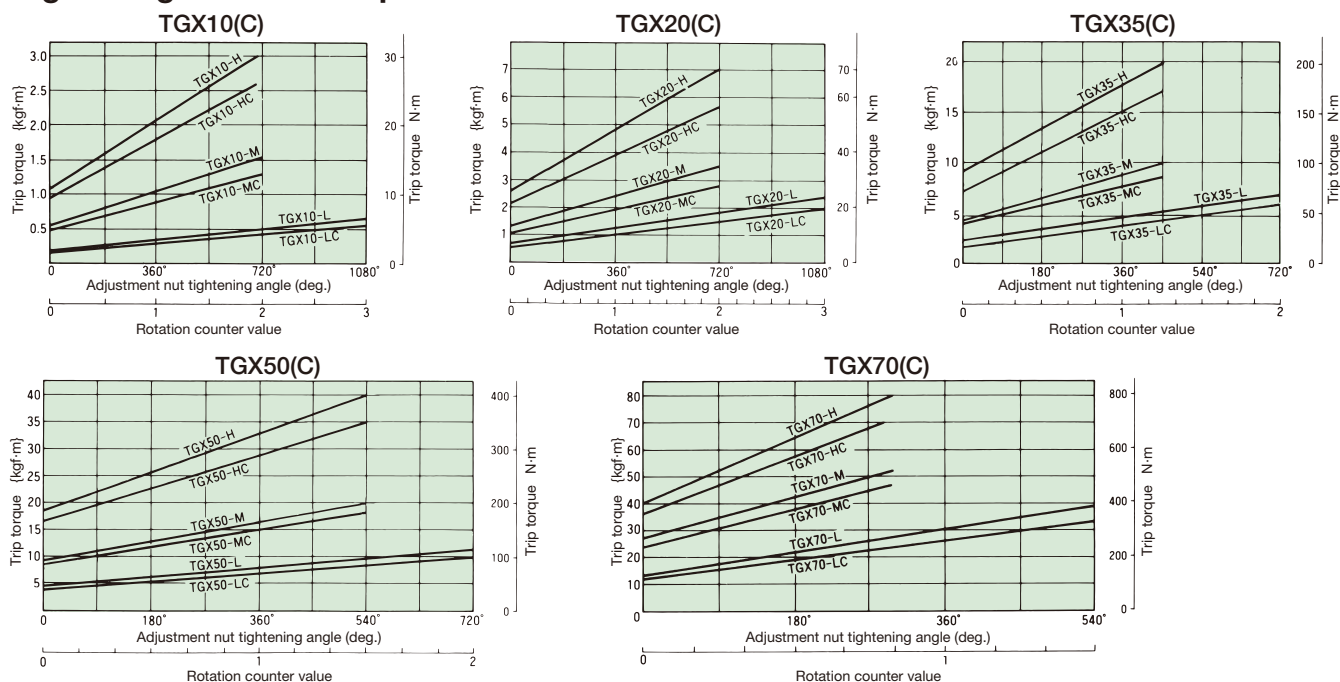
1. Setting Trip Torque

- (1) All TGX Shock Guards are shipped with torque value set at the minimum. Confirm that the Torque scale is set at "0." (Refer to pages 41 and 42.)
- (2) From the Tightening Amount–Torque Correlation Charts below, find the adjustment nut's (bolt's) tightening angle equivalent to the predetermined trip torque. The torque scale is in 60° increments. 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.

- (3) After setting the torque, tighten the lock screw on the adjustment nut to prevent loosening.
- (4) 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. Refer to page 30 for lock screw tightening torques and precautions.

2. Tightening Amount–Torque Correlation Charts



3. Centering

(1) Centering method I

- Separate the flange from the boss and center flange.
- Move the flange, then set to the I dimensions shown in Table 1.
- Fix a dial gauge to the shaft and measure the runout of the hub's end face and outer circumference.

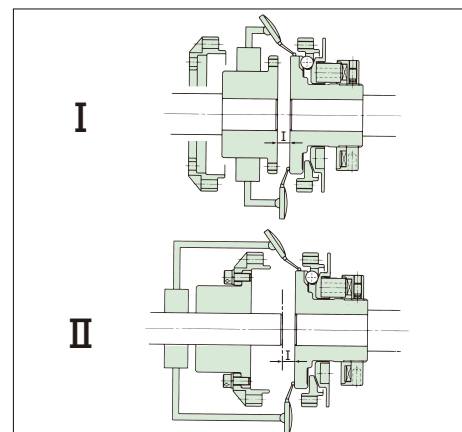
(2) Centering method II

- Separate the flange and the center flange.
- Fix a dial gauge to the shaft and measure the runout of the hub's end face and outer circumference.
- Move the boss, then set to the I dimensions shown in Table 1.

Table 1

Unit: mm

Model no.	I dimensions
TGX10-C	2
TGX20-C	3
TGX35-C	3
TGX50-C	4
TGX70-C	4



Note	Be sure to secure the Shock Guard using the I dimensions in Table 1. Otherwise, it may not be possible to use the Shock Guard without any backlash.
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Allowable Misalignment

Unit: mm

Model no.	Allowable misalignment		
	Angular (deg.)	Parallel	Axial
TGX10-C	0.6	0.1	±0.5
TGX20-C	0.6	0.1	±0.5
TGX35-C	0.6	0.1	±0.5
TGX50-C	0.6	0.1	±0.6
TGX70-C	0.6	0.1	±0.7

Reference:

Hub end face runout per angular misalignment $\theta = 0.10^\circ$ Unit: mm

Model no.	Outer diameter	Hub end face runout
TGX10-C	φ 53	0.092
TGX20-C	φ 75	0.131
TGX35-C	φ 98	0.171
TGX50-C	φ 138	0.241
TGX70-C	φ 177	0.309

Note: Make angular misalignment as small as possible when installing the Shock Guard.

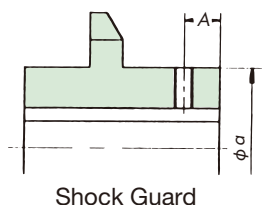
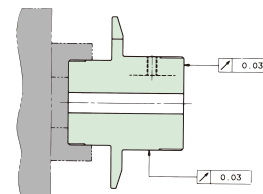
4. Bore Finishing

Refer to the instruction manual for more information on the disassembly, processing, and assembly of the Shock Guard TGX and coupling-type TGX-C when performing bore finishing.

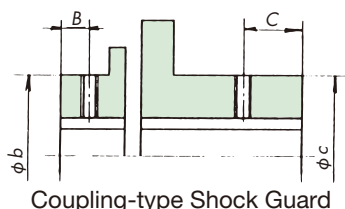
Bore Keyway Set Screw Dimensions

Model no.	Dimensions					
	A × screw dia.	B × screw dia.	C × screw dia.	a	b	c
TGX10	21 × M4 or less	—	—	30	—	—
TGX20	20.5 × M5 or less	—	—	40	—	—
TGX35	20.5 × M6	—	—	55	—	—
TGX50	24.5 × M6	—	—	80	—	—
TGX70	25 × M6	—	—	100	—	—
TGX10-C	—	8 × M 4 or less	21 × M4 or less	—	33	30
TGX20-C	—	12 × M 8 or less	20.5 × M5	—	55	40
TGX35-C	—	11 × M10 or less	20.5 × M6	—	70	55
TGX50-C	—	13 × M10 or less	24.5 × M6	—	92	80
TGX70-C	—	15 × M10 or less	25 × M6	—	116	100

Hold the hub's end face with a chuck, then center and finish as shown in the diagram below.

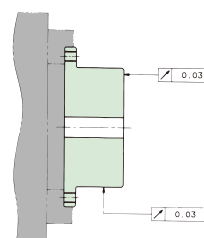


Shock Guard



Coupling-type Shock Guard

Hold the boss's flange outer diameter with a chuck, then center and finish as shown in the diagram below.



Combination with a Power-Lock

1. Applicable Range and Transmission Torque

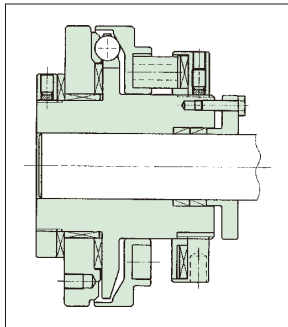
Both single-unit-type and coupling-type Shock Guards can be combined with the Power-Locks listed below. We can supply Power-Lock-mounted Shock Guards with custom pressure flanges and bolts upon request.

The tables show the transmission torques of a single unit of Power-Lock. When using multiple Power-Locks, multiply by the coefficient below to get the transmission torque.

N	S	N = Number of Power-Locks
2	1.55	S = Coefficient
3	1.85	Example: TGX20 bore dia. 10 mm, 2 sets of Power-Locks
		$1.10 \times 1.55 = 1.705$ Approx. 17 N·m

(1) Shock Guard TGX

Adjustment nut side



Power-Lock Transmission Torque

N·m{kgf·m}

Shaft dia.	Power-Lock model no.	Shock Guard model no.				
		TGX10	TGX20	TGX35	TGX50	TGX70
		Adjustment nut side	Adjustment nut side	Adjustment nut side	Adjustment nut side	Adjustment nut side
10	PL010x013E	10.8 {1.10}	10.8 {1.10}			
12	PL012x015E	15.7 {1.60}	15.7 {1.60}			
13	PL013x016E		18.6 {1.90}			
14	PL014x018E		30.4 {3.10}			
15	PL015x019E		35.3 {3.60}	35.3 {3.60}		
16	PL016x020E		39.2 {4.00}	40.2 {4.10}		
17	PL017x021E		43.1 {4.40}	45.1 {4.60}		
18	PL018x022E		46.1 {4.70}	51.0 {5.20}		
19	PL019x024E		41.2 {4.20}	56.8 {5.80}		
20	PL020x025E		44.1 {4.50}	62.7 {6.40}	62.7 {6.40}	
22	PL022x026E			75.5 {7.70}	75.5 {7.70}	
24	PL024x028E			90.2 {9.20}	90.2 {9.20}	
25	PL025x030E			91.1 {9.30}	98.0 {10.0}	98.0 {10.0}
28	PL028x032E			111 {11.3}	123 {12.5}	123 {12.5}
30	PL030x035E			115 {11.7}	141 {14.4}	141 {14.4}
32	PL032x036E			124 {12.7}	160 {16.3}	160 {16.3}
35	PL035x040E			127 {13.0}	217 {22.1}	217 {22.1}
36	PL036x042E				229 {23.4}	229 {23.4}
38	PL038x044E				256 {26.1}	256 {26.1}
40	PL040x045E				312 {31.8}	312 {31.8}
42	PL042x048E				344 {35.1}	344 {35.1}
45	PL045x052E				366 {37.3}	490 {50.0}
48	PL048x055E				398 {40.6}	530 {54.1}
50	PL050x057E				419 {42.8}	557 {56.8}
55	PL055x062E					624 {63.7}
56	PL056x064E					590 {60.2}
60	PL060x068E					644 {65.7}
63	PL063x071E					685 {69.9}
65	PL065x073E					711 {72.6}
70	PL070x079E					724 {73.9}

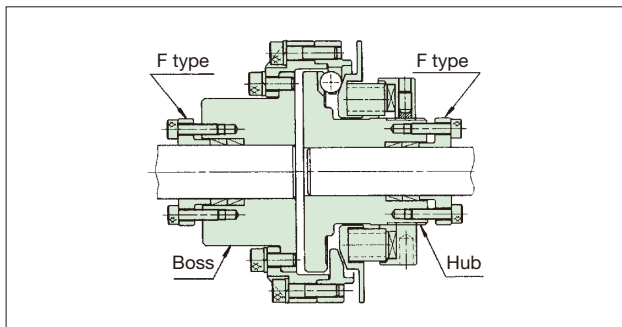
Pressure Bolt Tightening Torque

N·m{kgf·m}

Shaft dia.	Power-Lock model no.	Shock Guard model no.				
		TGX10	TGX20	TGX35	TGX50	TGX70
		Adjustment nut side	Adjustment nut side	Adjustment nut side	Adjustment nut side	Adjustment nut side
10	PL010x013E	2.94 {0.30}	1.96 {0.20}			
12	PL012x015E	3.14 {0.32}	2.06 {0.21}			
13	PL013x016E		2.16 {0.22}			
14	PL014x018E		3.53 {0.36}			
15	PL015x019E		3.92 {0.40}	2.94 {0.30}		
16	PL016x020E		4.02 {0.41}	3.04 {0.31}		
17	PL017x021E		4.02 {0.41}	3.14 {0.32}		
18	PL018x022E		4.02 {0.41}	3.23 {0.33}		
19	PL019x024E		4.02 {0.41}	3.63 {0.37}		
20	PL020x025E		4.02 {0.41}	3.72 {0.38}	5.49 {0.56}	
22	PL022x026E			3.72 {0.38}	5.59 {0.57}	
24	PL024x028E			3.92 {0.40}	5.59 {0.57}	
25	PL025x030E			4.02 {0.41}	6.27 {0.64}	5.00 {0.51}
28	PL028x032E			4.02 {0.41}	6.47 {0.66}	5.19 {0.53}
30	PL030x035E			4.02 {0.41}	7.06 {0.72}	5.59 {0.57}
32	PL032x036E			4.02 {0.41}	7.35 {0.75}	5.88 {0.60}
35	PL035x040E			4.02 {0.41}	9.11 {0.93}	7.25 {0.74}
36	PL036x042E				9.51 {0.97}	7.64 {0.78}
38	PL038x044E				9.90 {1.01}	7.94 {0.81}
40	PL040x045E				11.7 {1.19}	9.31 {0.95}
42	PL042x048E				12.3 {1.26}	9.80 {1.00}
45	PL045x052E				13.7 {1.40}	13.7 {1.40}
48	PL048x055E				13.7 {1.40}	13.7 {1.40}
50	PL050x057E				13.7 {1.40}	13.7 {1.40}
55	PL055x062E					13.7 {1.40}
56	PL056x064E					13.7 {1.40}
60	PL060x068E					13.7 {1.40}
63	PL063x071E					13.7 {1.40}
65	PL065x073E					13.7 {1.40}
70	PL070x079E					13.7 {1.40}

Shock Guard TGX Series

(2) Coupling Type TGX-C



Power-Lock Transmission Torque

N·m(kgf·m)

Shaft dia.	Power-Lock model no.	Shock Guard model no.									
		TGX10-C		TGX20-C		TGX35-C		TGX50-C		TGX70-C	
		Shock Guard side	Coupling side	Shock Guard side	Coupling side	Shock Guard side	Coupling side	Shock Guard side	Coupling side	Shock Guard side	Coupling side
10	PL010×013E	10.8 (1.10)	10.8 (1.10)	10.8 (1.10)	10.8 (1.10)						
12	PL012×015E	15.7 (1.60)	15.7 (1.60)	15.7 (1.60)	15.7 (1.60)						
13	PL013×016E			18.6 (1.90)	18.6 (1.90)						
14	PL014×018E			30.4 (3.10)	30.4 (3.10)						
15	PL015×019E			35.3 (3.60)	35.3 (3.60)	35.3 (3.60)	35.3 (3.60)				
16	PL016×020E			39.2 (4.00)	39.2 (4.00)	40.2 (4.10)	40.2 (4.10)				
17	PL017×021E			43.1 (4.40)	43.1 (4.40)	45.1 (4.60)	45.1 (4.60)				
18	PL018×022E			46.1 (4.70)	46.1 (4.70)	51.0 (5.20)	51.0 (5.20)				
19	PL019×024E			41.2 (4.20)	41.2 (4.20)	36.8 (3.80)	36.8 (3.80)				
20	PL020×025E			44.1 (4.50)	44.1 (4.50)	62.7 (6.40)	62.7 (6.40)	62.7 (6.40)	62.7 (6.40)		
22	PL022×026E					75.5 (7.70)	75.5 (7.70)	75.5 (7.70)	75.5 (7.70)		
24	PL024×028E					90.2 (9.20)	90.2 (9.20)	90.2 (9.20)	90.2 (9.20)		
25	PL025×030E					91.1 (9.30)	91.1 (9.30)	98.0 (10.0)	98.0 (10.0)	98.0 (10.0)	98.0 (10.0)
28	PL028×032E					111 (11.3)	111 (11.3)	123 (12.5)	123 (12.5)	123 (12.5)	123 (12.5)
30	PL030×035E					115 (11.7)	115 (11.7)	141 (14.4)	141 (14.4)	141 (14.4)	141 (14.4)
32	PL032×036E					124 (12.7)	124 (12.7)	160 (16.3)	160 (16.3)	160 (16.3)	160 (16.3)
35	PL035×040E					127 (13.0)	127 (13.0)	217 (22.1)	217 (22.1)	217 (22.1)	217 (22.1)
36	PL036×042E					229 (23.4)	229 (23.4)	229 (23.4)	229 (23.4)	229 (23.4)	229 (23.4)
38	PL038×044E					256 (26.1)	256 (26.1)	256 (26.1)	256 (26.1)	256 (26.1)	256 (26.1)
40	PL040×045E					312 (31.8)	312 (31.8)	312 (31.8)	312 (31.8)	312 (31.8)	312 (31.8)
42	PL042×048E					344 (35.1)	344 (35.1)	344 (35.1)	344 (35.1)	344 (35.1)	344 (35.1)
45	PL045×052E					396 (40.6)	396 (40.6)	396 (40.6)	396 (40.6)	396 (40.6)	396 (40.6)
48	PL048×055E					398 (40.6)	398 (40.6)	530 (54.1)	530 (54.1)	530 (54.1)	530 (54.1)
50	PL050×057E					419 (42.8)	419 (42.8)	557 (56.8)	557 (56.8)	557 (56.8)	557 (56.8)
55	PL055×062E					624 (63.7)	624 (63.7)	624 (63.7)	624 (63.7)	624 (63.7)	624 (63.7)
56	PL056×064E					590 (60.2)	590 (60.2)	590 (60.2)	590 (60.2)	590 (60.2)	590 (60.2)
60	PL060×068E					644 (65.7)	644 (65.7)	644 (65.7)	644 (65.7)	644 (65.7)	644 (65.7)
63	PL063×071E					685 (69.9)	685 (69.9)	685 (69.9)	685 (69.9)	685 (69.9)	685 (69.9)
65	PL065×073E					711 (72.6)	711 (72.6)	711 (72.6)	711 (72.6)	711 (72.6)	711 (72.6)
70	PL070×079E					724 (73.9)	724 (73.9)	724 (73.9)	724 (73.9)	724 (73.9)	724 (73.9)

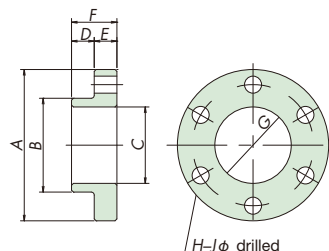
Pressure Bolt Tightening Torque

N·m(kgf·m)

Shaft dia.	Power-Lock model no.	Shock Guard model no.									
		TGX10-C		TGX20-C		TGX35-C		TGX50-C		TGX70-C	
		Shock Guard side	Coupling side	Shock Guard side	Coupling side	Shock Guard side	Coupling side	Shock Guard side	Coupling side	Shock Guard side	Coupling side
10	PL010×013E	2.94 (0.30)	2.94 (0.30)	1.96 (0.20)	1.96 (0.20)						
12	PL012×015E	3.14 (0.32)	3.14 (0.32)	2.06 (0.21)	2.06 (0.21)						
13	PL013×016E			2.16 (0.22)	2.16 (0.22)						
14	PL014×018E			3.53 (0.36)	3.53 (0.36)						
15	PL015×019E			3.92 (0.40)	3.92 (0.40)	2.94 (0.30)	2.94 (0.30)				
16	PL016×020E			4.02 (0.41)	4.02 (0.41)	3.04 (0.31)	3.04 (0.31)				
17	PL017×021E			4.02 (0.41)	4.02 (0.41)	3.14 (0.32)	3.14 (0.32)				
18	PL018×022E			4.02 (0.41)	4.02 (0.41)	3.23 (0.33)	3.23 (0.33)				
19	PL019×024E			4.02 (0.41)	4.02 (0.41)	3.63 (0.37)	3.63 (0.37)				
20	PL020×025E			4.02 (0.41)	4.02 (0.41)	3.72 (0.38)	3.72 (0.38)	5.49 (0.56)	5.49 (0.56)		
22	PL022×026E					3.72 (0.38)	3.72 (0.38)	5.59 (0.57)	5.59 (0.57)		
24	PL024×028E					3.92 (0.40)	3.92 (0.40)	5.59 (0.57)	5.59 (0.57)		
25	PL025×030E					4.02 (0.41)	4.02 (0.41)	6.27 (0.64)	6.27 (0.64)	5.00 (0.51)	5.00 (0.51)
28	PL028×032E					4.02 (0.41)	4.02 (0.41)	6.47 (0.66)	6.47 (0.66)	5.19 (0.53)	5.19 (0.53)
30	PL030×035E					4.02 (0.41)	4.02 (0.41)	7.06 (0.72)	7.06 (0.72)	5.59 (0.57)	5.59 (0.57)
32	PL032×036E					4.02 (0.41)	4.02 (0.41)	7.35 (0.75)	7.35 (0.75)	5.88 (0.60)	5.88 (0.60)
35	PL035×040E					4.02 (0.41)	4.02 (0.41)	9.11 (0.93)	9.11 (0.93)	7.25 (0.74)	7.25 (0.74)
36	PL036×042E							9.51 (0.97)	9.51 (0.97)	7.64 (0.78)	7.64 (0.78)
38	PL038×044E							9.90 (1.01)	9.90 (1.01)	7.94 (0.81)	7.94 (0.81)
40	PL040×045E							11.7 (1.19)	11.7 (1.19)	9.31 (0.95)	9.31 (0.95)
42	PL042×048E							12.3 (1.26)	12.3 (1.26)	9.80 (1.00)	9.80 (1.00)
45	PL045×052E							13.7 (1.40)	13.7 (1.40)	13.7 (1.40)	13.7 (1.40)
48	PL048×055E							13.7 (1.40)	13.7 (1.40)	13.7 (1.40)	13.7 (1.40)
50	PL050×057E							13.7 (1.40)	13.7 (1.40)	13.7 (1.40)	13.7 (1.40)
55	PL055×062E									13.7 (1.40)	13.7 (1.40)
56	PL056×064E									13.7 (1.40)	13.7 (1.40)
60	PL060×068E									13.7 (1.40)	13.7 (1.40)
63	PL063×071E									13.7 (1.40)	13.7 (1.40)
65	PL065×073E									13.7 (1.40)	13.7 (1.40)
70	PL070×079E									13.7 (1.40)	13.7 (1.40)

2. Pilot Bore Pressure Flange

Custom pressure flanges and pressure bolts are made to order upon request. Pressure bolts are JIS strength class 10.9. The pressure flange is mounted at the end face of the hub or boss using tapped holes. Refer to page 48 for the recommended finishing dimensions.



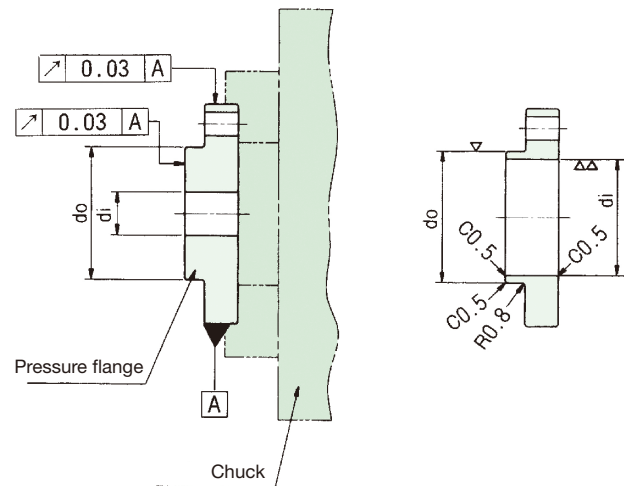
Pilot Bore Pressure Flange Dimensions

Pressure flange model no.	A	Pilot bore dimensions		D	E	F	G PCD	H	J	Mass*1 kg	Moment of inertia kg·m ²	GD ² *2 kgf·m ²	Pressure bolt size × quantity		Tapped side screw effective depth
		B	C												
TGX10-F	30	14.9	10.1	5	6	11	22	4	4.5	0.037	0.043	0.173	M4×14L	4	M4× 8L
TGX20-F	40	24.8	10.1	6	6	12	32	6	4.5	0.080	0.150	0.600	M4×14L	6	M4× 8L
TGX35-F	55	39.8	15.1	6	6	12	47	8	4.5	0.16	0.598	2.39	M4×14L	8	M4× 8L
TGX50-F	81	56.8	20.2	7	10	17	69	8	6.6	0.53	4.240	16.96	M6×22L	8	M6×12L
TGX70-F	101	78.7	25.2	7	10	17	89	10	6.6	0.87	10.83	43.33	M6×22L	10	M6×12L

*1/*2 Mass and GD² are for a single set that includes a pressure flange (max. bore diameter) and pressure bolts.
Note: All products are MTO.

3. Pressure Flange Recommended Finishing Dimensions

- (1) Centering
Hold the flange's outer diameter with a chuck and center the flange. (Refer to the diagram on the right.)
- (2) Recommended dimensions
According to the Power-Lock size, choose the finishing dimensions from the table below.



Pressure Flange Centering and Processing

Unit: mm

Bore dia. (mm)	Power-Lock model no.	TGX10(C) F		TGX20(C) F		TGX35(C) F		TGX50(C) F		TGX70(C) F	
		do _{-0.1} ⁰	di ₋₀ ^{+0.1}	do _{-0.1} ⁰	di ₋₀ ^{+0.1}	do _{-0.1} ⁰	di ₋₀ ^{+0.1}	do _{-0.1} ⁰	di ₋₀ ^{+0.1}	do _{-0.1} ⁰	di ₋₀ ^{+0.1}
10	PL010×013E	12.9	10.1	12.9	10.1						
12	PL012×015E	14.9	12.1	14.9	12.1						
13	PL013×016E			15.9	13.1						
14	PL014×018E			17.9	14.1						
15	PL015×019E			18.9	15.1	18.9	15.1				
16	PL016×020E			19.9	16.1	19.9	16.1				
17	PL017×021E			20.9	17.1	20.9	17.1				
18	PL018×022E			21.9	18.1	21.9	18.1				
19	PL019×024E			23.8	19.2	23.8	19.2				
20	PL020×025E			24.8	20.2	24.8	20.2	24.8	20.2		
22	PL022×026E					25.8	22.2	25.8	22.2		
24	PL024×028E					27.8	24.2	27.8	24.2		
25	PL025×030E					29.8	25.2	29.8	25.2	29.8	25.2
28	PL028×032E					31.8	28.2	31.8	28.2	31.8	28.2
30	PL030×035E					34.8	30.2	34.8	30.2	34.8	30.2
32	PL032×036E					35.8	32.2	35.8	32.2	35.8	32.2
35	PL035×040E					39.8	35.2	39.8	35.2	39.8	35.2
36	PL036×042E							41.8	36.2	41.8	36.2
38	PL038×044E							43.8	38.2	43.8	38.2
40	PL040×045E							44.8	40.2	44.8	40.2
42	PL042×048E							47.8	42.2	47.8	42.2
45	PL045×052E							51.8	45.2	51.8	45.2
48	PL048×055E							54.8	48.2	54.8	48.2
50	PL050×057E							56.8	50.2	56.8	50.2
55	PL055×062E									61.8	55.2
56	PL056×064E									63.8	56.2
60	PL060×068E									67.8	60.2
63	PL063×071E									70.8	63.2
65	PL065×073E									72.8	65.2
70	PL070×079E									78.7	70.3

Note: Refer to the instruction manual for hub bore finishing when mounting a Power-Lock.



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