

# TRANSDRIVE<sup>®</sup>

## DRIVE PERFORMANCE



## Torque Limiters

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## DRIVE PERFORMANCE

TransDrive was established to bring together our passion and experience in power transmission by being able to offer affordable, high-quality products to the power transmission and bearing market. Built on the philosophy of improving performance and quality of all of our TransDrive products.

Transdrive products have been manufactured and tested to meet ISO standards and the tough, working conditions of heavy industries.

Our team have experience in power transmission and bearings. Every product we design and manufacture is backed by years of industry knowledge and an understanding of what our customers and the market need.

At TransDrive, our goal is simple: to provide accessible, high-quality products at affordable pricing. With an unwavering commitment to excellence, TransDrive operates with a focus on providing innovative industry solutions.

Whether it is through our custom products, the standard range of pulleys, slew drives, chains and sprockets, TransDrive is dedicated to delivering effective solutions for the trades that offer increased productivity and reliability.

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# Torque Limiters

The TransDrive Torque Limiter has been designed to protect drive systems from unnecessary overload. When too much torque is transmitted through a drive, the Torque Limiter automatically slips on its shaft when a predetermined torque level is reached.

This device is suitable in situations where there is excessive and unpredictable shock loads, overloads or machine jams. When the problem in the system is overcome or removed, the Torque Limiter automatically re-engages, unlike other devices such as those with shear pin mechanisms, which have to be manually reset. Torque Limiters not only prevent damage to drive systems but also eliminates unnecessary downtime due to system resets.

The Torque Limiter utilises spring loaded friction surfaces, the slip torque is preset by the adjustment of the spring force which is as simple as tightening or loosening the appropriate nut or bolt.



## Selection

Determine the required slip torque from the loading conditions or from the design strength of the machine. If the loading conditions of the machine are unknown, set the required slip torque of the torque limiter to 1.5~2 times the torque that the motor produces on the shaft where the torque limiter is mounted.

Select a Torque Limiter that has enough torque range and bore range.

Determine the proper bushing length from the thickness of the centre member to be inserted between the friction facings. Always choose the largest bushing which does not exceed the width of the centre member, shown as S Max in the dimension table.

Size	Torque Range (kgf-m)	Plain Bore	Max Bore	Bush Length	OD of Bush	Bore for Centre Member	D	DH	L	I	T	t	S (Max)	A	C	Adjust. Nut	Adjust. Bolt	Set Screw	(kg)		
RTL50-1	0.3 ~ 1.0	8	14	3.8 6	30	-0.020-0.041	30	+0.033 0	50	24	29	6.5	1.6	2.5	7	-	36	M24 P1.0	-		0.248
RTL50-1	0.7 ~ 2.0																				0.256
RTL65-1	0.7 ~ 2.8	10	22	6 8	41	-0.025-0.050	41	+0.039 0	65	35	48	16	4	3.2	9	4	50	M35 P1.5	-	M5	0.721
RTL65-2	1.4 ~ 5.5																				0.739
RTL89-1	2.0 ~ 7.6	17	25	6 8 9.5 14.5	49	-0.025-0.050	49	+0.039 0	89	42	62	19	4	3.2	16	5	65	M42 P1.5	-	M6	2.417
RTL89-2	3.5 ~ 15.2																				2.477
RTL127-1	4.8 ~ 21.4	20	42	6 8 9.5 14.5	74	-0.030-0.060	74	+0.046 0	127	65	76	22	6	3.2	16	6	-	M65 P1.5	M8 P1.0 3pcs	M8	3.692
RTL127-2	9.0 ~ 42.9																				3.858
RTL178-1	11.8 ~ 58.1	30	64	8 9.5 14.5 17 22	105	-0.036-0.071	105	+0.054 0	178	95	98	24	7	3.2	29	6.5	-	M95 P1.5	M10 P1.25 3pcs	M10	9.033
RTL178-2	22.8 ~ 111																				9.436

## Centre Member

The centre member should be machined on its rubbing surface to obtain the rated torque and be flat, parallel and square with the bore and free from rust, scale and oil. Surface finish recommended is Ra1.6. The centre member is not in accordance with these specifications, the slip torque will be erratic.

The Max. Bore of the centre member is listed below. Also shown is the Minimum number of sprocket teeth to be used and the bushing length.

Size	Bore of Centre Member (mm)	9.525-06B		12.7-08B		15.875-10B		19.05-12B		25.4-16B		31.75-20B		38.1-24B	
		Spr. Min. Teeth	Bush Length (mm)	Spr. Min. Teeth	Bush Length (mm)	Spr. Min. Teeth	Bush Length (mm)	Spr. Min. Teeth	Bush Length (mm)	Spr. Min. Teeth	Bush Length (mm)	Spr. Min. Teeth	Bush Length (mm)	Spr. Min. Teeth	Bush Length (mm)
RTL50	30	20	3.8	16	6	-	-	-	-	-	-	-	-	-	-
RTL65	41	-	-	20	6	17	8	-	-	-	-	-	-	-	-
RTL89	49	-	-	26	6	21	8	18	9.5	15	14.5	-	-	-	-
RTL127	74	-	-	35	6	29	8	25	9.5	19	14.5	-	-	-	-
RTL178	105	-	-	-	-	39	8	33	9.5	26	14.5	21	17	18	22

# Settings

The torque setting on the Torque Limiter is manipulated by tightening or loosening the adjustment nut and/or the adjustment bolts. RTL 50 – RTL 89 use an adjustment nut, RTL 127 – RTL 178 use adjustment bolts.

The torque setting is adjusted after the Torque Limiter is mounted on the shaft, once the Torque Limiter is mounted:

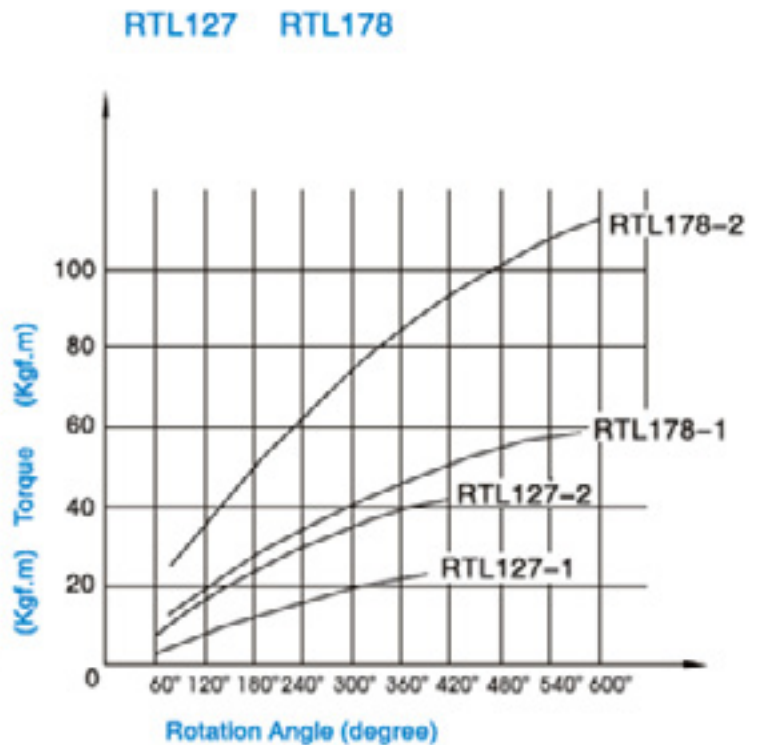
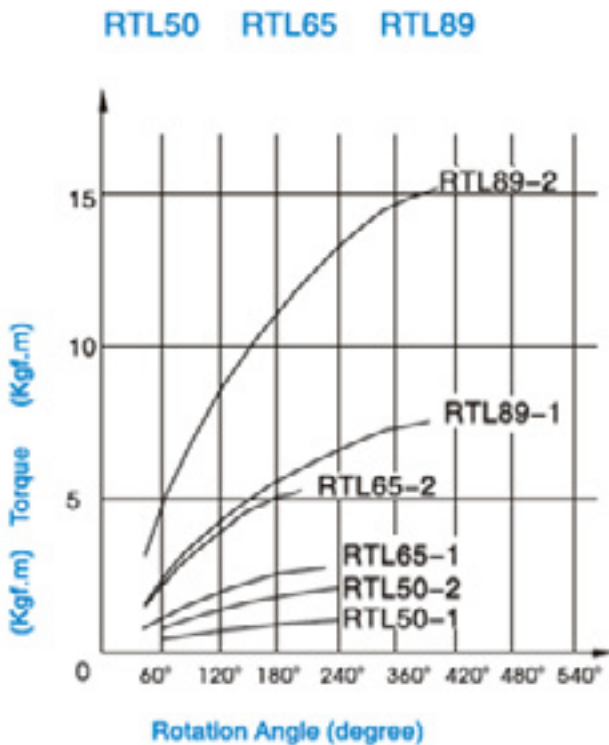
## RTL 50 – RTL 89

First, rotate the adjustment nut tightly by hand so that the disk spring fits the plate. Then tentatively tighten the nut by about 60 degrees with a wrench.

## RTL 127 – RTL 178

First, rotate the nut for fixing the disk spring to the plate, and then tighten each adjustment bolt by about 60 degrees. Then, the Torque Limiter slips under normal loading conditions, tighten the bolts gradually until the Torque Limiter stops slipping. Always tighten or loosen the bolts evenly. You may have to make several adjustments to find the appropriate setting for the machine. For your guidance the below chart shows the relation between the effective rotated angle and preset torque.

For precise torque setting, run-in on the Torque Limiter is recommended, e.g.: 500 revolution at 50~60rpm with a rotated angle of 45 degrees on the adjustment bolts.





Wipe off oil, rust and dirt from each part before assembling your Torque Limiter. Then, assemble as follows.

**Note**

All units are assembled with a single disk spring. An additional disk spring is packed separately for use as necessary.

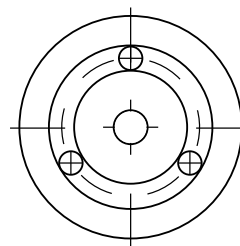
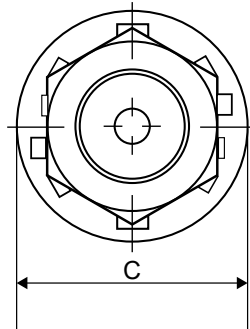
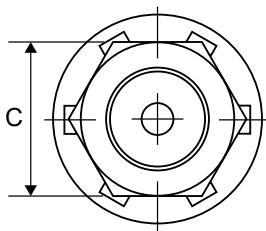
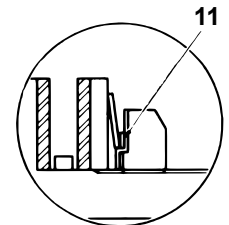
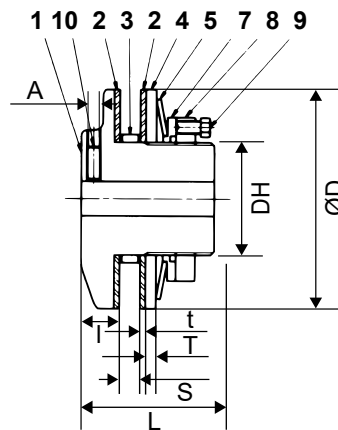
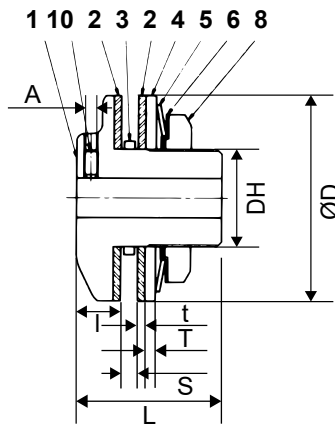
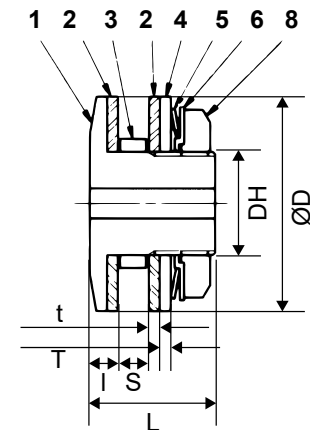
**RTL50**

**RTL65**

**RTL89**

**RTL127**

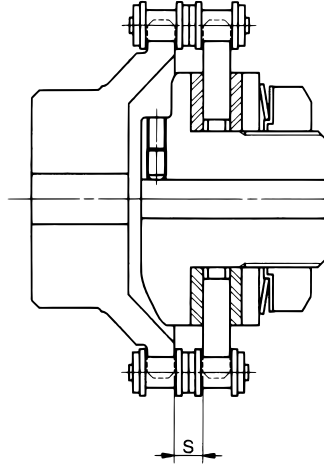
**RTL178**



- 1. Hub
- 2. Friction Facing
- 3. Bushing
- 4. Pressure Plate
- 5. Disk Spring
- 6. Lock Washer
- 7. Pilot Plate
- 8. Adjustment Nut
- 9. Adjustment Bolt
- 10. Set Screw
- 11. Spacer

# Installation and Care Instructions

- ▶ Align the shaft centers by calibrating the angular and parallel misalignments.
- ▶ Measure by placing the scale by the sprocket teeth.
- ▶ Adjust the length between the sprockets or dimension S, and their parallelism according to the dimensions provided below. Then wrap the chain around the sprockets and lock with a joint pin



Size	RTL50	RTL65	RTL89	RTL127	RTL178
S	7.5mm	7.4mm	9.7mm	11.6mm	15.3mm
Max. Angular Misalignment	0.5O	0.5O	0.5O	0.5O	0.5O
Max. Parallel Misalignment	0.25mm	0.25mm	0.25mm	0.25mm	0.25mm

## Tightening Method (Adjustable Nuts & Bolts)

- ▶ The adjustable nut for RTL50, RTL 65 and RTL89 TransDrive Torque Limiters are hexagon head nuts. Tighten it with a spanner wrench to the rated angle then bend the lock washer to prevent the adjustable nut from loosening.
- ▶ The adjustable nut for RTL127 and RTL178 TransDrive Torque Limiters have 3 pieces of adjustable bolts. Place the pilot plate and disk spring in contact with each other, and tighten the adjustable nut manually until there is no backlash between their faces. Then re-tighten the adjustable bolts to the appropriate angle.

## Replace the friction facing

- ▶ Change the friction facing when they reach roughly half the thickness of dimension described in the catalogue. 1.25 mm for RTL50, and 1.6 mm for RTL65~RTL178.
- ▶ Before replacing the friction facing, each part must be completely free of oil, rust and dirt. Also, reassemble the Torque Limiter according to the structure drawing.

## Maintenance and precautions after the replacement procedure

- ▶ The Torque Limiter continues to slip, and the friction facing is abnormally worn or heated unless the driving source is stopped when overloaded. Stop the driving source immediately in this case, making it necessary to stop the drive source immediately. It allows to automatically stop by using a digital tachometer and proximity switch. Please refer to the catalogue etc.
- ▶ Periodically inspect the torque setting, for the initial torque setting may be affected by changes in friction, ambient temperature, humidity and other conditions.
- ▶ Replace the friction facing and bushing if they wear. Their replacement parts are in stock.
- ▶ Keep the Torque Limiter free from water and oil. This will maintain the effectiveness of torque and prevent the equipment or load from falling, and causing serious accidents.
- ▶ When sprocket teeth surfaces are induction-hardened. Lubricating paste should be applied to chain after installation and every 1000 hours.





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