

Torque Limiters

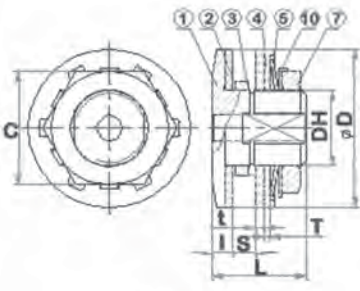
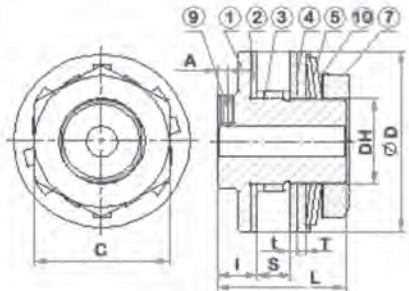
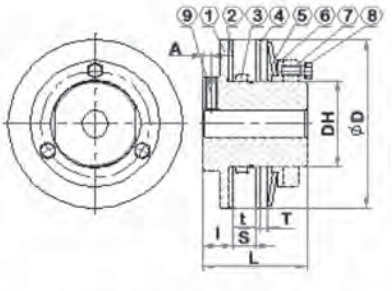
The BPT Torque Limiter has been designed to protect drive systems from unnecessary overload. When too much torque is transmitted through a drive, the Torque Limiter automatically slips on its shaft when a predetermined torque level is reached.

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 reengages, 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 utilizes spring loaded friction surfaces, the slip torque is preset by the adjustment of the spring force, this is as simple as tightening or loosening the appropriate nut or bolt.



					
RTL50		RTL65 RTL89		RTL127 RTL178	
1) Hub	3) Bushing	5) Disc Spring	7) Adjustment Nut	9) Set Screw	
2) Friction Facing	4) Pressure Plate	6) Pilot Plate	8) Adjustment Bolt	10) Lock Washer	

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

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.

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Centre Member

The centre member should be machined on its rubbing surface to obtain the rated torque and be flat, parallel, square with the bore and free from rust, scale and oil. Surface finish recommended is Ra1.6. If 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 Min. 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

Torque Settings

The torque setting of 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, if 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 of the Torque Limiter is recommended, eg: 500 revolution at 50~60rpm with a rotated angle of 45 degrees of the adjustment bolts.

