

摩擦式扭力限制器



TUNG SHIN

FRICTION DISC TORQUE LIMITERS



***FRICTION DISC
TORQUE LIMITERS***

統信扭力限制器

防止機械損壞，避免停機損失

TUNG SHIN 扭力限制器是一種保護裝置。在機器負載震動，超載或機械故障等而產生扭力超過設定值時，它以打滑之方式限制傳動系統所傳動之扭力，而於超載情形消失後自動嚙合，不必再行設定。TUNG SHIN 扭力限制器防止機械損壞，避免了昂貴的停機損失。

TUNG SHIN 扭力限制器採用彈簧負荷式磨擦表面，以螺帽或螺栓調整彈簧壓力，預設其打滑扭力。

TUNG SHIN 扭力限制器可以鏈輪、齒輪、槽輪或法蘭板作為中心構件，夾在二磨擦片中間使用。

TUNG SHIN 扭力限制器之額定性能實際可靠，符合最佳之彈簧負荷及表面壓力而使打滑時間延長且保持在預設扭力時再行嚙合，進而提供較持久性的保護。

FRICITION DISC TORQUE LIMITERS

Prevent Machine Damage and Eliminate Costly Downtime

TUNG SHIN Torque Limiter is a protective device that limits the torque transmitted in a drive system by slipping when the torque transmitted exceeds a preset value as a result of shock loads, overloads, or machine jams. It automatically reengages when the overload is removed. No resetting is required.

TUNG SHIN Torque Limiters prevent machine damage and eliminate costly downtime. Torque Limiters utilize spring-loaded friction surfaces for operation, and slip torque is preset by adjusting the spring force using the adjustment nut or bolts.

TUNG SHIN Torque Limiters can be used with a sprocket, gear, sheave, or flange plate as the center member clamped between two friction discs.

TUNG SHIN Torque Limiter ratings are realistic and consistent with optimum spring loads and surface pressures that permit longer slip time, maintain reengagement at preset torque, and provide long lasting protection.



TL200-1L至TL350-2

- 單螺帽調整式
- 鎖緊梅花片防止螺帽鬆動

TL200-1L TO TL350-2

- Single nut adjustment
- Lock washer to prevent the nut from loosening



TL500-1L至TL700-2

- 3 螺栓調整式
- 以三支螺栓預設扭力。
(利用調整螺帽固定導板)

TL500-1L TO TL700-2

- Three bolts adjustment
- Torque preset by three bolts
(an adjustment nut to fix washer)



TL200-1LC至TL240-12C

扭力限制器聯軸器，具超載後打滑之保護作用有聯結主動軸與被動軸的能力，它包括TUNG SHIN 扭力限制器和滾鏈聯軸器，本構造提供了一種可靠的活動聯軸器，組合容易。

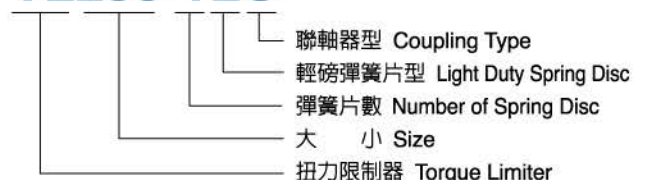
TL200-1LC TO TL240-12C

The Torque Limiter Coupling combines overload slip protection with the ability to couple driving and driven shafts. It consists of a TUNG SHIN Torque Limiter and Roller Chain Coupling.

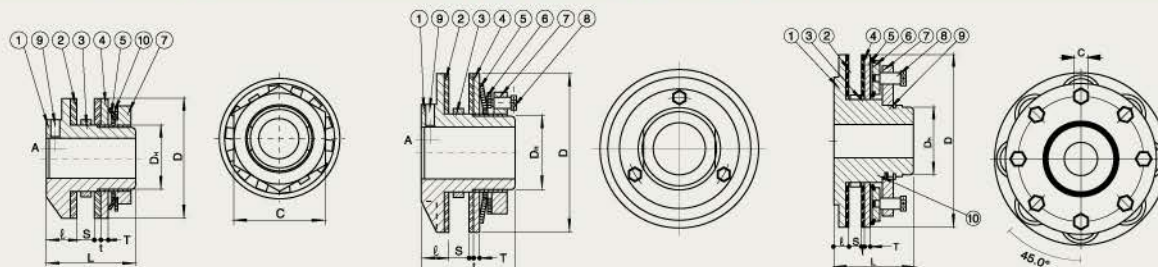
This construction provides a dependable and easy-to-assemble flexible coupling.

型號表示 MODEL CODE

TL250-1LC



TL200-1L 至 TL240-12 型之外觀尺寸與性能



TL-200, TL-250, TL-350

TL-500, TL-700

TL-100, TL-140, TL-240

部品名稱 Name of Parts

- | | | |
|-----------------|----------------|-----------------------|
| 1. 體座 Hub | 4. 壓力板 Plate | 7. 調整螺帽 Nut |
| 2. 摩擦片 Friction | 5. 盤式彈簧 Spring | 8. 調整螺栓 Bolt |
| 3. 軸襯 Bush | 6. 導板 Washer | 9. 固定螺絲 Set Screw |
| | | 10. 鎖緊梅花片 Lock Washer |

部品名稱

- | | |
|---------|---------|
| 1. 體座 | 6. 壓力板 |
| 2. 摩擦片 | 7. 導板 |
| 3. 軸襯 | 8. 調整螺栓 |
| 4. 平板 | 9. 扣環 |
| 5. 盤式彈簧 | 10. 彈簧銷 |

尺寸單位 : mm

型 式	扭力範圍 (kgf-m)	普通 內徑 (H10)	最大 內徑	軸襯 長度	軸襯 外徑	中心 構件 孔徑	D	DH	L	ℓ	T	t	S (最大)	A	C	調整 螺帽	調整 螺栓	固定 螺絲	重量 (kg)
TL200-1L	0.1-0.2	7	14	3.8	30 ^{-0.024 -0.049}	30 ^{+0.03 0}	50	24	29	6.5	2.6	2.5	7	-	38	M24 P1.0	-	-	0.2
TL200-1	0.3-1.0																		
TL200-2	0.7-2.0																		
TL250-1L	0.3-0.7	10	22	4.5	41 ^{-0.010 -0.045}	41 ^{+0.05 0}	65	35	48	16	4.5	3.2	9	4	50	M35 P1.5	-	M5	0.7
TL250-1	0.7-2.8																		
TL250-2	1.4-5.5																		
TL350-1L	1.0-2.0	17	25	6.5	49 ^{-0.025 -0.065}	49 ^{+0.05 0}	89	42	62	19	4.5	3.2	16	6	63	M42 P1.5	-	M6	1.2
TL350-1	2.0-7.6																		
TL350-2	3.5-15.2																		
TL500-1L	2.0-5.0	20	42	6.5	74 ^{-0.05 -0.10}	74 ^{+0.05 0}	127	65	76	22	5.7	3.2	16	7	-	M65 P1.5	M8 P1.0 3pcs	M8	3.6
TL500-1	4.8-21.4																		
TL500-2	9.0-42.9																		
TL700-1L	5.0-12	30	64	9.5	105 ^{-0.075 -0.125}	105 ^{+0.05 0}	178	95	98	24	7.7	3.2	29	8	-	M95 P1.5	M10 P1.25 3pcs	M10	8.7
TL700-1	11.8-58.1																		
TL700-2	22.8-110.6																		
TL100-16	40-130	30	72	12.5	135 ^{-0.085 -0.125}	135 ^{+0.07 0}	254	100	115	23	15	4.0	24		19		M18 P1.5 8pcs		21
TL100-24	60-190																		
TL140-10	90-272	40	100	15.5 19.5 23.5	183 ^{-0.07 -0.12}	183 ^{+0.07 0}	356	145	150	31	13	4.0	29		27		M26 P1.5 5pcs		52
TL140-15	200-400																		
TL240-6	250-500	50	130	15.5 19.5 23.5	226 ^{-0.07 -0.12}	226 ^{+0.07 0}	508	185	175	36	15	4.0	31		36		M32 P1.5 6pcs		117
TL240-12	470-950																		

※ 最高運轉速度 (RPM) : 請參照03頁

DIMENSIONS AND SPECIFICATIONS FOR TL200-1L TO TL240-12

Dimensions in mm

Model	Torque Range (kgf-m)	Plain Bore	Max. Bore	Bush Length	O.D. of Bush	Bore of Center Member	D	DH	L	ℓ	T	t	S (max.)	A	C	Adjust. Nut	Adjust. Bolt	Set Screw	Weight (kg)
TL200-1L	0.1-0.2	7	14	3.8	30 ^{-0.024 -0.049}	30 ^{+0.03 0}	50	24	29	6.5	2.6	2.5	7	-	38	M24 P1.0	-	-	0.2
TL200-1	0.3-1.0																		
TL200-2	0.7-2.0																		
TL250-1L	0.3-0.7	10	22	4.5	41 ^{-0.010 -0.045}	41 ^{+0.05 0}	65	35	48	16	4.5	3.2	9	4	50	M35 P1.5	-	M5	0.7
TL250-1	0.7-2.8																		
TL250-2	1.4-5.5																		
TL350-1L	1.0-2.0	17	25	6.5	49 ^{-0.025 -0.065}	49 ^{+0.05 0}	89	42	62	19	4.5	3.2	16	6	63	M42 P1.5	-	M6	1.2
TL350-1	2.0-7.6																		
TL350-2	3.5-15.2																		
TL500-1L	2.0-5.0	20	42	6.5	74 ^{-0.05 -0.10}	74 ^{+0.05 0}	127	65	76	22	5.7	3.2	16	7	-	M65 P1.5	M8 P1.0 3pcs	M8	3.6
TL500-1	4.8-21.4																		
TL500-2	9.0-42.9																		
TL700-1L	5.0-12	30	64	9.5	105 ^{-0.075 -0.125}	105 ^{+0.05 0}	178	95	98	24	7.7	3.2	29	8	-	M95 P1.5	M10 P1.25 3pcs	M10	8.7
TL700-1	11.8-58.1																		
TL700-2	22.8-110.6																		
TL100-16	40-130	30	72	12.5	135 ^{-0.085 -0.125}	135 ^{+0.07 0}	254	100	115	23	15	4.0	24		19		M18 P1.5 8pcs		21
TL100-24	60-190																		
TL140-10	90-272	40	100	15.5 19.5 23.5	183 ^{-0.07 -0.12}	183 ^{+0.07 0}	356	145	150	31	13	4.0	29		27		M26 P1.5 5pcs		52
TL140-15	200-400																		
TL240-6	250-500	50	130	15.5 19.5 23.5	226 ^{-0.07 -0.12}	226 ^{+0.07 0}	508	185	175	36	15	4.0	31		36		M32 P1.5 6pcs		117
TL240-12	470-950																		

©Dimensions and specifications are subject to change without notice. ※ For max.running speed(RPM):please refer to p.03

扭力限制器聯軸器 / 外觀尺寸與性能

尺寸單位：mm

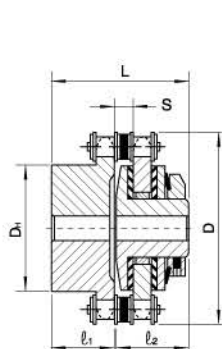
型 式	扭力範圍 (kgf-m)	最 高 運轉速度 (RPM)	普通內徑(H10)		最 大 內 徑		鏈 輪	D	DH	L	l_1	l_2	S	重 量 (kg)
			聯軸 器側	扭力限 制器側	聯軸 器側	扭力限 制器側								
TL200-1LC	0.1-0.2	1200	8	7	31	14	RS 40-16T	76	50	55	24	29	7.5	1.0
TL200-1C	0.3-1.0													
TL200-2C	0.7-2.0													
TL250-1LC	0.3-0.7	1000	13	10	38	22	RS 40-22T	102	56	76	25	48	7.4	2.2
TL250-1C	0.7-2.8													
TL250-2C	1.4-5.5													
TL350-1LC	1.0-2.0	800	13	17	45	25	RS 50-24T	137	72	103	37	62	9.7	5.2
TL350-1C	2.0-7.6													
TL350-2C	3.5-15.2													
TL500-1LC	2.0-5.0	500	18	20	65	42	RS 60-28T	188	105	120	40	76	11.6	13
TL500-1C	4.8-21.4													
TL500-2C	9.0-42.9													
TL700-1LC	5.0-12	400	23	30	90	64	RS 80-28T	251	150	168	66	98	15.3	33
TL700-1C	11.8-58.1													
TL700-2C	22.8-110.6													
TL100-16C	40-130	300	33	30	95	72	RS 140-22T	355	137	189	71	115	26.2	66
TL100-24C	60-190													
TL140-10C	90-272	200	38	40	118	100	RS 160-26T	470	167	235	80	150	30.1	140
TL140-15C	200-400													
TL240-6C	250-500	140	43	50	150	130	RS 160-36T	631	237	300	120	175	30.1	285
TL240-12C	470-950													

TORQUE LIMITER COUPLING / DIMENSIONS AND SPECIFICATIONS

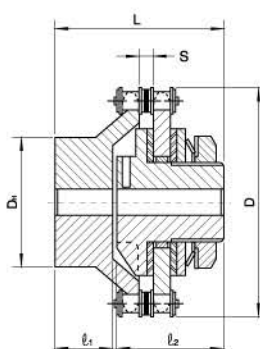
Dimensions in mm

Model	Torque Range (kgf-m)	Max. Running Speed (r/min)	Plain Bore		Max. Bore		Sprocket	D	DH	L	l_1	l_2	S	Weight (kg)
			Coupling Half	TL Half	Coupling Half	TL Half								
TL200-1LC	0.1-0.2	1200	8	7	31	14	RS 40-16T	76	50	55	24	29	7.5	1.0
TL200-1C	0.3-1.0													
TL200-2C	0.7-2.0													
TL250-1LC	0.3-0.7	1000	13	10	38	22	RS 40-22T	102	56	76	25	48	7.4	2.2
TL250-1C	0.7-2.8													
TL250-2C	1.4-5.5													
TL350-1LC	1.0-2.0	800	13	17	45	25	RS 50-24T	137	72	103	37	62	9.7	5.2
TL350-1C	2.0-7.6													
TL350-2C	3.5-15.2													
TL500-1LC	2.0-5.0	500	18	20	65	42	RS 60-28T	188	105	120	40	76	11.6	13
TL500-1C	4.8-21.4													
TL500-2C	9.0-42.9													
TL700-1LC	5.0-12	400	23	30	90	64	RS 80-28T	251	150	168	66	98	15.3	33
TL700-1C	11.8-58.1													
TL700-2C	22.8-110.6													
TL100-16C	40-130	300	33	30	95	72	RS 140-22T	355	137	189	71	115	26.2	66
TL100-24C	60-190													
TL140-10C	90-272	200	38	40	118	100	RS 160-26T	470	167	235	80	150	30.1	140
TL140-15C	200-400													
TL240-6C	250-500	140	43	50	150	130	RS 160-36T	631	237	300	120	175	30.1	285
TL240-12C	470-950													

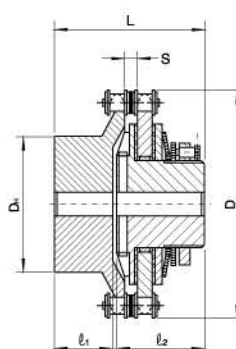
©Dimensions and specifications are subject to change without notice.



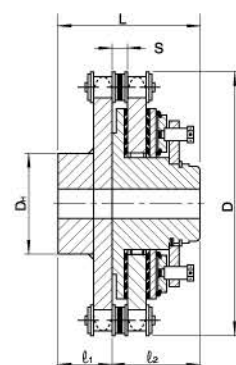
TL200-C



TL250-C, TL350-C



TL500-C, TL700-C



TL100-C, TL140-C
TL240-C

選擇方法

1. 從負荷條件或機器之設計強度，決定所需之打滑扭力。
2. 請選擇扭力範圍和內徑範圍足夠的扭力限制器。
3. 由置於二磨擦片間的中心構件厚度，決定正確的軸襯長度。軸襯之選擇不可大於中心構件的寬度，中心構件之最大厚度見第二頁表中之「S (最大)」欄。

SELECTION

1. Determine the required slip torque from the loading conditions or from the design strength of the machine.
 2. Select a torque limiter which has enough torque range and bore range.
 3. Determine the proper bush length from the thickness of the center member to be inserted between two friction discs.
- Always choose proper bush which does not exceed the width of the center member. Maximum thickness of the center member is shown as "S max," in the dimension table in p.2.

中心構件

1. 中心構件之磨擦面必須研磨加工以得到額定之扭力，且成為平坦，平行，與內徑相垂直。不含任何銹蝕、屑粒或油污，表面研磨度以3S-6S(63微吋加工)為宜。
2. 如中心構件不符合上列規範，則打滑扭力將不穩定。中心構件內徑之加工尺寸見第二頁。

◆ 最少鏈輪齒數和軸襯長度請參考下表。

CENTER MEMBER

1. The surface of center member should be machined to obtain the rated torque and be flat parallel, and free from rust, scale and oil. Surface finish recommended is 3S to 6S (63 micro-inches finish).
If the center member is not in accordance with these specifications, the slip torque will be erratic.
2. Bore of the center member to be machined is shown in p.2.

◆ For reference, minimum number of sprocket teeth and bush length are listed in the table below.

最少鏈輪齒數和軸襯長度

型 式	中心構件內徑 (mm)	鏈輪節距和齒數																	
		3/8"-#35		1/2"-#40		5/8"-#50		3/4"-#60		1"-#80		1 1/4"-#100		1 1/2"-#120		1 3/4"-#140		2"-#160	
		最少鏈輪齒數	軸襯長度 (mm)	最少鏈輪齒數	軸襯長度 (mm)	最少鏈輪齒數	軸襯長度 (mm)	最少鏈輪齒數	軸襯長度 (mm)	最少鏈輪齒數	軸襯長度 (mm)	最少鏈輪齒數	軸襯長度 (mm)	最少鏈輪齒數	軸襯長度 (mm)	最少鏈輪齒數	軸襯長度 (mm)	最少鏈輪齒數	軸襯長度 (mm)
TL200	30	20	3.8	16	3.8														
TL250	41			20	4.5	17	6.5												
TL350	49			26	4.5	21	6.5	18	9.5										
TL500	74					29	6.5	25	6.5	19	9.5								
TL700	105							33	9.5	26	9.5	21	12.5						
TL100	135											29	12.5	24	12.5	22	12.5		
TL140	183											39	15.5	33	15.5	29	19.5	26	19.5
TL240	226											54	15.5	46	15.5	40	19.5	35	19.5

Minimum Sprocket Teeth and Bush Length

Size	Bore of Center Member (mm)	Sprocket Pitch and Number of Teeth																	
		3/8"-#35		1/2"-#40		5/8"-#50		3/4"-#60		1"-#80		1 1/4"-#100		1 1/2"-#120		1 3/4"-#140		2"-#160	
		Sprocket Min. Teeth	Bush Length (mm)	Sprocket Min. Teeth	Bush Length (mm)	Sprocket Min. Teeth	Bush Length (mm)	Sprocket Min. Teeth	Bush Length (mm)	Sprocket Min. Teeth	Bush Length (mm)	Sprocket Min. Teeth	Bush Length (mm)	Sprocket Min. Teeth	Bush Length (mm)	Sprocket Min. Teeth	Bush Length (mm)	Sprocket Min. Teeth	Bush Length (mm)
TL200	30	20	3.8	16	3.8														
TL250	41			20	4.5	17	6.5												
TL350	49			26	4.5	21	6.5	18	9.5										
TL500	74					29	6.5	25	6.5	19	9.5								
TL700	105							33	9.5	26	9.5	21	12.5						
TL100	135											29	12.5	24	12.5	22	12.5		
TL140	183											39	15.5	33	15.5	29	19.5	26	19.5
TL240	226											54	15.5	46	15.5	40	19.5	35	19.5

扭力設定

TORQUE SETTING



扭力限制器的扭力設定只需扭緊或放鬆調整螺帽及/或調整螺栓便可。

扭力限制器在安裝至軸上後，即可進行扭力調整，其步驟如下：

TL200至TL350型：

首先，用手以全力轉動調整螺帽使盤式彈簧固定至壓力板。

然後，再以一扳鉗把螺帽扭緊約60°。

TL500至TL240型：

首先，轉動螺帽/導板，把導板/壓力板壓緊在盤式彈簧上，再將每一調整螺栓扭緊60°。

其次，如於正常負荷情況下此扭力限制器仍然打滑，則逐漸扭緊螺帽 (TL200-TL350型) 或螺栓 (TL500-TL240型)，一直到扭力限制器不再打滑。注意！各螺栓之鬆緊度必須均勻及對稱，先試行調整數次以求得相關機器之正確扭力設定。下面之有效「旋轉角度和預設扭力關係曲線圖」可供參考。

Torque setting of a torque limiter is achieved by tightening or loosening the adjustment nut and/or the adjustment bolts. The torque setting can be made after mounting a torque limiter on the shaft. The procedure is:

For TL200 to TL350

First, rotate the adjustment nut tightly by hand so that the spring disc fits the plate.

Then, tentatively tighten the nut by about 60 degrees with a wrench.

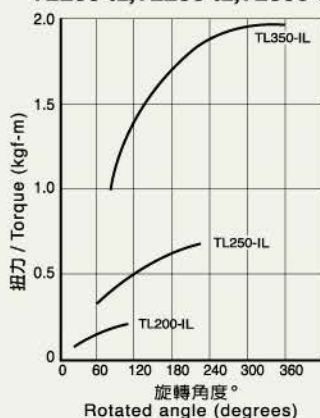
For TL500 to TL240

First, rotate the nut/washer for pressing the washer/plate to the spring disc and then tighten each adjustment bolt by about 60 degrees.

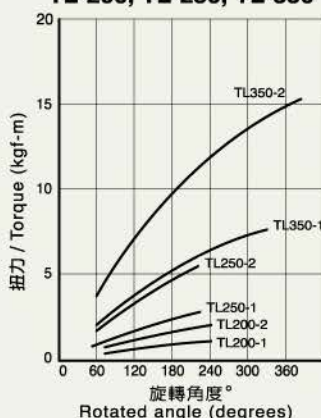
Then, if the Torque Limiter slips under normal loading conditions, tighten the nut (for TL200 to TL350) or the bolts (for TL500 to TL240) gradually until the torque limiter stops slipping. Always tighten (or loosen) the bolts equally. Try this adjustment several times to find the proper torque setting for the machine. For your guidance, the charts hereunder shows the relation between the effective rotated angle and preset torque.

旋轉角度與預設扭力 ROTATED ANGLE AND SETTING TORQUE

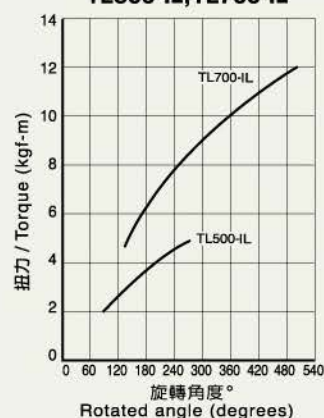
TL200-IL, TL250-IL, TL350-IL



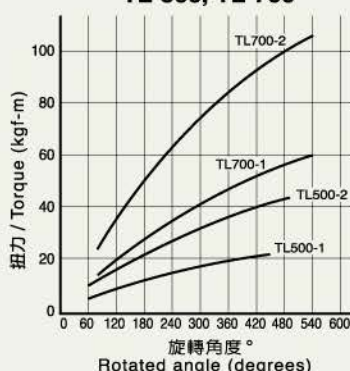
TL-200, TL-250, TL-350



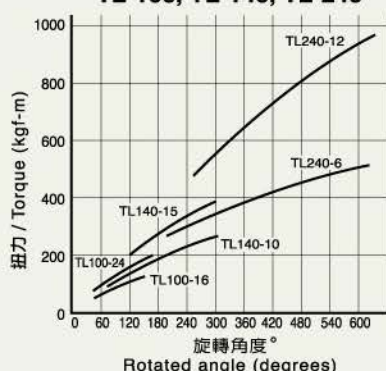
TL500-IL, TL700-IL



TL-500, TL-700



TL-100, TL-140, TL-240





TUNG SHIN

摩擦式扭力限制器

產品系列 PRODUCT LINES



■ TL系列—摩擦式扭力限制器

TL SERIES—FRICTION DISC TORQUE LIMITERS



■ TH系列—扭力保持器

TH SERIES—TORQUE HOLDERS



■ TL(AF/AC)系列—精密型扭力限制器

TL(AF/AC) SERIES—ONE (SINGLE) POSITION ENGAGEMENT
BALL DETENT TORQUE LIMITERS