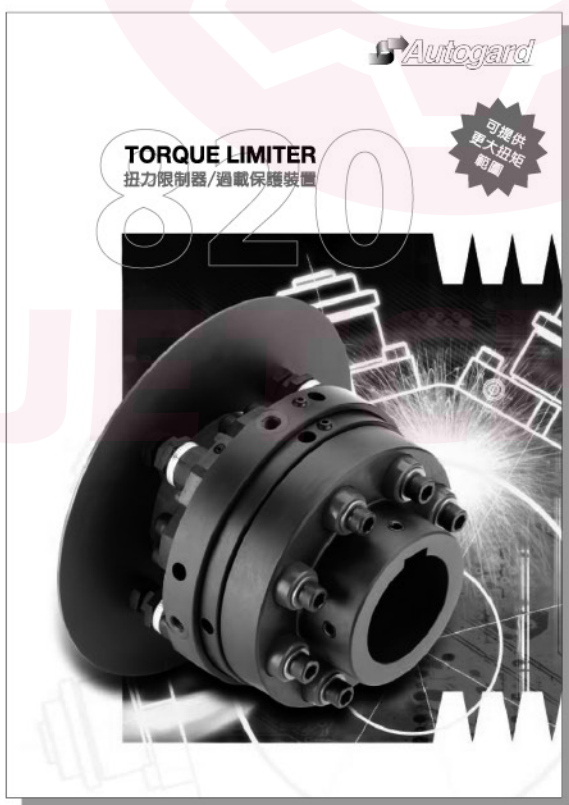
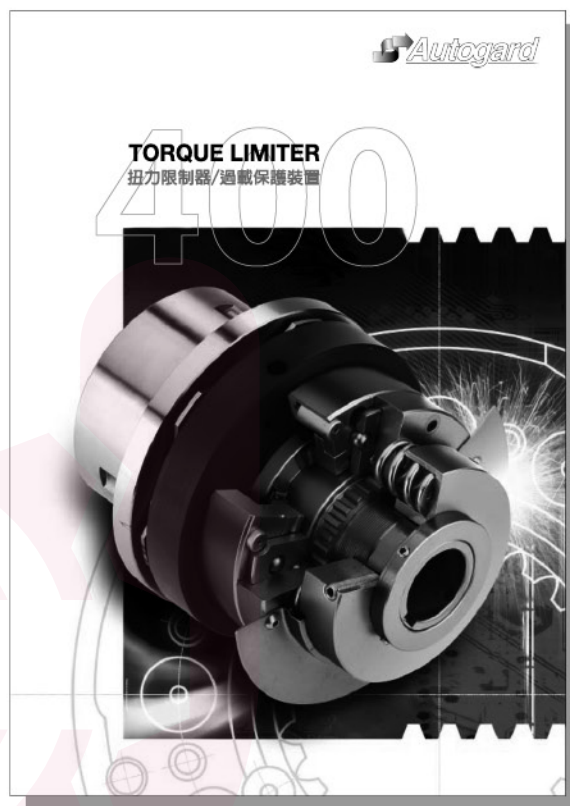
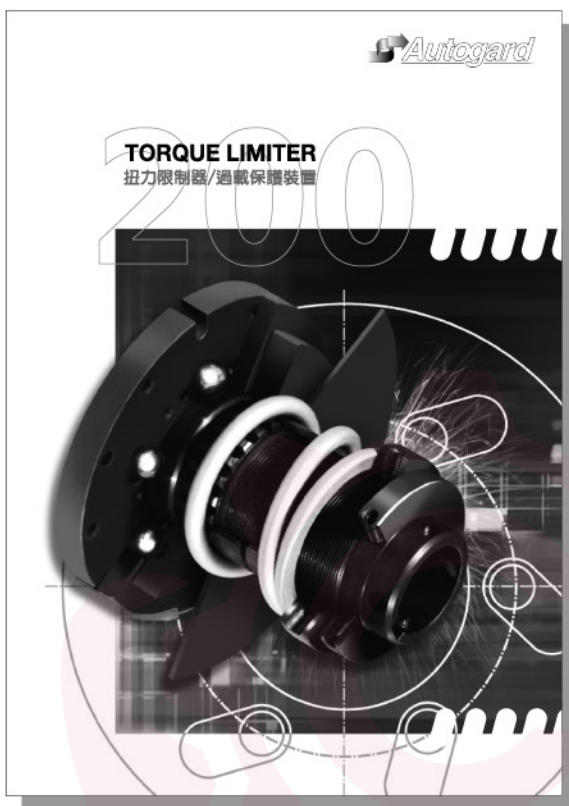


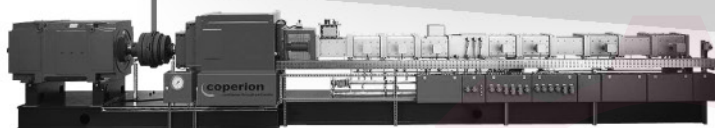
# TORQUE LIMITER

## 扭力限制器 · 過載保護器



## Autogard 400系列成功案例

應用於 化工混料

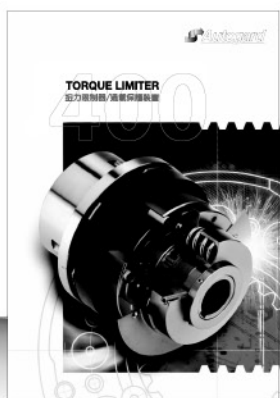
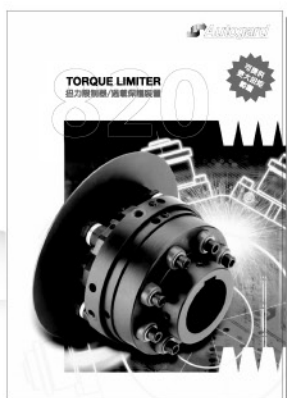
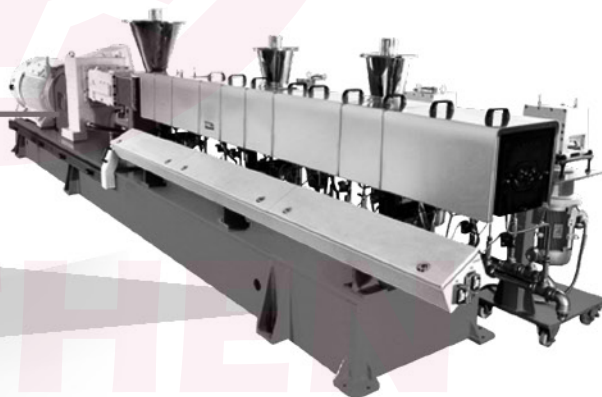


應用於 食品擠出機



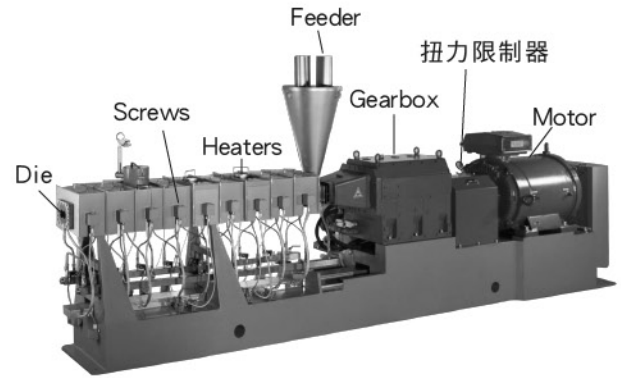
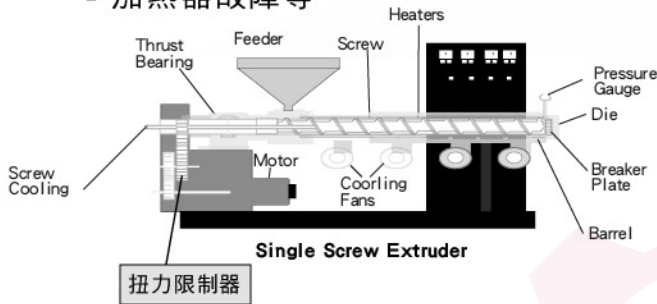
## Autogard 820系列成功案例

應用於 平行同向雙螺桿押出機



押出機在使用過程會因為以下情況導致過載的發生：

- 啟動力矩的衝擊
- 材料造成的堵塞
- 加熱器故障等

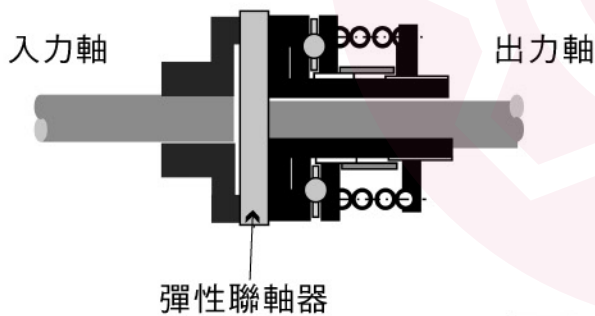


扭力限制器可以啟動以下作用：

- 保護減速機和螺桿以免受到過載的衝擊。
- 有效降低停機維護時間。

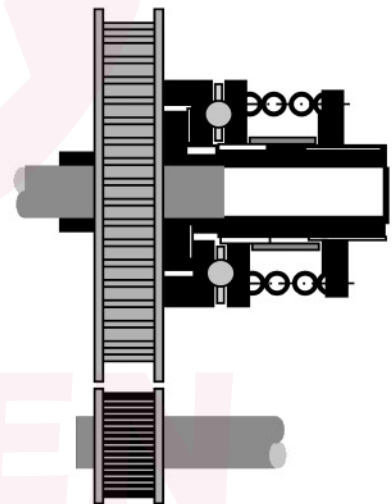
## 扭力限制器的安裝形式

軸向傳動



徑向傳動

同步皮帶、V帶、鏈輪或齒輪等驅動形式



## 應用行業

- 橡塑膠機械 · 印刷和造紙工業
- 食品工業 · 金屬加工機 · 紡織機械
- 木材加工設備 · 輸送機械 · 車輛製造
- 船舶建造 · 自動化設備
- 礦業機械 · 醫療機械

配置的分體聯軸器



# Autogard XG系列 扭力限制器/過載保護裝置



# XG系列-擠出機專用扭力限制器

雙螺桿擠出機需要更好的扭矩過載保護裝置，Rexnord® Autogard® XG系列產品專門為保護擠出機免受意外尖峰瞬時載荷衝擊而造成的損壞而設計。

### 功能：

- 達到預設保護扭矩瞬時分離，從而避免破壞性慣性衝擊
- 扭矩過載後自由轉動
- 無需特殊工具或更換部件即可手動復位
- 現場可調扭矩設置
- 通過取下Wrapflex® 彈性元件，快速簡單地斷開電機和變速箱，以進行機器維護
- 每種尺寸均有脫離選項
- 可提供傳感器偵測過載信號

## XG系列：尺寸1和2

### 類型M

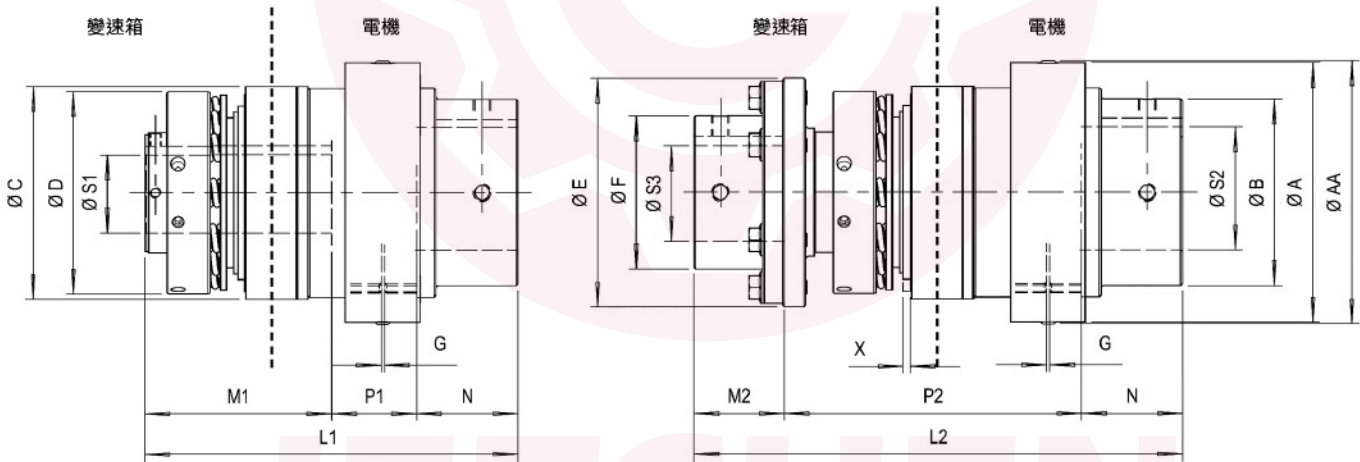
- 可能的最短總長度

### 類型R

- 適用於大電機軸尺寸
- 無需移動電機或變速箱即可脫離扭矩限制聯軸器

訂單格式：型號和尺寸-類型 / S1孔徑 / S2孔徑 / 彈簧範圍 / 扭矩設置  
 示例：XG1-M / S1-40 / S2-55 / 8 / 250

訂單格式：型號和尺寸-類型 / S2孔徑 / S3孔徑 / 彈簧範圍 / 扭矩設置  
 示例：XG1-R / S3-55 / S2-55 / 8 / 250



尺寸	扭矩範圍 (Nm)				最大 S1 ① 孔徑	最大 S2 ① 孔徑	最大 S3 ① 孔徑	最大速度	類型 M		類型 R		Wrapflex 聯軸器 尺寸	最大不對中度		
	2個彈簧	4個彈簧	8個彈簧	12個彈簧					質量 ②	質量 ②	質量 ②	質量 ②		軸向	平行	角度
					mm	mm	mm	rpm	kg	kg m <sup>2</sup>	kg	kg m <sup>2</sup>		±mm	mm	度數
1	40-80	80-160	160-330	240-500	45	65	61	4500	12.0	0.020	16.1	0.026	30R	0.2	2	1
2	160-320	320-640	640-1200	960-1800	65	105	90	3000	37.2	0.15	50.0	0.19	50R	0.2	2	1

尺寸	類型 M			類型 M				類型 R				N	G	跳脫時的 X-行程		
	Ø AA	Ø A	Ø B	Ø C	Ø D	L1	M1	P1	Ø E	Ø F	L2				M2	P2
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
1	153	146.5	105	120	114	209.8	105	47.8	129	86	275.8	51	167.8	57	2	3.6-4.7
2	239	231	178	164	164	278.8	138	64.8	166	123	395.8	95	224.8	76	5	4.9-6.5

① 除非另有要求，否則孔徑將按H7公差製造，鍵槽將按DIN6885-1標準

② 質量和慣量基於未開孔扭矩限制器

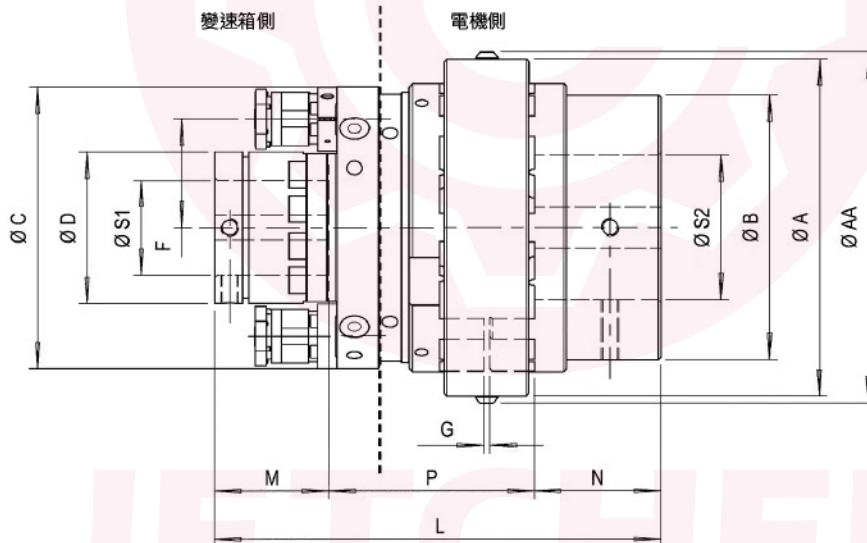
# XG系列-擠出機專用扭力限制器



## XG系列：尺寸3和4

- 無需移動電機或變速箱即可脫離扭力限制聯軸器
- 低維護 —— 扭力限制模塊永久密封

訂單格式：型號和尺寸 / S1孔徑 / S2孔徑 / 彈簧範圍 / 扭矩設置  
 示例：XG4 / S1-90 / S2-140 / HRT / 5800

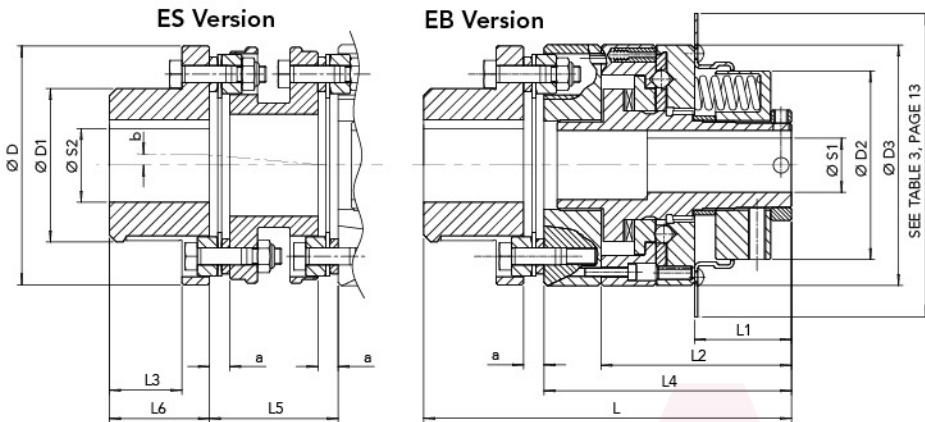


尺寸	低扭矩範圍 Nm	高扭矩範圍 Nm	最大 S1孔徑 <sup>①</sup> mm	最大 S2孔徑 <sup>①</sup> mm	模塊 Qty	最大 速度 rpm	質量 <sup>②</sup> kg	慣量 <sup>②</sup> kg m <sup>2</sup>	Wrapflex 聯軸器 尺寸	最大不對中度		
										軸向 ±mm	平行 mm	角度 度數
3	460-1750	720-3500	85	135	2	2500	71.6	0.46	60R	0.5	2	1
4	860-3450	1725-6900	100	160	3	2100	119	1.1	70R	0.5	2	1

尺寸	Ø AA mm	Ø A mm	Ø B mm	Ø C mm	Ø D mm	F mm	L mm	M mm	N mm	P mm	G mm
3	278	267	210	233	120	86	353	90	100	163	5
4	321	310	251	277	150	113	408	100	120	188	5

① 除非另有要求，否則孔徑將按H7公差製造，鍵槽將按DIN6885-1標準  
 ② 質量和慣量基於未開孔扭力限制器

405 Model includes Autoflex ES to accommodate angular and parallel offset misalignment or Autoflex EB for angular misalignment only.



Atex Compliance Available

### 405 E型搭配膜片式聯軸器

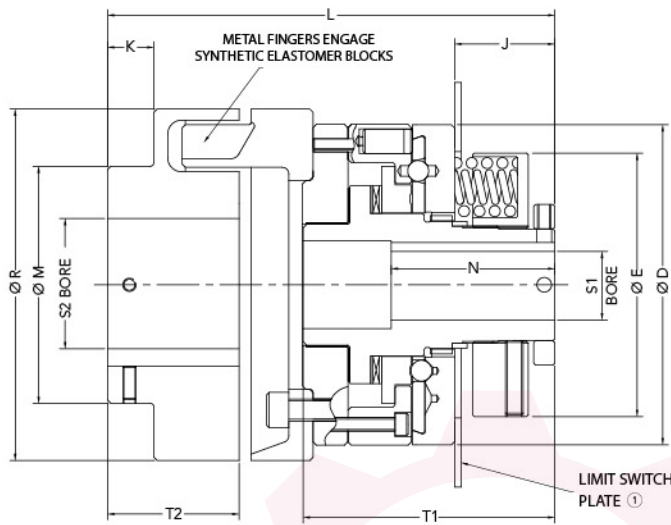
Size	Torque ①		Max Speed rpm	Weight kg	Mass Moment of Inertia		Max ④ Misalignment Δ a mm	Max ⑤ Parallel Offset b mm
	Min Nm	Max Nm			S1 side kgm <sup>2</sup>	S2 side kgm <sup>2</sup>		
405-1/8HVII	3	28	3600	1.5	0.0002	0.0012	0.7	0.4
405-2/35HVII	4	226	3600	7.1	0.0035	0.0116	1.0	0.5
405-3/150HVII	27	678	3600	16	0.013	0.073	1.5	0.6
405-4/150HVII	45	1130	2000	20	0.023	0.086	1.5	0.6
405-5/480HVII	100	2542	2000	50	0.108	0.211	2.0	0.8
405-6/880HVII	1100	5650	1800	91	0.258	0.649	2.5	0.9
405-7 ④	1500	11300						
405-8 ④	3500	24860						

- ① For higher torque applications, consult Rexnord.
- ② Higher speeds may be allowed under certain conditions. Please consult Rexnord.
- ③ Weights and moments of inertia apply to max S1 and S2 bores with type EB couplings.
- ④ Δ a is the max allowable variation in the gap between flanges measured between points around the periphery. This corresponds to 1/2 degree angular misalignment. The total deviation from nominal due to axial and angular must not exceed Δ a.
- ⑤ Dimension "b" corresponds to 1/2 degree misalignment per coupling disc pack with minimum spacer length. For longer spacers, consult Rexnord.
- ⑥ Please consult Rexnord for specifications.

Size	Max Bore S1 mm <sup>①</sup>	Max Bore S2 mm	a (DBSE) mm	D mm	D1 mm	D2 mm	D3 mm	L mm	L1 mm <sup>②</sup>	L2 mm	L3 mm	L4 mm	L5 mm <sup>③</sup>	L6 mm
405-1/8HVII	16	30	7.4	80	44	55	62	107	22	48	23	68	48	32.5
405-2/35HVII	28	50	9.4	110	70	90	112	169	44	88	33	123.4	58	46
405-3/150HVII	40	90	8.9	170	123	120	146	204	45	94	59	120	66.5	74.6
405-4/150HVII	50	90	8.9	170	123	136	168	210	46	100	59	127	66.5	73.5
405-5/480HVII	75	110	15	230	150	190	222	284	69	131	75	189	109	95
405-6/880HVII	100	137	16.5	282	188	235	260	370	25	156	96	234	128	120
405-7 ④														
405-8 ④														

- ① For max bores greater than 25mm, use rectangular parallel keys.
- ② For size 6 and above, clearance is required for adjusting bolt, consult Rexnord.
- ③ L5 dimension is the minimum length. Longer spacers are available, consult Rexnord.
- ④ Please consult Rexnord for specifications.

406N Model includes a flexible coupling that is torsionally resilient and accommodates angular, parallel and axial misalignment.



Atex Compliance Available

① See Figure 2 and Table 3 on page 13 for dimensions and movement on disengagement.

### 406 N型搭配橡膠彈性體聯軸器

Size	Torque ①		Max ③ Speed rpm	Weight ④ kg	Mass Moment of Inertia		Max Axial Misalignment mm	Max Parallel Misalignment mm	Max Angular Misalignment degrees
	Min Nm	Max ② Nm			S1 side kgm²	S2 side kgm²			
1/68	3	28	3600	1.4	0.0002	0.0005	3	0.11	0.1
2/125	4	226	3600	9.8	0.0035	0.0136	3	0.21	0.1
3/160	27	678	3000	16.4	0.0126	0.0343	4	0.27	0.1
4/200	45	1130	2000	27.2	0.0230	0.091	4	0.34	0.1
5/250	100	2542	2000	54	0.1080	0.2781	5	0.42	0.1
6/315	1100	5650	1800	92	0.2581	0.7203	5	0.52	0.1
7 ⑤	1500	11300							
8 ⑤	3500	24860							

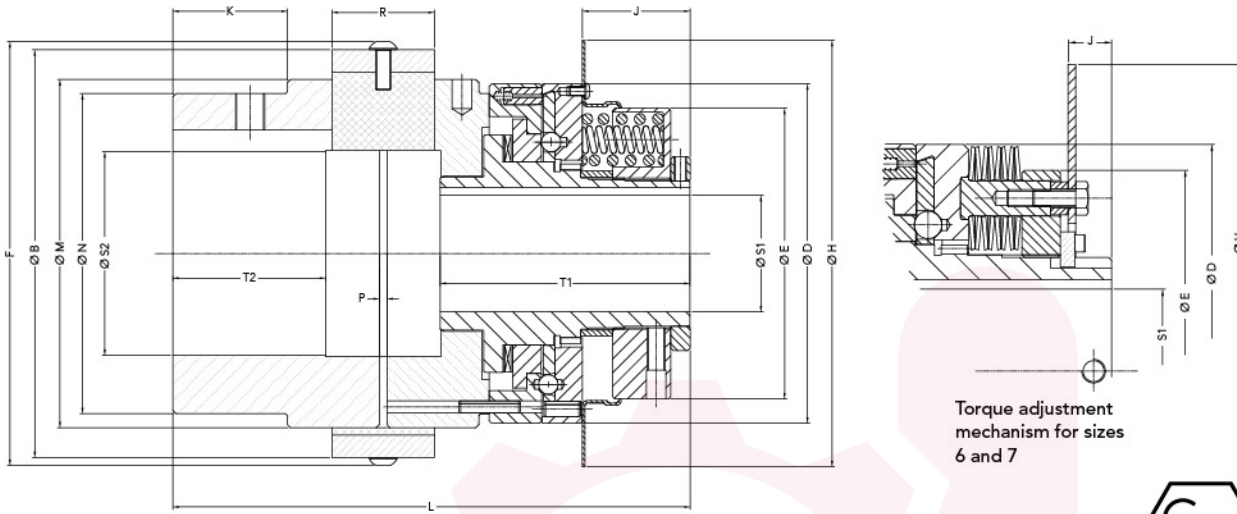
- ① Larger sizes are available. For higher torque applications, consult Rexnord.
- ② See spring selection on page 14 for torque range with specific springs.
- ③ Higher speeds may be allowed under certain conditions. Please consult Rexnord.
- ④ Weights and moments of inertia apply to max S1 and S2 bores.
- ⑤ Please consult Rexnord for assistance on specifications for these sizes.

Size	Max Bore S1 mm ①	Bore S2		D mm	E mm	J ② mm	K mm	L mm	M mm	N mm	R mm	T1 mm	T2 mm	Gap between hub & adapter	
		Min mm ①	Max mm ①											Min mm	Max mm
1/68	16	-	24	62	55	22	-	88	-	59	68	59	20	2	4
2/125	28	-	55	112	90	44	19	179	90	67	125	108	50	2	4
3/160	40	-	65	146	120	45	21	204	108	115	160	114	60	2	6
4/200	50	-	85	168	136	46	33	232	140	121	200	121	80	2	6
5/250	75	46	100	222	190	69	40	305	165	164	250	164	100	3	8
6/315	100	90 ③	120	260	235	79	55	357	200	217	315	218	125	3	8
7 ④															
8 ④															

- ① Bores are furnished for clearance fit unless otherwise specified by customer.
- ② For size 6 and above, clearance is required for adjustment, consult Rexnord.
- ③ Smaller bores may be available under certain conditions. Please consult Rexnord.
- ④ Please consult Rexnord for assistance on specifications for these sizes.



406W Model includes Wrapflex® torsionally soft coupling to accommodate angular and parallel offset misalignment.



For the "R" dimension information please see Wrapflex catalogue (491-110)



Atex Compliance Available

### 搭配分体聯軸器

Size	Torque		Max. Speed <sup>①</sup> rpm	Max. Misalignment Axial ±mm	Max. Misalignment Parallel mm	Max. Misalignment Angular degrees	Weight <sup>②</sup> kg	Mass Moment of Inertia MR <sup>②</sup>	
	Min. Nm	Max. Nm						S1 Side kg-m <sup>2</sup>	S2 Side kg-m <sup>2</sup>
1/5R	3	28	3600	0,20	1,0	1,00	1,6	0,00039	0,00060
2/30R	4	226	3600	0,20	2,0	1,00	9	0,0037	0,013
3/40R	27	678	3600	0,48	2,0	1,00	16	0,013	0,038
4/50R	45	1130	2000	0,48	2,0	1,00	30	0,023	0,12
5/60R	100	2542	2000	0,51	2,0	1,00	58	0,12	0,35
6/70R	1100	5560	1800	0,48	2,0	1,00	105	0,27	0,88
7/80R	1500	11300	1700	0,64	2,0	1,00	150	0,70	1,7

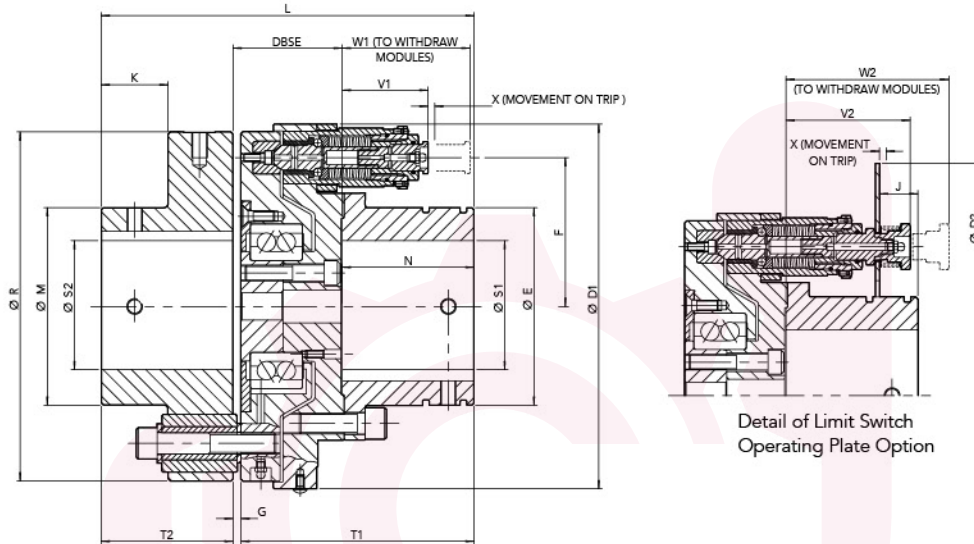
① Higher speeds may be allowed under certain conditions. Please consult Rexnord.

② Weights and moments of inertia apply to maximum S1 and S2 bores.

Size <sup>①</sup>	Max Bore S1 mm	Max Bore S2 mm	B mm	D mm	E mm	F mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm	T1 mm	T2 mm
1/5R	16	38	76	62	56	80	110	22	20	106	64	60	2	59	26
2/30R	28	65	147	111	87	153	140	45	46	203	118	105	2	108	58
3/40R	40	85	182	146	120	190	184	45	54	231	150	130	5	114	67
4/50R	50	105	231	167	137	239	203	46	59	261	190	178	5	121	77
5/60R	75	135	267	222	191	278	279	69	75	339	228	210	5	164	100
6/70R	100	160	310	263	233	321	305	25	90	394	270	251	5	217	120
7/80R	127	190	370	318	283	381	387	28	102	457	328	270	6	245	140

① For size 6 and above, clearance is required for adjustment. Please consult Rexnord.

Type 1 Model to accept a standard pin and bush elastic coupling.



### 搭配彈性套柱銷聯軸器

Size ① ②	Modules (Size-Qty)	Torque		Coupling Torque		Max Speed rpm	Mass kg	Mass Moment of Inertia MR <sup>2</sup> ④ kgm <sup>2</sup>	Max. Axial Misalign. mm	Max. Parallel Misalign. mm
		Min Nm	Max Nm	Nominal Nm	Peak Nm					
1L	1L-4	370	1,470	2,120	4,240	3800	33.2	0.135	3.0	0.13
1H	1H-4	735	2,940	2,120	4,240	3800	33.4	0.136	3.0	0.13
2L	2L-3	860	3,450	6,340	12,680	2400	75.8	0.543	3.0	0.13
2H	2H-3	1,725	6,900	6,340	12,680	2400	76.2	0.549	3.0	0.13
3L	2L-4	1,400	5,650	9,650	19,300	2150	124	1.27	3.5	0.13
3H	2H-4	2,825	11,300	9,650	19,300	2150	125	1.28	3.5	0.13
4L	3L-4	3,050	12,200	18,070	36,140	1800	244	3.72	3.5	0.13
4H	3H-4	6,100	24,400	18,070	36,140	1800	246	3.78	3.5	0.13
5L	4L-3	6,540	26,150	35,000	70,000	1800 <sup>③</sup>	472	12.6	3.5	0.13
5H	4H-3	13,075	52,300	35,000	70,000	1800 <sup>③</sup>	476	12.8	3.5	0.13
6	5-3	60,000	120,000	Designed to customer specification. Consult Rexnord.						

- ① Max angular misalignment 0.25°.
- ② Balancing optional.
- ③ Consult Rexnord if limit switch plate is required at speeds above 1,400 rpm.
- ④ Mass and inertia values calculated for units with solid hubs without limit switch plate.

Size	S1 (max) mm	S2 (max) mm	DBSE mm	D1 mm	D2 mm	E mm	F mm	G mm	J mm	K mm	L mm	M mm	N mm	R mm	T1 mm	T2 mm	V1 mm	V2 mm	W1 mm	W2 mm	X mm
1L	80	85	63.2	212	288	115	85.5	6.0	32.6	45.5	223	118.5	80.0	195	137	80.0	50.4	70.8	76.4	93.0	3.7
1H	80	85	63.2	212	288	115	85.5	6.0	22.6	45.5	223	118.5	80.0	195	137	80.0	60.4	80.8	86.4	103	3.7
2L	100	115	83.0	277	353	150	113	6.0	43.1	50.8	283	162.5	100	265	177	100	51.1	80.4	84.9	110	5.0
2H	100	115	83.0	277	353	150	113	6.0	29.1	50.8	283	162.5	100	265	177	100	65.1	94.4	98.9	124	5.0
3L	120	130	93.4	329	405	180	139	7.0	63.0	60.0	333	188.5	120	314	206	120	51.1	80.4	84.9	110	5.0
3H	120	130	93.4	329	405	180	139	7.0	49.0	60.0	333	188.5	120	314	206	120	65.1	94.4	98.9	124	5.0
4L	150	170	114.8	409	485	230	166	7.0	70.0	89.9	415	248.0	150	375	258	150	76.0	109.4	126	131	6.0
4H	150	170	114.8	409	485	230	166	7.0	46.0	89.9	415	248.0	150	375	258	150	100.0	133.4	150	155	6.0
5L	180	205	134.8	550	626	280	221	7.0	57.1	119.9	495	310.0	180	470	308	180	118.9	152.3	186	192	8.0
5H	180	205	134.8	550	626	280	221	7.0	25.1	119.9	495	310.0	180	470	308	180	150.9	184.3	218	224	8.0
6	230	230	Designed to customer specification. Please consult Rexnord.																		

## 820 Series Type 1 Pin Coupling Selection Method

When selecting a 820 Series, Type 1, please confirm the coupling is suitable for the continuous torque, taking into account the duty in which the unit will be used.

- Determine the nominal torque: Torque (Nm) = Kw x 9550 / rpm
- Select the appropriate service factor  $f_D$  as shown in Table 1.
- From Table 2 select the factor for the frequency of starts per hour ( $f_s$ ).
- Determine selection torque: Selection Torque (Nm) = nominal torque x  $f_D$  x  $f_s$
- Check to ensure that the coupling's nominal torque rating exceeds the selection torque. If not, select the next larger torque limiter that meets this criteria.

Table 1: Pin coupling service factor ( $f_D$ ) for 820 Series Type 1 only.

Driven Machinery Characteristics				
Prime Mover (Drive input)	Duration Service (Hours/Day)	Steady Load	Medium Impulsive	Highly Impulsive
Electric Air, Hydraulic Motors, Steam Turbines (Steady Input)	Intermittent 3 hrs/day max	0.90	1.00	1.50
	3-10	1.00	1.25	1.75
	Over 10	1.25	1.50	2.00
Multi-cylinder I.C. Engine (Medium Impulsive Input)	Intermittent 3 hrs/day max	1.00	1.25	1.75
	3-10	1.25	1.50	2.00
	Over 10	1.50	1.75	2.25
Single-cylinder I.C. Engine (Highly Impulsive Input)	Intermittent 3 hrs/day max	1.25	1.50	2.00
	3-10	1.50	1.75	2.25
	Over 10	1.75	2.00	2.50

Table 2: Pin coupling service Factor ( $f_s$ ) for 820 Series Type 1 only.

Number of Starts per Hour	0-1	1-30	30-60	60+
Factor	1.00	1.20	1.30	1.50

### Notes:

Service factors are for reference only.

For applications with excessive vibration, contact Rexnord.

Rotating equipment must be provided with suitable guarding, or injury may result.