PSI Series

Wrap Spring Clutches

Ideal for Overrunning, Start-Stop, and Single Revolution Applications

The Crossover Drives PSI Series clutches are the basic form of wrap spring clutch design. For start-stop and single revolution applications, the clutch function is actuated by simply engaging or releasing the stop collar. As a simple overrunning clutch, the PSI design provides positive engagement of a load to a power source, but permits free overrunning when input power is slowed, stopped, or reversed.

All units can be supplied as hub input/shaft output or the reverse. The Crossover PSI series is a very cost effective, reliable, and easily applied clutch where direct mechanical control is desired.

PSI Series Features:

- Trouble-free design for long life
- Simple mechanical actuation
- Four models ranging from 120 in-lb. to 2,500 in-lb. torque capacity
- Single revolution, start-stop, or overrunning functions
- Single revolution models can stop 10% of rated drive torque capacity
- Fits shaft sizes ranging from 3/8" to 1 ½"
- RoHS compliant

Typical Applications:

- Business machines
- Copying machines
- Material handling conveyors
- Packaging equipment
- Ribbon drives

How to order:

PSI - **5-** **S** **CW-** **SI-** **3/4" Bore-** **2-stop**

PSI Series
Specify
Imperial or Metric

Size
PSI-4 = **4**
PSI-5 = **5**
PSI-6 = **6**
PSI-8 = **8**

Model
Specify
S= Single Revolution
SS= Start/stop
O= overrunning

Direction of Rotation
CW = Clockwise
CCW = Counterclockwise

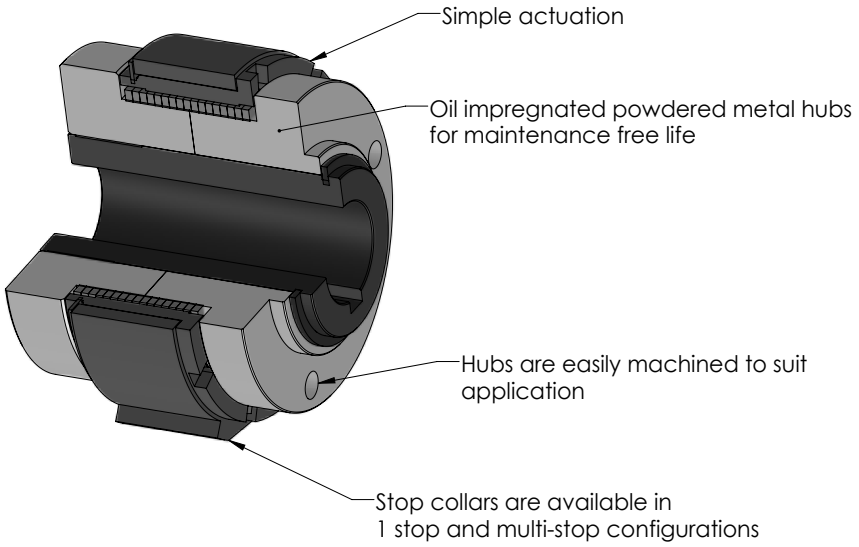
Input
Hi = Hub input
SI = Shaft Input

Bore Size
CB-4 = **3/8", or 10mm**
CB-5 = **1/2" or 12mm**
CB-6 = **3/4", 1", 20mm, or 25mm**
CB-8 = **1",1 1/4", 1 3/8", 1 1/2" 25mm, or 40mm**

Stop Collar
1 = 1 Stop
2 = 2 Stop
4 = 4 Stop

PSI Series

Wrap Spring Clutches - Specifications

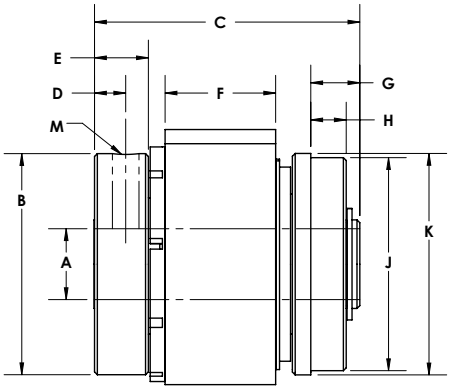


PSI Series PERFORMANCE						
			PSI-4	PSI-5	PSI-6	PSI-8
Static Torque			120 lb-in (13.56Nm)	250 lb-in (28.25Nm)	500 lb-in (56.5Nm)	2,500 lb-in (565Nm)
Inertia, rotating parts	SI HI		0.015 lb-in² 0.023 lb-in²	0.059 lb-in² 0.069 lb-in²	0.570 lb-in² 0.73 lb-in² (0.75 bore) 0.68 lb-in² (1.00 bore)	4.990 lb-in² 11.9 lb-in² (1.25 bore) 11.6 lb-in² (1.50 bore)
Maxium radial bearing load at maxium speed			13.5 lbs.	32 lbs.	63 lbs.	300 lbs.
Maxium operating speed			1,200 RPM	750 RPM	500 RPM	300 RPM
Weight			0.22 lbs.	0.62 lbs.	2.6 lbs.	8.25 lbs.

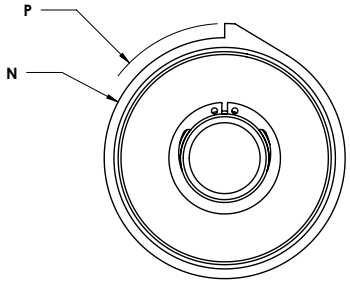
RPM vs. SHAFT BORE					
Size	Max RPM	Shaft Bores		Shaft Bores, Metric	
		Bore	Set or Pin	Bore	Set or Pin
PSI-4	1,200	3/8" (9.525mm)	0.125" (3.17mm)	10mm (.394")	M4 x 0.7 (2@120°)
PSI-5	750	1/2" (12.7mm)	0.187" (4.77mm)	12mm (0.427")	5mm (0.197")
PSI-6	500	3/4" (19.05mm) 1" (25.4mm)	1/4-20 1/4" (6.35mm)	20mm (.787") 25mm (.984")	M5 x 0.8 5mm (1.97")
PSI-8	300	1" (25.4mm) 1 1/4" (31.75mm) 1 3/8" (34.9mm) 1 1/2" (38.1mm)	3/8-16, 2 @ 90°	25mm (0.985") 30mm (1.18") 35mm (1.38") 40mm (1.58")	M10 x 1.5, 2@120°

PSI Series - Size 4 and 5

Dimensions and Specifications



PSI-4 and PSI-5

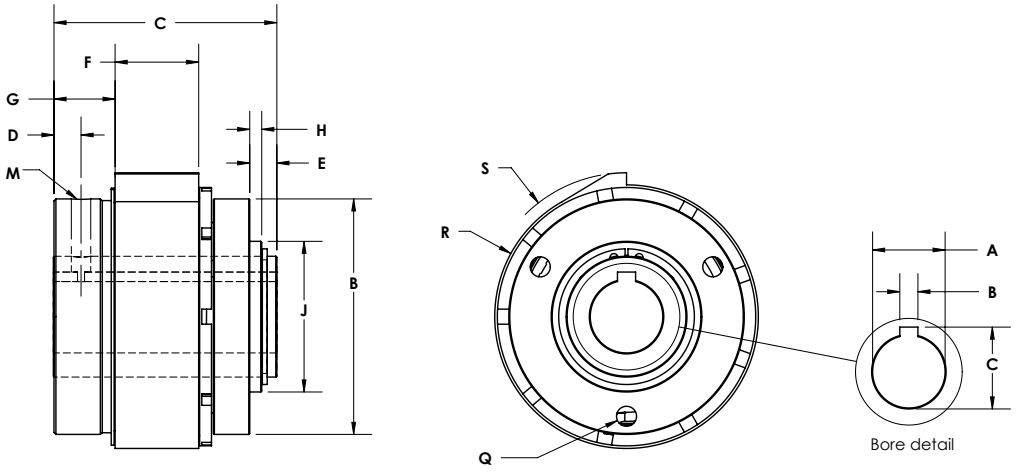


PSI Dimensions (mm)											
Model	B (dia.)	C	D	E	F	G	H	J (dia.)	K (dia.)	N (dia.)	P (rad.)
PSI-4	1.25 (31.75)	1.38 (35.05)	0.16 (4.05)	0.28 (7.10)	0.68 (17.27)	0.34 (8.64)	0.25 (6.35)	1.1265-1.1275 (28.613-28.639)	1.25 (31.75)	1.31 (33.27)	0.72 (18.29)
PSI-5	1.56 (39.60)	1.88 (47.75)	0.22 (5.56)	0.38 (9.70)	1.00 (25.4)	0.34 (8.64)	0.25 (6.35)	1.502-1.503 (38.15-38.18)	1.56 (39.60)	1.69 (42.93)	0.96 (24.38)

Bore & Pin Data				
Model	Bore, English	Pin or set	Bore, Metric	Pin or set
PSI-4	**0.376-0.378 (9.55-9.61)**	**0.125 dia (3.175 dia)**	**10.0 H9 (0.394-0.395)**	**M4 x 0.7 x 5.0 set 2 @ 120°**
PSI-5	**0.501-0.5025 (12.71-12.76)**	**0.188 dia (4.77 dia)**	**12.0 H9 (0.472-0.474)**	**5.0 dia (0.197 dia)**

PSI Series - Size 6 and 8

Dimensions and Specifications



PSI Dimensions (mm)										
Model	B (dia.)	C	D	E	F	G	H	J	R (dia.)	S (rad.)
PSI-6	2.437 (61.90)	2.312 (58.72)	0.28 (7.10)	0.27 (6.86)	0.87 (22.10)	0.63 (16.00)	0.12 (3.05)	1.559-1.562 (39.60-39.67)	2.71 (68.83)	1.50 (38.10)
PSI-8	4.00 (101.60)	3.60 (91.44)	0.62 (15.75)	0.35 (8.89)	2.20 (55.90)	0.95 (24.13)	0.188 (4.78)	2.372-2.374 (60.25-60.30)	3.75 (95.25)	2.00 (50.80)

PSI-6 Bore & Keyway Data				
Bore A	Keyway Width B	Keyway Depth C	Set or Pin	Mounting Holes Q
0.7505-0.7525 (19.062-19.114)	0.1885-0.1905 (4.787-4.839)	0.837-0.842 (21.25-21.39)	1/4-20 tap	3x #1/4-20 UNC-2B on 2.062 b.c.
1.005-1.0025 (25.412-25.464)			0.25 dia (6.35mm)	3x #1/4-20 UNC-2B on 2.062 b.c.
Metric Bores				
20.0 H9 (0.7874-0.7894)	5.985-6.015 (0.2356-0.2368)	22.800-22.900 (0.8976-0.9015)	M5 x 0.8 hex set screw	3 x M6 x 1.0 on 52.38 bc
25.0 H9 (0.9843-0.9863)			5.0 hole	3 x M6 x 1.0 on 52.38 bc

PSI-8 Bore & Keyway Data				
Bore A	Keyway Width B	Keyway Depth C	Set or Pin	Mounting Holes Q
1.005-1.0025 (25.412-25.464)	0.251-0.253 (6.37-6.43)	1.114-1.124 (28.29-28.55)	3/8-16 tap 2 @ 90°	6x #5/16-18 UNC-2B on 3.375 b.c.
1.2505-1.2525 (31.762-31.814	0.3135-0.3155 (7.962-8.014)	1.389-1.399 (35.28-35.54)	3/8/2016 2 @ 90°	6x #5/16-18 UNC-2B on 3.375 b.c.
1.3755-1.3775 (34.937-34.989)	0.3135-0.3155 (7.962-8.014)	1.518-1.528 (38.55-38.82)	3/8/2016 2 @ 90°	6x #5/16-18 UNC-2B on 3.375 b.c.
1.5005-1.50025 (38.112-38.164)	0.376-0.378 (9.55-9.61)	1.605-1.615 (40.76-41.02)	3/8/2016 2 @ 90°	6x #5/16-18 UNC-2B on 3.375 b.c.
Metric Bores				
35.0 H9 (1.3780-1.3804)	9.982-10.018 (0.3930-0.3944)	38.300-38.563 (1.5079-1.5182)	M10 x 1.5 x 25.0 2 @ 120°	6x M8 x 1.25 on 85.73 b.c.
40.0 H9 1.5784-1.5772)			M10 x 1.5 x 25.0 2 @ 120°	6x M8 x 1.25 on 85.73 b.c.

PSI Series
Functions

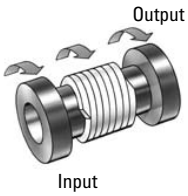
Overrunning, Start-Stop, and Single Revolution Applications

PSI Series clutches are designed in three primary ways: start-stop, single revolution, and simple overrunning. They are also designed to operate as either **shaft input – hub output** devices, or as **hub input – shaft output** devices.

When ordering replacement components, you will need to identify the function and the input/output so as to obtain the correct replacement spring or hub. The following representation will help identify function.

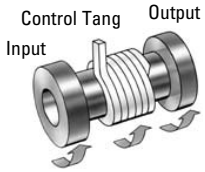
Operation Capabilities

Overrunning Model O



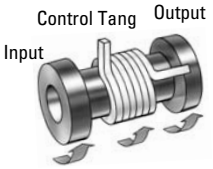
The overrunning clutch (Model O) transmits torque up to the rated value in the positive direction, when disengaged it only transmits some drag torque in the reverse direction. Major applications for this unit are anti-overrun protection and anti-backup devices.

Start-Stop (random positioning) Model SS



The start-stop clutch (Model SS) accelerates the load just after the control collar has been released, thus the collar is free to rotate allowing the spring to grip both hubs together. To disconnect the clutch, the collar must be restrained, stopping the collar from rotating via the stop face. The spring will then be opened and the clutch will be disengaged. The output is free to rotate and will be stopped by system friction and clutch drag torque.

Single Revolution Model S

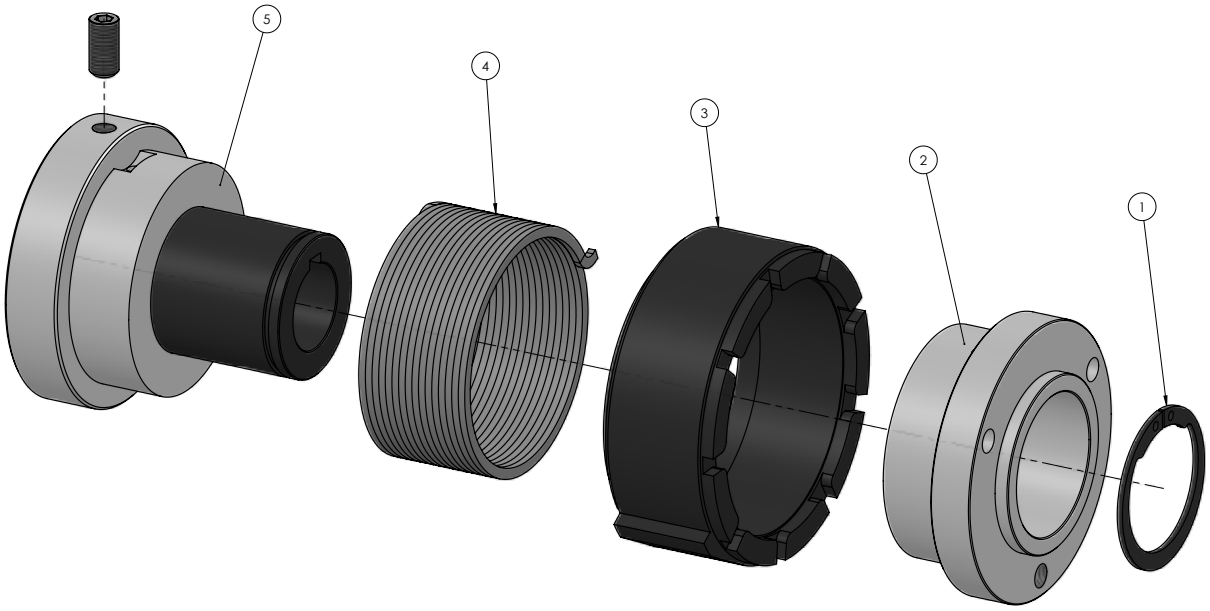


The single revolution clutch (Model S) accelerates in the same manner as the model SS. The deceleration starts when the collar is restrained, and the spring is opened, disengaging the clutch.

For Model S, the brake torque capability is limited to 10% of the rated torque.

All PSI Series clutches are easy to install. The shaft can be pinned or, on larger units, delivered with keyways.

PSI Series
Component Parts



PSI Component Parts								
Item	Description	Model	Rotation		Size 4	Size 5	Size 6	Size 8
1	Retaining Ring				03040-65000	03050-65000	03060-65000	03080-65000
2	Free hub	English			00040-19000	00050-19000	00060-19000	00080-19000
		Metric			10040-19000	10050-19000	10060-19000	10080-19000
3	Control Collar (specify stops last digit)		CW		00041-06061	00051-06061	00061-06061	00081-06061
			CCW		00042-06061	00052-06061	00062-06061	00082-06061
		O	n/a		00040-06000	00050-06000	00060-06000	00080-06000
4	Drive Spring	S	CW		03041-31000	03051-31000	03061-31000	03081-31000
			CCW		03042-31000	03052-31000	03062-31000	03082-31000
		SS	CW		03041-31025	03051-31025	03061-31025	03081-31025
			CCW		03042-31025	03052-31025	03062-31025	03082-31025
		O	CW		03041-31024	03051-31024	03061-31024	03081-31024
			CCW		03042-31024	03052-31024	03062-31024	03082-31024
5	Shaft Assembly	3/8"			00040-04203			
		10H9			10040-04240			
		1/2"				00050-04205		
		12H9				10050-04242		
		3/4"					00060-04209	
		20 H9					10060-04245	
		1"					00060-04213	00080-04213
		25 H9					10060-04247	10080-04247
		1 1/4"						00080-04217
		35 H9						10080-04249

Size 8 optional shaft assembly bores: 1 3/8", 1 1/2", 40mm