Sure motion

Drive Couplings

Drive Couplings Overview

Rotating shaft-driven mechanical components are commonly used in all forms of machinery that perform the various processes and functions of modern industry. Perfect alignment of shafts and rotating components is desired, but it is nearly impossible to build a real-world machine in which adjacent shaft ends align perfectly.

Adjacent shafts can be misaligned in 3 orientations, angular, parallel and axial, see figure below. Misalignment will place stresses on shafts and related parts of the assembly such as bearings, which can result in early failure of both.

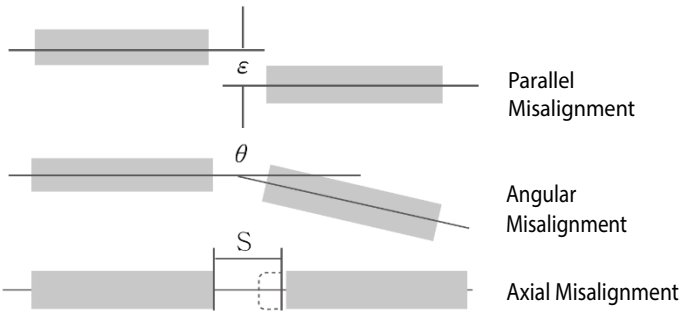
Drive couplings can be used to compensate for shaft misalignment, whether the misalignment is an intentional or an unintentional part of the design. When designing or modifying a system, there are essential factors to consider for choosing the correct couplings for the application.

Design/Selection Factors:
(Refer to the specification tables herein for the particular specifications of each type of drive coupling.)

- RPM: For higher rpm applications, choose Jaw/Spider or Beam-Style Servo couplings. For lower rpm, consider Double-Loop or Oldham couplings.
- Torque: Consider the torque requirements of the application, and the torque specifications of the different drive coupling types. peak torque generally occurs at start-up, operating torque at steady-state operation, and reversing or braking torque during rapid acceleration or deceleration or direction changes.
- Backlash: Backlash is a measurement of the positional accuracy of the coupling, which is important for reversing and/or motion control applications. Zero backlash is ultimately desirable, but more expensive than necessary for low-precision applications.

For high-precision applications, choose Beam-Style Servo or Oldham couplings. For applications requiring less precision, consider Jaw/Spider or Double-Loop couplings.

- Misalignment: Some degree of angular, axial, or radial misalignment/displacement between shafts is almost unavoidable. Drive couplings can compensate for this misalignment.



Coupling Type Comparisons				
Coupling Type	***Jaw / Spider***	***Double Loop***	***Oldham***	***Beam-Style Servo***
Representative Photo				
Purpose	most common	light duty	general purpose	high performance & torque
Hub Material	aluminum	stainless steel	aluminum	416 stainless steel
Center Material	polyurethane	Hytrel™	Delrin™	420 stainless steel
Mounting Method	clamp	set screw	clamp	set screw
Electrical Isolation	yes	yes	yes	no
Backlash	varies	varies	zero	zero
Misalignment Capacity	++ (axial)	+++	++	+
Breakable "Mechanical Fuse"	no (fail safe)	no	yes	no
Relative Price	$$	$$	$	$$$

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Double Loop Couplings

Double Loop Stainless Steel Drive Couplings									
Part Number	Price	Size	Bore	Max rpm	Max Torque @ Max Displacement ([lb·in] N·m)	Max Misalignment			Weight (lb)
						Radial ([in] mm)	Axial ([in] mm)	Angular (°)	
DC-DLSS10-02	$44.00	10	1/8 in	3,000	[4.4] 0.5	[0.10] 2.6	[0.18] 4.5	10	0.06
DC-DLSS10-03	$44.00		3/16 in						
DC-DLSS10-06M	$44.00		6mm						
DC-DLSS10-04	$44.00		1/4 in						
DC-DLSS10-05	$43.00		5/16 in						
DC-DLSS10-08M	$42.00		8mm						
DC-DLSS20-04	$49.00	20	1/4 in		[15.9] 1.8	[0.13] 3.2	[0.30] 7.5	15	0.20
DC-DLSS20-05	$49.00		5/16 in						
DC-DLSS20-08M	$49.00		8mm						
DC-DLSS20-06	$49.00		3/8 in						
DC-DLSS20-12M	$49.00		12mm						
DC-DLSS20-08	$49.00		1/2 in						
DC-DLSS30-12M	$55.00	30	12mm		[44.3] 5.0		[0.33] 8.5		0.27
DC-DLSS30-08	$55.00		1/2 in						
DC-DLSS30-14M	$55.00		14mm						
DC-DLSS30-10	$55.00		5/8 in						
DC-DLSS40-08	$60.50	40	1/2 in		[88.5] 10.0		[0.43] 11.0		0.30
DC-DLSS40-14M	$60.50		14mm						
DC-DLSS40-10	$60.50		5/8 in						
DC-DLSS40-16M	$60.50		16mm						

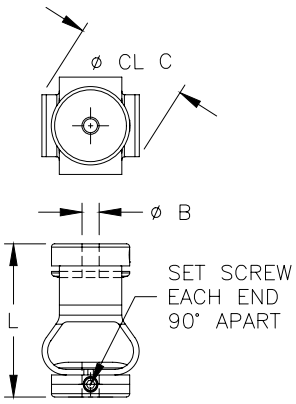
Features

- High torsional rigidity
- One-piece design
- Hubs made of series 300 stainless steel
- Double loop made of DuPont Hytrel™
- Corrosion protection
- Outstanding resistance to acids, alkalis, solvents, oils, grease, ozone
- Wide operating temperature range: -40 to 100 °C (-40 to 212 °F)
- Electrical isolation
- Damping of shock and vibration
- Speeds up to 3,000rpm

Applications

- Light-duty applications
- Medium-speed applications
- Applications in which inertia is NOT a factor

Dimensions (in [mm])



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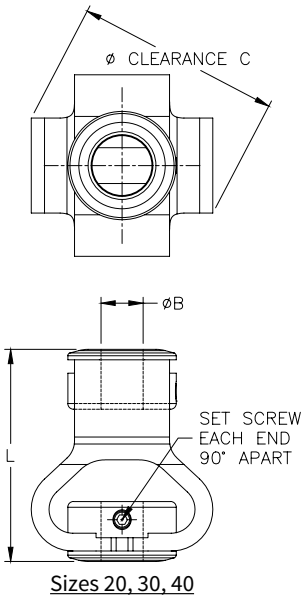

Sizes 20, 30, 40

Double Loop Stainless Steel Drive Coupling Dimensions					
Part Number	Size	Set Screw	ØB	ØC (in [mm])	L (in [mm])
DC-DLSS10-02	10	M3	1/8 in	1.06 [26.9]	
DC-DLSS10-03			3/16 in		
DC-DLSS10-06M			6mm		
DC-DLSS10-04			1/4 in		
DC-DLSS10-05			5/16 in		
DC-DLSS10-08M			8mm		
DC-DLSS20-04	20	M4	1/4 in	1.89 [48.0]	
DC-DLSS20-05			5/16 in		
DC-DLSS20-08M			8mm		
DC-DLSS20-06			3/8 in		
DC-DLSS20-12M			12mm		
DC-DLSS20-08			1/2 in		
DC-DLSS30-12M	30	M5	12mm	2.13 [54.1]	2.17 [55.1]
DC-DLSS30-08			1/2 in		
DC-DLSS30-14M			14mm		
DC-DLSS30-10			5/8 in		
DC-DLSS40-08	40	M6	1/2 in	2.20 [55.9]	2.20 [55.9]
DC-DLSS40-14M			14mm		
DC-DLSS40-10			5/8 in		
DC-DLSS40-16M			16mm		

See our website: www.AutomationDirect.com for complete Engineering drawings.

Sure motion Drive Couplings

Accessories – Bore Reducers

Features

- For use in all SureMotion drive coupling hubs to reduce bore size
- Split-collar design with 2 set screw flats will not mark shaft
- 25% greater holding power than standard split collar
- Hardened stainless steel

Bore Reducers – Stainless Steel Clamping Type

Part Number	Price	Outside Diameter		Inside Diameter		Length
		Nominal	Actual	Nominal	Actual	
DC-BRS04-02	$27.55	1/4 in	0.250 in	1/8 in	0.125 in	0.221 in
DC-BRS04-04M	$27.55			4mm	4mm	
DC-BRS04-03	$27.55			3/16 in	0.1875 in	
DC-BRS04-05M	$27.55			5mm	5mm	
DC-BRS08-06M	$36.25	1/2 in	0.500 in	6mm	6mm	0.449 in
DC-BRS08-04	$36.25			1/4 in	0.25 in	
DC-BRS08-05	$36.98			5/16 in	0.3125 in	
DC-BRS08-08M	$36.25			8mm	8mm	
DC-BRS08-06	$36.98			3/8 in	0.375 in	
DC-BRS08-10M	$36.98			10mm	10mm	
DC-BRS10-10M	$42.05	5/8 in	0.625 in	10mm	10mm	0.460 in
DC-BRS10-07	$42.05			7/16 in	0.4375 in	
DC-BRS10-12M	$42.05			12mm	12mm	
DC-BRS10-08	$42.05			1/2 in	0.5 in	
DC-BRS10-14M	$42.05			14mm	14mm	
DC-BRS10-09	$42.05			9/16 in	0.5625 in	
DC-BRS12-06	$50.02	3/4 in	0.750 in	3/8 in	0.375 in	0.646 in
DC-BRS12-12M	$50.02			12mm	12mm	
DC-BRS12-08	$50.02			1/2 in	0.5 in	
DC-BRS12-10	$50.02			5/8 in	0.625 in	
DC-BRS12-16M	$50.02			16mm	16mm	
DC-BRS12-11	$50.02			11/16 in	0.6875 in	
DC-BRS14-14M	$53.65	7/8 in	0.875 in	14mm	14mm	0.755 in
DC-BRS14-10	$53.65			5/8 in	0.625 in	
DC-BRS14-16M	$53.65			16mm	16mm	
DC-BRS14-11	$53.65			11/16 in	0.6875 in	
DC-BRS14-18M	$53.65			18mm	18mm	
DC-BRS14-12	$53.65			3/4 in	0.75 in	
DC-BRS16-10	$53.65	1in	1.000 in	5/8 in	0.625 in	0.773 in
DC-BRS16-18M	$55.10			18mm	18mm	
DC-BRS16-12	$33.00			3/4 in	0.75 in	
DC-BRS16-20M	$33.00			20mm	20mm	
DC-BRS16-13	$55.10			13/16 in	0.8125 in	
DC-BRS16-14	$55.10			7/8 in	0.875 in	
DC-BRS20-22M	$56.55	1-1/4 in	1.250 in	22mm	22mm	0.793 in
DC-BRS20-24M	$56.55			24mm	24mm	
DC-BRS20-25M	$56.55			25mm	25mm	
DC-BRS20-16	$56.55			1in	1.0 in	
DC-BRS20-17	$56.55			1-1/16 in	1.0625 in	
DC-BRS20-18	$56.55			1-1/8 in	1.125 in	