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.

Shaft ends can be misaligned radially or angularly, exhibit axial displacement, or experience a combination of all three. 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.)

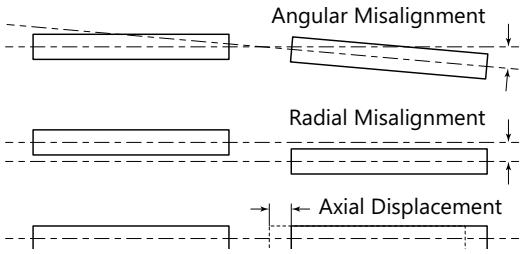
• RPM: For higher rpm applications, choose Jaw/Spider or Beam-Style Servo couplings. For lower rpm, consider Double-Loop or Oldham couplings.

• 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.

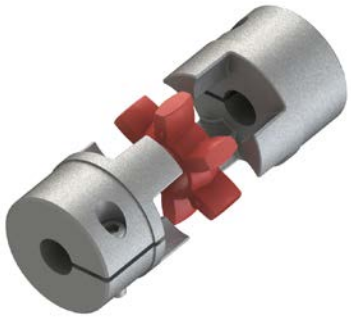
• Misalignment: Some degree of angular, axial, or radial misalignment/displacement between shafts is almost unavoidable. Drive couplings can compensate for this misalignment.



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	$$	$$	$	$$$

Sure motion Drive Couplings

Jaw/Spider Clamp-Style Couplings



Features

- Most commonly specified coupling type
- Aluminum hubs available with different bore diameters in same coupling
- Polyurethane center "spiders" available in different durometers for different degrees of shock and vibration reduction
- Fail-safe operation
- Electrical isolation
- Wide torque range
- High axial misalignment range
- Cost effective
- Wide operating temperature range: -40 to 100 °C (-40 to 212 °F)

Applications

- General applications
- High-speed applications
- Applications with high axial misalignment
- Applications in which inertia is NOT a factor

Jaw / Spider Aluminum Clamp-Style Drive Coupling Hubs*

Part Number*	Price	Size	Bore	Max rpm	Torque	Torsional Stiffness	Max Misalignment			Weight (lb)
							Radial (in [mm])	Axial (in [mm])	Angular (°)	
DC-JAC14-03		14	3/16 in	27,280	The torque and torsional stiffness of the assembly varies depending upon which center "spider" is used. Refer to the "Jaw / Spider Drive Coupling Spiders" table (page tPTR-53) for torque and torsional stiffness specifications.		0.002 [0.05]	0.030 [0.76]	1.0	0.039
DC-JAC14-05M			5mm							
DC-JAC14-06M			6mm							
DC-JAC14-04			1/4 in							
DC-JAC20-04		20	1/4 in	19,040						0.058
DC-JAC20-05			5/16 in							
DC-JAC30-05		30	5/16 in	12,720						0.070
DC-JAC30-08M			8mm							
DC-JAC30-06			3/8 in							
DC-JAC30-10M			10mm							
DC-JAC30-12M			12mm							
DC-JAC30-08			1/2 in							
DC-JAC40-08M		40	8mm	11,200			0.008 [0.20]	0.060 [1.52]	1.2	0.145
DC-JAC40-06			3/8 in							
DC-JAC40-10M			10mm							
DC-JAC40-12M			12mm							
DC-JAC40-08			1/2 in							
DC-JAC40-14M			14mm							
DC-JAC40-10			5/8 in							
DC-JAC40-16M			16mm							
DC-JAC40-12			3/4 in							
DC-JAC55-10		55	5/8 in	8,480			0.009 [0.23]	0.050 [1.27]	0.9	0.383
DC-JAC55-19M			19mm							
DC-JAC55-12			3/4 in							
DC-JAC55-22M			22mm							
DC-JAC55-14			7/8 in							
DC-JAC65-20		65	1-1/4 in	6,800			0.010 [0.25]	0.060 [1.52]	0.9	0.683
DC-JAC65-32M			32mm							

** A complete jaw/spider coupling assembly consists of two hubs and one spider, each of the same "size" and each purchased separately. The two hubs can be of different "bore" diameters, if needed for the application.*

Sure motion Drive Couplings

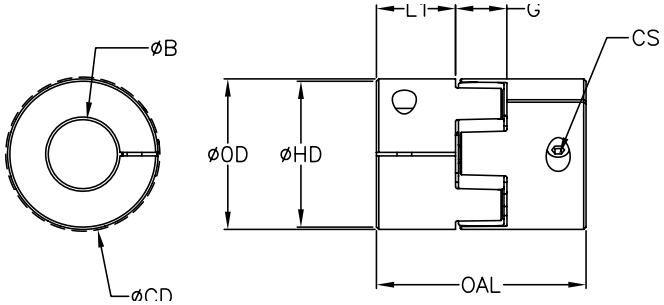
Jaw/Spider Clamp-Style Coupling Spiders

Jaw / Spider Drive Coupling Spiders*								
Part Number*	Price	Size	Durometer	Color	Torque (lb·in [N·m])			Torsional Stiffness (lb·in/rad)
					Nominal	Max	Reversing**	
DC-JS14-80A		14	80A	blue	6 [0.7]	12 [1.4]	2 [0.2]	76
DC-JS14-92A			92A	white	11 [1.2]	21 [2.4]		127
DC-JS14-98A			98A	red	18 [2.0]	35 [4.0]		203
DC-JS20-80A		20	80A	blue	16 [1.8]	32 [3.6]	4 [0.5]	152
DC-JS20-92A			92A	white	27 [3.1]	53 [6.0]		279
DC-JS20-98A			98A	red	44 [5.0]	89 [10.1]		456
DC-JS30-80A		30	80A	blue	35 [4.0]	71 [8.0]	9 [1.0]	538
DC-JS30-92A			92A	white	66 [7.5]	133 [15.0]		1,010
DC-JS30-98A			98A	red	111 [12.5]	221 [25.0]		1,518
DC-JS40-80A		40	80A	blue	43 [4.9]	86 [9.7]	11 [1.2]	2,000
DC-JS40-92A			92A	white	88 [9.9]	177 [20.0]	23 [2.6]	6,000
DC-JS40-98A			98A	red	150 [16.9]	300 [33.9]	39 [4.4]	10,000
DC-JS55-80A		55	80A	blue	151 [17.1]	301 [34.0]	39 [4.4]	8,000
DC-JS55-92A			92A	white	310 [35.0]	620 [70.1]	80 [9.0]	19,000
DC-JS55-98A			98A	red	530 [59.9]	1060 [119.8]	142 [16.0]	33,000
DC-JS65-80A		65	80A	blue	407 [46.0]	814 [92.0]	106 [12.0]	33,405
DC-JS65-92A			92A	white	840 [94.9]	1680 [189.8]	221 [25.0]	60,800
DC-JS65-98A			98A	red	1415 [159.9]	2830 [319.7]	381 [43.0]	91,275

** A complete jaw/spider coupling assembly consists of two hubs and one spider, each of the same "size" and each purchased separately. The two hubs can be of different "bore" diameters, if needed for the application.*

*** Reversing Torque is the rapid reversal of rotation and has a lower value to account for stopping inertia and driving in the opposite rotation. For slow direction reversals, Nominal Torque applies.*

Dimensions (in [mm])



Jaw / Spider Drive Coupling Hub Bore Dimensions		
Hubs	Sizes	ØB
DC-JACxx-03	14	3/16 in
DC-JACxx-05M	14	5mm
DC-JACxx-06M	14	6mm
DC-JACxx-04	14, 20	1/4 in
DC-JACxx-05	20, 30	5/16 in
DC-JACxx-08M	30, 40	8mm
DC-JACxx-06	30, 40	3/8 in
DC-JACxx-10M	30, 40	10mm
DC-JACxx-12M	30, 40	12mm
DC-JACxx-08	30, 40	1/2 in
DC-JACxx-14M	40	14mm
DC-JACxx-10	40, 55	5/8 in
DC-JACxx-16M	40	16mm
DC-JACxx-12	40, 55	3/4 in
DC-JACxx-19M	55	19mm
DC-JACxx-22M	55	22mm
DC-JACxx-14	55	7/8 in
DC-JACxx-20	65	1-1/4 in
DC-JACxx-32M	65	32mm

Jaw / Spider Aluminum Clamp-Style Drive Coupling Assembly Dimensions*								
Size	Components	CS	G	L1	OAL	ØCD	ØHD	ØOD
			(in [mm])					
14	(2) DC-JAC14-xxx + (1) DC-JS14-xxx	#4-40	0.30 [7.6]	0.28 [7.1]	0.86 [21.8]	0.71 [18.0]	0.55 [14.0]	0.55 [14.0]
20	(2) DC-JAC20-xxx + (1) DC-JS20-xxx	#5-40	0.42 [10.6]	0.39 [9.9]	1.20 [30.5]	0.93 [23.6]	0.75 [19.1]	0.78 [19.8]
30	(2) DC-JAC30-xxx + (1) DC-JS30-xxx	#6-32	0.49 [12.4]	0.43 [10.9]	1.35 [34.3]	1.27 [32.3]	1.18 [30.0]	1.18 [30.0]
40	(2) DC-JAC40-xxx + (1) DC-JS40-xxx	#10-24	0.56 [14.2]	0.98 [24.9]	2.55 [64.8]	1.70 [43.2]	1.57 [39.9]	1.57 [39.9]
55	(2) DC-JAC55-xxx + (1) DC-JS55-xxx	1/4-20	0.63 [16.0]	1.16 [29.5]	2.97 [75.4]	2.20 [55.9]	2.17 [55.1]	2.17 [55.1]
65	(2) DC-JAC65-xxx + (1) DC-JS65-xxx	5/16-18	0.73 [18.5]	1.40 [35.6]	3.53 [89.7]	n/a	1.89 [48.0]	2.55 [64.8]

** Assembly dimensions are for any (2) hubs + (1) spider of the same "size" as assembled. Among components of the same "size," the only dimension that varies is the hub bore diameter (ØB), which is shown separately.*

See our website: _____ for complete Engineering drawings.

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		1/4 in	0.250 in	1/8 in	0.125 in	0.221 in
DC-BRS04-04M				4mm	4mm	
DC-BRS04-03				3/16 in	0.1875 in	
DC-BRS04-05M				5mm	5mm	
DC-BRS08-06M		1/2 in	0.500 in	6mm	6mm	0.449 in
DC-BRS08-04				1/4 in	0.25 in	
DC-BRS08-05				5/16 in	0.3125 in	
DC-BRS08-08M				8mm	8mm	
DC-BRS08-06				3/8 in	0.375 in	
DC-BRS08-10M				10mm	10mm	
DC-BRS10-10M		5/8 in	0.625 in	10mm	10mm	0.460 in
DC-BRS10-07				7/16 in	0.4375 in	
DC-BRS10-12M				12mm	12mm	
DC-BRS10-08				1/2 in	0.5 in	
DC-BRS10-14M				14mm	14mm	
DC-BRS10-09				9/16 in	0.5625 in	
DC-BRS12-06		3/4 in	0.750 in	3/8 in	0.375 in	0.646 in
DC-BRS12-12M				12mm	12mm	
DC-BRS12-08				1/2 in	0.5 in	
DC-BRS12-10				5/8 in	0.625 in	
DC-BRS12-16M				16mm	16mm	
DC-BRS12-11				11/16 in	0.6875 in	
DC-BRS14-14M		7/8 in	0.875 in	14mm	14mm	0.755 in
DC-BRS14-10				5/8 in	0.625 in	
DC-BRS14-16M				16mm	16mm	
DC-BRS14-11				11/16 in	0.6875 in	
DC-BRS14-18M				18mm	18mm	
DC-BRS14-12				3/4 in	0.75 in	
DC-BRS16-10		1in	1.000 in	5/8 in	0.625 in	0.773 in
DC-BRS16-18M				18mm	18mm	
DC-BRS16-12				3/4 in	0.75 in	
DC-BRS16-20M				20mm	20mm	
DC-BRS16-13				13/16 in	0.8125 in	
DC-BRS16-14				7/8 in	0.875 in	
DC-BRS20-22M		1-1/4 in	1.250 in	22mm	22mm	0.793 in
DC-BRS20-24M				24mm	24mm	
DC-BRS20-25M				25mm	25mm	
DC-BRS20-16				1in	1.0 in	
DC-BRS20-17				1-1/16 in	1.0625 in	
DC-BRS20-18				1-1/8 in	1.125 in	