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.

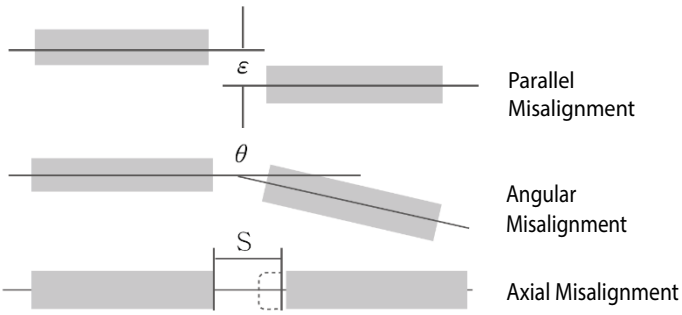
Drive couplings can be used to compensate for shaft misalignment, whether the misalignment is an intentional or an unintentional part of the design. When designing or modifying a system, there are essential factors to consider for choosing the correct couplings for the application.

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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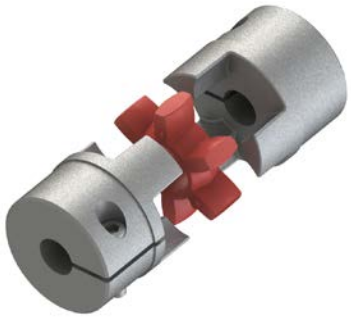
Jaw/Spider Clamp-Style Couplings



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 (mm)	Bore	Max RPM	Torque	Torsional Stiffness	Max Misalignment			Weight (lb)
							Parallel (in [mm])	Axial (in [mm])	Angular	
DC-JAC14-03	$14.00	14	3/16in	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(pagetROT-21) for torque and torsional stiffness specifications.		0.002 [0.05]	0.030 [0.76]	1.0˚	0.039
DC-JAC14-05M	$14.00		5mm							
DC-JAC14-06M	$14.00		6mm							
DC-JAC14-04	$14.00		1/4in							
DC-JAC20-04	$17.00	20	1/4in	19,040						0.058
DC-JAC20-05	$17.75		5/16in							
DC-JAC30-05	$26.00	30	5/16in	12,720						0.070
DC-JAC30-08M	$25.50		8mm							
DC-JAC30-06	$26.00		3/8in							
DC-JAC30-10M	$26.00		10mm							
DC-JAC30-12M	$26.00		12mm							
DC-JAC30-08	$26.00		1/2in							
DC-JAC40-08M	$30.00	40	8mm	11,200			0.008 [0.2]	0.050 [1.27]	1.2˚	0.145
DC-JAC40-06	$30.25		3/8in							
DC-JAC40-10M	$30.25		10mm							
DC-JAC40-12M	$30.25		12mm							
DC-JAC40-08	$30.50		1/2in							
DC-JAC40-14M	$30.25		14mm							
DC-JAC40-10	$30.25		5/8in							
DC-JAC40-16M	$30.00		16mm							
DC-JAC40-12	$30.50		3/4in							
DC-JAC55-10	$35.00	55	5/8in	8,480			0.009 [0.23]	0.060 [1.52]	0.9˚	0.383
DC-JAC55-19M	$30.50		19mm							
DC-JAC55-12	$35.50		3/4in							
DC-JAC55-22M	$35.00		22mm							
DC-JAC55-14	$35.50		7/8in							
DC-JAC65-20	$57.00	65	1-1/4in	6,800			0.009 [0.23]	0.060 [1.52]	0.9˚	0.683
DC-JAC65-32M	$57.00		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

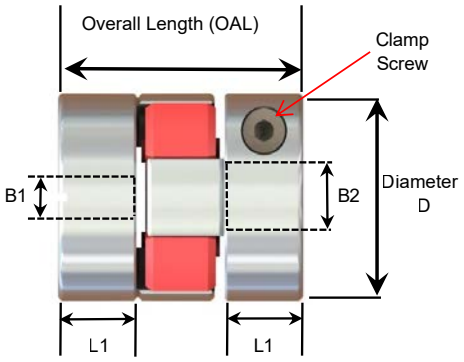
Jaw / Spider Drive Coupling Spiders*								
Part Number*	Price	Size	Durometer	Color	Torque (lb·in [N·m])			Torsional Stiffness (lb·in/rad [Nm/rad])
					Rated	Max	Reversing**	
DC-JS14-80A	$8.00	14	80A	blue	6 [0.7]	12 [1.4]	2 [0.2]	71 [8]
DC-JS14-92A	$8.00		92A	white	11 [1.2]	21 [2.4]		124 [14]
DC-JS14-98A	$8.00		98A	red	18 [2.0]	35 [4.0]		195 [22]
DC-JS20-80A	$11.25	20	80A	blue	16 [1.8]	32 [3.6]	4 [0.5]	142 [16]
DC-JS20-92A	$12.00		92A	white	27 [3.1]	53 [6.0]		257 [29]
DC-JS20-98A	$11.50		98A	red	44 [5.0]	89 [10.1]		487 [55]
DC-JS30-80A	$13.00	30	80A	blue	35 [4.0]	71 [8.0]	9 [1.0]	407 [46]
DC-JS30-92A	$13.25		92A	white	66 [7.5]	133 [15.0]		646 [73]
DC-JS30-98A	$13.25		98A	red	111 [12.5]	221 [25.0]		1151 [130]
DC-JS40-80A	$14.50	40	80A	blue	43 [4.9]	86 [9.7]	11 [1.2]	3363 [380]
DC-JS40-92A	$14.50		92A	white	88 [9.9]	177 [20.0]	23 [2.6]	5045 [570]
DC-JS40-98A	$14.50		98A	red	150 [16.9]	300 [33.9]	39 [4.4]	10621 [1200]
DC-JS55-80A	$16.00	55	80A	blue	151 [17.1]	301 [34.0]	39 [4.4]	12391 [1400]
DC-JS55-92A	$16.00		92A	white	310 [35.0]	620 [70.1]	80 [9.0]	14161 [1600]
DC-JS55-98A	$16.00		98A	red	530 [59.9]	1060 [119.8]	142 [16.0]	23012 [2600]
DC-JS65-80A	$20.50	65	80A	blue	407 [46.0]	814 [92.0]	106 [12.0]	24782 [2800]
DC-JS65-92A	$20.50		92A	white	840 [94.9]	1680 [189.8]	221 [25.0]	26552 [3000]
DC-JS65-98A	$20.50		98A	red	1415 [159.9]	2830 [319.7]	381 [43.0]	43369 [4900]

* 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	Clamp Screw	L1	OAL	D
			in [mm]		
14	(2) DC-JAC14-xxx + (1) DC-JS14-xxx	#4-40	0.28 [7.1]	0.86 [21.8]	0.55 [14.0]
20	(2) DC-JAC20-xxx + (1) DC-JS20-xxx	#5-40	0.39 [9.9]	1.20 [30.5]	0.78 [19.8]
30	(2) DC-JAC30-xxx + (1) DC-JS30-xxx	#6-32	0.43 [10.9]	1.35 [34.3]	1.18 [30.0]
40	(2) DC-JAC40-xxx + (1) DC-JS40-xxx	#10-24	0.98 [24.9]	2.55 [64.8]	1.57 [39.9]
55	(2) DC-JAC55-xxx + (1) DC-JS55-xxx	1/4-20	1.16 [29.5]	2.97 [75.4]	2.17 [55.1]
65	(2) DC-JAC65-xxx + (1) DC-JS65-xxx	5/16-18	1.40 [35.6]	3.53 [89.7]	2.55 [64.8]

* Assembly dimensions are for any (2) hubs + (1) spider of the same "size" as assembled. B1 & B2 are the Bore sizes for the selected DC-JACxx Jaw/Hub.

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

SureMotion 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	$16.50	1/4 in	0.250 in	1/8 in	0.125 in	0.221 in
DC-BRS04-04M	$16.50			4mm	4mm	
DC-BRS04-03	$16.50			3/16 in	0.1875 in	
DC-BRS04-05M	$16.50			5mm	5mm	
DC-BRS08-06M	$21.75	1/2 in	0.500 in	6mm	6mm	0.449 in
DC-BRS08-04	$21.75			1/4 in	0.25 in	
DC-BRS08-05	$22.00			5/16 in	0.3125 in	
DC-BRS08-08M	$21.75			8mm	8mm	
DC-BRS08-06	$22.00			3/8 in	0.375 in	
DC-BRS08-10M	$22.00			10mm	10mm	
DC-BRS10-10M	$25.00	5/8 in	0.625 in	10mm	10mm	0.460 in
DC-BRS10-07	$25.00			7/16 in	0.4375 in	
DC-BRS10-12M	$25.00			12mm	12mm	
DC-BRS10-08	$25.00			1/2 in	0.5 in	
DC-BRS10-14M	$25.00			14mm	14mm	
DC-BRS10-09	$25.00			9/16 in	0.5625 in	
DC-BRS12-06	$30.00	3/4 in	0.750 in	3/8 in	0.375 in	0.646 in
DC-BRS12-12M	$30.00			12mm	12mm	
DC-BRS12-08	$30.00			1/2 in	0.5 in	
DC-BRS12-10	$30.00			5/8 in	0.625 in	
DC-BRS12-16M	$30.00			16mm	16mm	
DC-BRS12-11	$30.00			11/16 in	0.6875 in	
DC-BRS14-14M	$32.00	7/8 in	0.875 in	14mm	14mm	0.755 in
DC-BRS14-10	$32.00			5/8 in	0.625 in	
DC-BRS14-16M	$32.00			16mm	16mm	
DC-BRS14-11	$32.00			11/16 in	0.6875 in	
DC-BRS14-18M	$32.00			18mm	18mm	
DC-BRS14-12	$32.00			3/4 in	0.75 in	
DC-BRS16-10	$32.00	1in	1.000 in	5/8 in	0.625 in	0.773 in
DC-BRS16-18M	$33.00			18mm	18mm	
DC-BRS16-12	$33.00			3/4 in	0.75 in	
DC-BRS16-20M	$33.00			20mm	20mm	
DC-BRS16-13	$33.00			13/16 in	0.8125 in	
DC-BRS16-14	$33.00			7/8 in	0.875 in	
DC-BRS20-22M	$34.00	1-1/4 in	1.250 in	22mm	22mm	0.793 in
DC-BRS20-24M	$34.00			24mm	24mm	
DC-BRS20-25M	$34.00			25mm	25mm	
DC-BRS20-16	$34.00			1in	1.0 in	
DC-BRS20-17	$34.00			1-1/16 in	1.0625 in	
DC-BRS20-18	$34.00			1-1/8 in	1.125 in	