

# 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.

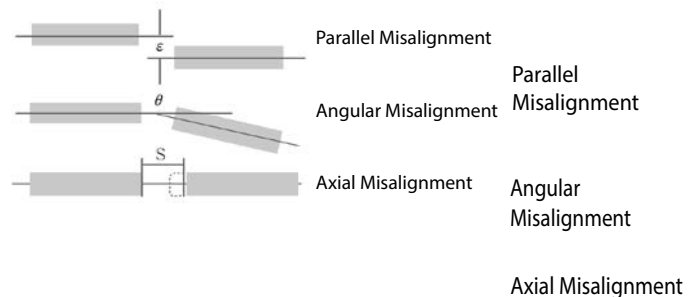
### Design/Selection Factors:

(Refer to the specification tables herein for the particular specifications of each type of drive coupling.)

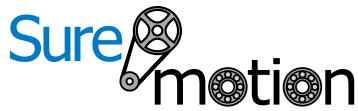
- **RPM:** For higher rpm applications, choose Jaw/Spider or Beam-Style Servo couplings. For lower rpm, consider Double-Loop or Oldham couplings.
- **Torque:** Consider the torque requirements of the application, and the torque specifications of the different drive coupling types. peak torque generally 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              | \$\$                                                                                | \$\$                                                                                | \$                                                                                   | \$\$\$                                                                                |



# Drive Couplings

## Jaw/Spider Clamp-Style Couplings



### Features

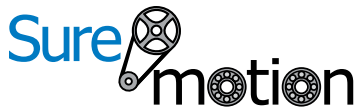
- Most commonly specified coupling type
- Aluminum hubs available with different bore diameters in same coupling
- Polyurethane center "spiders" available in different durometers for different degrees of shock and vibration reduction
- Fail-safe operation
- Electrical isolation
- Wide torque range
- 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 (mm) | Bore    | Max RPM | Torque                                                                                                                                                                                                                             | Torsional Stiffness | Max Misalignment   |                 |         | Weight (lb) |  |  |  |  |  |
|                                                        |       |           |         |         |                                                                                                                                                                                                                                    |                     | Parallel (in [mm]) | Axial (in [mm]) | Angular |             |  |  |  |  |  |
| <a href="#">DC-JAC14-03</a>                            |       | 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 (page tROT-49) for torque and torsional stiffness specifications. |                     | 0.002 [0.1]        | 0.030 [0.76]    | 1.0°    | 0.039       |  |  |  |  |  |
| <a href="#">DC-JAC14-05M</a>                           |       |           | 5mm     |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC14-06M</a>                           |       |           | 6mm     |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC14-04</a>                            |       |           | 1/4in   |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC20-04</a>                            |       | 20        | 1/4in   | 19,040  |                                                                                                                                                                                                                                    |                     |                    |                 |         | 0.058       |  |  |  |  |  |
| <a href="#">DC-JAC20-05</a>                            |       |           | 5/16in  |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC30-05</a>                            |       | 30        | 5/16in  | 12,720  |                                                                                                                                                                                                                                    |                     |                    |                 |         | 0.070       |  |  |  |  |  |
| <a href="#">DC-JAC30-08M</a>                           |       |           | 8mm     |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC30-06</a>                            |       |           | 3/8in   |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC30-10M</a>                           |       |           | 10mm    |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC30-12M</a>                           |       |           | 12mm    |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC30-08</a>                            |       | 39.8      | 1/2in   | 11,200  |                                                                                                                                                                                                                                    |                     |                    |                 |         | 0.145       |  |  |  |  |  |
| <a href="#">DC-JAC40-08M</a>                           |       |           | 8mm     |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC40-06</a>                            |       |           | 3/8in   |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC40-10M</a>                           |       |           | 10mm    |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC40-12M</a>                           |       |           | 12mm    |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC40-08</a>                            |       |           | 1/2in   |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC40-14M</a>                           |       |           | 14mm    |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC40-10</a>                            |       |           | 5/8in   |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC40-16M</a>                           |       | 55        | 16mm    | 8,480   |                                                                                                                                                                                                                                    |                     |                    |                 |         | 0.383       |  |  |  |  |  |
| <a href="#">DC-JAC40-12</a>                            |       |           | 3/4in   |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC55-10</a>                            |       |           | 5/8in   |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC55-19M</a>                           |       |           | 19mm    |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC55-12</a>                            |       | 64.8      | 3/4in   | 6,800   |                                                                                                                                                                                                                                    |                     |                    |                 |         | 0.683       |  |  |  |  |  |
| <a href="#">DC-JAC55-22M</a>                           |       |           | 22mm    |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC55-14</a>                            |       |           | 7/8in   |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC65-20</a>                            |       | 64.8      | 1-1/4in |         |                                                                                                                                                                                                                                    |                     |                    |                 |         |             |  |  |  |  |  |
| <a href="#">DC-JAC65-32M</a>                           |       |           | 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.



# 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** |                                          |
| <a href="#">DC-JS14-80A</a>          |       | 14   | 80A       | blue  | 6 [0.7]              | 12 [1.4]     | 2 [0.2]     | 71 [8]                                   |
| <a href="#">DC-JS14-92A</a>          |       |      | 92A       | white | 11 [1.2]             | 21 [2.4]     |             | 124 [14]                                 |
| <a href="#">DC-JS14-98A</a>          |       |      | 98A       | red   | 18 [2.0]             | 35 [4.0]     |             | 195 [22]                                 |
| <a href="#">DC-JS20-80A</a>          |       | 20   | 80A       | blue  | 16 [1.8]             | 32 [3.6]     | 4 [0.5]     | 142 [16]                                 |
| <a href="#">DC-JS20-92A</a>          |       |      | 92A       | white | 27 [3.1]             | 53 [6.0]     |             | 257 [29]                                 |
| <a href="#">DC-JS20-98A</a>          |       |      | 98A       | red   | 44 [5.0]             | 89 [10.1]    |             | 487 [55]                                 |
| <a href="#">DC-JS30-80A</a>          |       | 30   | 80A       | blue  | 35 [4.0]             | 71 [8.0]     | 9 [1.0]     | 407 [46]                                 |
| <a href="#">DC-JS30-92A</a>          |       |      | 92A       | white | 66 [7.5]             | 133 [15.0]   |             | 646 [73]                                 |
| <a href="#">DC-JS30-98A</a>          |       |      | 98A       | red   | 111 [12.5]           | 221 [25.0]   |             | 1151 [130]                               |
| <a href="#">DC-JS40-80A</a>          |       | 40   | 80A       | blue  | 43 [4.9]             | 86 [9.7]     | 11 [1.2]    | 3363 [380]                               |
| <a href="#">DC-JS40-92A</a>          |       |      | 92A       | white | 88 [9.9]             | 177 [20.0]   |             | 5045 [570]                               |
| <a href="#">DC-JS40-98A</a>          |       |      | 98A       | red   | 150 [16.9]           | 300 [33.9]   |             | 10621 [1200]                             |
| <a href="#">DC-JS55-80A</a>          |       | 55   | 80A       | blue  | 151 [17.1]           | 301 [34.0]   | 39 [4.4]    | 12391 [1400]                             |
| <a href="#">DC-JS55-92A</a>          |       |      | 92A       | white | 310 [35.0]           | 620 [70.1]   |             | 14161 [1600]                             |
| <a href="#">DC-JS55-98A</a>          |       |      | 98A       | red   | 530 [59.9]           | 1060 [119.8] |             | 23012 [2600]                             |
| <a href="#">DC-JS65-80A</a>          |       | 65   | 80A       | blue  | 407 [46.0]           | 814 [92.0]   | 106 [12.0]  | 24782 [2800]                             |
| <a href="#">DC-JS65-92A</a>          |       |      | 92A       | white | 840 [94.9]           | 1680 [189.8] |             | 26552 [3000]                             |
| <a href="#">DC-JS65-98A</a>          |       |      | 98A       | red   | 1415 [159.9]         | 2830 [319.7] |             | 43369 [4900]                             |

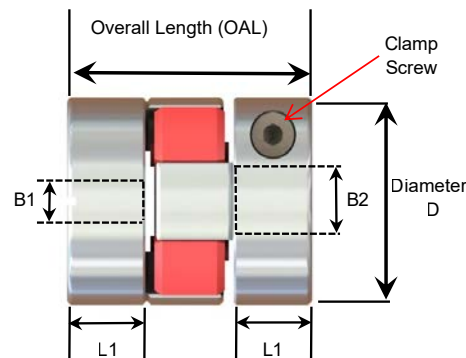


\* A complete jaw/spider coupling assembly consists of two hubs and one spider, each of the same "size" and each purchased separately. The two hubs can be of different "bore" diameters, if needed for the application.

\*\* 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     |

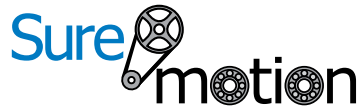


## Jaw / Spider Aluminum Clamp-Style Drive Coupling Assembly Dimensions\*

| 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](http://www.AutomationDirect.com) 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    |          |
| <a href="#">DC-BRS04-02</a>                   |       | 1/4 in           | 0.250 in | 1/8 in          | 0.125 in  | 0.221 in |
| <a href="#">DC-BRS04-04M</a>                  |       |                  |          | 4mm             | 4mm       |          |
| <a href="#">DC-BRS04-03</a>                   |       |                  |          | 3/16 in         | 0.1875 in |          |
| <a href="#">DC-BRS04-05M</a>                  |       |                  |          | 5mm             | 5mm       |          |
| <a href="#">DC-BRS08-06M</a>                  |       | 1/2 in           | 0.500 in | 6mm             | 6mm       | 0.449 in |
| <a href="#">DC-BRS08-04</a>                   |       |                  |          | 1/4 in          | 0.25 in   |          |
| <a href="#">DC-BRS08-05</a>                   |       |                  |          | 5/16 in         | 0.3125 in |          |
| <a href="#">DC-BRS08-08M</a>                  |       |                  |          | 8mm             | 8mm       |          |
| <a href="#">DC-BRS08-06</a>                   |       |                  |          | 3/8 in          | 0.375 in  |          |
| <a href="#">DC-BRS08-10M</a>                  |       | 5/8 in           | 0.625 in | 10mm            | 10mm      | 0.460 in |
| <a href="#">DC-BRS10-10M</a>                  |       |                  |          | 10mm            | 10mm      |          |
| <a href="#">DC-BRS10-07</a>                   |       |                  |          | 7/16 in         | 0.4375 in |          |
| <a href="#">DC-BRS10-12M</a>                  |       |                  |          | 12mm            | 12mm      |          |
| <a href="#">DC-BRS10-08</a>                   |       |                  |          | 1/2 in          | 0.5 in    |          |
| <a href="#">DC-BRS10-14M</a>                  |       |                  |          | 14mm            | 14mm      |          |
| <a href="#">DC-BRS10-09</a>                   |       | 3/4 in           | 0.750 in | 9/16 in         | 0.5625 in | 0.646 in |
| <a href="#">DC-BRS12-06</a>                   |       |                  |          | 3/8 in          | 0.375 in  |          |
| <a href="#">DC-BRS12-12M</a>                  |       |                  |          | 12mm            | 12mm      |          |
| <a href="#">DC-BRS12-08</a>                   |       |                  |          | 1/2 in          | 0.5 in    |          |
| <a href="#">DC-BRS12-10</a>                   |       |                  |          | 5/8 in          | 0.625 in  |          |
| <a href="#">DC-BRS12-16M</a>                  |       |                  |          | 16mm            | 16mm      |          |
| <a href="#">DC-BRS12-11</a>                   |       | 7/8 in           | 0.875 in | 11/16 in        | 0.6875 in | 0.755 in |
| <a href="#">DC-BRS14-14M</a>                  |       |                  |          | 14mm            | 14mm      |          |
| <a href="#">DC-BRS14-10</a>                   |       |                  |          | 5/8 in          | 0.625 in  |          |
| <a href="#">DC-BRS14-16M</a>                  |       |                  |          | 16mm            | 16mm      |          |
| <a href="#">DC-BRS14-11</a>                   |       |                  |          | 11/16 in        | 0.6875 in |          |
| <a href="#">DC-BRS14-18M</a>                  |       |                  |          | 18mm            | 18mm      |          |
| <a href="#">DC-BRS14-12</a>                   |       | 1 in             | 1.000 in | 3/4 in          | 0.75 in   | 0.773 in |
| <a href="#">DC-BRS16-10</a>                   |       |                  |          | 5/8 in          | 0.625 in  |          |
| <a href="#">DC-BRS16-18M</a>                  |       |                  |          | 18mm            | 18mm      |          |
| <a href="#">DC-BRS16-12</a>                   |       |                  |          | 3/4 in          | 0.75 in   |          |
| <a href="#">DC-BRS16-20M</a>                  |       |                  |          | 20mm            | 20mm      |          |
| <a href="#">DC-BRS16-13</a>                   |       |                  |          | 13/16 in        | 0.8125 in |          |
| <a href="#">DC-BRS16-14</a>                   |       | 1-1/4 in         | 1.250 in | 7/8 in          | 0.875 in  | 0.793 in |
| <a href="#">DC-BRS20-22M</a>                  |       |                  |          | 22mm            | 22mm      |          |
| <a href="#">DC-BRS20-24M</a>                  |       |                  |          | 24mm            | 24mm      |          |
| <a href="#">DC-BRS20-25M</a>                  |       |                  |          | 25mm            | 25mm      |          |
| <a href="#">DC-BRS20-16</a>                   |       |                  |          | 1 in            | 1.0 in    |          |
| <a href="#">DC-BRS20-17</a>                   |       |                  |          | 1-1/16 in       | 1.0625 in |          |
| <a href="#">DC-BRS20-18</a>                   |       |                  |          | 1-1/8 in        | 1.125 in  |          |