Often imitated, never duplicated.

HELI-CAL® Flexure, flexible couplings are machined from single piece, homogenous high-strength materials into helical (curved beam) configurations which eliminate elastomeric elements like rubber bushings, spiders, rubber discs and pads. Helical couplings compensate for shaft misalignment and work at high speed, transmitting high torque at a constant velocity. There is zero backlash. No maintenance is needed.

Helical couplings provide dynamic stability and vibration-free, smooth bearing loads, even at misaligned positions. Helical couplings find applications in petrochemical plants, instrumentation, encoders, lead screws, ball screws, air cooling units, pumps, machine tools, CNC machines, duplicators, computer peripherals, wind power generators, anywhere there is a need for managing motion.

Six reasons why you should buy HELICAL

State-of-the-art, single piece, flexible (and torsionally stiff) couplings, utilizing the HELI-CAL Flexure.
- No maintenance, no backlash, no lubrication, constant velocity, and smooth bearing loads.

Engineering collaboration
- Technical consultation (free).

Quality product
- Fifty years experience in perfecting manufacturing machinery and procedures used to produce HELI-CAL Flexure couplings that are of consistent high quality.

Service/on time shipping
- We do what we say we’ll do e.g.- if we say, shipment in five working days we mean shipment in five working days.

Originator of HELI-CAL Flexure couplings
- Over 10,000 successful coupling designs; over 30,000 customers served.

Total product offerings
- In addition to a full line of standard couplings, the HELI-CAL Flexure can accommodate a variety of design requirements, such as special/customized end attachments like tangs, clamps, flanges or threaded ends.
The inspiration for the HELI-CAL Flexure, the cylindrical helix ingredient for our basic Helical product lines, came from the observation that one piece, “flexured” flexible couplings offered maximum versatility in terms of form, function and reliability.

Over time, the adaptability of the HELI-CAL Flexure has helped to solve thousands of mechanical misalignment and motion control problems. The unique, mechanical characteristics of the “Flexure” have enabled Helical Products Company, Inc. to develop a series of highly versatile, “flexured” products which can compensate for irregularities such as angular and skewed misalignment, parallel offset and axial motion. All of this can be accomplished while maintaining constant rotational velocity and smooth bearing loads.

Here’s the HELI-CAL Flexure . . .

. . . as a flexible coupling

. . . as a U-joint

. . . as a machined spring

The HELI-CAL Flexure is a flexible helix (curved beam) machined from one piece of material into a specific configuration that incorporates special design requirements, performance features and/or characteristics.

Helical’s product lines today include miniature flexible couplings, u-joints, machined springs, and power transmission flexible couplings.

The following pages present the many advantages of HELI-CAL Flexure technology. The charts, data and information are based on our “standard” series of one-piece, flexible couplings, which are usable for a multitude of applications. As you become acquainted with the Flexure, you will see how versatile it can be, with for example, specials, machined springs, u-joints, and attachments. You will see also how the HELI-CAL Flexure can have a positive and marked impact on system performance, production efficiencies and overall cost savings.

If you do not see it here, just contact us.

Our application engineers can design, develop and produce a custom HELI-CAL Flexure to meet your specific requirements.
Connecting Dreams with Design Solutions: The HELI-CAL Flexure Problem Solver

Freedom of design... for maximum versatility

The Helical hallmark is flexibility in form and function. Designed from the start with your goals in mind and manufactured to exacting specifications, the HELI-CAL Flexure offers many problem-solving, performance-enhancing features.

Coil configuration

The individual performance capability of each Flexure is determined by: coil width, inside diameter, number of coils, number of starts and material. Altering any one of these factors changes the performance characteristics of the “Flexure.”

For example, the HELI-CAL Flexures illustrated display identical outside diameters and lengths. The effects of their variable characteristics—such as coil width, inside diameter, number of coils and starts are explained in the adjacent pictures.

Coil widths and inside diameters

As the coil width or inside diameter are changed such aspects as torque...angular misalignment (bending moment)...parallel offset (radial load)...torsional stiffness...and compression spring rate, are altered.

When the inside diameter changes, so does the torque capacity, torsional stiffness and axial spring rates, without restricting your choice of bore sizes.

Number of coils

As the number of coils is changed, all of the characteristics except the torque capacity are affected.

Number of coil starts

1) A single start design has one continuous coil.
2) A double start has a second coil starting 180 degrees from the first.
3) A triple start has three interwound coils, each spaced 120 degrees apart.

When a multi-start helix is used (double or triple), the effect is to increase the torque capacity and torsional stiffness while reducing misalignment capabilities (angular and parallel).

Material

The proper material used in the manufacture of any HELI-CAL Flexure affects much more than just torque capacity. Factors such as elasticity, fatigue, corrosion resistance, mass, magnetic permeability, operating temperature, availability and cost also play important roles. High strength materials such as 17-4PH CRES*, 15-5 PH, C300, BETA C Titanium and 7075-T6 Aluminum, are just a few of the common choices for meeting design and performance needs.

* CRES - Corrosion resistant steel
When the number of coils is changed the torque capability remains unaffected. All of the other characteristics change.

Multiple, (typically two) helical beams provide high torsional stiffness. Shown: single, double and triple start.

Attachments

In addition to being able to alter the characteristics of the HELI-CAL Flexure, you may have your attachment method integrated into the final product.

Typical attachment options might include:

- integral clamps
- set screws
- set screw at one end and an integral clamp at the other
- pins
- slotted hubs
- flanges
- gears
- removable caps
- threaded bores with a wrench flat
- or . . . whatever your design requires

Bore variety

Helical Flexures may be engineered to include a variety of bore configurations. These variations include round, threaded, single or double-D, spline, keyway, tapered or . . . it’s your choice!

The HELI-CAL Flexure or flexible coil section of the coupling can be custom designed and manufactured to your specifications. Whether your considerations include high torque, angular or parallel misalignment, critical torsional stiffness, precise compression spring rates, or special end connections, chances are excellent that the HELI-CAL Flexure will meet or exceed your particular design requirements.

---

The HELI-CAL Flexure, Basic Product Summary, (page 9), summarizes our basic series of HELI-CAL Flexure couplings. By referring to various charts and coupling descriptions, you will see how to select a product that meets your design parameters.

(See pages 10-21 for product specifics)

For more information or engineering assistance, please contact us.
Design Benefits of the Flexure

More than a coupling

The HELI-CAL Flexure concept brings enormous design flexibility to your applications. Depending on your needs, the Flexure can serve as a flexible shaft coupling, universal joint, spring clutch, machined spring or your own unique specialized component.

Adaptability

The Flexure’s ability to accommodate various performance characteristics and Helical’s ability to integrate attachments directly enhances your freedom to design.

One-piece integrity

Not only does the Flexure integrate multiple functions and parts into a single compact unit—no moving parts, no maintenance and no backlash—it can incorporate complex attachments.

State-of-the-art

High quality performance is achieved with magnetic or non-magnetic corrosion-resistant stainless steel, as well as aluminum alloys. Flexures are also successfully manufactured using various materials such as Delrin™ and titanium.

Operating Characteristics

Misalignment compensation

The flexing capacity of the HELI-CAL Flexure can compensate for a variety of misalignments, including parallel, angular and skewed (three-dimensional) misalignment. The Flexure solutions for these misalignment situations are shown in the adjacent photographs.

Angular misalignment is the easiest form of misalignment for most couplings to accept, and thus one of the most practical applications of a flexible coupling. Allowing only enough space between coils to partially close the gap during bending, the HELI-CAL Flexure can accept an angular misalignment of 20 degrees or more (and even up to 90 degrees in special u-joint applications).

Optimized torque capacity

The basic requirement of a flexible coupling is to transmit torque loads without permanent distortion or damage and without imposing undue bending or radial loads upon the driver or driven components. Once the working torque rating of a HELI-CAL Flexure coupling is established—based on misalignment and design criteria, material specifications and service factors supplied during the design process—its operational life is virtually unlimited.

Configurable torsional stiffness

Every flexible shaft coupling has some torsional flexibility. Torsional flexibility reflects the amount of twist in a system; torsional stiffness the degree of resistance against twist. The HELI-CAL Flexure can be configured (with thicker coils, for example), to provide the exact amount of torsional flexibility required in an application.
Parallel misalignment is the most difficult form of misalignment for couplings to compensate for. It can also be the most damaging to shafts, bearings and motors. The HELI-CAL Flexure, through lateral displacement, transforms an application’s parallel misalignment problems into angular displacement within the coupling. The center coils of the HELI-CAL Flexure can become an intermediate shaft that can allow 10, 20 or 30 thousandths of an inch of parallel offset or more.

When shafts are not in the same plane (skewed), the HELI-CAL Flexure's abilities to compensate are the same as with either parallel or angular misalignment - but in the third dimension. A Flexure designed with more coils in a series can compensate for as much three-dimensional misalignment as your application requires.

Smooth bearing loads
Bearing loads are primarily generated by a coupling's natural resistance to bending, and can be very destructive forces to an apparatus and its rotational components. The HELI-CAL Flexure maintains a very constant radial and bending load at all points of rotation, providing exceptionally uniform bearing loads.

Constant velocity
In a rotating system, constant velocity refers to the relative rotational speed of the input and output shafts. In a constant velocity system the driven end of the coupling turns exactly the same rate as the driver end. When operating under a uniform load the HELI-CAL Flexure design provides constant velocity and alleviates:

- Backlash: the HELI-CAL Flexure has zero backlash, because of its one-piece construction.
- Angular misalignment, which can induce large fluctuations in rotational velocity in many coupling designs, is corrected by the HELI-CAL Flexure's constant spring rate at all points of rotation.
- Torsional variations, which can induce differences in hub-to-hub velocity when subjected to dynamic loading, are minimal in steady-state applications of the HELI-CAL Flexure.
- Concentricity, when there is a lack of it—particularly in the case of couplings with back lash or where production variation is difficult to prevent—the HELI-CAL Flexure's one-piece integrity minimizes sinusoidal variations.

Continued -
Adaptable Operating Speeds

The ability to adapt to high— and low—speed applications is another inherent benefit of the HELI-CAL Flexure's design. The Flexure transmits motion throughout its length and cross section in a continuous helix from end to end. Torsional loading tends to make the HELI-CAL Flexure draw toward its centerline, reducing the chance of whipping action normally associated with rotating components. Consequently, vibrations are kept to a minimum at all rotating points.

Axial Compensation

Axial movement is inherent in any rotating componentry, such as the rotor assembly in a motor. Through compression/extension, the HELI-CAL Flexure absorbs and compensates for axial movement or end play. The curved-beam structure of the HELI-CAL Flexure operates naturally in this axial compensation mode, and special designs can accommodate for even large displacement applications.  

HELICAL Flexure, Basic Product Summary

Refer to the summary chart on the next page to get an idea as to which coupling series most closely fits your application needs. You'll then be able to find the appropriate coupling by following the series column down to the page number. If you do not see the coupling you need in these pages, let us know. Our engineers can create special Flexure designs to meet your particular performance demands.

The charts on the following pages highlight features and technical data for each of the standard HELI-CAL coupling series.

Information covered by each chart includes:

- Dimensional data
- Special notes
- Performance data
- Ordering information
### HELI-CAL Flexure, Basic Product Summary

<table>
<thead>
<tr>
<th>Description</th>
<th>W Series</th>
<th>DS Series</th>
<th>MC Series</th>
<th>A Series</th>
<th>H Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>General purpose, light to medium duty. An economical, maintenance free coupling with metric dimensions, used in a variety of applications.</td>
<td>Stainless steel version of the &quot;WA(C)&quot; series, with higher torque capacity and torsional stiffness. Increased fatigue resistance with metric dimensions and fasteners.</td>
<td>Low inertia, high performance, aluminum coupling, using Helical double start technology. Torsionally stiffer and higher torque capacity than the &quot;A&quot; series. Lighter with lower inertia than the &quot;H&quot; series.</td>
<td>A general purpose coupling, used where more parallel misalignment is required. Has a large range of shaft sizes, with optional keyways.</td>
<td>General purpose, light to medium duty. An economical, maintenance free coupling, used in a variety of applications.</td>
<td>Stainless steel version of &quot;A&quot; series, with higher torque capacity and torsional stiffness. Increased fatigue resistance.</td>
</tr>
</tbody>
</table>

#### Typical applications

| Used for encoder/resolver applications, low torque pump, lead screw and various other applications. | For situations requiring a heavy duty coupling, for pump, lead screws, and positioning systems. Also for process equipment in industrial situations. Anywhere a rugged, tough, long-lasting coupling is needed. | For high speed motion control systems, where fast response time is important. E.g., lead and ball screws, encoders/resolvers, and anywhere high torsional stiffness is required. | Good for encoder/resolver applications, moderate torque pump, lead screw, and various other applications. | Used for encoder/resolver applications, low torque pump, lead screw and various other applications. | For situations requiring a heavy duty coupling such as pumps, lead screws, and positioning systems. Also for process equipment in industrial situations. Anywhere a rugged, tough, long-lasting coupling is needed. |

#### Misalignment compensation

| 5° angular, .25mm parallel offset, .25mm axial motion | 5° angular, .25mm parallel offset, .25mm axial motion | 3° angular, .010 inch parallel offset, .008 inch axial motion | 5° angular, .030 inch parallel offset, .010 inch axial motion | 5° angular, .010 inch parallel offset, .010 inch axial motion | 5° angular, .010 inch parallel offset, .010 inch axial motion |

#### Torque range

| 0.59-2.0 Nm | 1.2-39 Nm | 12-234 lbin | 20-286 lbin | 40-556 lbin | 1.2-51 lbin | 2.4-100 lbin |

#### Standard bore diameters* (inch and/or metric bores available)

| 0.118-0.787 inch | 0.118-0.787 inch | 0.188-0.750 inch | 0.250-0.875 inch | 0.250-1.000 inch | 0.059-0.750 inch | 0.059-0.750 inch |
| 3mm-20mm | 3mm-20mm | 4.78-19.05mm | 6.35-22.33mm | 6.35-25.40mm | 1.5-19.05mm | 1.5-19.05mm |

#### Attachment

| Clamp or set screw | Clamp or set screw | Clamp | Clamp or set screw Keyways optional | Clamp or set screw Keyways optional | Clamp or set screw | Clamp or set screw |

#### Operating temperatures

| Up to 100° C | Up to 300° C | Up to 200° F | Up to 200° F | Up to 600° F | Up to 200° F | Up to 600° F |

#### Speed (in wind-up direction)

| 10,000 rpm | 10,000 rpm | 10,000 rpm | 3,600 rpm | 3,600 rpm | 10,000 rpm | 10,000 rpm |

Note: For PF Series see page 20.

*Refer to pages 18-19 for other available bore diameters.

Phone 805-928-3851 / Fax 805-928-2369 / www.Heli-Cal.com
**Features**

- Metric dimensions and fasteners
- Metric and/or inch bores available
- Available in 7075-T6 aluminum alloy or 17-4 PH corrosion-resistant steel
- General purpose

If you are working in the metric world, the W Series is for you. It combines the best features of the A Series and the H Series, with the convenience of metric dimensions and fasteners for your metric based designs. The W Series can be used in a wide range of applications from driving components with light torque requirements, such as encoders and tachometers (aluminum), to lead screws and pumps requiring greater torque (stainless steel).

---

**Attachment Methods**

**Integral Clamp / WAC & W7C**

- L length
- D outside diameter
- Major bore diameter
- Minor bore diameter

**Set Screw / WA & W7**

(two each end @ 120°)

- L length
- D outside diameter
- Major bore diameter
- Minor bore diameter

---

**Internal Configuration**

**Relief**

Major and minor diameter shafts may enter flexure area during operation

* Dark areas indicate relief within the coupling interior

---

**How To Order**

Coupling part numbers consist of four sections. To determine the correct numbers/letters for each section of a specific coupling part number, please refer to the charts on the following pages.

**Example**

1. **Basic Model Number**
   
   \( W = \text{metric}, A = \text{aluminum}, C = \text{integral clamp} \)

2. **Outside Diameter Designator**
   
   **WAC** 25 - 10mm - 8mm

3. **Minor Bore Designator**

4. **Major Bore Designator**

**Refer to “Standard Bore Diameters” section of chart**
### HELICAL W SERIES, Stainless Steel, Technical Data

<table>
<thead>
<tr>
<th>Basic Model Number</th>
<th>Dimensional Information</th>
<th>Standard Bore Diameters</th>
<th>Performance Data</th>
<th>Inertia</th>
<th>Screw Size</th>
<th>Seating Torque</th>
<th>Center Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integral Clamp</td>
<td>Set Screw</td>
<td>Outside Diameter</td>
<td>L (mm)</td>
<td>D Outside Diameter</td>
<td>(10.0 mm - 0.09 mm) Note 5</td>
<td>Momentary Dynamic/ Torsional Rate</td>
<td>x 10^-6 (kgcmsec^2) Note 6</td>
</tr>
<tr>
<td>W7C</td>
<td>15</td>
<td>15mm</td>
<td>22</td>
<td>3.00</td>
<td>4.00</td>
<td>5.00</td>
<td>0.71</td>
</tr>
<tr>
<td>W7</td>
<td>20</td>
<td>20mm</td>
<td>28</td>
<td>4.00</td>
<td>5.00</td>
<td>6.00</td>
<td>1.2</td>
</tr>
<tr>
<td>W7C</td>
<td>25</td>
<td>25mm</td>
<td>30</td>
<td>6.00</td>
<td>7.00</td>
<td>8.00</td>
<td>2.9</td>
</tr>
<tr>
<td>W7</td>
<td>30</td>
<td>30mm</td>
<td>38</td>
<td>9.00</td>
<td>10.0</td>
<td>12.0</td>
<td>4.9</td>
</tr>
<tr>
<td>W7C</td>
<td>40</td>
<td>40mm</td>
<td>50</td>
<td>12.0</td>
<td>13.0</td>
<td>15.0</td>
<td>12</td>
</tr>
<tr>
<td>W7</td>
<td>50</td>
<td>50mm</td>
<td>54</td>
<td>14.0</td>
<td>16.0</td>
<td>18.0</td>
<td>19</td>
</tr>
</tbody>
</table>

### HELICAL W SERIES, Aluminum, Technical Data

<table>
<thead>
<tr>
<th>Basic Model Number</th>
<th>Dimensional Information</th>
<th>Standard Bore Diameters</th>
<th>Performance Data</th>
<th>Inertia</th>
<th>Screw Size</th>
<th>Seating Torque</th>
<th>Center Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integral Clamp</td>
<td>Set Screw</td>
<td>Outside Diameter</td>
<td>L (mm)</td>
<td>D Outside Diameter</td>
<td>(10.0 mm - 0.09 mm) Note 5</td>
<td>Momentary Dynamic/ Torsional Rate</td>
<td>x 10^-6 (kgcmsec^2) Note 6</td>
</tr>
<tr>
<td>WAC</td>
<td>15</td>
<td>15mm</td>
<td>22</td>
<td>3.00</td>
<td>4.00</td>
<td>5.00</td>
<td>0.71</td>
</tr>
<tr>
<td>WAC</td>
<td>20</td>
<td>20mm</td>
<td>28</td>
<td>4.00</td>
<td>5.00</td>
<td>6.00</td>
<td>1.2</td>
</tr>
<tr>
<td>WAC</td>
<td>25</td>
<td>25mm</td>
<td>30</td>
<td>6.00</td>
<td>7.00</td>
<td>8.00</td>
<td>2.9</td>
</tr>
<tr>
<td>WAC</td>
<td>30</td>
<td>30mm</td>
<td>38</td>
<td>9.00</td>
<td>10.0</td>
<td>12.0</td>
<td>4.9</td>
</tr>
<tr>
<td>WAC</td>
<td>40</td>
<td>40mm</td>
<td>50</td>
<td>12.0</td>
<td>13.0</td>
<td>15.0</td>
<td>12</td>
</tr>
<tr>
<td>WAC</td>
<td>50</td>
<td>50mm</td>
<td>54</td>
<td>14.0</td>
<td>16.0</td>
<td>18.0</td>
<td>19</td>
</tr>
</tbody>
</table>

**Notes:**
1. Shaft misalignments: Angular 5 degrees Parallel Offset ± .25 mm Axial Motion ± .25 mm
2. Dynamic torque ratings are momentary values. For non-reversing applications, divide by 2. Divide by 4 for reversing applications. Should the torque ratings be marginal for your application, contact us for analysis.
4. Manufacturing dimensional tolerances unless otherwise specified are:
   - x ± .5 mm
   - x ± .25 mm
5. Refer to page 18 for other available bore diameters.
6. Inertia is based on smallest standard bore diameter.
7. Keyways available on the 40 mm and 50 mm OD only.

**Conversions:**
- 1mm = .039 inch
- 1Nm = 8.85 lbin
- 1deg/Nm = .113 deg/lbin
**Features**

- High torsional stiffness
- Low radial loads
- Parallel misalignment capability
- Low inertia

The DS Series was designed for today's high performance motion control systems. This Series incorporates two helical beams (double start) in each of two separate HELI-CAL Flexures (double flexure), combining greater end-to-end rotational accuracy with radial flexibility in one design.

Available only with integral clamp attachments, the DS Series provides the high torsional stiffness and low inertia necessary for positioning devices, servo motors and lead screws. The DS Series also provides you with substantial .010-inch parallel offset capability, reducing the need for high-precision alignment during assembly operations. It’s your ticket to greater system accuracy and reliability. Available only in 7075-T6 aluminum.

**Attachment Methods**

**Internal Configuration**

**How To Order**

Coupling part numbers consist of four sections. To determine the correct numbers/letters for each section of a specific coupling part number, please refer to the charts on the following pages.

**Example**

1. **Basic Model Number**
   (DS = double start, A = aluminum, C = integral clamp)
   
   **DSAC 125 - 16 - 12**

2. **Outside Diameter Designator**

3. **Minor Bore Designator**

4. **Major Bore Designator**

**Relief**

Major and minor diameter shafts may enter flexure area during operation

- Unequal diameter shafts
- Equal diameter shafts

* Dark areas indicate relief within the coupling interior

**Refer to “Standard Bore Diameters” section of chart**
### Basic Model Number

<table>
<thead>
<tr>
<th>Model</th>
<th>Outside Diameter Designator</th>
<th>Outside Diameter (in.)</th>
<th>Length (in.)</th>
<th>Standard Bore Diameters</th>
<th>Performance Data</th>
<th>Inertia</th>
<th>Screw Size</th>
<th>Seating Torque</th>
<th>Center Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSAC</td>
<td>075</td>
<td>3/4</td>
<td>1.25</td>
<td>0.188 (.064) 0.250 (.635)</td>
<td>Size 6 0.30 0.40</td>
<td>0.091</td>
<td>4-40</td>
<td>10</td>
<td>.12</td>
</tr>
<tr>
<td>DSAC</td>
<td>075</td>
<td>3/4</td>
<td>1.50</td>
<td>0.250 (.635) 0.313 (.795)</td>
<td>Size 10 0.13 0.16</td>
<td>0.35</td>
<td>6-32</td>
<td>19</td>
<td>.15</td>
</tr>
<tr>
<td>DSAC</td>
<td>100</td>
<td>1</td>
<td>1.75</td>
<td>0.375 (.965) 0.500 (.127)</td>
<td>Size 12 0.062 0.080</td>
<td>0.98</td>
<td>10-24</td>
<td>50</td>
<td>.22</td>
</tr>
<tr>
<td>DSAC</td>
<td>150</td>
<td>1 1/4</td>
<td>2.25</td>
<td>0.500 (.127) 0.625 (.158)</td>
<td>Size 16 0.030 0.042</td>
<td>2.7</td>
<td>10-24</td>
<td>50</td>
<td>.22</td>
</tr>
<tr>
<td>DSAC</td>
<td>200</td>
<td>2</td>
<td>2.50</td>
<td>0.625 (.158) 0.750 (.191)</td>
<td>Size 20 0.016 0.026</td>
<td>9.5</td>
<td>1/8-20</td>
<td>120</td>
<td>.26</td>
</tr>
</tbody>
</table>

**Notes**

1. Shaft misalignments:
   - Angular: 3 degrees
   - Parallel Offset: .010 in. (.020 in. T.I.R.)
   - Axial Motion: ± .008 in.

2. Dynamic torque ratings are momentary values. For non-reversing applications, divide by 2. Divide by 4 for reversing applications. Should the torque ratings be marginal for your application, contact us for analysis.

3. Material: 7075-T6 aluminum alloy
   - Finish: clear anodize

4. Metric fasteners available on request.

5. Manufacturing dimensional tolerances unless otherwise specified are:
   - Fraction ± 1/64
   - xx ± .1 in.

6. Refer to page 18 for other available bore diameters.

7. Inertia is based on smallest standard bore diameter.

8. This bore size requires an operating clearance diameter greater than coupling outside diameter.
MC SERIES, Aluminum and Stainless Steel

Features

- Industrial motor shaft couplings
- High torque capacity
- Large shaft diameters
- Keyways available

This versatile series of couplings provides you with a full range of torque capacities and bore sizes, all with 1/32-inch parallel misalignment capability. These couplings attach to shafts with your choice of integral clamps or set screws. Combine this with optional keyways and the MC Series is tailor-made for your application.

From medium-duty (aluminum) to heavy-duty (stainless steel), this series provides solutions for a wide range of applications. From pumps and lead screws to conveyors, chances are an MC Series coupling will fit your needs. Available in 7075-T6 aluminum alloy or 17-4 PH corrosion resistant steel (CRES).

Attachment Methods

Integral Clamp / MCAC & MC7C

Set Screw / MCA & MC7
(two each end @ 120°)

Internal Configuration

Relief *
Major and minor diameter shafts may enter flexure area during operation

How To Order

Coupling part numbers consist of four sections. To determine the correct numbers/letters for each section of a specific coupling part number, please refer to the charts on the following pages.

Example

1 Basic Model Number
(MC = motor coupling, A = aluminum, C = integral clamp)

2 Outside Diameter Designator

MCAC  150 - 16 - 12

3 Minor Bore Designator **

4 Major Bore Designator **

** Refer to “Standard Bore Diameters” section of chart

1 Basic Model Number:
Choose material and attachment method.
MCAC = Aluminum, Integral Clamp
MCA = Aluminum, Set Screw
MC7C = Stainless Steel, Integral Clamp
MC7 = Stainless Steel, Set Screw

2 Outside Diameter Designator: This three-digit number represents the coupling outside diameter. Based on the Performance Data in the middle of the chart, select the Outside Diameter Designator by moving left to the appropriate diameter.

3 Major Bore Designator: The larger of the two bores, its diameter is expressed in either 32nds of an inch (-8 equals 1/4 inch) or in millimeters (8mm). Please review your selection to determine if both bores can be made in the size coupling you have selected in 2. It is important that the larger bore be stated first.

4 Minor Bore Designator: The smaller of the two bores is expressed the same as the Major Bore Designator. Either bore can be inch or mm.
## HELICAL MC SERIES, Aluminum, Technical Data

<table>
<thead>
<tr>
<th>Basic Model Number</th>
<th>Dimensional Information</th>
<th>Standard Bore Diameters</th>
<th>Performance Data</th>
<th>Inertia</th>
<th>Attachment Screw</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D Outside Diameter (in.)</td>
<td>L Length (in.)</td>
<td>Note 6</td>
<td>Note 7</td>
<td>Note 4</td>
</tr>
<tr>
<td></td>
<td>(± .0002 in. / ± .0001 in.)</td>
<td></td>
<td>Note 6</td>
<td>Note 7</td>
<td>Note 4</td>
</tr>
<tr>
<td>MC7C 100</td>
<td>1</td>
<td>1.75</td>
<td>0.250 (6.35)</td>
<td>0.313 (7.95)</td>
<td>0.375 (9.53)</td>
</tr>
<tr>
<td>MCA 125</td>
<td>1/4</td>
<td>2.37</td>
<td>0.313 (7.95)</td>
<td>0.375 (9.53)</td>
<td>0.500 (12.70)</td>
</tr>
<tr>
<td>MCA 150</td>
<td>1/2</td>
<td>2.62</td>
<td>0.375 (9.53)</td>
<td>0.500 (12.70)</td>
<td>0.625 (15.88)</td>
</tr>
<tr>
<td>MCA 200</td>
<td>2</td>
<td>3.00</td>
<td>0.625 (15.88)</td>
<td>0.750 (19.05)</td>
<td>0.875 (22.23)</td>
</tr>
<tr>
<td>MCA 225</td>
<td>2/4</td>
<td>3.50</td>
<td>0.625 (15.88)</td>
<td>0.750 (19.05)</td>
<td>0.875 (22.23)</td>
</tr>
</tbody>
</table>

### Notes
1. Shaft misalignments: Angular 5 degrees
   - Parallel Offset .030 in. (.060 in. T.I.R.)
   - Axial Motion ± .010 in.
2. Dynamic torque ratings are momentary values. For non-reversing applications, divide by 2. Divide by 4 for reversing applications. Should the torque ratings be marginal for your application, contact us for analysis.
3. Material: 7075-T6 aluminum alloy
   - Finish: clear anodize or 17-4 PH high-strength stainless steel.
   - Finish: natural
4. Metric fasteners available on request.
5. Manufacturing dimensional tolerances unless otherwise specified are:
   - Fraction ± 1/64 x.xx ± .01 in.
6. Refer to page 19 for other available bore diameters.
7. Inertia is based on smallest standard bore diameter.
8. With integral clamp attachments only, this bore size requires an operating clearance diameter greater than coupling outside diameter.
9. Inch and metric keyways available.

## HELICAL MC SERIES, Stainless Steel, Technical Data

<table>
<thead>
<tr>
<th>Basic Model Number</th>
<th>Dimensional Information</th>
<th>Standard Bore Diameters</th>
<th>Performance Data</th>
<th>Inertia</th>
<th>Attachment Screw</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D Outside Diameter (in.)</td>
<td>L Length (in.)</td>
<td>Note 6</td>
<td>Note 7</td>
<td>Note 4</td>
</tr>
<tr>
<td></td>
<td>(± .0002 in. / ± .0001 in.)</td>
<td></td>
<td>Note 6</td>
<td>Note 7</td>
<td>Note 4</td>
</tr>
<tr>
<td>MC7C 100</td>
<td>1</td>
<td>1.75</td>
<td>0.250 (6.35)</td>
<td>0.313 (7.95)</td>
<td>0.375 (9.53)</td>
</tr>
<tr>
<td>MC7 125</td>
<td>1/4</td>
<td>2.37</td>
<td>0.313 (7.95)</td>
<td>0.375 (9.53)</td>
<td>0.500 (12.70)</td>
</tr>
<tr>
<td>MC7 150</td>
<td>1/2</td>
<td>2.62</td>
<td>0.375 (9.53)</td>
<td>0.500 (12.70)</td>
<td>0.625 (15.88)</td>
</tr>
<tr>
<td>MC7 200</td>
<td>2</td>
<td>3.00</td>
<td>0.625 (15.88)</td>
<td>0.750 (19.05)</td>
<td>0.875 (22.23)</td>
</tr>
<tr>
<td>MC7 225</td>
<td>2/4</td>
<td>3.50</td>
<td>0.625 (15.88)</td>
<td>0.750 (19.05)</td>
<td>0.875 (22.23)</td>
</tr>
</tbody>
</table>

### Notes
1. Shaft misalignments: Angular 5 degrees
   - Parallel Offset .030 in. (.060 in. T.I.R.)
   - Axial Motion ± .010 in.
2. Dynamic torque ratings are momentary values. For non-reversing applications, divide by 2. Divide by 4 for reversing applications. Should the torque ratings be marginal for your application, contact us for analysis.
3. Material: 7075-T6 aluminum alloy
   - Finish: clear anodize or 17-4 PH high-strength stainless steel.
   - Finish: natural
4. Metric fasteners available on request.
5. Manufacturing dimensional tolerances unless otherwise specified are:
   - Fraction ± 1/64 x.xx ± .01 in.
6. Refer to page 19 for other available bore diameters.
7. Inertia is based on smallest standard bore diameter.
8. With integral clamp attachments only, this bore size requires an operating clearance diameter greater than coupling outside diameter.
9. Inch and metric keyways available.

* Refer to note 8
How To Order

Coupling part numbers consist of four sections. To determine the correct numbers/letters for each section of a specific coupling part number, please refer to the charts on the following pages.

Example

1. Basic Model Number
   (A = aluminum, C = integral clamp, R = internal relief)
   (H = Stainless Steel, C = integral clamp, R = internal relief)

2. Outside Diameter Designator
   ACR 112 - 16 - 12
   (HCR)

3. Minor Bore Designator **

4. Major Bore Designator **

** Refer to “Standard Bore Diameters” section of chart

Features, A Series
- Light to medium duty
- Non-magnetic
- Economical
- No maintenance

The A Series coupling meets performance demands over a wide range of applications, including drive systems for encoders, instrumentation, lead screws, small pumps, feed rollers and anywhere a light to medium duty, torsionally flexible coupling is required.

Features, H Series
- High torque capacity
- High fatigue resistance
- Corrosion resistant steel (CRES)

The H Series coupling is ideal when high strength, excellent fatigue resistance and high torsional stiffness is called for in your application. The H Series’ premium performance capability is designed for applications requiring a heavy-duty coupling, such as drive systems, small pumps and gear boxes.

Shared Features of the A & H Series
- No maintenance
- Shaft sizes from 3/32 to 3/4

An array of options, in a variety of diameter sizes, allows you to tailor the A or H Series to your specific applications. A and H Series options include set screw or integral clamp attachments and inch or metric bores.

Internal Configuration

Relief *
Major and minor diameter shafts may enter flexure area during operation

* Dark areas indicate relief within the coupling interior
# HELICAL A SERIES Aluminum, Technical Data

<table>
<thead>
<tr>
<th>Basic Model Number</th>
<th>Dimensional Information</th>
<th>Standard Bore Diameters</th>
<th>Performance Data</th>
<th>Inertia</th>
<th>Screw Size</th>
<th>Seating Torque Center Line</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D Outside Diameter (in.)</td>
<td>L Length (in.)</td>
<td>Size (in. &amp; mm)</td>
<td>Note 6</td>
<td>Note 7</td>
<td></td>
</tr>
<tr>
<td>ACR 050</td>
<td>0.75</td>
<td>0.094 (2.39)</td>
<td>3</td>
<td>3.7</td>
<td>0.98</td>
<td>0.11</td>
</tr>
<tr>
<td>AR</td>
<td>0.50</td>
<td>0.125 (3.18)</td>
<td>4</td>
<td>3.5</td>
<td>1.3</td>
<td>0.069</td>
</tr>
<tr>
<td>ACR 062</td>
<td>0.80</td>
<td>0.125 (3.18)</td>
<td>4</td>
<td>7.1</td>
<td>0.51</td>
<td>0.28</td>
</tr>
<tr>
<td>AR</td>
<td>0.62</td>
<td>0.157 (3.99)</td>
<td>5</td>
<td>6.7</td>
<td>0.66</td>
<td>0.21</td>
</tr>
<tr>
<td>ACR 075</td>
<td>0.90</td>
<td>0.188 (4.78)</td>
<td>6</td>
<td>10</td>
<td>9.8</td>
<td>0.68</td>
</tr>
<tr>
<td>AR</td>
<td>0.75</td>
<td>0.250 (6.35)</td>
<td>8</td>
<td>8.6</td>
<td>0.44</td>
<td>0.66</td>
</tr>
<tr>
<td>ACR 087</td>
<td>1.06</td>
<td>0.250 (6.35)</td>
<td>8</td>
<td>19</td>
<td>2.00</td>
<td>1.5</td>
</tr>
<tr>
<td>AR</td>
<td>0.87</td>
<td>0.313 (7.95)</td>
<td>10*</td>
<td>28</td>
<td>0.20</td>
<td>1.2</td>
</tr>
<tr>
<td>ACR 100</td>
<td>1.25</td>
<td>0.250 (6.35)</td>
<td>8</td>
<td>27</td>
<td>0.17</td>
<td>3.0</td>
</tr>
<tr>
<td>AR</td>
<td>1.00</td>
<td>0.313 (7.95)</td>
<td>10</td>
<td>24</td>
<td>0.24</td>
<td>2.3</td>
</tr>
<tr>
<td>ACR 112</td>
<td>1.50</td>
<td>0.375 (9.53)</td>
<td>12</td>
<td>43</td>
<td>0.19</td>
<td>5.6</td>
</tr>
<tr>
<td>AR</td>
<td>1.12</td>
<td>0.500 (12.70)</td>
<td>16</td>
<td>40</td>
<td>0.12</td>
<td>4.1</td>
</tr>
<tr>
<td>ACR 125</td>
<td>1.62</td>
<td>0.500 (12.70)</td>
<td>12</td>
<td>48</td>
<td>0.11</td>
<td>9.3</td>
</tr>
<tr>
<td>AR</td>
<td>1.25</td>
<td>0.625 (15.88)</td>
<td>16*</td>
<td>39</td>
<td>0.20</td>
<td>6.9</td>
</tr>
</tbody>
</table>

Notes:
1. Shaft misalignments:
   - Angular: 5 degrees
   - Parallel Offset: .020 in.
   - Axial Motion: ±.010 in.
2. Dynamic torque ratings are momentary values. For non-reversing applications, divide by 2. Divide by 4 for reversing applications. Should the torque rating be marginal for your application, contact us for analysis.
4. Metric fasteners available on request.
5. Manufacturing dimensional tolerances unless otherwise specified are:
   - ±.002in - .005in
6. Refer to page 19 for other available bore diameters.
7. Inertia is based on smallest standard bore diameter.
8. With integral clamp attachments only, this bore size requires an operating clearance diameter greater than coupling outside diameter.

# HELICAL H SERIES Stainless Steel, Technical Data

<table>
<thead>
<tr>
<th>Basic Model Number</th>
<th>Dimensional Information</th>
<th>Standard Bore Diameters</th>
<th>Performance Data</th>
<th>Inertia</th>
<th>Screw Size</th>
<th>Seating Torque Center Line</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D Outside Diameter (in.)</td>
<td>L Length (in.)</td>
<td>Size (in. &amp; mm)</td>
<td>Note 6</td>
<td>Note 7</td>
<td></td>
</tr>
<tr>
<td>HCR 050</td>
<td>0.75</td>
<td>0.094 (2.39)</td>
<td>3</td>
<td>7.5</td>
<td>0.36</td>
<td>0.31</td>
</tr>
<tr>
<td>HR</td>
<td>0.50</td>
<td>0.125 (3.18)</td>
<td>4</td>
<td>7.0</td>
<td>0.48</td>
<td>0.19</td>
</tr>
<tr>
<td>HCR 062</td>
<td>0.80</td>
<td>0.125 (3.18)</td>
<td>4</td>
<td>14</td>
<td>0.19</td>
<td>0.78</td>
</tr>
<tr>
<td>HR</td>
<td>0.62</td>
<td>0.157 (3.99)</td>
<td>5</td>
<td>13</td>
<td>0.24</td>
<td>0.58</td>
</tr>
<tr>
<td>HCR 075</td>
<td>0.90</td>
<td>0.188 (4.78)</td>
<td>6</td>
<td>21</td>
<td>0.11</td>
<td>1.8</td>
</tr>
<tr>
<td>HR</td>
<td>0.75</td>
<td>0.250 (6.35)</td>
<td>8</td>
<td>20</td>
<td>0.13</td>
<td>1.5</td>
</tr>
<tr>
<td>HCR 087</td>
<td>1.06</td>
<td>0.250 (6.35)</td>
<td>8</td>
<td>37</td>
<td>0.16</td>
<td>4.1</td>
</tr>
<tr>
<td>HR</td>
<td>0.87</td>
<td>0.313 (7.95)</td>
<td>10*</td>
<td>34</td>
<td>0.10</td>
<td>3.3</td>
</tr>
<tr>
<td>HCR 100</td>
<td>1.25</td>
<td>0.250 (6.35)</td>
<td>8</td>
<td>52</td>
<td>0.062</td>
<td>8.3</td>
</tr>
<tr>
<td>HR</td>
<td>1.00</td>
<td>0.313 (7.95)</td>
<td>12</td>
<td>47</td>
<td>0.086</td>
<td>6.5</td>
</tr>
<tr>
<td>HCR 112</td>
<td>1.50</td>
<td>0.375 (9.53)</td>
<td>12</td>
<td>83</td>
<td>0.045</td>
<td>15.6</td>
</tr>
<tr>
<td>HR</td>
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<td>0.500 (12.70)</td>
<td>16</td>
<td>78</td>
<td>0.061</td>
<td>11.3</td>
</tr>
<tr>
<td>HCR 125</td>
<td>1.62</td>
<td>0.500 (12.70)</td>
<td>12</td>
<td>94</td>
<td>0.041</td>
<td>26.0</td>
</tr>
<tr>
<td>HR</td>
<td>1.25</td>
<td>0.625 (15.88)</td>
<td>16*</td>
<td>77</td>
<td>0.071</td>
<td>19.4</td>
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</table>

* Refer to note 6
**Notes**

1. Bore sizes are placed into the part number with leading dashes after the basic model number. Standard bore dimensions are noted in 32nds of an inch, such as 8/32 or 3/32 in. The respective dash numbers would be –8 and –3. Any bore dimensions that are not an integer number of 32nds should be converted to their millimeter equivalent with “mm” after the numerical designation, e.g., .315 in = 8 mm.

2. When specifying part numbers, metric bore diameters are specified without trailing zeros after the decimal point, e.g., .315 in. = 8.00 mm, but the bore designation is –8 mm. This is only for simplicity in ordering and does not affect the tolerances of the actual bore dimensions. Bore tolerances are specified on the Engineering Proposal Form at the end of the catalog.

3. Manufacturing dimensional tolerances unless otherwise specified are:

<table>
<thead>
<tr>
<th>Tolerance</th>
<th>± 1/64</th>
<th>± .010</th>
<th>± .005</th>
<th>± 2º</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td>± .5mm</td>
<td>± .25mm</td>
<td>± .15mm</td>
<td>± 2º</td>
</tr>
</tbody>
</table>

4. A complete line of specialty OEM and end-user products is available; please refer to the Engineering Proposal Form and/or contact our Engineering Department.

5. A chart showing our standard line of instrumentation couplings with precision bore tolerancing is available upon request.

6. All parts are available with metric or inch fasteners to be compatible with the fastener system used in your designs.

7. Bore diameters less than minimum listed may be possible for one bore only. Contact our Engineering Department.

---

### HELICAL W SERIES / pages 10 – 11

<table>
<thead>
<tr>
<th>Basic Model Number</th>
<th>Outside Diameter</th>
<th>Bore Diameters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15mm</td>
<td>20mm</td>
</tr>
<tr>
<td></td>
<td>25mm</td>
<td>30mm</td>
</tr>
<tr>
<td></td>
<td>40mm</td>
<td>50mm</td>
</tr>
</tbody>
</table>

### HELICAL DS SERIES / pages 12 – 13

<table>
<thead>
<tr>
<th>Basic Model Number</th>
<th>Outside Diameter</th>
<th>Bore Diameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSAC 075</td>
<td>3/4</td>
<td>0.188 (4.78)</td>
</tr>
<tr>
<td>DSAC 100</td>
<td>1</td>
<td>0.250 (6.35)</td>
</tr>
<tr>
<td>DSAC 125</td>
<td>1 1/4</td>
<td>0.313 (7.95)</td>
</tr>
<tr>
<td>DSAC 150</td>
<td>1 1/2</td>
<td>0.375 (9.53)</td>
</tr>
<tr>
<td>DSAC 200</td>
<td>2</td>
<td>0.500 (12.70)</td>
</tr>
<tr>
<td>Basic Model Number</td>
<td>Outside Diameter</td>
<td>Bore Diameters</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Integral Clamp Attachment</td>
<td>Set Screw Attachment</td>
<td>Outside Diameter Designator</td>
</tr>
<tr>
<td>MC7C</td>
<td>MCAC</td>
<td>100</td>
</tr>
<tr>
<td>MC7C</td>
<td>MCAC</td>
<td>125</td>
</tr>
<tr>
<td>MC7C</td>
<td>MCAC</td>
<td>150</td>
</tr>
<tr>
<td>MC7C</td>
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<td>200</td>
</tr>
<tr>
<td>MC7C</td>
<td>MCAC</td>
<td>225</td>
</tr>
</tbody>
</table>

**HELICAL A and H SERIES / pages 16 - 17**

<table>
<thead>
<tr>
<th>Basic Model Number</th>
<th>Outside Diameter</th>
<th>Bore Diameters</th>
<th>With Relief</th>
<th>Restricted Bore Configurations*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integral Clamp Attachment</td>
<td>Set Screw Attachment</td>
<td>Outside Diameter Designator</td>
<td>D Outside Diameter (in.)</td>
<td>Minimum Size in. &amp; (mm)</td>
</tr>
<tr>
<td>ACR/HCR</td>
<td>AR/HR</td>
<td>050</td>
<td>1/2</td>
<td>0.090 (2.29)</td>
</tr>
<tr>
<td>ACR/HCR</td>
<td>AR/HR</td>
<td>062</td>
<td>5/8</td>
<td>0.090 (2.29)</td>
</tr>
<tr>
<td>ACR/HCR</td>
<td>AR/HR</td>
<td>075</td>
<td>3/4</td>
<td>0.118 (3.00)</td>
</tr>
<tr>
<td>ACR/HCR</td>
<td>AR/HR</td>
<td>087</td>
<td>7/8</td>
<td>0.138 (3.50)</td>
</tr>
<tr>
<td>ACR/HCR</td>
<td>AR/HR</td>
<td>100</td>
<td>1</td>
<td>0.156 (3.96)</td>
</tr>
<tr>
<td>ACR/HCR</td>
<td>AR/HR</td>
<td>112</td>
<td>1 1/8</td>
<td>0.188 (4.78)</td>
</tr>
<tr>
<td>ACR/HCR</td>
<td>AR/HR</td>
<td>125</td>
<td>1 1/4</td>
<td>0.313 (7.94)</td>
</tr>
</tbody>
</table>
Angular: 4 degrees Axial: +/-.020 in (.50 mm) Max. RPM: 6,000

Conversion from Horsepower to Torque: (HP x 63,000) RPM = Trq (lbin) or (HP x 7,119) RPM = Trq (Nm)

Helical Hex Head Cap Screw 5 places (M5.0 Hex Head Cap Screw 4 places on PFA/PFS 200)

*Seating of screws: For correct installation, progressively tighten screws to specified torque in sequence shown above.

The PF Series incorporates the convenience of interchangeable bushings, providing for quick and easy changes in bore sizes, while using the same HELI-CAL flexible coupling center section. By designing the tapered bushings to hold more torque than the maximum torque capacity of the coupling, the need for keyways has been eliminated.

Features
- No maintenance, lubrication or backlash.
- Available in aluminum and stainless steel with 2, 2.5 and 3 inch OD. Standard with quick change tapered bushings.
- Offered in inch or millimeter bore sizes up to 1 3/4 inch diameter.
- Torque capacities up to 1800 lbin.
- High torsional stiffness.
- Compensates for angular, parallel and axial misalignment.
- More torque for less money.
The X-series couplings offer a cost effective balance between couplings that are too stiff radially and those not stiff enough torsionally for servo-type applications. It features high torsional stiffness, low radial loads, one-piece integrity, good flexibility, and zero backlash. Created for high performance motion control systems, the X-Series incorporates two flexible element sets—combining greater end-to-end rotational accuracy with radial flexibility—in one design.

### Features

- Ideal for motion control applications (servo motors).
- Up to 10 times greater torsional stiffness than beam types.
- Low cost alternative to bellows types.
- No moving parts.
- No maintenance.
- No backlash.
- No lubrication.
- Excellent quality.

### HELICAL X-Series, Aluminium, Technical Data

<table>
<thead>
<tr>
<th>Bore Diameter (+0.05 / -0.00 mm)</th>
<th>Performance Data</th>
<th>Basic Model Number</th>
<th>Dimensional Information</th>
<th>Inertia†</th>
<th>Attachment Metric Cap Screws</th>
<th>Weight (grams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min (mm)</td>
<td>Max (mm)</td>
<td>Torque Rating (Nm)</td>
<td>Torsional Rate (Deg/Nm)</td>
<td>Parallel Offset (mm)</td>
<td>OD (mm)</td>
<td>L (mm)</td>
</tr>
<tr>
<td>3.00</td>
<td>6.00</td>
<td>0.30</td>
<td>1.13</td>
<td>0.10</td>
<td>XCA15</td>
<td>15⁺</td>
</tr>
<tr>
<td>4.00</td>
<td>8.00</td>
<td>0.50</td>
<td>0.46</td>
<td>0.10</td>
<td>XCA20</td>
<td>20**</td>
</tr>
<tr>
<td>6.00</td>
<td>10.00</td>
<td>1.00</td>
<td>0.22</td>
<td>0.15</td>
<td>XCA25</td>
<td>25</td>
</tr>
<tr>
<td>9.00</td>
<td>12.70</td>
<td>2.00</td>
<td>0.13</td>
<td>0.15</td>
<td>XCA30</td>
<td>30</td>
</tr>
<tr>
<td>10.00</td>
<td>17.00</td>
<td>5.00</td>
<td>0.066</td>
<td>0.20</td>
<td>XCA40</td>
<td>40</td>
</tr>
<tr>
<td>12.00</td>
<td>22.23</td>
<td>10.00</td>
<td>0.029</td>
<td>0.20</td>
<td>XCA50</td>
<td>50</td>
</tr>
</tbody>
</table>

Angular: 3 degrees  Axial: +/-25mm  Max. RPM: 10,000

Keyways available upon request with XCA40 and XCA50

### How To Order

**Example**

**Basic Model Number**

(X = cross-slotted coupling, C = integral clamp, A = aluminum)

**Outside Diameter Designator**

**Minor Bore Designator**

**Major Bore Designator**

Metric bores are specified as millimeter size (-10mm).
Inch bores are expressed as number of 32nds (8 = 8/32 = 1/4” = .250”).

**Angular: 3 degrees  Axial: +/-25mm  Max. RPM: 10,000**

**Keyways available upon request with XCA40 and XCA50**

**Inertia†**

* Clearance diameter for cap screw = 17.5mm

** Clearance diameter for cap screw with bores over 6.35mm = 21.8mm

† Inertia is based on smallest standard bore