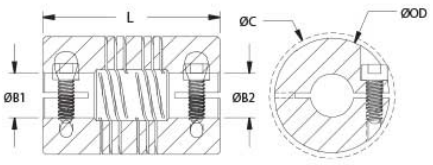
# FCR20-5-5-A

Ruland FCR20-5-5-A, 5/16" x 5/16" Six Beam Coupling, Aluminum, Clamp Style, 1.250" OD, 1.750" Length






## Description

Ruland FCR20-5-5-A is a clamp style six beam coupling with 0.3125" x 0.3125" bores, 1.250" OD, and 1.750" length. It is machined from a single piece of material and features two sets of three spiral cuts. This gives it higher torque capacity, lower windup, and larger body sizes than single or four beam couplings and allows for use in light duty power transmission applications such as coupling a servo motor to a lead screw. FCR20-5-5-A is zero-backlash and has a balanced design for reduced vibration at high speeds of up to 6,000 RPM. Ruland supplies this spiral coupling with Nypatch® anti-vibration hardware that allows for even seating of the screw, repeated screw installations, prevents galling, and maintains high holding power. All hardware is metric and tests beyond DIN 912 12.9 standards for maximum torque capabilities. FCR20-5-5-A is made from 7075 aluminum for lightweight and low inertia. It is machined from bar stock that is sourced exclusively from North American mills and RoHS3 and REACH compliant. FCR20-5-5-A is manufactured in our Marlborough, MA factory under strict controls using proprietary processes.

## Product Specifications

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|---|---|---|---|
| **Bore (B1)** | 0.3125 in | **Small Bore (B2)** | 0.3125 in |
| **B1 Max Shaft Penetration** | 0.842 in | **B2 Max Shaft Penetration** | 0.842 in |
| **Outer Diameter (OD)** | 1.250 in | **Bore Tolerance** | +0.001 in / -0.000 in |
| **Length (L)** | 1.750 in | **Clearance Diameter (C) MAX** | 1.459 in |
| **Recommended Shaft Tolerance** | +0.0000 in / -0.0005 in | **Cap Screw** | M5 |
| **Screw Material** | Alloy Steel with Nypatch® | **Hex Wrench Size** | 4.0 mm |
| **Screw Finish** | Black Oxide | **Seating Torque** | 9.5 Nm |
| **Number of Screws** | 2 ea | **Dynamic Torque Reversing** | 17.5 lb-in |
| **Angular Misalignment** | 3.0° | **Dynamic Torque Non-Reversing** | 35 lb-in |
| **Parallel Misalignment** | 0.015 in | **Static Torque** | 70 lb-in |
| **Axial Motion** | 0.010 in | **Torsional Stiffness** | 0.038 Deg/lb-in |
| **Moment of Inertia** | 0.0401 lb-in$^2$ | **Maximum Speed** | 6,000 RPM |
| **Full Bearing Support Required?** | Yes | **Nypatch® Anti-Vibration Hardware?** | Yes |
| **Zero-Backlash?** | Yes | **Balanced Design** | Yes |
| **Torque Wrench** | TW:BT-4C-3/8-86 | **Recommended Hex Key** | Metric Hex Keys |
| **Material Specification** | 7075-T651 Extruded and Drawn Aluminum Bar | **Temperature** | -40°F to 225°F (-40°C to 107°C) |
| **Finish Specification** | Bright, No Plating | **Manufacturer** | Ruland Manufacturing |
| **Country of Origin** | USA | **Weight (lbs)** | 0.181700 |
| **UPC** | 634529008461 | **Tariff Code** | 8483.60.8000 |
| **UNSPC** | 31163003 | | |
| **Note 1** | Torque ratings are at maximum misalignment. | | |
| **Note 2** | Performance ratings are for guidance only. The user must determine suitability for a particular application. | | |
| **Note 3** | Torque ratings for the couplings are based on the physical limitations/failure point of the machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. In some cases, especially when the smallest standard bores are used or where shafts are undersized, slippage on the shaft is possible below the rated torque of the machined beams. Please consult technical support for more assistance. | | |
| **Prop 65** | ⚠**WARNING** This product can expose you to the chemical Ethylene Thiourea, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov. | | |

## Installation Instructions

1. Align the bores of the FCR20-5-5-A six beam coupling on the shafts that are to be joined and determine if the misalignment parameters are within the limits of the coupling. (*Angular Misialignment:* 3°, *Parallel Misalignment*: 0.015 in, *Axial Motion*: 0.010 in)
2. Fully tighten the M5 screw on one hub to the recommended seating torque of 9.5 Nm using a 4.0 mm hex torque wrench.
3. Before tightening the screws on the second hub, rotate the coupling by hand to allow it to reach its free length.
4. Tighten the screws on the second hub to the recommended seating torque. Make sure the coupling remains axially relaxed and the misalignment angle remains centered along the length of the coupling.
5. The shafts may extend into the relieved portion of the bore as long as it does not exceed the shaft penetration length of 0.842 in.