



FCR20-1/2"-9MM-SS

Ruland FCR20-1/2"-9MM-SS, 1/2" x 9mm Six Beam Coupling, Stainless Steel, Clamp Style, 1.250" (31.8mm) OD, 1.750" (44.5mm) Length



Description

Ruland FCR20-1/2"-9MM-SS is a clamp style six beam coupling with 0.5000" x 9mm bores, 1.250" (31.8mm) OD, and 1.750" (44.5mm) 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. FCR20-1/2"-9MM-SS 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. FCR20-1/2"-9MM-SS is made from 303 stainless steel for increased torque capacity. It is machined from bar stock that is sourced exclusively from North American mills and RoHS3 and REACH compliant. FCR20-1/2"-9MM-SS is manufactured in our Marlborough, MA factory under strict controls using proprietary processes.

Product Specifications

Bore (B1)	0.5000 in	Small Bore (B2)	9 mm
B1 Max Shaft Penetration	0.842 in (21.4 mm)	B2 Max Shaft Penetration	0.842 in (21.4 mm)
Outer Diameter (OD)	1.250 in (31.8 mm)	Bore Tolerance	+0.001 in / -0.000 in (+0.025 mm / -0.000 mm)
Length (L)	1.750 in (44.5 mm)	Clearance Diameter (C) MAX	1.459 in (37.06 mm)
Recommended Shaft Tolerance	+0.0000 / -0.0005 " (+0.000 / -0.013 mm)	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	26.75 lb-in (3.02 Nm)
Angular Misalignment	3°	Dynamic Torque Non-Reversing	53.5 lb-in (6.05 Nm)
Parallel Misalignment	0.015 in (0.38 mm)	Static Torque	107 lb-in (12.09 Nm)
Axial Motion	0.010 in (0.25 mm)	Torsional Stiffness	0.037 Deg/lb-in (0.33 Deg/Nm)
Moment of Inertia	0.1094 lb-in ² , 32.426 x10 ⁻⁶ kg-m 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	Type 303 Austenitic, Non-Magnetic Bar	Temperature	-40°F to 350°F (-40°C to 176°C)
Finish Specification	Bright, No Plating	Manufacturer	Ruland Manufacturing
Country of Origin	USA	Weight (lbs)	0.447400
UPC	634529193020	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. Keyways are available to provide additional torque capacity in the shaft/hub connection when required. Please consult

technical support for more assistance.

Prop 65

⚠WARNING This product can expose you to chemicals including Ethylene Thiourea and Nickel (metallic), known to the State of California to cause cancer, and Ethylene Thiourea known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Installation Instructions

1. Align the bores of the FCR20-1/2"-9MM-SS 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 Misalignment: 3°, Parallel Misalignment: 0.015 in (0.38 mm), Axial Motion: 0.010 in (0.25 mm)*)
 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 (21.4 mm).
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