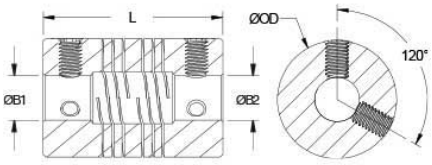
# FSMR38-20-13-A

Ruland FSMR38-20-13-A, 20mm x 13mm Six Beam Coupling, Aluminum, Set Screw Style, 38.1mm OD, 57.2mm Length






## Description

Ruland FSMR38-20-13-A is a set screw style six beam coupling with 20mm x 13mm bores, 38.1mm OD, and 57.2mm 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. FSMR38-20-13-A is zero-backlash and has a balanced design for reduced vibration at high speeds of up to 6,000 RPM. All hardware is metric and tests beyond DIN 912 12.9 standards for maximum torque capabilities. FSMR38-20-13-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. FSMR38-20-13-A is manufactured in our Marlborough, MA factory under strict controls using proprietary processes.

## Product Specifications

| | | | |
|---|---|---|---|
| **Bore (B1)** | 20 mm | **Small Bore (B2)** | 13 mm |
| **B1 Max Shaft Penetration** | 27.3 mm | **B2 Max Shaft Penetration** | 27.3 mm |
| **Outer Diameter (OD)** | 38.1 mm | **Bore Tolerance** | +0.025 mm / -0.000 mm |
| **Length (L)** | 57.2 mm | **Recommended Shaft Tolerance** | +0.000 mm / -0.013 mm |
| **Forged Set Screw** | M6 | **Screw Material** | Alloy Steel |
| **Hex Wrench Size** | 3.0 mm | **Screw Finish** | Black Oxide |
| **Seating Torque** | 7.2 Nm | **Number of Screws** | 4 ea |
| **Dynamic Torque Reversing** | 2.94 Nm | **Angular Misalignment** | 3.0° |
| **Dynamic Torque Non-Reversing** | 5.88 Nm | **Parallel Misalignment** | 0.76 mm |
| **Static Torque** | 11.75 Nm | **Axial Motion** | 0.38 mm |
| **Torsional Stiffness** | 0.77 Deg/Nm | **Moment of Inertia** | 30.032 x$10^{-6}$ kg-$m^2$ |
| **Maximum Speed** | 6,000 RPM | **Full Bearing Support Required?** | Yes |
| **Zero-Backlash?** | Yes | **Torque Wrench** | TW:BT-4C-3/8-64 |
| **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)** | 0.271300 | **UPC** | 634529211014 |
| **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 FSMR38-20-13-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*: 0.76 mm, *Axial Motion*: 0.38 mm)

2. Fully tighten the M6 screws on one hub to the recommended seating torque of 7.2 Nm using a 3.0 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 27.3 mm.