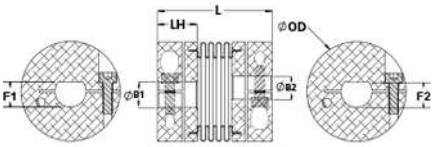
# MBC15-5/4.5D-4/3.5D-A

Ruland MBC15-5/4.5D-4/3.5D-A, 5/4.5Dmm x 4/3.5Dmm Bellows Coupling with D-Bores, Aluminum, 15.0mm, OD 27.3mm Length






## Description

Ruland MBC15-5/4.5D-4/3.5D-A is a high stiffness d-bore bellows coupling with 5/4.5Dmm x 4/3.5Dmm bores, 15.0mm OD, and 27.3mm length. The d-bore allows for positive drive in applications where the coupling can not slip. It has fewer convolutions than comparably sized high misalignment styles allowing for increased torsional stiffness making it the ideal choice for precision positioning applications. MBC15-5/4.5D-4/3.5D-A is comprised of two anodized aluminum hubs and a stainless steel bellows for lightweight and low inertia. It is also engineered with a balanced design for reduced vibration at high speeds up to 10,000 RPM. The thin walls of the bellows are able to flex while remaining rigid under torsional loads allowing for the accommodation of all forms of misalignment. Hardware is metric and tests beyond DIN 912 12.9 standards for maximum torque capabilities. MBC15-5/4.5D-4/3.5D-A is machined from meticulously selected bar stock that is sourced exclusively from North American mills. It is carefully made in our ISO 9001:2015 advanced manufacturing facility in Marlborough, MA under strict controls using proprietary processes. It is carefully made in our ISO 9001:2015 advanced manufacturing facility in Marlborough, MA under strict controls using proprietary processes. MBC15-5/4.5D-4/3.5D-A is RoHS3, REACH, and Conflict Minerals compliant.

## Product Specifications

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|---|---|---|---|
| **Bore (B1)** | 5/4.5D mm | **Small Bore (B2)** | 4/3.5D mm |
| **Flat (F1)** | 4.50 mm | **Flat (F2)** | 3.50 mm |
| **B1 Max Shaft Penetration** | 13.1 mm | **B2 Max Shaft Penetration** | 13.1 mm |
| **Outer Diameter (OD)** | 0.590 in (15.0 mm) | **Bore Tolerance** | +0.03 mm / -0.00 mm |
| **Flat Tolerance** | +.002”/-.000” | **Length (L)** | 1.076 in (27.3 mm) |
| **Length Tolerance** | +/- 0.76 mm | **Hub Width (LH)** | 8.65 mm |
| **Recommended Shaft Tolerance** | +0.000 mm / -0.013 mm | **Forged Clamp Screw** | M2 |
| **Screw Material** | Alloy Steel | **Hex Wrench Size** | 1.5 mm |
| **Screw Finish** | Black Oxide | **Seating Torque** | 0.6 Nm |
| **Number of Screws** | 2 ea | **Dynamic Torque Reversing** | 0.63 Nm |
| **Angular Misalignment** | 1.5° | **Dynamic Torque Non-Reversing** | 1.25 Nm |
| **Parallel Misalignment** | 0.10 mm | **Static Torque** | 2.5 Nm |
| **Axial Motion** | 0.20 mm | **Torsional Stiffness** | 8 Nm/Deg |
| **Moment of Inertia** | 3.172 x $10^{-7}$ kg-$m^2$ | **Maximum Speed** | 10,000 RPM |
| **Full Bearing Support Required?** | Yes | **Average Load at Max Parallel Offset** | 2.82 N |
| **Average Slope** | 16.5 N/mm | **Zero-Backlash?** | Yes |
| **Balanced Design** | Yes | **Torque Wrench** | TW:BT-1R-1/4-5.3 |
| **Recommended Hex Key** | Metric Hex Keys | **Material Specification** | Hubs: 2024-T351 Aluminum Bar<br>Bellows: Type 321 Stainless Steel |
| **Temperature** | -40°F to 200°F (-40°C to 93°C) | **Finish Specification** | Sulfuric Anodized MIL-A-8625 Type II, Class 2 and ASTM B580 Type B Black Anodize |
| **Bellows Attachment Method** | Epoxy | **Manufacturer** | Ruland Manufacturing |
| **Country of Origin** | USA | **Weight (lbs)** | 0.021248 |

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|---|---|---|---|
| **UPC** | 65432941941 | **Tariff Code** | 8483.60.8000 |
| **UNSPC** | 31163018 | | |
| **Note 1** | Stainless steel hubs are available upon request. | | |
| **Note 2** | Torque ratings are at maximum misalignment. | | |
| **Note 3** | Performance ratings are for guidance only. The user must determine suitability for a particular application. | | |
| **Note 4** | Torque ratings for the couplings are based on the physical limitations/failure point of the metal bellows. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the metal bellows. 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 metal bellows. Keyways are available to provide additional torque capacity in the shaft/hub connection when required. Please consult technical support for more assistance. | | |