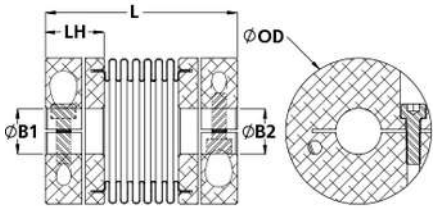
# MBCL33-10-10-A

Ruland MBCL33-10-10-A, 10mm x 10mm Bellows Coupling, Aluminum, Clamp Style, 33.3mm OD, 49.8mm Length






## Description

Ruland MBCL33-10-10-A is a clamp bellows coupling with 10mm x 10mm bores, 33.3mm OD, and 49.8MM length. It is zero-backlash and has a balanced design for reduced vibration at high speeds. MBCL33-10-10-A is comprised of two anodized aluminum hubs and a stainless steel bellows. The bellows are able to flex while remaining rigid under torsional loads allowing for all types of misalignment to be accommodated. This bellows coupling is lightweight and has low inertia making it suitable for applications with speeds up to 10,000 RPM. Hardware is metric and tests beyond DIN 912 12.9 standards for maximum torque capabilities. Ruland MBCL33-10-10-A has four convolutions allowing for high torsional rigidity and making it an excellent fit for precise positioning stepper servo applications as well as encoders. It is machined from solid bar stock that is sourced exclusively from North American mills and RoHS3 and REACH compliant. MBCL33-10-10-A is carefully manufactured in our Marlborough, MA factory under strict controls using proprietary processes.

## Product Specifications

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|---|---|---|---|
| **Bore (B1)** | 10 mm | **Small Bore (B2)** | 10 mm |
| **B1 Max Shaft Penetration** | 23.7 mm | **B2 Max Shaft Penetration** | 23.7 mm |
| **Outer Diameter (OD)** | 1.313 in (33.3 mm) | **Bore Tolerance** | +0.03 mm / -0.00 mm |
| **Length (L)** | 1.962 in (49.8 mm) | **Length Tolerance** | +/- 0.76 mm |
| **Hub Width (LH)** | 15.00 mm | **Recommended Shaft Tolerance** | +0.000 mm / -0.013 mm |
| **Forged Clamp Screw** | M3 | **Screw Material** | Alloy Steel |
| **Hex Wrench Size** | 2.5 mm | **Screw Finish** | Black Oxide |
| **Seating Torque** | 2.1 Nm | **Number of Screws** | 2 ea |
| **Dynamic Torque Reversing** | 3.40 Nm | **Angular Misalignment** | 3.0° |
| **Dynamic Torque Non-Reversing** | 6.80 Nm | **Parallel Misalignment** | 0.30 mm |
| **Static Torque** | 13.6 Nm | **Axial Motion** | 0.81 mm |
| **Torsional Stiffness** | 33.9 Nm/Deg | **Moment of Inertia** | 48.777 x$10^{-6}$ kg-$m^2$ |
| **Maximum Speed** | 10,000 RPM | **Full Bearing Support Required?** | Yes |
| **Zero-Backlash?** | Yes | **Balanced Design** | Yes |
| **Torque Wrench** | TW:BT-1R-1/4-18.3 | **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)** | 0.041457 | **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.