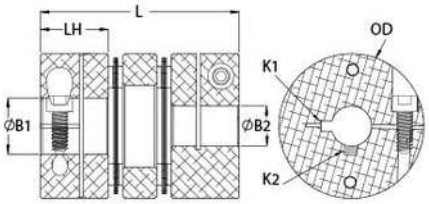
# MDCDK33-13-9-A

Ruland MDCDK33-13-9-A, 13mm x 9mm Double Disc Coupling, Aluminum, Clamp Style With Keyway, 33.3mm OD, 45.0mm Length








## Description

Ruland MDCDK33-13-9-A is a clamp double disc coupling with 13mm x 9mm bores, 33.3mm OD, 45.0mm length, and 5mm x 3mm keyways. It is zero-backlash and has a balanced design for reduced vibration at high speeds. The double disc design is comprised of two anodized aluminum hubs, two sets of thin stainless steel disc springs, and a center spacer allowing each disc to bend individually and accommodate all types of misalignment. MDCDK33-13-9-A is lightweight and has low inertia making it well suited 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 manufactures MDCDK33-13-9-A to be torisionally rigid and an excellent fit for precise positioning stepper servo applications commonly found in semiconductor, solar, printing, machine tool, and test and measurement systems. It is machined from solid bar stock that is sourced exclusively from North American mills and RoHS3 and REACH compliant. MDCDK33-13-9-A is manufactured in our Marlborough, MA factory under strict controls using proprietary processes.

## Product Specifications

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| **Bore (B1)** | 13 mm | **Small Bore (B2)** | 9 mm |
| **Keyway (K1)** | 5 mm | **Keyway (K2)** | 3 mm |
| **B1 Max Shaft Penetration** | 21.4 mm | **B2 Max Shaft Penetration** | 21.4 mm |
| **Outer Diameter (OD)** | 1.313 in (33.3 mm) | **Bore Tolerance** | +0.03 mm / -0.00 mm |
| **Length (L)** | 1.770 in (45.0 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** | 2.83 Nm |
| **Angular Misalignment** | 2.0° | **Dynamic Torque Non-Reversing** | 5.65 Nm |
| **Parallel Misalignment** | 0.20 mm | **Static Torque** | 11.3 Nm |
| **Axial Motion** | 0.40 mm | **Torsional Stiffness** | 28.6 Nm/Deg |
| **Moment of Inertia** | 1.2917 x $10^{-5}$ kg-$m^2$ | **Maximum Speed** | 10,000 RPM |
| **Zero-Backlash?** | Yes | **Average Load at Max Parallel Offset** | 10.94 N |
| **Average Slope** | 49.22 N/mm | **Balanced Design** | Yes |
| **Torque Wrench** | TW:BT-1R-1/4-18.3 | **Recommended Hex Key** | Metric Hex Keys |
| **Full Bearing Support Required?** | Yes | **Material Specification** | Hubs and Center Spacer: 2024-T351 Aluminum Bar<br>Disc Springs: Type 302 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 |
| **Manufacturer** | Ruland Manufacturing | **Country of Origin** | USA |
| **Weight (lbs)** | 0.180300 | **UPC** | 634529174494 |
| **Tariff Code** | 8483.60.8000 | **UNSPC** | 31163008 |

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| **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 disc springs. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the disc springs. 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 disc springs. 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 MDCDK33-13-9-A double disc coupling on the shafts that are to be joined and determine if the misalignment parameters are within the limits of the coupling. (*Angular Misialignment:* 2.0°, *Parallel Misalignment*: 0.20 mm, *Axial Motion*: 0.40 mm)
2. Fully tighten the M3 screw on the first hub to the recommended seating torque of 2.1 Nm using a 2.5 mm hex torque wrench.
3. Before tightening the screw on the second hub, rotate the coupling by hand to allow it to reach its free length.
4. Tighten the screw 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 21.4 mm.