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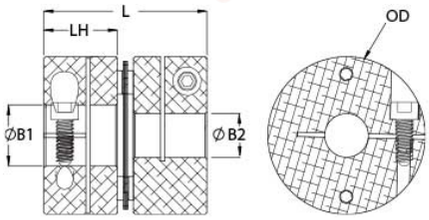
RULAND
Carefully Made Shaft Collars and Couplings

MDCS51-24-14-A

Ruland MDCS51-24-14-A, 24mm x 14mm Single Disc Coupling, Aluminum, Clamp Style, 50.8mm OD, 46.1mm Length







Description

Ruland MDCS51-24-14-A is a clamp single disc coupling with 24mm x 14mm bores, 50.8mm OD, and 46.1mm length. It is zero-backlash and has a balanced design for reduced vibration at high speeds. The single disc design is comprised of two anodized aluminum hubs and two sets of thin stainless steel disc springs which can accommodate angular misalignment and axial motion, however does not allow for any parallel misalignment. MDCS51-24-14-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 MDCS51-24-14-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. MDCS51-24-14-A is manufactured in our Marlborough, MA factory under strict controls using proprietary processes.

Product Specifications

Bore (B1)	24 mm	**Small Bore (B2)**	14 mm
B1 Max Shaft Penetration	22.2 mm	**B2 Max Shaft Penetration**	22.2 mm
Outer Diameter (OD)	2.000 in (50.8 mm)	**Bore Tolerance**	+0.03 mm / -0.00 mm
Length (L)	1.813 in (46.1 mm)	**Hub Width (LH)**	20.55 mm
Recommended Shaft Tolerance	+0.000 mm / -0.013 mm	**Forged Clamp Screw**	M5
Screw Material	Alloy Steel	**Hex Wrench Size**	4.0 mm
Screw Finish	Black Oxide	**Seating Torque**	9.5 Nm
Number of Screws	2 ea	**Dynamic Torque Reversing**	9.90 Nm
Angular Misalignment	1.0°	**Dynamic Torque Non-Reversing**	19.80 Nm
Parallel Misalignment	0.00 mm	**Static Torque**	39.6 Nm
Axial Motion	0.32 mm	**Torsional Stiffness**	98.0 Nm/Deg
Moment of Inertia	7.349 x 10^{-5} kg-m^2	**Maximum Speed**	10,000 RPM
Full Bearing Support Required?	Yes	**Zero-Backlash?**	Yes
Balanced Design	Yes	**Torque Wrench**	TW:BT-4C-3/8-86
Recommended Hex Key	Metric Hex Keys	**Material Specification**	Hubs: 2024-T351 Aluminum Bar, 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)	0.438300	**UPC**	634529152928
Tariff Code	8483.60.8000	**UNSPC**	31163008
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		

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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 MDCS51-24-14-A single 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:* 1.0°, *Parallel Misalignment*: 0.00 mm, *Axial Motion*: 0.32 mm)
2. Fully tighten the M5 screw on the first hub to the recommended seating torque of 9.5 Nm using a 4.0 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 22.2 mm.