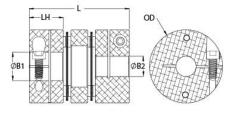




MDCDE33-16-16-A

Ruland MDCDE33-16-16-A, 16mm x 16mm Double Disc Coupling, Aluminum, Clamp Style, Electrically Isolating, 33.3mm OD, 45.0mm Length





Description

Ruland MDCDE33-16-16-A is an electrically isolating clamp double disc coupling with 16mm x 16mm bores, 33.3mm OD, and 45.0mm length. 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 an acetal center spacer allowing each disc to bend individually and accommodate all types of misalignment. The acetal center spacer isolates the two hubs preventing the incidental transfer of current from the motor to the driven component or vice versa. MDCDE33-16-16-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 MDCDE33-16-16-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. MDCDE33-16-16-A is manufactured in our Marlborough, MA factory under strict controls using proprietary processes.

Product Specifications

Temperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL-A II, Class 2 and ASTM B5 Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.147500UPC634529089620Tariff Code8483.60.8000UNSPC31163008Note 1Stainless steel hubs are available upon request.Torque ratings are at maximum misalignment.	r roddor opconnoationis			
Outer Diameter (OD) 33.3 mm Bore Tolerance +0.03 mm / -0.00 mm Length (L) 45.0 mm Hub Width (LH) 15.0 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 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 1.130 x 10.5 kg-m² Maximum Speed 10,000 RPM Full Bearing Support Required? Yes Zero-Backlash? Yes Balanced Design Yes Torque Wrench TW/BT-IR-1/4-18.3 Recommended Hex Key Metric Hex Keys Material Specification Type 302 Stainless Stee Spacer: Acetal Temperature -10°F to 150°F (-23°C to 65°C) Finish Specification Sulfuric Anodized MIL-A II, Class 2 and ASTIM BE Black Anodize Black Anodize	Bore (B1)	16 mm	Small Bore (B2)	16 mm
Length (L) 45.0 mm Hub Width (LH) 15.0 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 1.130 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/ET-1R-1/4-18.3 Recommended Hex Key Metric Hex Keys Material Specification Hubs: 2024-T351 Bar, D Type 302 Stainless Stee Spacer: Acetal Spacer: Acetal Spacer: Acetal Temperature -10°F to 150°F (-23°C to 65°C) Finish Specification II, Class 2 and ASTM BE Manufacturer Ruland Manufacturing C	B1 Max Shaft Penetration	15.0 mm	B2 Max Shaft Penetration	15.0 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 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 1.130 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-1R-1/4-18.3 Recommended Hex Key Metric Hex Keys Material Specification Hubs: 2024-T351 Bar, D Type 302 Stainless Stee Spacer: Acetal Spacer: Acetal Spacer: Acetal Temperature -10°F to 150°F (-23°C to 65°C) Finish Specification II, Class 2 and ASTM BE Black Anodize UNC G34529089620 Torque Reversites Static Anodize Manufacturer Ruland Manufacturin	Outer Diameter (OD)	33.3 mm	Bore Tolerance	+0.03 mm / -0.00 mm
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 1.130 x 10°5 kg-m² 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 Bar, D Type 302 Stainless Stee Spacer: Acetal Sulfuric Anodized MIL-A II, Class 2 and ASTM BE Maufacturer Ruland Manufacturing Country of Origin USA Weight (lbs) 0.147500 UPC 634529089620 Tariff Code 8483.60.8000 UNSPC 31163008 Note 1 Stainless steel hubs are available upon request. Note 3 Performanc	Length (L)	45.0 mm	Hub Width (LH)	15.0 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 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 1.130 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-IR-1/4-18.3 Recommended Hex Key Metric Hex Keys Material Specification Hubs: 2024-T351 Bar, D Type 302 Stainless Stee Spacer: Acetal Type 302 Stainless Stee Spacer: Acetal Temperature -10°F to 150°F (-23°C to 65°C) Finish Specification Sulfuric Anodized MIL-A II, Class 2 and ASTM BE Black Anodize Maufacturer Ruland Manufacturing Country of Origin USA Weight (lbs) 0.147500 UPC 634529089620 Tariff Code 8483.60.8000 UNSPC 31163008 Note 1 Stainless steel hubs are avai	Recommended Shaft Tolerance	+0.000 mm / -0.013 mm	Forged Clamp Screw	M3
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 1.130 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-IR-1/4-18.3 Recommended Hex Key Metric Hex Keys Material Specification Hubs: 2024-T351 Bar, D Type 302 Stainless Stee Spacer: Acetal Type 302 Stainless Stee Spacer: Acetal Temperature -10°F to 150°F (-23°C to 65°C) Finish Specification Sulfuric Anodized MIL-A II, Class 2 and ASTM BS Black Anodize Manufacturer Ruland Manufacturing Country of Origin USA Weight (lbs) 0.147500 UPC 634529089620 Tariff Code 8483.60.8000 UNSPC 31163008 Note 1 Stainless steel hubs are available upon request. Note 2 Note 3 Performance ratings are	Screw Material	Alloy Steel	Hex Wrench Size	2.5 mm
Angular Misalignment2.0°Dynamic Torque Non-Reversing5.65 NmParallel Misalignment0.20 mmStatic Torque11.3 NmAxial Motion0.40 mmTorsional Stiffness28.6 Nm/DegMoment of Inertia1.130 x 10°5 kg-m²Maximum Speed10,000 RPMFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesTorque WrenchTW:BT-IR-1/4-18.3Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, DTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL-AII. class 2 and ASTM B5Sulfuric Anodized MIL-AII, class 2 and ASTM B5ManufacturerRuland ManufacturingCountry of OriginUSAWeight (Ibs)0.147500UPC634529089620Tariff Code8483.60.8000UNSPC31163008Note 1Stainless steel hubs are available upon request.Note 2Note 3Performance ratings are for guidance only. The user must determine suitability for a particular appNote 4Torque ratings for the couplings are based on the physical limitations/failure point of the disc sprinr normal/typical conditions the hubs are capable of holding up to the rated torque of the disc sprinr normal/typical conditions the hubs are capable of holding up to the rated torque of the disc sprinr normal/typical conditions the hubs are capable of holding up to the rated torque of the disc sprinr normal/typical conditions the hubs are capable of holding up to the rated torque of the disc sprinr	Screw Finish	Black Oxide	Seating Torque	2.1 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 1.130 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-1R-1/4-18.3 Recommended Hex Key Metric Hex Keys Material Specification Hubs: 2024-T351 Bar, D Type 302 Stainless Stee Spacer: Acetal Sulfuric Anodized MIL-A Temperature -10°F to 150°F (-23°C to 65°C) Finish Specification USA Maunfacturer Ruland Manufacturing Country of Origin USA Weight (Ibs) 0.147500 UPC 634529089620 Tariff Code 8483.60.8000 UNSPC 31163008 Note 1 Stainless steel hubs are available upon request. Note 3 Performance ratings are for guidance only. The user must determine suitability for a particular app Note 4 Performance ratings are for guidance only. The user must determine suitability for a particular app Note 4 Oroque ratings for the couplings are based on the physical limitations/failure point of the disc spring <td>Number of Screws</td> <td>2 ea</td> <td>Dynamic Torque Reversing</td> <td>2.83 Nm</td>	Number of Screws	2 ea	Dynamic Torque Reversing	2.83 Nm
Axial Motion0.40 mmTorsional Stiffness28.6 Nm/DegMoment of Inertia1.130 x 10°5 kg-m²Maximum Speed10,000 RPMFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesTorque WrenchTW:BT-1R-1/4-18.3Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, D Type 302 Stainless Stee Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL-A II, Class 2 and ASTM B5 Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.147500UPC634529089620Tariff Code8483.60.8000UNSPC31163008Note 1Stainless steel hubs are available upon request.Note 3Note 3Performance ratings are at maximum misalignment.Note 4Note 4Torque ratings for the couplings are based on the physical limitations/failure point of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring cases, especially when the smallest standard bores are used or where shafts are undersized, slip </td <td>Angular Misalignment</td> <td>2.0°</td> <td>Dynamic Torque Non-Reversing</td> <td>5.65 Nm</td>	Angular Misalignment	2.0°	Dynamic Torque Non-Reversing	5.65 Nm
Moment of Inertia 1.130 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-1R-1/4-18.3 Recommended Hex Key Metric Hex Keys Material Specification Hubs: 2024-T351 Bar, D Temperature -10°F to 150°F (-23°C to 65°C) Finish Specification Sulfuric Anodized MIL-A II, Class 2 and ASTM BS Black Anodize Black Anodize Maufacturer Ruland Manufacturing Country of Origin USA Weight (lbs) 0.147500 UPC 634529089620 Tariff Code 8483.60.8000 UNSPC 31163008 Note 1 Stainless steel hubs are available upon request. Torque ratings are at maximum misalignment. Note 3 Performance ratings are for guidance only. The user must determine suitability for a particular app. Torque ratings for the couplings are based on the physical limitations/failure point of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring cases, especially when the smallest standard bores are used or where shafts are undersized, slip	Parallel Misalignment	0.20 mm	Static Torque	11.3 Nm
Full Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesTorque WrenchTW:BT-1R-1/4-18.3Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, D Type 302 Stainless Stee Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL-A II, Class 2 and ASTM B5 Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.147500UPC634529089620Tariff Code8483.60.8000UNSPC31163008Note 1Stainless steel hubs are available upon request.Torque ratings are at maximum misalignment.Note 3Performance ratings are for guidance only. The user must determine suitability for a particular app normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring normal/typical conditions the hubs are capable of h	Axial Motion	0.40 mm	Torsional Stiffness	28.6 Nm/Deg
Balanced DesignYesTorque WrenchTW:BT-1R-1/4-18.3Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, D Type 302 Stainless Stee Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL-A II, Class 2 and ASTM B5 Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.147500UPC634529089620Tariff Code8483.60.8000UNSPC31163008Note 1Stainless steel hubs are available upon request.Torque ratings are at maximum misalignment.Note 3Performance ratings are for guidance only. The user must determine suitability for a particular app Torque ratings for the couplings are based on the physical limitations/failure point of the disc spring cases, especially when the smallest standard bores are used or where shafts are undersized, slip	Moment of Inertia	1.130 x 10 ⁻⁵ kg-m ²	Maximum Speed	10,000 RPM
Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, D Type 302 Stainless Stee Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL-A II, Class 2 and ASTM BS Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.147500UPC634529089620Note 1Stainless steel hubs are available upon request.Note 1Note 2Torque ratings are at maximum misalignment.Note 3Performance ratings are for guidance only. The user must determine suitability for a particular approximation of the disc spring cases, especially when the smallest standard bores are used or where shafts are undersized, slip	Full Bearing Support Required?	Yes	Zero-Backlash?	Yes
Type 302 Stainless Stee Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL-A II, Class 2 and ASTM BS Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.147500UPC634529089620Tariff Code8483.60.8000UNSPC31163008Note 1Stainless steel hubs are available upon request.Torque ratings are at maximum misalignment.Note 2Torque ratings are at maximum misalignment.Note 3Performance ratings are for guidance only. The user must determine suitability for a particular appr normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring cases, especially when the smallest standard bores are used or where shafts are undersized, slip	Balanced Design	Yes	Torque Wrench	<u>TW:BT-1R-1/4-18.3</u>
II, Class 2 and ASTM B5 Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.147500UPC634529089620Tariff Code8483.60.8000UNSPC31163008Note 1Stainless steel hubs are available upon request.Torque ratings are at maximum misalignment.Note 2Torque ratings are for guidance only. The user must determine suitability for a particular appNote 3Performance ratings are for guidance only. The user must determine suitability for a particular appNote 4Torque ratings for the couplings are based on the physical limitations/failure point of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring cases, especially when the smallest standard bores are used or where shafts are undersized, slip	Recommended Hex Key	Metric Hex Keys	Material Specification	Hubs: 2024-T351 Bar, Disc Springs Type 302 Stainless Steel, Center Spacer: Acetal
Weight (lbs)0.147500UPC634529089620Tariff Code8483.60.8000UNSPC31163008Note 1Stainless steel hubs are available upon request.Note 2Torque ratings are at maximum misalignment.Note 3Performance ratings are for guidance only. The user must determine suitability for a particular approximation of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring cases, especially when the smallest standard bores are used or where shafts are undersized, slip	Temperature	-10°F to 150°F (-23°C to 65°C)	Finish Specification	Sulfuric Anodized MIL-A-8625 Type II, Class 2 and ASTM B580 Type B Black Anodize
Tariff Code8483.60.8000UNSPC31163008Note 1Stainless steel hubs are available upon request.Note 2Torque ratings are at maximum misalignment.Note 3Performance ratings are for guidance only. The user must determine suitability for a particular appNote 4Torque ratings for the couplings are based on the physical limitations/failure point of the disc springnormal/typical conditions the hubs are capable of holding up to the rated torque of the disc springcases, especially when the smallest standard bores are used or where shafts are undersized, slip	Manufacturer	Ruland Manufacturing	Country of Origin	USA
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 app Note 4 Torque ratings for the couplings are based on the physical limitations/failure point of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring cases, especially when the smallest standard bores are used or where shafts are undersized, slip	Weight (Ibs)	0.147500	UPC	634529089620
Note 2 Torque ratings are at maximum misalignment. Note 3 Performance ratings are for guidance only. The user must determine suitability for a particular approximation. Note 4 Torque ratings for the couplings are based on the physical limitations/failure point of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring cases, especially when the smallest standard bores are used or where shafts are undersized, slip	Tariff Code	8483.60.8000	UNSPC	31163008
Note 3 Performance ratings are for guidance only. The user must determine suitability for a particular approximation of the disc spring for the couplings are based on the physical limitations/failure point of the disc spring normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring cases, especially when the smallest standard bores are used or where shafts are undersized, slip	Note 1	Stainless steel hubs are available upon request.		
Note 4 Torque ratings for the couplings are based on the physical limitations/failure point of the disc sprin normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring cases, especially when the smallest standard bores are used or where shafts are undersized, slip	Note 2	Torque ratings are at maximum misalignment.		
normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spring cases, especially when the smallest standard bores are used or where shafts are undersized, slip	Note 3	Performance ratings are for guidance only. The user must determine suitability for a particular application.		
	Note 4	normal/typical conditions the hubs cases, especially when the smalles	are capable of holding up to the rated st standard bores are used or where s	torque of the disc springs. In some shafts are undersized, slippage on th

	torque capacity in the shaft/hub connection when required. Please consult technical support for more assistance.		
Prop 65	AWARNING 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 <u>www.P65Warnings.ca.gov</u> .		
Installation Instructions			
	 Align the bores of the MDCDE33-16-16-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. (<i>Angular</i> <i>Misialignment:</i> 2.0°, <i>Parallel Misalignment:</i> 0.20 mm, <i>Axial Motion:</i> 0.40 mm) 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. Before tightening the screw on the second hub, rotate the coupling by hand to allow it to reach its free length. 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. The shafts may extend into the relieved portion of the bore as long as it does not exceed the shaft penetration length of 15.0 mm. 		