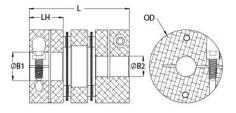




## MDCDE57-20-15-A

Ruland MDCDE57-20-15-A, 20mm x 15mm Double Disc Coupling, Aluminum, Clamp Style, Electrically Isolating, 57.2mm OD, 78.2mm Length





## Description

Ruland MDCDE57-20-15-A is an electrically isolating clamp double disc coupling with 20mm x 15mm bores, 57.2mm OD, and 78.2mm 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. MDCDE57-20-15-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 MDCDE57-20-15-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. MDCDE57-20-15-A is manufactured in our Marlborough, MA factory under strict controls using proprietary processes.

## **Product Specifications**

Type 302 Stainless Stere         Temperature       -10°F to 150°F (-23°C to 65°C)       Finish Specification       Sulfuric Anodized MIL- II, Class 2 and ASTM E Black Anodize         Manufacturer       Ruland Manufacturing       Country of Origin       USA         Weight (Ibs)       0.869100       UPC       634529115237         Tariff Code       8483.60.8000       UNSPC       31163008         Note 1       Stainless steel hubs are available upon request.       Torque ratings are at maximum misalignment.	r roddor opcomoations			
Outer Diameter (OD)       57.2 mm       Bore Tolerance       +0.03 mm / +0.00 mm         Length (L)       78.2 mm       Hub Width (LH)       26.7 mm         Recommended Shaft Tolerance       +0.000 mm / +0.013 mm       Forged Clamp Screw       M6         Screw Material       Alloy Steel       Hex Wrench Size       5.0 mm         Screw Finish       Black Oxide       Seating Torque       16 Nm         Number of Screws       2 ea       Dynamic Torque Reversing       12.73 Nm         Angular Misalignment       2.0°       Dynamic Torque Non-Reversing       25.45 Nm         Parallel Misalignment       0.30 mm       Static Torque       50.9 Nm         Axial Motion       0.76 mm       Torsional Stiffness       86.9 Nm/Deg         Moment of Inertia       1.800 x 10 <sup>-4</sup> kg-m <sup>2</sup> Maximum Speed       10,000 RPM         Full Bearing Support Required?       Yes       Zero-Backlash?       Yes         Balanced Design       Yes       Torque Wrench       TU/:BT-4C-3/8-140         Recommended Hex Key       Metric Hex Keys       Material Specification       Sulfuric Anodized MIL-II, Class 2 and ASTM E         Manufacturer       Ruland Manufacturing       Country of Origin       USA         Meight (Ibs)       0.869100       UPC       63452911	Bore (B1)	20 mm	Small Bore (B2)	15 mm
Length (L)78.2 mmHub Width (LH)26.7 mmRecommended Shaft Tolerance+0.000 mm / -0.013 mmForged Clamp ScrewM6Screw MaterialAlloy SteelHex Wrench Size5.0 mmScrew FinishBlack OxideSeating Torque16 NmNumber of Screws2 eaDynamic Torque Reversing12.73 NmAngular Misalignment2.0°Dynamic Torque Non-Reversing25.45 NmParallel Misalignment0.30 mmStatic Torque50.9 NmAxial Motion0.76 mmTorsional Stiffness86.9 Nm/DegMoment of Inertia1.800 x 10 <sup>-4</sup> kg-m <sup>2</sup> Maximum Speed10,000 RPMFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesTorque WrenchTW:BT-4C-3/8-140Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, Type 302 Stainless Ste Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL- II, Class 2 and ASTM I Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (Ibs)0.869100UPC634529115237Tariff Code8483.60.8000UNSPC31163008Note 1Stainless steel hubs are available upon request.Note 3Note 3Performance ratings are for guidance only. The user must determine suitability for a particular a Note 4Torque ratings for the couplings are based on the physical limitations/failure point of the disc sprin crases, especially when the smallest sta	B1 Max Shaft Penetration	37.0 mm	B2 Max Shaft Penetration	37.0 mm
Recommended Shaft Tolerance+0.000 mm / -0.013 mmForged Clamp ScrewM6Screw MaterialAlloy SteelHex Wrench Size5.0 mmScrew FinishBlack OxideSeating Torque16 NmNumber of Screws2 eaDynamic Torque Reversing12.73 NmAngular Misalignment2.0°Dynamic Torque Non-Reversing25.45 NmParallel Misalignment0.30 mmStatic Torque50.9 NmAxial Motion0.76 mmTorsional Stiffness86.9 Nm/DegMoment of Inertia1.800 x 10 <sup>-4</sup> kg-m²Maximum Speed10,000 RPMFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesTorque WrenchTW:BT-4C-3/8-140Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-7351 Bar, Type 302 Stainless Sts Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL- II, Class 2 and ASTM I Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (Ibs)0.869100UPC634529115237Tariff 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 a Torque ratings for the couplings are based on the physical limitations/failure point of the disc sprin croses, especially when the smallest standard bores are used or where shafts are undersized, si <td>Outer Diameter (OD)</td> <td>57.2 mm</td> <td>Bore Tolerance</td> <td>+0.03 mm / -0.00 mm</td>	Outer Diameter (OD)	57.2 mm	Bore Tolerance	+0.03 mm / -0.00 mm
Screw Material       Alloy Steel       Hex Wrench Size       5.0 mm         Screw Finish       Black Oxide       Seating Torque       16 Nm         Number of Screws       2 ea       Dynamic Torque Reversing       12.73 Nm         Angular Misalignment       2.0°       Dynamic Torque Non-Reversing       25.45 Nm         Parallel Misalignment       0.30 mm       Static Torque       50.9 Nm         Axial Motion       0.76 mm       Torsional Stiffness       86.9 Nm/Deg         Moment of Inertia       1.800 x 10 <sup>-4</sup> kg-m <sup>2</sup> Maximum Speed       10,000 RPM         Full Bearing Support Required?       Yes       Zero-Backlash?       Yes         Balanced Design       Yes       Torque Wrench       TW:BT-4C-3/8-140         Recommended Hex Key       Metric Hex Keys       Material Specification       Hubs: 2024-T351 Bar, Type 302 Stainless Stee         Temperature       -10°F to 150°F (-23°C to 65°C)       Finish Specification       Sulfuric Anodized MIL-II, Class 2 and ASTM E Black Anodize         Manufacturer       Ruland Manufacturing       Country of Origin       USA         Weight (lbs)       0.869100       UPC       634529115237         Tariff Code       8483.60.8000       UNSPC       31163008         Note 1       Stainless steel hubs are availabl	Length (L)	78.2 mm	Hub Width (LH)	26.7 mm
Screw FinishBlack OxideSeating Torque16 NmNumber of Screws2 eaDynamic Torque Reversing12.73 NmAngular Misalignment2.0°Dynamic Torque Non-Reversing25.45 NmParallel Misalignment0.30 mmStatic Torque50.9 NmAxial Motion0.76 mmTorsional Stiffness86.9 Nm/DegMoment of Inertia1.800 x 10 <sup>-4</sup> kg-m <sup>2</sup> Maximum Speed10,000 RPMFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesTorque WrenchTW:BT-4C-3/8-140Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, Type 302 Stainless Ste Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL- II, Class 2 and ASTM E Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.869100UPC634529115237Tariff Code8483.60.8000UNSPC31163008Note 1Stainless steel hubs are available upon request.Stainless steel hubs are available upon request.Note 3Performance ratings are at maximum misalignment.Ver a particular a Torque ratings are for guidance only. The user must determine suitability for a particular a Norde as expecially when the smallest standard bores are used or where shafts are undersized, si	Recommended Shaft Tolerance	+0.000 mm / -0.013 mm	Forged Clamp Screw	M6
Number of Screws2 eaDynamic Torque Reversing12.73 NmAngular Misalignment2.0°Dynamic Torque Non-Reversing25.45 NmParallel Misalignment0.30 mmStatic Torque50.9 NmAxial Motion0.76 mmTorsional Stiffness86.9 Nm/DegMoment of Inertia1.800 x 10 <sup>-4</sup> kg-m <sup>2</sup> Maximum Speed10,000 RPMFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesTorque WrenchTW:BT-4C-3/8-140Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, Type 302 Stainless Ste Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL- II, Class 2 and ASTM E Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (Ibs)0.869100UPC634529115237Tariff 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 a normal/typical conditions the hubs are capable of holding up to the rated torque of the disc sprin cases, especially when the smallest standard bores are used or where shafts are undersized, si	Screw Material	Alloy Steel	Hex Wrench Size	5.0 mm
Angular Misalignment2.0°Dynamic Torque Non-Reversing25.45 NmParallel Misalignment0.30 mmStatic Torque50.9 NmAxial Motion0.76 mmTorsional Stiffness86.9 Nm/DegMoment of Inertia1.800 x 10 <sup>-4</sup> kg-m²Maximum Speed10,000 RPMFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesTorque WrenchTW:BT-4C-3/8-140Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, Type 302 Stainless Ste Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL- II, Class 2 and ASTM E Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (Ibs)0.869100UPC634529115237Tariff 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 a Torque ratings for the couplings are based on the physical limitations/failure point of the disc sprin cases, especially when the smallest standard bores are used or where shafts are undersized, sl	Screw Finish	Black Oxide	Seating Torque	16 Nm
Parallel Misalignment0.30 mmStatic Torque50.9 NmAxial Motion0.76 mmTorsional Stiffness86.9 Nm/DegMoment of Inertia1.800 x 10'4 kg·m²Maximum Speed10,000 RPMFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesTorque WrenchTW:BT-4C-3/8-140Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, Type 302 Stainless Ste Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationUSAManufacturerRuland ManufacturingCountry of OriginUSAWeight (Ibs)0.869100UPC634529115237Tariff 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 a normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spin normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spin rases, especially when the smallest standard bores are used or where shafts are undersized, si	Number of Screws	2 ea	Dynamic Torque Reversing	12.73 Nm
Axial Motion0.76 mmTorsional Stiffness86.9 Nm/DegMoment of Inertia1.800 x 10 <sup>-4</sup> kg-m²Maximum Speed10,000 RPMFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesTorque WrenchTW:BT-4C-3/8-140Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, Type 302 Stainless Sta Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL- II, Class 2 and ASTM E Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.869100UPC634529115237Tariff 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 a Note 4Torque ratings for the couplings are based on the physical limitations/failure point of the disc sprin cases, especially when the smallest standard bores are used or where shafts are undersized, sl	Angular Misalignment	2.0°	Dynamic Torque Non-Reversing	25.45 Nm
Moment of Inertia       1.800 x 10 <sup>-4</sup> kg-m <sup>2</sup> Maximum Speed       10,000 RPM         Full Bearing Support Required?       Yes       Zero-Backlash?       Yes         Balanced Design       Yes       Torque Wrench       TW:BT-4C-3/8-140         Recommended Hex Key       Metric Hex Keys       Material Specification       Hubs: 2024-T351 Bar, Type 302 Stainless Ste Spacer: Acetal         Temperature       -10°F to 150°F (-23°C to 65°C)       Finish Specification       Sulfuric Anodized MIL- II, Class 2 and ASTM E Black Anodize         Mauifacturer       Ruland Manufacturing       Country of Origin       USA         Weight (lbs)       0.869100       UPC       634529115237         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 a Torque ratings for the couplings are based on the physical limitations/failure point of the disc sprin cases, especially when the smallest standard bores are used or where shafts are undersized, sl	Parallel Misalignment	0.30 mm	Static Torque	50.9 Nm
Full Bearing Support Required?YesBalanced DesignYesBalanced DesignYesRecommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, Type 302 Stainless Sta Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL- II, Class 2 and ASTM E Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.869100UPC634529115237Tariff Code8483.60.8000UNSPC31163008Note 1Stainless steel hubs are available upon request.VerNote 2Torque ratings are at maximum misalignment.VerNote 3Performance ratings are for guidance only. The user must determine suitability for a particular a normal/typical conditions the hubs are capable of holding up to the rated torque of the disc sprin normal/typical conditions the hubs are capable of holding up to the rated torque of the disc sprin normal/typical conditions the hubs are capable of holding up to the rated torque of the disc sprin normal/typical conditions the hubs are capable of holding up to the rated torque of the disc sprin rases, especially when the smallest standard bores are used or where shafts are undersized, sl	Axial Motion	0.76 mm	Torsional Stiffness	86.9 Nm/Deg
Balanced DesignYesTorque WrenchTW:BT-4C-3/8-140Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, Type 302 Stainless Ste Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL- II, Class 2 and ASTM E Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.869100UPC634529115237Tariff 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 a Note 4Note 4Torque ratings for the couplings are based on the physical limitations/failure point of the disc sprin ormal/typical conditions the hubs are capable of holding up to the rated torque of the disc sprin ormal/typical conditions the hubs are used or where shafts are undersized, sl	Moment of Inertia	1.800 x 10 <sup>-4</sup> kg-m <sup>2</sup>	Maximum Speed	10,000 RPM
Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, Type 302 Stainless Ste Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL- II, Class 2 and ASTM E Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.869100UPC634529115237Tariff Code8483.60.8000UNSPC31163008Note 1Stainless steel hubs are available upon request.Note 1Note 2Torque ratings are at maximum misalignment.Torque ratings are for guidance only. The user must determine suitability for a particular a Note 3Note 4Torque ratings for the couplings are based on the physical limitations/failure point of the disc sprin cases, especially when the smallest standard bores are used or where shafts are undersized, sl	Full Bearing Support Required?	Yes	Zero-Backlash?	Yes
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II, Class 2 and ASTM B Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.869100UPC634529115237Tariff 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 aNote 3Performance ratings are for guidance only. The user must determine suitability for a particular a normal/typical conditions the hubs are capable of holding up to the rated torque of the disc sprin cases, especially when the smallest standard bores are used or where shafts are undersized, sl	Recommended Hex Key	Metric Hex Keys	Material Specification	Hubs: 2024-T351 Bar, Disc Springs Type 302 Stainless Steel, Center Spacer: Acetal
Weight (lbs)0.869100UPC634529115237Tariff 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 a 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 sprin cases, especially when the smallest standard bores are used or where shafts are undersized, sl	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 aNote 4Torque ratings for the couplings are based on the physical limitations/failure point of the disc spin normal/typical conditions the hubs are capable of holding up to the rated torque of the disc sprin cases, especially when the smallest standard bores are used or where shafts are undersized, sl	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 a         Note 4       Torque ratings for the couplings are based on the physical limitations/failure point of the disc spin normal/typical conditions the hubs are capable of holding up to the rated torque of the disc spin cases, especially when the smallest standard bores are used or where shafts are undersized, sl	Weight (Ibs)	0.869100	UPC	634529115237
Note 2         Torque ratings are at maximum misalignment.           Note 3         Performance ratings are for guidance only. The user must determine suitability for a particular a           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 sprin cases, especially when the smallest standard bores are used or where shafts are undersized, sl	Tariff Code	8483.60.8000	UNSPC	31163008
Note 3         Performance ratings are for guidance only. The user must determine suitability for a particular a           Note 4         Torque ratings for the couplings are based on the physical limitations/failure point of the disc spin normal/typical conditions the hubs are capable of holding up to the rated torque of the disc sprin cases, especially when the smallest standard bores are used or where shafts are undersized, sl	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 spin normal/typical conditions the hubs are capable of holding up to the rated torque of the disc sprin cases, especially when the smallest standard bores are used or where shafts are undersized, sl	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 sprin cases, especially when the smallest standard bores are used or where shafts are undersized, sl	Note 3	Performance ratings are for guidance only. The user must determine suitability for a particular application.		
shall is possible below the fated torque of the disc springs. Reyways are available to provide ad	Note 4	normal/typical conditions the hubs cases, especially when the smalles	are capable of holding up to the rated at standard bores are used or where s	torque of the disc springs. In some shafts are undersized, slippage on the

	torque capacity in the shaft/hub connection when required. Please consult technical support for more assistance.
Prop 65	<b>WARNING</b> 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	
	<ol> <li>Align the bores of the MDCDE57-20-15-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> 0.30 mm, <i>Axial Motion:</i> 0.76 mm)</li> <li>Fully tighten the M6 screw on the first hub to the recommended seating torque of 16 Nm using a 5.0 mm hex torque wrench.</li> <li>Before tightening the screw on the second hub, rotate the coupling by hand to allow it to reach its free length.</li> <li>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.</li> <li>The shafts may extend into the relieved portion of the bore as long as it does not exceed the shaft penetration length of 37.0 mm.</li> </ol>