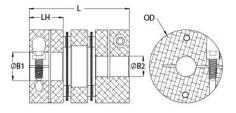




## MDCDE41-15-12-A

Ruland MDCDE41-15-12-A, 15mm x 12mm Double Disc Coupling, Aluminum, Clamp Style, Electrically Isolating, 41.3mm OD, 55.0mm Length





## Description

Ruland MDCDE41-15-12-A is an electrically isolating clamp double disc coupling with 15mm x 12mm bores, 41.3mm OD, and 55.0mm 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. MDCDE41-15-12-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 MDCDE41-15-12-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. MDCDE41-15-12-A is manufactured in our Marlborough, MA factory under strict controls using proprietary processes.

## **Product Specifications**

Type 302 Stainless Steel, Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL-A-6 II, Class 2 and ASTM B58 Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.316900UPC634529089729Tariff Code8483.60.8000UNSPC31163008Note 1Stainless steel hubs are available upon request.31163008Note 2Torque ratings are at maximum misalignment.Ver a particular appleNote 3Performance ratings are for guidance only. The user must determine suitability for a particular apple	r roddor opconnoationis			
Outer Diameter (OD)       41.3 mm       Bore Tolerance       +0.03 mm / -0.00 mm         Length (L)       55.0 mm       Hub Width (LH)       18.0 mm         Recommended Shaft Tolerance       +0.000 mm / -0.013 mm       Forged Clamp Screw       M4         Screw Material       Alloy Steel       Hex Wrench Size       3.0 mm         Screw Finish       Black Oxide       Seating Torque Reversing       5.08 Nm         Number of Screws       2 ea       Dynamic Torque Reversing       5.08 Nm         Angular Misalignment       2.0°       Dynamic Torque Non-Reversing       10.15 Nm         Parallel Misalignment       0.25 mm       Static Torque       20.3 Nm         Axial Motion       0.51 mm       Torsional Stiffness       42.4 Nm/Deg         Moment of Inertia       3.446 x 10 <sup>-5</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-1R-1/4-41.0         Recommended Hex Key       Metric Hex Keys       Material Specification       Sulfuric Anodized MIL-A-4         II, Class 2 and ASTM B50       Black Anodize       Black Anodize         Manufacturer       Ruland Manufacturing       Country of Origin       USA	Bore (B1)	15 mm	Small Bore (B2)	12 mm
Length (L)       55.0 mm       Hub Width (LH)       18.0 mm         Recommended Shaft Tolerance       +0.000 mm / -0.013 mm       Forged Clamp Screw       M4         Screw Material       Alloy Steel       Hex Wrench Size       3.0 mm         Screw Finish       Black Oxide       Seating Torque       4.6 Nm         Number of Screws       2 ea       Dynamic Torque Reversing       5.08 Nm         Angular Misalignment       2.0°       Dynamic Torque Non-Reversing       10.15 Nm         Parallel Misalignment       0.25 mm       Static Torque       20.3 Nm         Axial Motion       0.51 mm       Torsional Stiffness       42.4 Nm/Deg         Moment of Inertia       3.446 x 10 <sup>6</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-1R-1/4-41.0         Recommended Hex Key       Metric Hex Keys       Material Specification       Hubs: 2024-T351 Bar, Dis Type 302 Stainless Steel, Space:: Acetal         Temperature       -10°F to 150°F (-23°C to 65°C)       Finish Specification       II, Class 2 and ASTM B56 Black Anodize         Manufacturer       Ruland Manufacturing       Country of Origin       USA         Weight (lbs)	B1 Max Shaft Penetration	26.1 mm	B2 Max Shaft Penetration	26.1 mm
Recommended Shaft Tolerance       +0.000 mm / -0.013 mm       Forged Clamp Screw       M4         Screw Material       Alloy Steel       Hex Wrench Size       3.0 mm         Screw Finish       Black Oxide       Seating Torque       4.6 Nm         Number of Screws       2 ea       Dynamic Torque Reversing       5.08 Nm         Angular Misalignment       2.0°       Dynamic Torque Non-Reversing       10.15 Nm         Parallel Misalignment       0.25 mm       Static Torque       20.3 Nm         Axial Motion       0.51 mm       Torsional Stiffness       42.4 Nm/Deg         Moment of Inertia       3.446 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-1/4-41.0         Recommended Hex Key       Metric Hex Keys       Material Specification       Hubs: 2024-T351 Bar, Dir         Type 302 Stainless Steel, Spacer: Acetal       Spacer: Acetal       Spacer: Acetal         Temperature       -10°F to 150°F (-23°C to 65°C)       Finish Specification       Ulfuric Anodized MIL-A-6         Marufacturer       Ruland Manufacturing       Country of Origin       USA         Metif (Ibs)       0.316900       UPC	Outer Diameter (OD)	41.3 mm	Bore Tolerance	+0.03 mm / -0.00 mm
Screw Material       Alloy Steel       Hex Wrench Size       3.0 mm         Screw Finish       Black Oxide       Seating Torque       4.6 Nm         Number of Screws       2 ea       Dynamic Torque Reversing       5.08 Nm         Angular Misalignment       2.0°       Dynamic Torque Non-Reversing       10.15 Nm         Parallel Misalignment       0.25 mm       Static Torque       20.3 Nm         Axial Motion       0.51 mm       Torsional Stiffness       42.4 Nm/Deg         Moment of Inertia       3.446 x 10 <sup>5</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-1R-1/4-41.0         Recommended Hex Key       Metric Hex Keys       Material Specification       Hubs: 2024-T351 Bar, Dis Type 302 Stainless Steel, Spacer: Acetal         Temperature       -10°F to 150°F (-23°C to 65°C)       Finish Specification       Sulfuric Anodized MIL-A-6 II, Class 2 and ASTM B56 Black Anodize         Meeight (Ibs)       0.316900       UPC       634529089729       Stainless Acetal         Note 1       Stainless steel hubs are available upon request.       Note 2       Torque ratings are at maximum misalignment.         Note 2       Torque ratings are of guidance only. The	Length (L)	55.0 mm	Hub Width (LH)	18.0 mm
Screw Finish       Black Oxide       Seating Torque       4.6 Nm         Number of Screws       2 ea       Dynamic Torque Reversing       5.08 Nm         Angular Misalignment       2.0°       Dynamic Torque Non-Reversing       10.15 Nm         Parallel Misalignment       0.25 mm       Static Torque       20.3 Nm         Axial Motion       0.51 mm       Torsional Stiffness       42.4 Nm/Deg         Moment of Inertia       3.446 x 10 <sup>-5</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-1R-1/4-41.0         Recommended Hex Key       Metric Hex Keys       Material Specification       Hubs: 2024-T351 Bar, Dis Type 302 Stainless Steel, Spacer: Acetal         Temperature       -10°F to 150°F (-23°C to 65°C)       Finish Specification       Sulfuric Anodized MIL-A-6 II, Class 2 and ASTM B56 Black Anodize         Manufacturer       Ruland Manufacturing       Country of Origin       USA         Weight (Ibs)       0.316900       UPC       634529089729         Tariff Code       8483.60.8000       UNSPC       31163008         Note 2       Torque ratings are at maximum misalignment.       Note 3         Note 3       Performance	Recommended Shaft Tolerance	+0.000 mm / -0.013 mm	Forged Clamp Screw	M4
Number of Screws2 eaDynamic Torque Reversing5.08 NmAngular Misalignment2.0°Dynamic Torque Non-Reversing10.15 NmParallel Misalignment0.25 mmStatic Torque20.3 NmAxial Motion0.51 mmTorsional Stiffness42.4 Nm/DegMoment of Inertia3.446 x 10 <sup>5</sup> kg-m²Maximum Speed10,000 RPMFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesTorque WrenchTW:BT-1R-1/4-41.0Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, Dis Type 302 Stainless Steel, Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL-A-6 Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (Ibs)0.316900UPC634529089729Tariff Code8483.60.8000UNSPC31163008Note 1Stainless steel hubs are available upon request.Note 2Note 3Performance ratings are at maximum misalignment.Torque ratings for the couplings are based on the physical limitations/failure point of the disc springs cases, especially when the smallest standard bores are used or where shafts are undersized, slipp	Screw Material	Alloy Steel	Hex Wrench Size	3.0 mm
Angular Misalignment       2.0°       Dynamic Torque Non-Reversing       10.15 Nm         Parallel Misalignment       0.25 mm       Static Torque       20.3 Nm         Axial Motion       0.51 mm       Torsional Stiffness       42.4 Nm/Deg         Moment of Inertia       3.446 x 10 <sup>-5</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-1R-1/4-41.0         Recommended Hex Key       Metric Hex Keys       Material Specification       Hubs: 2024-T351 Bar, Dis Type 302 Stainless Steel, Spacer: Acetal         Temperature       -10°F to 150°F (-23°C to 65°C)       Finish Specification       Sulfuric Anodized MIL-A-6         Manufacturer       Ruland Manufacturing       Country of Origin       USA         Weight (Ibs)       0.316900       UPC       634529089729         Tariff Code       8483.60.8000       UNSPC       31163008         Note 1       Stainless steel hubs are available upon request.       Note 2         Note 3       Performance ratings are for guidance only. The user must determine suitability for a particular appl         Note 4       Torque ratings for the couplings are based on the physical limitations/failure point of the disc springs, cases, especially when the smallest standar	Screw Finish	Black Oxide	Seating Torque	4.6 Nm
Parallel Misalignment       0.25 mm       Static Torque       20.3 Nm         Axial Motion       0.51 mm       Torsional Stiffness       42.4 Nm/Deg         Moment of Inertia       3.446 x 10 <sup>-5</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-1R-1/4-41.0         Recommended Hex Key       Metric Hex Keys       Material Specification       Hubs: 2024-T351 Bar, Dis Type 302 Stainless Steel, Spacer: Acetal         Temperature       -10°F to 150°F (-23°C to 65°C)       Finish Specification       II, Class 2 and ASTM B56 Black Anodize         Manufacturer       Ruland Manufacturing       Country of Origin       USA         Weight (Ibs)       0.316900       UPC       634529089729         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 appl Torque ratings for the couplings are based on the physical limitations/failure point of the disc springs, cases, especially when the smallest standard bores are used or where shafts are undersized, slipp	Number of Screws	2 ea	Dynamic Torque Reversing	5.08 Nm
Axial Motion0.51 mmTorsional Stiffness42.4 Nm/DegMoment of Inertia3.446 x 10 <sup>-5</sup> kg-m²Maximum Speed10,000 RPMFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesTorque WrenchTW:BT-1R-1/4-41.0Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, Dis Type 302 Stainless Steel, Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL-A-4 II, Class 2 and ASTM B56 Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.316900UPC634529089729Tariff 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 appl normal/typical conditions the hubs are capable of holding up to the rated torque of the disc springs, cases, especially when the smallest standard bores are used or where shafts are undersized, slipp	Angular Misalignment	2.0°	Dynamic Torque Non-Reversing	10.15 Nm
Moment of Inertia       3.446 × 10 <sup>-5</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-1R-1/4-41.0         Recommended Hex Key       Metric Hex Keys       Material Specification       Hubs: 2024-T351 Bar, Dis Type 302 Stainless Steel, Spacer: Acetal         Temperature       -10°F to 150°F (-23°C to 65°C)       Finish Specification       Sulfuric Anodized MIL-A-6         Manufacturer       Ruland Manufacturing       Country of Origin       USA         Weight (lbs)       0.316900       UPC       634529089729         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 appl         Note 4       Torque ratings for the couplings are based on the physical limitations/failure point of the disc springs, cases, especially when the smallest standard bores are used or where shafts are undersized, slipp	Parallel Misalignment	0.25 mm	Static Torque	20.3 Nm
Full Bearing Support Required?YesBalanced DesignYesBalanced DesignYesRecommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, Dis Type 302 Stainless Steel, Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL-A-E II, Class 2 and ASTM B58 Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.316900UPC634529089729Tariff 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 appl normal/typical conditions the hubs are capable of holding up to the rated torque of the disc springs, cases, especially when the smallest standard bores are used or where shafts are undersized, slipp	Axial Motion	0.51 mm	Torsional Stiffness	42.4 Nm/Deg
Balanced DesignYesTorque WrenchTW:BT-1R-1/4-41.0Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, Dis Type 302 Stainless Steel, Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL-A-E II, Class 2 and ASTM B58 Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.316900UPC634529089729Tariff 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 appl normal/typical conditions the hubs are capable of holding up to the rated torque of the disc springs, cases, especially when the smallest standard bores are used or where shafts are undersized, slipp	Moment of Inertia	3.446 x 10 <sup>-5</sup> kg-m <sup>2</sup>	Maximum Speed	10,000 RPM
Recommended Hex KeyMetric Hex KeysMaterial SpecificationHubs: 2024-T351 Bar, Dis Type 302 Stainless Steel, Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL-A-8 II, Class 2 and ASTM B58 Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.316900UPC634529089729Tariff 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 applNote 3Performance ratings for the couplings are based on the physical limitations/failure point of the disc springs cases, especially when the smallest standard bores are used or where shafts are undersized, slipp	Full Bearing Support Required?	Yes	Zero-Backlash?	Yes
Type 302 Stainless Steel, Spacer: AcetalTemperature-10°F to 150°F (-23°C to 65°C)Finish SpecificationSulfuric Anodized MIL-A-E II, Class 2 and ASTM B58 Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.316900UPC634529089729Tariff 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 appl normal/typical conditions the hubs are capable of holding up to the rated torque of the disc springs cases, especially when the smallest standard bores are used or where shafts are undersized, slipp	Balanced Design	Yes	Torque Wrench	<u>TW:BT-1R-1/4-41.0</u>
II, Class 2 and ASTM B58 Black AnodizeManufacturerRuland ManufacturingCountry of OriginUSAWeight (lbs)0.316900UPC634529089729Tariff 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 applNote 3Performance ratings are for guidance only. The user must determine suitability for a particular applNote 4Torque ratings for the couplings are based on the physical limitations/failure point of the disc springs normal/typical conditions the hubs are capable of holding up to the rated torque of the disc springs cases, especially when the smallest standard bores are used or where shafts are undersized, slipp	Recommended Hex Key	Metric Hex Keys	Material Specification	Hubs: 2024-T351 Bar, Disc Springs Type 302 Stainless Steel, Center Spacer: Acetal
Weight (lbs)       0.316900       UPC       634529089729         Tariff Code       8483.60.8000       UNSPC       31163008         Note 1       Stainless steel hubs are available upon request.       Torque ratings are at maximum misalignment.         Note 2       Torque ratings are for guidance only. The user must determine suitability for a particular appl         Note 3       Performance ratings for the couplings are based on the physical limitations/failure point of the disc springs.         Note 4       Torque ratings for the smallest standard bores are used or where shafts are undersized, slipp	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 applNote 4Torque ratings for the couplings are based on the physical limitations/failure point of the disc springs.normal/typical conditions the hubs are capable of holding up to the rated torque of the disc springs.cases, especially when the smallest standard bores are used or where shafts are undersized, slipp	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 appl         Note 4       Torque ratings for the couplings are based on the physical limitations/failure point of the disc springs normal/typical conditions the hubs are capable of holding up to the rated torque of the disc springs cases, especially when the smallest standard bores are used or where shafts are undersized, slipp	Weight (Ibs)	0.316900	UPC	634529089729
Note 2         Torque ratings are at maximum misalignment.           Note 3         Performance ratings are for guidance only. The user must determine suitability for a particular appl           Note 4         Torque ratings for the couplings are based on the physical limitations/failure point of the disc springs normal/typical conditions the hubs are capable of holding up to the rated torque of the disc springs cases, especially when the smallest standard bores are used or where shafts are undersized, slipp	Tariff Code	8483.60.8000	UNSPC	31163008
Note 3         Performance ratings are for guidance only. The user must determine suitability for a particular appl           Note 4         Torque ratings for the couplings are based on the physical limitations/failure point of the disc springs           normal/typical conditions the hubs are capable of holding up to the rated torque of the disc springs           cases, especially when the smallest standard bores are used or where shafts are undersized, slipp	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 springs           normal/typical conditions the hubs are capable of holding up to the rated torque of the disc springs         cases, especially when the smallest standard bores are used or where shafts are undersized, slipp	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 springs, cases, especially when the smallest standard bores are used or where shafts are undersized, slipp	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	d 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.			
<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> .			
<ol> <li>Align the bores of the MDCDE41-15-12-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> 0.25 mm, <i>Axial Motion:</i> 0.51 mm)</li> <li>Fully tighten the M4 screw on the first hub to the recommended seating torque of 4.6 Nm using a 3.0 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 26.1 mm.</li> </ol>			