



## MOCT33-12-A

Ruland MOCT33-12-A, 12mm Oldham Coupling Hub, Aluminum, Clamp Style, 33.3mm OD, 15.0mm Length



## Description

Ruland MOCT33-12-A is a clamp oldham coupling hub with a 12mm bore, 33.3mm OD, and 15.0mm length. It is a component of a three-piece design consisiting of two anodized aluminum hubs press fit onto a center disk. This three-piece design allows for a highly customizable coupling that easily combines clamp or set screw hubs with inch, metric, keyed, and keyless bores. Disks are available in three materials allowing the user to tailor coupling performance to their application. MOCT33-12-A can accommodate all forms of misalignment and is especially useful in applications with high parallel misalignment (up to 10% of the OD). It operates with low bearing loads protecting sensitive system components such as bearings and has a balanced design for reduced vibration at speeds up to 6,000 RPM. Hardware is metric and tests beyond DIN 912 12.9 standards for maximum torque capabilities. MOCT33-12-A is machined from bar stock that is sourced exclusively from North American mills and is RoHS3 and REACH compliant. It is manufactured in our Marlborough, MA factory under strict controls using proprietary processes.

## **Product Specifications**

| Hub Width (LH)15.00 mmLength (L)47.6 mmRecommended Shaft Tolerance+0.000 mm / -0.013 mmForged Clamp ScrewM3Number of Screws1 eaScrew MaterialAlloy SteelScrew FinishBlack OxideSeating Torque2.1 NmHex Wrench Size2.5 mmTorque SpecificationsTorque ratings vary v<br>selectionAngular Misalignment0.5°Parallel Misalignment0.008 in (0.20 mm)Max Parallel Misalignment0.131 in (3.33 mm)Axial Motion0.008 in (0.15 mm)Moment of Inertia5.305 x 10° <sup>6</sup> kg-m²Maximum Speed4,500 RPMRecommended InsertsOD21/33-NL,<br>OD21/33-NL,<br>OD21/33-PEKFull Bearing Support Required?<br>YesYesZero-Backlash?YesBalanced DesignYesMechanical Fuse?YesUPC634529059432Country of OriginUSAMaterial Specification2024-T351 Aluminum<br>Black Anodized MI<br>II, Class 2 and ASTM<br>Black AnodizeManufacturerRuland ManufacturingTemperatureAcetal Disk -10°F to 1<br>to 54°C)<br>PEEK Disk -10°F to 1<br>to 54°C)Weight (Ibs)0.074000Tariff Code8483.60.8000UNSPC31163015"Now available in stainless steel!"Note 2"Performance ratings are for guidance only. The user must determine suitability for a particula                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Froduct Specifications      |                                                                                                                  |                                |                                                                                        |
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| Hub Width (LH)15.00 mmLength (L)47.6 mmRecommended Shaft Tolerance+0.000 mm / -0.013 mmForged Clamp ScrewM3Number of Screws1 eaScrew MaterialAlloy SteelScrew FinishBlack OxideSeating Torque2.1 NmHex Wrench Size2.5 mmTorque SpecificationsTorque ratings vary v<br>selectionAngular Misalignment0.5°Parallel Misalignment0.008 in (0.20 mm)Max Parallel Misalignment0.131 in (3.33 mm)Axial Motion0.006 in (0.15 mm)Moment of Inertia5.305 x 10° <sup>6</sup> kg·m²Maximum Speed4,500 RPMRecommended InsertsOD21/33-NL,<br>OD21/33-NEKFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesMechanical Fuse?YesUPC634529059432Country of OriginUSAMaterial SpecificationSulfuric Anodized MI<br>II, class 2 and ASTM<br>Black AnodizedSulfuric Anodized MI<br>II, class 2 and ASTM<br>Black AnodizedManufacturerRuland ManufacturingTemperatureAcetal Disk -10°F to 1<br>to 54°C)<br>PEEK Disk -10°F to 1<br>to 448°C)Weight (Ibs)0.074000Tariff Code8483.60.8000UNSPC31163015"Now available in stainless steel!"The user must determine suitability for a particula                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Bore (B1)                   | 12 mm                                                                                                            | Outer Diameter (OD)            | 33.3 mm                                                                                |
| Recommended Shaft Tolerance       +0.000 mm / -0.013 mm       Forged Clamp Screw       M3         Number of Screws       1 ea       Screw Material       Alloy Steel         Screw Finish       Black Oxide       Seating Torque       2.1 Nm         Hex Wrench Size       2.5 mm       Torque Specifications       Torque ratings vary viselection         Angular Misalignment       0.5°       Parallel Misalignment       0.008 in (0.20 mm)         Max Parallel Misalignment       0.131 in (3.33 mm)       Axial Motion       0.008 in (0.20 mm)         Moment of Inertia       5.305 x 10 <sup>-6</sup> kg·m <sup>2</sup> Maximum Speed       4,500 RPM         Recommended Inserts       OD21/33-NL, OD21/33-NL, OD21/33-NL, OD21/33-NEK       Full Bearing Support Required? Ves       Ves         Zero-Backlash?       Yes       Balanced Design       Yes         Mechanical Fuse?       Yes       UPC       634529059432         Country of Origin       USA       Material Specification       2024-T351 Aluminun         Finish       Black Anodized       Finish Specification       Sulfuric Anodized MII, I, Class 2 and ASTM, Black Anodize         Manufacturer       Ruland Manufacturing       Temperature       Acetal Disk -10°F to 1 to 54°C), PEEK Disk -10°F to 1 to 54°C), PEEK Disk -10°F to 1 to 54°C), PEEK Disk -10°F to 1 to 148°C)         Weight (lbs)<                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | B1 Max Shaft Penetration    | 15.0 mm                                                                                                          | Bore Tolerance                 | +0.03 mm / -0.00 mm                                                                    |
| Number of Screws       1 ea       Screw Material       Alloy Steel         Screw Finish       Black Oxide       Seating Torque       2.1 Nm         Hex Wrench Size       2.5 mm       Torque Specifications       Torque ratings vary value         Angular Misalignment       0.5°       Parallel Misalignment       0.008 in (0.20 mm)         Max Parallel Misalignment       0.131 in (3.33 mm)       Axial Motion       0.006 in (0.15 mm)         Moment of Inertia       5.305 x 10° kg·m²       Maximum Speed       4,500 RPM         Recommended Inserts       OD21/33-AT, OD21/33-NL, OD21/33-NL, OD21/33-PEK       Full Bearing Support Required?       Yes         Zero-Backlash?       Yes       Balanced Design       Yes         Mechanical Fuse?       Yes       UPC       634529059432         Country of Origin       USA       Material Specification       2024-T351 Aluminun         Finish       Black Anodized       Finish Specification       Suffuric Anodized MI II, Class 2 and ASTIN Black Anodize         Manufacturer       Ruland Manufacturing       Temperature       Acetal Disk -10°F to 1 to 54°C)         Weight (lbs)       0.074000       Tariff Code       8438.60.8000         UNSPC       31163015       Torque ratings are for guidance only. The user must determine suitability for a particula <td>Hub Width (LH)</td> <td>15.00 mm</td> <td>Length (L)</td> <td>47.6 mm</td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Hub Width (LH)              | 15.00 mm                                                                                                         | Length (L)                     | 47.6 mm                                                                                |
| Screw Finish         Black Oxide         Seating Torque         2.1 Nm           Hex Wrench Size         2.5 mm         Torque Specifications         Torque ratings vary vestection           Angular Misalignment         0.5°         Parallel Misalignment         0.008 in (0.20 mm)           Max Parallel Misalignment         0.131 in (3.33 mm)         Axial Motion         0.006 in (0.15 mm)           Moment of Inertia         5.305 x 10° kg-m²         Maximum Speed         4,500 RPM           Recommended Inserts         OD21/33-NL, OD21/33-NL, OD21/33-NL, OD21/33-NEK         Full Bearing Support Required?         Yes           Zero-Backlash?         Yes         Balanced Design         Yes           Country of Origin         USA         Material Specification         2024-T351 Aluminun           Finish         Black Anodized         Finish Specification         2024-T351 Aluminun           Finish         Black Anodized         Finish Specification         Sulfuric Anodized MI           II, Class 2 and ASTM<br>Black Anodized         Recetal Disk -10°F to 1<br>to 65°)         Sulfuric Anodize           Manufacturer         Ruland Manufacturing         Temperature         Acetal Disk -10°F to 1<br>to 54°C)<br>PEEK Disk -10°F to 1<br>to 54°C)<br>PEEK Disk -10°F to 1<br>to 148°C)         Ak83.60.8000           Weright (lbs)         0.074000 <t< td=""><td>Recommended Shaft Tolerance</td><td>+0.000 mm / -0.013 mm</td><td>Forged Clamp Screw</td><td>M3</td></t<>                                                                                                                                                                                                                                                                                                                                                                                     | Recommended Shaft Tolerance | +0.000 mm / -0.013 mm                                                                                            | Forged Clamp Screw             | M3                                                                                     |
| Hex Wrench Size2.5 mmTorque SpecificationsTorque ratings vary v<br>selectionAngular Misalignment0.5°Parallel Misalignment0.008 in (0.20 mm)Max Parallel Misalignment0.131 in (3.33 mm)Axial Motion0.006 in (0.15 mm)Moment of Inertia5.305 x 10° kg-m²Maximum Speed4,500 RPMRecommended InsertsOD21/33-AT, OD21/33-NL,<br>OD21/33-PEKFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesMechanical Fuse?YesUPC634529059432Country of OriginUSAMaterial Specification2024-T351 AluminunFinishBlack AnodizedFinish SpecificationSulfuric Anodized MI<br>II, Class 2 and ASTM<br>Black AnodizeManufacturerRuland ManufacturingTemperatureAccetal Disk -10°F to 1<br>to 54°C)<br>PEEK Disk -10°F to 1<br>to 54°C)<br>DEEK Disk -10°F to 1<br>to 54°C)Weight (lbs)0.074000Tariff Code8483.60.8000UNSPC31163015"Performance ratings are for guidance only. The user must determine suitability for a particula                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Number of Screws            | 1 ea                                                                                                             | Screw Material                 | Alloy Steel                                                                            |
| Angular Misalignment0.5°Parallel Misalignment0.008 in (0.20 mm)Max Parallel Misalignment0.131 in (3.33 mm)Axial Motion0.006 in (0.15 mm)Moment of Inertia5.305 x 10° kg-m²Maximum Speed4,500 RPMRecommended InsertsOD21/33-AT, OD21/33-NL,<br>OD21/33-PEKFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesMechanical Fuse?YesUPC634529059432Country of OriginUSAMaterial Specification2024-T351 AluminunFinishBlack AnodizedFinish SpecificationSulfuric Anodized MI<br>II, Class 2 and ASTM<br>Black AnodizeManufacturerRuland ManufacturingTemperatureAcetal Disk -10°F to to<br>to 65°)<br>Nylon Disk -10°F to to<br>to 65°)Weight (lbs)0.074000Tariff Code8483.60.8000UNSPC31163015"Now available in stainless steel!"VerNote 2"Performance ratings are for guidance only. The user must determine suitability for a particula                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Screw Finish                | Black Oxide                                                                                                      | Seating Torque                 | 2.1 Nm                                                                                 |
| Max Parallel Misalignment0.131 in (3.33 mm)Axial Motion0.006 in (0.15 mm)Moment of Inertia5.305 x 10° kg·m²Maximum Speed4,500 RPMRecommended InsertsOD21/33-AT, OD21/33-NL,<br>OD21/33-PEKFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesMechanical Fuse?YesUPC634529059432Country of OriginUSAMaterial Specification2024-T351 AluminunFinishBlack AnodizedFinish SpecificationSulfuric Anodized MI<br>II, Class 2 and ASTM<br>Black AnodizedManufacturerRuland ManufacturingTemperatureAcetal Disk -10°F to to<br>to 54°C)<br>PEK Disk -10°F to to<br>to 54°C)Weight (Ibs)0.074000Tariff Code848.60.8000UNSPC31163015"Now available in stainless steel!"The user must determine suitability for a particulaNote 2"Performance ratings are for guidance only. The user must determine suitability for a particula                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Hex Wrench Size             | 2.5 mm                                                                                                           | Torque Specifications          | Torque ratings vary with insert<br>selection                                           |
| Moment of Inertia5.305 x 10.6 kg·m²Maximum Speed4,500 RPMRecommended InsertsOD21/33-AT, OD21/33-NL,<br>OD21/33-PEKFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesMechanical Fuse?YesUPC634529059432Country of OriginUSAMaterial Specification2024-T351 AluminunFinishBlack AnodizedFinish SpecificationSulfuric Anodized MI<br>II, Class 2 and ASTM<br>Black AnodizeManufacturerRuland ManufacturingTemperatureAcetal Disk -10°F to<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Angular Misalignment        | 0.5°                                                                                                             | Parallel Misalignment          | 0.008 in (0.20 mm)                                                                     |
| Recommended InsertsOD21/33-AT, OD21/33-NL,<br>OD21/33-PEKFull Bearing Support Required?YesZero-Backlash?YesBalanced DesignYesMechanical Fuse?YesUPC634529059432Country of OriginUSAMaterial Specification2024-T351 AluminunFinishBlack AnodizedFinish SpecificationSulfuric Anodized MI<br>II, Class 2 and ASTM<br>Black AnodizeManufacturerRuland ManufacturingTemperatureAcetal Disk -10°F to<br>to 65°)<br>Nylon Disk -10°F to 1<br>to 54°C)<br>PEEK Disk -10°F to 1<br>to 148°C)Weight (Ibs)0.074000Tariff Code8483.60.8000UNSPC31163015"Now available in stainless steel!"The user must determine suitability for a particula                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Max Parallel Misalignment   | 0.131 in (3.33 mm)                                                                                               | Axial Motion                   | 0.006 in (0.15 mm)                                                                     |
| OD21/33-PEKZero-Backlash?YesBalanced DesignYesMechanical Fuse?YesUPC634529059432Country of OriginUSAMaterial Specification2024-T351 AluminumFinishBlack AnodizedFinish SpecificationSulfuric Anodized MI<br>II, Class 2 and ASTM<br>Black AnodizeManufacturerRuland ManufacturingTemperatureAcetal Disk -10°F to<br>to 65°)<br>Nylon Disk -10°F to at<br>to 54°C)<br>PEEK Disk -10°F to at<br>to 148°C)Weight (Ibs)0.074000Tariff Code8483.60.8000UNSPC31163015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Moment of Inertia           | 5.305 x 10 <sup>-6</sup> kg-m <sup>2</sup>                                                                       | Maximum Speed                  | 4,500 RPM                                                                              |
| Mechanical Fuse?YesUPC634529059432Country of OriginUSAMaterial Specification2024-T351 AluminumFinishBlack AnodizedFinish SpecificationSulfuric Anodized MIII, Class 2 and ASTMBlack AnodizeBlack AnodizeManufacturerRuland ManufacturingTemperatureAcetal Disk -10°F to to to 65°)Nylon Disk -10°F to 1Sulfuric AnodizeNoloneWeight (lbs)0.074000Tariff Code8483.60.8000UNSPC31163015Italiantes steel!"Italiantes steel!"Note 1"Performance ratings are for guidance only. The user must determine suitability for a particula                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Recommended Inserts         |                                                                                                                  | Full Bearing Support Required? | Yes                                                                                    |
| Country of OriginUSAMaterial Specification2024-T351 AluminunFinishBlack AnodizedFinish SpecificationSulfuric Anodized MI<br>II, Class 2 and ASTM<br>Black AnodizeManufacturerRuland ManufacturingTemperatureAcetal Disk -10°F to to<br>to 65°)<br>Nylon Disk -10°F to 1<br>to 54°C)<br>PEEK Disk -10°F to 3<br>to 148°C)Weight (Ibs)0.074000Tariff Code8483.60.8000UNSPC31163015Item stainless steel!"Note 1"Now available in stainless steel!""Performance ratings are for guidance only. The user must determine suitability for a particula                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Zero-Backlash?              | Yes                                                                                                              | Balanced Design                | Yes                                                                                    |
| FinishBlack AnodizedFinish SpecificationSulfuric Anodized MI<br>II, Class 2 and ASTM<br>Black AnodizeManufacturerRuland ManufacturingTemperatureAcetal Disk -10°F to<br>to 65°)<br>Nylon Disk -10°F to 1<br>to 54°C)<br>PEEK Disk -10°F to 1<br>to 148°C)Weight (Ibs)0.074000Tariff Code8483.60.8000UNSPC31163015Integration of the stainless steel!"Note 1"Now available in stainless steel!"The user must determine suitability for a particula                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Mechanical Fuse?            | Yes                                                                                                              | UPC                            | 634529059432                                                                           |
| Manufacturer       Ruland Manufacturing       Temperature       Acetal Disk -10°F to to 65°)         Nylon Disk -10°F to 1 to 54°C)       Nylon Disk -10°F to 1 to 54°C)       Nylon Disk -10°F to 1 to 54°C)         Weight (Ibs)       0.074000       Tariff Code       8483.60.8000         UNSPC       31163015       Statistical Statistic | Country of Origin           | USA                                                                                                              | Material Specification         | 2024-T351 Aluminum Bar                                                                 |
| to 65°)<br>Nylon Disk -10°F to 1<br>to 54°C)<br>PEEK Disk -10°F to 1<br>to 54°C)<br>PEEK Disk -10°F to 2<br>to 148°C)Weight (lbs)0.074000Tariff Code8483.60.8000UNSPC31163015Note 1"Now available in stainless steel!"Note 2"Performance ratings are for guidance only. The user must determine suitability for a particular                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Finish                      | Black Anodized                                                                                                   | Finish Specification           | Sulfuric Anodized MIL-A-8625 Type<br>II, Class 2 and ASTM B580 Type B<br>Black Anodize |
| UNSPC       31163015         Note 1       "Now available in stainless steel!"         Note 2       "Performance ratings are for guidance only. The user must determine suitability for a particula                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Manufacturer                | Ruland Manufacturing                                                                                             | Temperature                    | Nylon Disk -10°F to 130°F (-23°C<br>to 54°C)<br>PEEK Disk -10°F to 300°F (-23°C        |
| Note 1"Now available in stainless steel!"Note 2"Performance ratings are for guidance only. The user must determine suitability for a particula                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Weight (Ibs)                | 0.074000                                                                                                         | Tariff Code                    | 8483.60.8000                                                                           |
| Note 2 "Performance ratings are for guidance only. The user must determine suitability for a particula                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | UNSPC                       | 31163015                                                                                                         |                                |                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Note 1                      | "Now available in stainless steel!"                                                                              |                                |                                                                                        |
| Note 3 "Torque ratings for the couplings are based on the physical limitations/failure point of the torque                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Note 2                      | "Performance ratings are for guidance only. The user must determine suitability for a particular application."   |                                |                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Note 3                      | "Torque ratings for the couplings are based on the physical limitations/failure point of the torque disks. Under |                                |                                                                                        |

normal/typical conditions the hubs are capable of holding up to the rated torque of the disks. In some cases, especially when the smallest standard bores are used or where shafts are undersized, slippage on the shaft

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|                                                                                                                                                                                                                         | is possible below the rated torque of the disks. Keyways are available to provide additional torque capacity in the shaft/hub connection when required. Please consult technical support for more assistance."                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |
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| Prop 65         MARNING This product can expose you to the chemical Ethylene Thiourea, known to the California to cause cancer and birth defects or other reproductive harm. For more informate www.P65Warnings.ca.gov. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |
| Installation Instructions                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |
|                                                                                                                                                                                                                         | <ol> <li>Align the bores of the MOCT33-12-A oldham coupling hubs on the shafts that are to be joined and determine if the misalignment parameters are within the limits of the coupling. (<i>Angular Misalignment:</i> 0.5° <i>Parallel Misalignment:</i> 0.008 in (0.20 mm), <i>Axial Motion:</i> 0.006 in (0.15 mm))</li> <li>Rotate the hubs on the shaft so the drive tenons are located 90° from each other.</li> <li>Place a torque disk so one groove fits over the drive tenons of a hub and center the disk by hand.</li> <li>Insert a shim with the thickness of the coupling's axial motion rating into the groove of the torque disk.</li> <li>Slide the tenons of the second hub into the mating groove in the disk until it touches the shim stock.</li> <li>Fully tighten the M3 screw(s) on each hub to the recommended seating torque of 2.1 Nm using a 2.5 mm hex torque wrench.</li> <li>Remove the shim stock to leave a small gap between the top of the drive tenons and the torque disk to allow for axial movement.</li> </ol> |  |  |