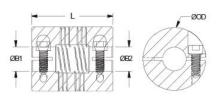




## PCMR29-12-9-A

Ruland PCMR29-12-9-A, 12mm x 9mm Four Beam Coupling, Aluminum, Clamp Style, 28.6mm OD, 38.1mm Length





## **Description**

Ruland PCMR29-12-9-A is a clamp style four beam coupling with 12mm x 9mm bores, 28.6mm OD, and 38.1mm length. It is machined from a single piece of material and feature two sets of two spiral cuts. This gives it higher torque capacity, lower windup, and larger body sizes than single beam couplings. PCMR29-12-9-A is zero-backlash and has a balanced design for reduced vibration at high speeds of up to 6,000 RPM. This four beam spiral coupling is zero-backlash and has a balanced design for reduced vibration at high speeds of up to 6,000 RPM. All hardware is metric and tests beyond DIN 912 12.9 standards for maximum torque capabilities. PCMR29-12-9-A is made from 7075 aluminum for lightweight and low inertia. It is machined from bar stock that is sourced exclusively from North American mills and RoHS3 and REACH compliant. PCMR29-12-9-A is manufactured in our Marlborough, MA factory under strict controls using proprietary processes.

## **Product Specifications**

BI Max Shaft Penetration 17.6 mm B2 Max Shaft Penetration 17.6 mm Outer Diameter (OD) 28.6 mm Bore Tolerance 40.025 mm / -0.000 mm Length (L) 38.1 mm Recommended Shaft Tolerance +0.000 mm / -0.013 mm Cap 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 0.96 Nm Angular Misalignment 3° Dynamic Torque Reversing 1.92 Nm Parallel Misalignment 0.38 mm Static Torque 3.84 Nm Axial Motion 0.25 mm Torsional Stiffness 1.96 Deg/Nm Moment of Inertia 6.349 x10-6 kg-m² Maximum Speed 6,000 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 7075-T651 Extruded and Drawn Aluminum Bar Finish Specification Bright, No Plating Manufacturer Ruland Manufacturing Country of Origin USA Weight (lbs) 0.105300 UPC 634529031964 Tariff Code 8483.60.8000 UNSPC 31163003 Note 1 Torque ratings are at maximum misalignment. 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 machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. Please consultechnical support for more assistance.	i roduct opcomoduons			
Duter Diameter (OD)  28.6 mm  Bore Tolerance  +0.025 mm / -0.000 mm  Length (L)  38.1 mm  Recommended Shaft Tolerance  40.000 mm / -0.013 mm  Cap 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  0.96 Nm  Angular Misalignment  3°  Dynamic Torque Non-Reversing  1.92 Nm  Parallel Misalignment  0.38 mm  Static Torque  3.84 Nm  Axial Motion  0.25 mm  Torsional Stiffness  1.96 Deg/Nm  Moment of Inertia  6.349 x10 <sup>-6</sup> kg-m²  Yes  Zero-Backlash?  Yes  Balanced Design  Yes  Torque Wrench  TW-BT-1R-1/4-41.0  Recommended Hex Key  Metric Hex Keys  Material Specification  7075-T651 Extruded and Drawn Aluminum Bar  Finish Specification  Bright, No Plating  Manufacturer  Aluminum Bar  Finish Specification  Bright, No Plating  Manufacturer  Ruland Manufacturing  Country of Origin  USA  Weight (lbs)  0.105300  UPC  634529031964  Tariff Code  8483.60.8000  UNSPC  31163003  Note 1  Torque ratings are at maximum misalignment.  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 machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. In some cases, especially when the smallest standard bores are used or where shafts are undersized, slippage on the shaft is possible below the rated torque of the machined beams. Please consultechnical support for more assistance.  Prop 65	Bore (B1)	12 mm	Small Bore (B2)	9 mm
Length (L) 38.1 mm Recommended Shaft Tolerance +0.000 mm / -0.013 mm Cap 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 0.96 Nm Angular Misalignment 3°  Dynamic Torque Non-Reversing 1.92 Nm Parallel Misalignment 0.38 mm  Static Torque 3.84 Nm Axial Motion 0.25 mm  Torsional Stiffness 1.96 Deg/Nm Moment of Inertia 6.349 x10 <sup>-6</sup> kg-m²  Maximum Speed 6,000 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 7075-1651 Extruded and Drawn Aluminum Bar  Finish Specification Bright, No Plating Manufacturer Ruland Manufacturing Country of Origin USA Weight (lbs) 0.105300  UPC 634529031964 Tariff Code 8483.60.8000  UNSPC 31163003  Note 1 Torque ratings are at maximum misalignment.  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 machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. In some cases, especially when the smallest standard bores are used or where shafts are undersized, slippage on the shaft is possible below the rated torque of the machined beams. Please consulternical support for more assistance.  Prop 65	B1 Max Shaft Penetration	17.6 mm	B2 Max Shaft Penetration	17.6 mm
Cap 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 0.96 Nm Angular Misalignment 3°  Dynamic Torque Non-Reversing 1.92 Nm Parallel Misalignment 0.38 mm  Static Torque 3.84 Nm Axial Motion 0.25 mm  Torsional Stiffness 1.96 Deg/Nm Moment of Inertia 6.349 x10 <sup>-6</sup> kg-m²  Maximum Speed 6,000 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 7075-T651 Extruded and Drawn Aluminum Bar  Finish Specification Bright, No Plating Manufacturer Ruland Manufacturing  Country of Origin USA Weight (lbs) 0.105300  UNSPC 31163003  Note 1 Torque ratings are at maximum misalignment.  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 machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. In some cases, especially when the smallest standard bores are used or where shafts are undersized, slippage on the shaft is possible below the rated torque of the machined beams. Please consultechnical Support for more assistance.  Prop 65  AWARNING This product can expose you to the chemical Ethylene Thiourea, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to	Outer Diameter (OD)	28.6 mm	Bore Tolerance	+0.025 mm / -0.000 mm
Hex Wrench Size 3.0 mm Screw Finish Black Oxide  Seating Torque 4.6 Nm Number of Screws 2 ea  Dynamic Torque Reversing 0.96 Nm Angular Misalignment 3°  Dynamic Torque Non-Reversing 1.92 Nm Parallel Misalignment 0.38 mm  Static Torque 3.84 Nm Axial Motion 0.25 mm  Torsional Stiffness 1.96 Deg/Nm Moment of Inertia 6.349 x10 <sup>-6</sup> kg-m <sup>-2</sup> Maximum Speed 6,000 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 7075-T651 Extruded and Drawn Aluminum Bar  Finish Specification Bright, No Plating Manufacturer Ruland Manufacturing  Country of Origin USA Weight (lbs) 0.105300  UNSPC 31163003  Note 1 Torque ratings are at maximum misalignment.  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 machined beams. In some cases, especially when the smallest standard bores are used or where shafts are undersized, slippage on the shaft is possible below the rated torque of the machined beams. Please consultechnical support for more assistance.  Prop 65  AWARNING This product can expose you to the chemical Ethylene Thiourea, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to	Length (L)	38.1 mm	Recommended Shaft Tolerance	+0.000 mm / -0.013 mm
Seating Torque 4.6 Nm Number of Screws 2 ea  Dynamic Torque Reversing 0.96 Nm Angular Misalignment 3°  Dynamic Torque Non-Reversing 1.92 Nm Parallel Misalignment 0.38 mm  Static Torque 3.84 Nm Axial Motion 0.25 mm  Torsional Stiffness 1.96 Deg/Nm Moment of Inertia 6.349 x10 <sup>-6</sup> kg-m²  Maximum Speed 6,000 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 7075-T651 Extruded and Drawn Aluminum Bar  Finish Specification Bright, No Plating Manufacturer Ruland Manufacturing  Country of Origin USA Weight (lbs) 0.105300  UPC 634529031964 Tariff Code 8483.60.8000  UNSPC 31163003  Note 1 Torque ratings are at maximum misalignment.  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 machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. In some cases, especially when the smallest standard bores are used or where shafts are undersized, slippage on the shaft is possible below the rated torque of the machined beams. Please consultechnical support for more assistance.  Prop 65	Cap Screw	M4	Screw Material	Alloy Steel
Dynamic Torque Reversing 0.96 Nm Angular Misalignment 3° Dynamic Torque Non-Reversing 1.92 Nm Parallel Misalignment 0.38 mm  Static Torque 3.84 Nm Axial Motion 0.25 mm  Torsional Stiffness 1.96 Deg/Nm Moment of Inertia 6.349 x10 <sup>-6</sup> kg-m² Maximum Speed 6,000 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 7075-T651 Extruded and Drawn Aluminum Bar Finish Specification Bright, No Plating Manufacturer Ruland Manufacturing Country of Origin USA Weight (lbs) 0.105300  UPC 634529031964 Tariff Code 8483.60.8000  UNSPC 31163003  Note 1 Torque ratings are at maximum misalignment. 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 machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. In some cases, especially when the smallest standard bores are used or where shafts are undersized, slippage on the shaft is possible below the rated torque of the machined beams. In some cases, especially when the smallest standard bores are used or where shafts are undersized, slippage on the shaft is possible below the rated torque of the machined beams. Please consultechnical support for more assistance.  Prop 65	Hex Wrench Size	3.0 mm	Screw Finish	Black Oxide
Dynamic Torque Non-Reversing 1.92 Nm Parallel Misalignment 0.38 mm  Static Torque 3.84 Nm Axial Motion 0.25 mm  Torsional Stiffness 1.96 Deg/Nm Moment of Inertia 6.349 x10-6 kg-m²  Maximum Speed 6,000 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 7075-7651 Extruded and Drawn Aluminum Bar  Finish Specification Bright, No Plating Manufacturer Ruland Manufacturing  Country of Origin USA Weight (lbs) 0.105300  UPC 634529031964 Tariff Code 8483.60.8000  UNSPC 31163003  Note 1 Torque ratings are at maximum misalignment.  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 machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. In some cases, especially when the smallest standard bores are used or where shafts are undersized, slippage on the shaft is possible below the rated torque of the machined beams. Please consultechnical support for more assistance.  Prop 65	Seating Torque	4.6 Nm	Number of Screws	2 ea
Static Torque  3.84 Nm  Axial Motion  0.25 mm  Torsional Stiffness  1.96 Deg/Nm  Moment of Inertia  6.349 x10 <sup>-6</sup> kg-m <sup>2</sup> Maximum Speed  6,000 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  7075-T651 Extruded and Drawn Aluminum Bar  Finish Specification  Bright, No Plating  Manufacturer  Ruland Manufacturing  Country of Origin  USA  Weight (lbs)  0.105300  UPC  634529031964  Tariff Code  8483.60.8000  UNSPC  31163003  Note 1  Torque ratings are at maximum misalignment.  Note 2  Performance ratings are for guidance only. The user must determine suitability for a particular application.  Torque ratings for the couplings are based on the physical limitations/failure point of the machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. In some cases, especially when the smallest standard bores are used or where shafts are undersized, slippage on the shaft is possible below the rated torque of the machined beams. Please consultechnical support for more assistance.  Prop 65  MARNING This product can expose you to the chemical Ethylene Thiourea, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to	Dynamic Torque Reversing	0.96 Nm	Angular Misalignment	3°
Torsional Stiffness  1.96 Deg/Nm  Moment of Inertia 6.349 x10 <sup>-6</sup> kg-m <sup>2</sup> Maximum Speed 6,000 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 7075-T651 Extruded and Drawn Aluminum Bar Finish Specification Bright, No Plating Manufacturer Ruland Manufacturing Country of Origin USA Weight (lbs) 0.105300  UPC 634529031964 Tariff Code 8483.60.8000  UNSPC 31163003  Note 1 Torque ratings are at maximum misalignment.  Note 2 Performance ratings are for guidance only. The user must determine suitability for a particular application. Torque ratings for the couplings are based on the physical limitations/failure point of the machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. In some cases, especially when the smallest standard bores are used or where shafts are undersized, slippage on the shaft is possible below the rated torque of the machined beams. Please consultechnical support for more assistance.  Prop 65  AWARNING This product can expose you to the chemical Ethylene Thiourea, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to	Dynamic Torque Non-Reversing	1.92 Nm	Parallel Misalignment	0.38 mm
Maximum Speed       6,000 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       7075-T651 Extruded and Drawn Aluminum Bar       Temperature       -40°F to 225°F (-40°C to 107°C)         Finish Specification       Bright, No Plating       Manufacturer       Ruland Manufacturing         Country of Origin       USA       Weight (lbs)       0.105300         UPC       634529031964       Tariff Code       8483.60.8000         UNSPC       31163003         Note 1       Torque ratings are at maximum misalignment.         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 machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. Please consultechnical support for more assistance.         Prop 65       WARNING This product can expose you to the chemical Ethylene Thiourea, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to	Static Torque	3.84 Nm	Axial Motion	0.25 mm
Torque Wrench TW:BT-1R-1/4-41.0 Recommended Hex Key Metric Hex Keys  Material Specification T075-T651 Extruded and Drawn Aluminum Bar  Finish Specification Bright, No Plating Weight (Ibs) USA Weight (Ibs) Weight (Ibs) WispC WispC WispC WispC Wote 1 Torque ratings are at maximum misalignment.  Note 2 Performance ratings are for guidance only. The user must determine suitability for a particular application. Torque ratings for the couplings are based on the physical limitations/failure point of the machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. In some cases, especially when the smallest standard bores are used or where shafts are undersized, slippage on the shaft is possible below the rated torque of the machined beams. Please consultechnical support for more assistance.  Prop 65  WARNING This product can expose you to the chemical Ethylene Thiourea, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to	Torsional Stiffness	1.96 Deg/Nm	Moment of Inertia	6.349 x10 <sup>-6</sup> kg-m <sup>2</sup>
Torque Wrench TW:BT-1R-1/4-41.0 Recommended Hex Key Metric Hex Keys  7075-T651 Extruded and Drawn Aluminum Bar  Finish Specification Bright, No Plating Manufacturer Weight (Ibs) USA Weight (Ibs) Weight (Ibs) Word  Word  Weight (Ibs) Word  W	Maximum Speed	6,000 RPM	Full Bearing Support Required?	Yes
Material Specification 7075-T651 Extruded and Drawn Aluminum Bar  Finish Specification Bright, No Plating Manufacturer Ruland Manufacturing  Country of Origin USA Weight (Ibs) 0.105300  UPC 634529031964 Tariff Code 8483.60.8000  UNSPC 31163003  Note 1 Torque ratings are at maximum misalignment.  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 machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. In some cases, especially when the smallest standard bores are used or where shafts are undersized, slippage on the shaft is possible below the rated torque of the machined beams. Please consultechnical support for more assistance.  Prop 65  WARNING This product can expose you to the chemical Ethylene Thiourea, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to	Zero-Backlash?	Yes	Balanced Design	Yes
Aluminum Bar  Finish Specification Bright, No Plating Manufacturer Ruland Manufacturing  Country of Origin USA Weight (lbs) 0.105300  UPC 634529031964 Tariff Code 8483.60.8000  UNSPC 31163003  Note 1 Torque ratings are at maximum misalignment.  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 machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. In some cases, especially when the smallest standard bores are used or where shafts are undersized, slippage on the shaft is possible below the rated torque of the machined beams. Please consultechnical support for more assistance.  Prop 65  WARNING This product can expose you to the chemical Ethylene Thiourea, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to	Torque Wrench	TW:BT-1R-1/4-41.0	Recommended Hex Key	Metric Hex Keys
Country of Origin  USA  Weight (Ibs)  0.105300  UPC  634529031964  Tariff Code  8483.60.8000  UNSPC  31163003  Note 1  Torque ratings are at maximum misalignment.  Note 2  Performance ratings are for guidance only. The user must determine suitability for a particular application.  Torque ratings for the couplings are based on the physical limitations/failure point of the machined beams. Under normal/typical conditions the hubs are capable of holding up to the rated torque of the machined beams. In some cases, especially when the smallest standard bores are used or where shafts are undersized, slippage on the shaft is possible below the rated torque of the machined beams. Please consultechnical support for more assistance.  Prop 65  AWARNING This product can expose you to the chemical Ethylene Thiourea, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to	Material Specification		Temperature	-40°F to 225°F (-40°C to 107°C)
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	Prop 65	California to cause cancer and birth defects or other reproductive harm. For more information go to		

## **Installation Instructions**

1. Align the bores of the PCMR29-12-9-A four beam coupling on the shafts that are to be joined and

- determine if the misalignment parameters are within the limits of the coupling. (*Angular Misialignment:* 3°, *Parallel Misalignment:* 0.38 mm, *Axial Motion:* 0.25 mm)
- 2. Fully tighten the M4 screw on one hub to the recommended seating torque of 4.6 Nm using a 3.0 mm hex torque wrench.
- 3. Before tightening the screws on the second hub, rotate the coupling by hand to allow it to reach its free length.
- Tighten the screws on the second hub to the recommended seating torque. Make sure the coupling remains axially relaxed and the misalignment angle remains centered along the length of the coupling.
- 5. The shafts may extend into the relieved portion of the bore as long as it does not exceed the shaft penetration length of 17.6 mm.