Press release

Solutions from Ruland:
Beam couplings for robotics applications

Marlborough, Massachusetts, June 2023. Ruland beam couplings are ideal for surgical, warehouse, and industrial robotics due to their increased torque and torsional stiffness and ability to accommodate all forms of misalignment. Ruland manufactures four-beam couplings for encoders and six-beam couplings for light-duty power transmission, such as connecting a stepper or servo motor to a lead screw. This allows robotic designers to design a standard beam coupling into most systems.

Ruland machines beam couplings from a single piece of aluminum or stainless steel for a zero-backlash design and maintenance-free service life. Multiple sets of spiral cuts enable Ruland beam couplings to handle all forms of misalignment – angular, parallel, axial motion, and complex – through frequent starts and stops. The multiple-beam design also allows for higher torque and torsional stiffness than commodity-style single-beam couplings. Ruland manufactures beam couplings in 7075 aluminum for low inertia and 303 stainless steel for increased torque capacity.

Ruland F-Series six-beam couplings have two sets of three beams allowing them to maintain accuracy, repeatability, and reliability in robotic systems. They have larger body sizes than comparable four-beam couplings for increased torque and torsional stiffness. F-series clamp-style beam couplings are supplied with Ruland's proprietary Nypatch anti-vibration hardware to prevent screws from loosening during operation

Ruland P- and MW-Series four-beam couplings have two sets of two beams for increased flexibility and reduced bearing loads compared to the six-beam style. They also have shorter lengths, making them suitable for space-restricted applications commonly found in encoders. MW-Series couplings have nominal metric dimensions to better fit with systems with metric components.

Ruland offers beam couplings with a clamp or set screw hub attachment with inch, metric, and inch-to-metric combinations ranging from 1/8 inch to ¾ inch and 3 mm to 20 mm. They are

manufactured in Ruland's Marlborough, Massachusetts factory under strict controls using proprietary processes. Non-standard designs such as anodizing, non-standard bore sizes, and special tolerances are available upon request.

Beam couplings are part of Ruland's complete zero-backlash coupling line, including rigid, bellows, disc, jaw, oldham, controlflex, and slit couplings. Full product information, 3-D CAD files, and additional technical specifications are available at ruland.com.

Why Ruland beam couplings for robotics?

- Zero-backlash for precise motion control
- Six-beam and four-beam couplings available in aluminum or stainless steel
- Increased torque and torsional stiffness when compared to single beam couplings
- RoHS3 REACH, and Conflict Minerals compliant
- Manufactured and inventoried in Ruland's Marlborough, Massachusetts factory

Picture:

Beam couplings from Ruland: six-beam couplings have higher torque and torsional stiffness than four-beam couplings, making them ideal for coupling a servo motor to a lead screw in a robotic system. Four-beam couplings allow for increased flexibility in a more compact size than six-beam couplings.

Product link:

https://www.ruland.com/servo-couplings/beam-couplings.html

About Ruland:

Ruland Manufacturing Co., Inc. is a privately owned family company founded in 1937. Ruland has carefully and responsibly manufactured high performing shaft collars, rigid couplings, and motion control couplings for the past 40 years. Ruland's product line was recently expanded to include a variety of machine components from select manufacturers that align with Ruland's performance and quality standards.

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TPR International would be grateful for a copy of the publication with this article.