

# MODIFIED 1EB BRAKES

INDUSTRIAL ROBOTS



## PROBLEM

A leading global industrial robotics manufacturer contacted needed servo motor brakes for a new series of robots used in material handling and process applications. The robots often operate 16 to 24 hours/day performing rapid repetitive programmed functions.

The power-off brakes needed to maintain torque during static/holding operations and occasional E-stop dynamic/stopping engagements if a power failure occurred. Minimum backlash was also required to prevent the robotic arms from “bouncing” or “drifting” during precision movements and stops. Less than 1 degree of backlash movement could cause the robot’s arm to significantly miss its target location, causing productivity problems and possible damage.

## SOLUTION

To meet the challenging application requirements, Warner Electric engineers developed various sizes of modified spring-applied, electromagnetically-released 1EB Series servo motor brakes. A special friction material that does not absorb moisture was designed specifically for this application. The number and type of springs, plating options, and composite friction materials with low wear rates were evaluated and selected to achieve the specified braking torque and temperature levels for each motor/brake size.

Extensive testing, with accurate data capture, was conducted in-house on multiple custom-built, computer-controlled test stands to validate the required performance characteristics. Per customer request, brake life testing was performed to ensure brake life would exceed the life expectancy of the robot.

## HIGHLIGHTS

- Custom spring-applied, electrically released brakes
- Power-off holding and stopping functionality
- Low inertia/high torque
- Low backlash
- Special plating and friction materials
- Extensive in-house life cycle and backlash testing

## Regal Rexnord

Contact us: 1-800-825-9050

[warnerelectric.com](http://warnerelectric.com) | [regalrexnord.com](http://regalrexnord.com)

The proper selection and application of products and components, including assuring that the product is safe for its intended use, are the responsibility of the customer. To view our Application Considerations, please visit <https://www.regalrexnord.com/Application-Considerations>.

To view our Standard Terms and Conditions of Sale, please visit <https://www.regalrexnord.com/Terms-and-Conditions-of-Sale>.

“Regal Rexnord” is not indicative of legal entity. Refer to product purchase documentation for the applicable legal entity. Regal Rexnord and Warner Electric are trademarks of Regal Rexnord Corporation or one of its affiliated companies.

© 4/2018, 2024 Regal Rexnord Corporation, All Rights Reserved. Form# P-7682-WE

