

 **DELEVAN**<sup>™</sup>  
A REGAL REXNORD BRAND



# Resolvers Selection Guide

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Able to withstand the most challenging environments, Delevan Resolvers can operate at temperatures exceeding 200°C, and have unmatched mechanical shock and vibration specs. Designed with durability and performance in mind, Delevan Resolvers are guaranteed to reduce failure rates and extend life. The shielded, spaced-support bearings provide 10x the life of standard, duplex bearings, while toothwound models reduce electrical error by 50 percent. Brushless models eliminate the need for multiple components, which can dramatically limit life. As the most durable and rugged feedback option, Delevan Resolvers are the perfect choice for applications that operate in conditions involving extreme temperature, high shock and vibration, and dirty environments.

## Application / Industries:

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- Aerospace & Defense
  - High Lift, Spoiler, and Horizontal Stabilizer
  - Motor Commutation
  - Guidance and Navigation
  - Cockpit Controls
  - Control Surface Feedback
  - Electro-Optic and Radar
  - Nosewheel Feedback
  - Target Acquisition Systems
  - Gun Trunnions
  - Forward-Looking-Infra-Red (FLIR) Systems
  - Electro-Optical Systems
  - Radar Systems
  - Missile Seekers
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- Downhole Oil & Gas
  - Well Drilling
  - Formation Evaluation
  - Well Intervention
  - Oil and Gas Production
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- Medical
  - Medical Instrumentation
  - Medical Imaging



For additional information contact an Delevan representative at 1.716.652.3600, visit our website at [www.delevan.com](http://www.delevan.com), or email: [Delevan.Sales@regalrexnord.com](mailto:Delevan.Sales@regalrexnord.com)

## BRUSHLESS ULTRA-PERFORMANCE RESOLVERS

|  | HOUSED  |   |   | FRAMELESS   |   |   |   |   |   |                                     |
|--|---|---|---|---|---|---|---|---|---|-------------------------------------|
|  | Heavy-Duty  |   | Mill-Duty   | Heavy-Duty  |   |   | Heavy-Duty High Accuracy  |   |   |                                     |
|  |  |  |  |  |  |  |  |  |  |                                     |
|  | 11  | R11   | Series R25  | 10  | 15  | 21  | 31  | 55  | NewGen15  | NewGen21                            |
| Nominal Size (OD)                                | 1.1 inch  | 1.1 inch  | 2.5 inch  | 1.0 inch  | 1.5 inch  | 2.1 inch  | 3.1 inch  | 5.5 inch  | 1.5 inch  | 2.1 inch                            |
| Mounting System                                  | Servo   | Servo   | Flange/ Servo   | Flange/ Servo   | Flange/ Servo   | Flange/ Servo   | Flange/ Servo   | Flange/ Servo   | Flange/ Servo   | Flange/ Servo                       |
| Flux Shield Technology                           |   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●                                   |
| Shaft/Max Bore Sizes                             | Shaft Size: 0.120" (3.05mm)   | Shaft Size: 0.120" (3.05mm)   | Shaft Size: 0.3745" (9.51mm)  | Max Bore Size: 0.25" (6mm)  | Max Bore Size: 0.472" (12mm)  | Max Bore Size: 0.800" (20mm)  | Max Bore Size: 1.576" (40mm)  | Max Bore Size: 3.651" (93mm)  | Max Bore Size: 0.472" (12mm)  | Max Bore Size: 0.800" (20mm)        |
| Input Volts (Vrms)                               | 2 to 26   | 2 to 6  | 2 to 8  | 2 to 12   | 2 to 12   | 2 to 12   | 2 to 12   | 2 to 12   | 2 to 12   | 2 to 12                             |
| Input Frequency(Hz)                              | 400 to 5K   | 2K to 10K   | 2K to 10K   | 2K to 10K   | 2K to 10K   | 2K to 10K   | 2K to 10K   | 2K to 10K   | 2K to 10K   | 2K to 10K                           |
| Transformation Ratio                             | .39 to 1.75   | .45 to 1.4  | .25 to 1.0  | .25 to 1.0  | .25 to 1.0  | .25 to 1.0  | .25 to 1.0  | .25 to 1.0  | .25 to 1.0  | .25 to 1.0                          |
| Resolver Speed (electrical/mechanical cycles)    | 1X, 2X, 4X or 5X  | 1X  | 1X, 2X, or 3X   | 1X  | 1X, 2X, 3X or 4X  | 1X, 2X, 3X or 4X  | Multi-speeds available (up to 8X)   | Multi-speeds available (up to 32X)  | 1X  | 1X                                  |
| Electrical Error (Accuracy) for 1X versions only | ± 3 arcmin  | ± 6 arcmin  | ± 7 arcmin  | ± 15 arcmin   | ± 10 arcmin   | ± 7 arcmin  | ± 20 arcmin   | ± 30 arcmin   | ± 5 arcmin  | ± 5 arcmin                          |
| Bearing Load Ratings                             | 17 lb (static)<br>44 lb (dynamic)   | 61 lb (static)<br>148 lb (dynamic)  | 303 lb (static)<br>741 lb (dynamic)   |   |   |   |   |   |   |                                     |
| Max Bearing Radial Play                          | .0002 to .0005 in   | .0003 to .0009 in   | .0002 to .0005 in   |   |   |   |   |   |   |                                     |
| Bearing Type                                     | Type ABEC 3   | Type ABEC 1   | Type ABEC 1   |   |   |   |   |   |   |                                     |
| Shock, Vibration and Radiation Resistance        | High shock resistance   | High shock resistance   | Shock: 200g<br>Vibration: 40g   | High shock, vibration and radiation resistance                                    | High shock, vibration and radiation resistance                                    | High shock, vibration and radiation resistance                                      | High shock, vibration and radiation resistance                                      | High shock, vibration and radiation resistance                                      | High shock and vibration resistance   | High shock and vibration resistance |
| Operating Temperature                            | Up to 125°C   | Up to 125°C   | Up to 125°C   | Exceeds 200°C   | Exceeds 200°C   | Exceeds 200°C   | Exceeds 200°C   | Exceeds 200°C   | Exceeds 200°C   | Exceeds 200°C                       |
| Housing Material                                 | Steel   | Steel   | Aluminum  | Steel   | Steel or Aluminum   | Steel or Aluminum   | Steel   | Steel   | Aluminum  | Aluminum                            |
| Enclosure Rating                                 |   |   | (IP65)  |   |   |   |   |   |   |                                     |

### SELECTION CRITERION

| Mechanical |                        |                       | Electrical |                      |                    |
|------------|------------------------|-----------------------|------------|----------------------|--------------------|
| 1          | Construction           | Housed or Frameless   | 1          | Primary              | Rotor or Stator    |
| 2          | Input                  | Shaft OD or Bore ID   | 2          | Speed                | Single or Multiple |
| 3          | Special Considerations | Operating Temperature | 3          | Excitation Voltage   | Vrms               |
|            |                        | High Shock            | 4          | Excitation Frequency | Hz                 |
|            |                        | High Vibration        | 5          | Output Voltage       | Vrms               |
|            |                        | Radiation Hardening   |            | or                   |                    |
|            |                        | High RPM              |            | Transformation Ratio |                    |
|            |                        | Other                 | 6          | Accuracy             | arc min            |
|            |                        |                       | 7          | Maximum Phase Shift  | degrees            |

*Consult our Engineering Department for any Customized Needs*



### Frameless Brushless Resolvers

Delevan's frameless resolvers generate speed and position data for aerospace servo applications, as well as commutating brushless servo motors. The frameless construction simplifies mounting mechanics because the rotor mounts directly onto the motor shaft and the stator housing mounts directly onto the motor end bell.

- Frame Sizes 8, 10, 11, 15, 21, 31, 55 and Specials
- Multiple Speeds
- Radiation Hardened
- Stainless Steel Housing
- Flux Shielding Technology
- Exceeds 200°C Temperature Range



### Series R25 Heavy Duty Resolver

Delevan's heavy duty housed resolver provides a very tough package to withstand extreme abuse. Made of aluminum and steel with high integrity seals, they are capable of measuring rotary motion with the accuracy of many delicate encoders.

- Rugged Housing with IP65 Rating
- Spaced Bearings for up to 10x the Life of Traditional Duplex Bearings
- Withstands 200g Shock and 40g Vibration



### Series 11 Housed Brushless Resolver

The ideal mate for brushless servomotors, the Series 11 uses a rotary transformer to pass the reference signal to the rotor, eliminating components that can limit life and cause noise. The Series 11 Housed Brushless Resolver offers excellent accuracy and repeatability.

- Up to 125°C Temperature Range
- Radiation Hardened
- Short Mounting Depth for Easy Mounting



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