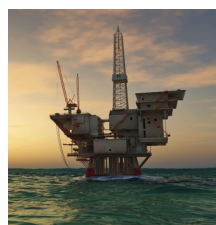


**API Delevan®**



Resolvers  
Selection  
Guide

# API Delevan® Resolvers Selection Guide

Able to withstand the most challenging environments, API Delevan Resolvers can operate at temperatures exceeding 200°C, and have unmatched mechanical shock and vibration specs. Designed with durability and performance in mind, API 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, API Delevan Resolvers are the perfect choice for applications that operate in conditions involving extreme temperature, high shock and vibration, and dirty environments.

## Application / Industries:

- 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
- 
- Downhole Oil & Gas
  - Well Drilling
  - Formation Evaluation
  - Well Intervention
  - Oil and Gas Production
- 
- Medical
  - Medical Instrumentation
  - Medical Imaging



For additional information contact an API Delevan representative at 1.716.652.3600, visit our website at [delevan.com](http://delevan.com), or email: [Resolver@delevan.com](mailto:Resolver@delevan.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	NewGen 15	NewGen 21
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) 44 lb (dynamic)	61 lb (static) 148 lb (dynamic)	303 lb (static) 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 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

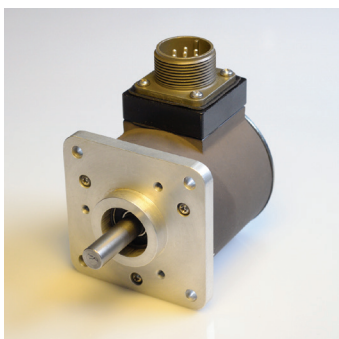
*Consult our Engineering Department for any Customized Needs*



### Frameless Brushless Resolvers

API 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

API 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

# API Delevan®

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