

Variable Reluctance Resolvers (VRR)

VARIABLE RELUCTANCE RESOLVERS

Ducommun's variable reluctance resolvers (VRRs) are highly reliable brushless resolvers without rotary transformers. Unlike conventional resolvers, VRRs have both primary and secondary windings in the stator assembly and no windings in the rotor. This offers significant advantages in price, weight and envelope dimensions.

The VRRs are mechanically and electrically compatible with traditional brushless resolvers. They provide accurate absolute positioning or velocity feedback and can be offered as single-speed and multi-speed designs. Since VRRs do not require rotary transformers, they are more compact and reliable than conventional brushless resolvers.

Ducommun offers different stator and rotor core designs depending on the required accuracies and mounting dimensions. Custom designs are available upon request.

APPLICATIONS

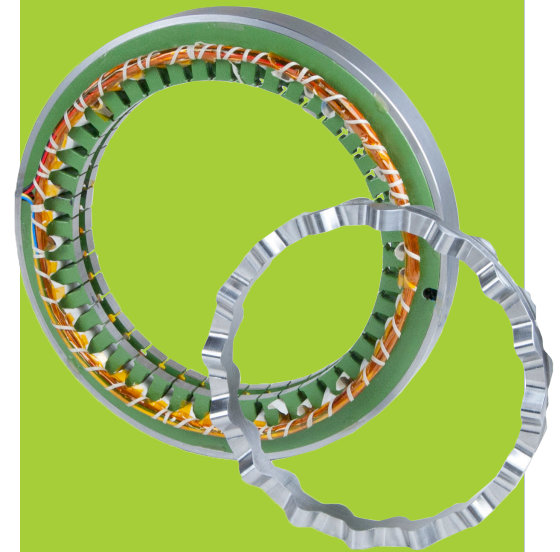
- Space
 - > Solar Array Deployment Assemblies (SADA)
 - > Bearing and Power Transmission Assembly
 - > Other Space Mechanisms
- Oil & Gas Exploration
 - > Drilling Tools
- Industrial Applications
 - > Brushless DC Motors Feedback
 - > High speed spindles

FEATURES & BENEFITS

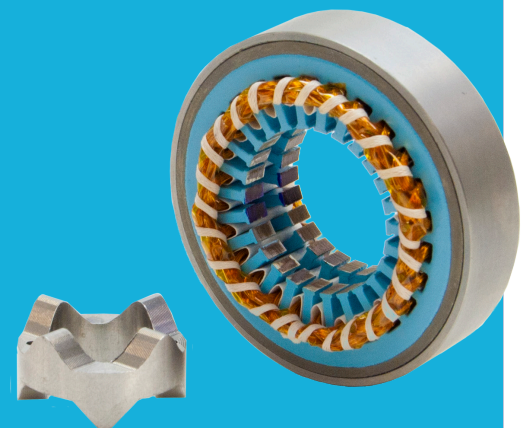
- Brushless resolvers without rotary transformer
- Up to 30% mass reduction compared to conventional brushless resolvers
- Compact design with approximately 50% reduction in length compared to conventional brushless resolver.
- Available in frame sizes from OD 0.8" up to 7"
- Rugged design resistant against electrical noise, extreme temperatures, shock, high acceleration, vibration, pressure and vacuum
- Single and Multi-speed Designs
- Sine/Cosine Output
- Radiation-resistant



VRR 41PSZ



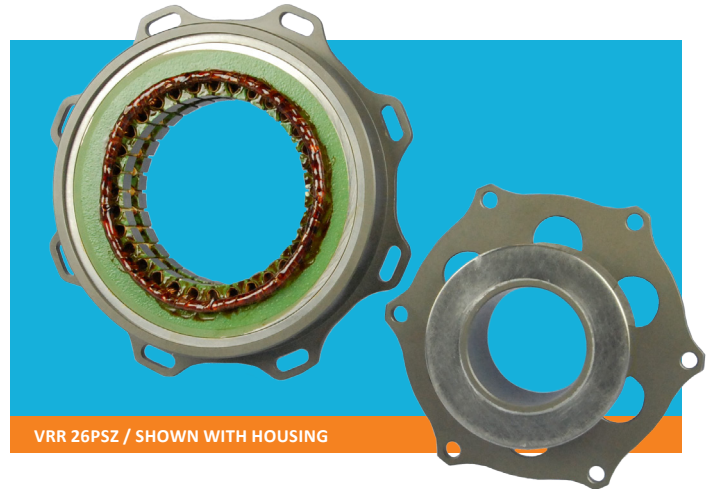
VRR 56PXZ



VRR 19PXZ

GENERAL SPECIFICATIONS

Operating Temperature	up to - 175°C to + 260°C
Shock	up to 100g
Vibration	up to 100g
Excitation Frequency	400Hz to 100kHz (5, 10kHz typ.)
Excitation Amplitude	2 to 12 Vrms (typ.)
Transformation Ratio	0.50 (typ.)
Accuracy Single Speed	up to ± 30 arc-minutes
Accuracy Multi Speed	up to ± 1 arc-minutes



ADDITIONAL SPECIFICATION OPTIONS

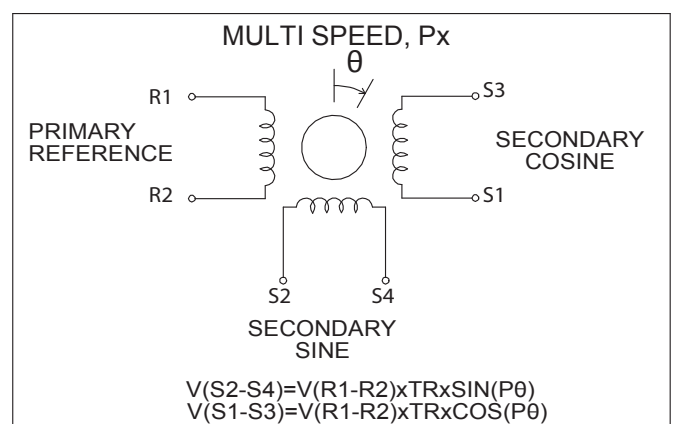
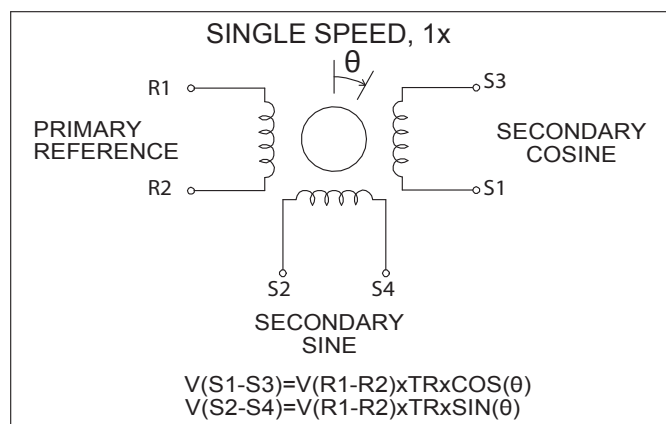
- Custom and space qualified designs
- Housed or stator/rotor design
- Electrically redundant windings
- Can be supplied as part of a complete mechanism consisting of motor and gear head
- Magnetically redundant resolvers
- High temperature and pressure designs immersed in hydraulic oil
- Repeatability significantly higher than accuracy

VARIABLE RELUCTANCE RESOLVER

SERIES	Stator OD (in)	Rotor ID (in)	Axial Length (in)	Speed	Input Voltage (Vrms)	Input Freq (kHz)	Transf. Ratio (TR)	Accuracy (arc-min)	Weight (lbs)	Space Qualified
8PSZ	0.785	Shaft	1.0	1x	4 ±10%	5 or 10%	0.5	±60	0.1±10%	
19PXZ	1.872	0.5450	0.85	4x	7.6±5%	4.8±5%	0.171	±15	rotor .08 lbs stator 0.67 lbs	X
26PSZ	2.578	1.0075	1.1	1x	4 ±10%	5 ±10%	0.5	±60	0.9±10%	X
41PSZ	4.100	2.0500	1.0	1x	7.6±5%	4.8±5%	0.171	±60	rotor .17 lbs stator 0.87 lbs	X
56PSZ	5.598	3.5078	1.1	1x	4 ±10%	5 ± 10%	0.5	±30	2.6±10%	X
56PXZ	5.598	3.5078	1.1	16x	4 ±10%	5 ±10%	0.5	±6	2.6±10%	X
72PXZ	7.171	5.2680	0.8	24x	10 ±10%	2.67 ±5%	0.5	±12	2.0±10%	X

Please Note: Stator ID with back iron, Rotor ID without hub. Input Voltage= V(R1-R2)

ELECTRICAL SCHEMATIC



All specifications are subject to change without notice. Please contact a sales representative for additional information.