



For applications
where precise Angle
Measurement **under**
Extreme Conditions
is necessary



Precise Angle Measurement under Extreme Conditions

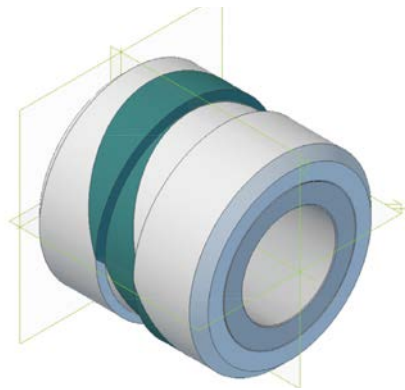
1

ROTASYN SOLID ROTOR OFFERS UNIQUE ADVANTAGES:

BENEFITS

No headaches with high speed

- Full Metal Rotor, no insulation, no coils
- Double MTBF compared to brushless resolvers
- Riveted rotor construction
- Insensitivity to environmental conditions
- Angle of $\pm 180^\circ$ when used as RVDT



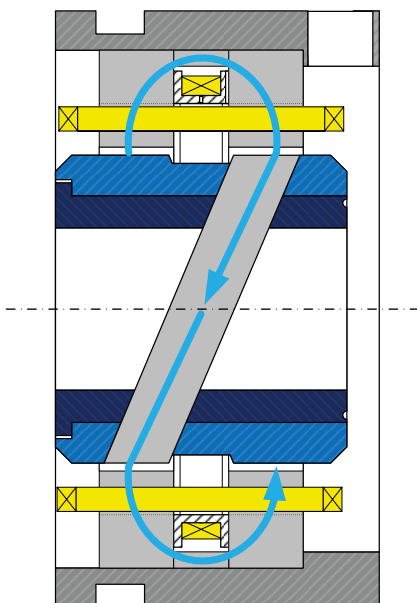
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ROTASYN DIFFERENTIAL TRANSFORMER PRINCIPLE OFFERS MANY ADVANTAGES:

- Analog Signal
- Very accurate and reproducible Zero Position (E. Z.)
- Absolute position over 360°
- Practically no sensitivity to temperature in the range of -200°C to $+250^\circ\text{C}$
- PTFE or Kapton insulation
- Signal can be digitized with commercial RDC

BENEFITS

Ratiometric sensor system very insensitive to EM perturbations

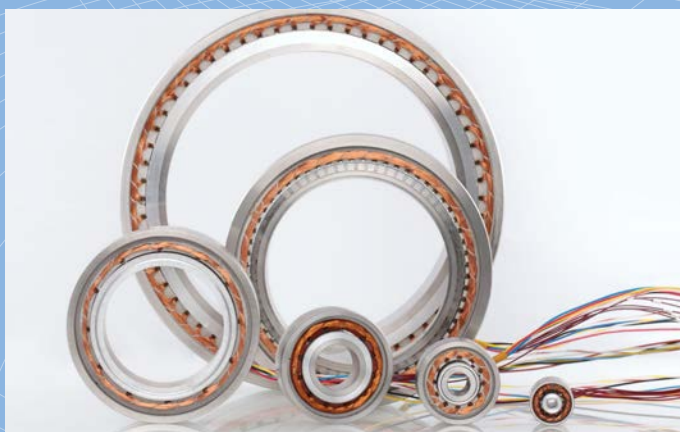


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AVAILABLE IN MANY STANDARD SIZES

Standard Rotasyn Resolver Program

- Off the shelf sensors in many different sizes with short delivery at low costs
- Speed 1 (one pole pair)
- PTFE or Kapton insulation



**Rotasyn RO Series:
Standard Resolvers Sizes**

	Part No.	Stock	Stator		Air Gap	Rotor	Rotor	Width
Size			OD	ID		OD	ID (max.)	Axis Direction
1/10"			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
08	RO2010	O	20	10	0.3	9.4	4	18
10	RO2613	-	26	13	0.3	12.4	7	20
15	RO3620	O	36.83	20	0.3	19.4	10 (12)	20
21	RO5032	O	50	32	0.3	31.4	20 (22)	20
24	RO6040	-	60	40	0.3	39.4	30	20
30	RO7557	O	75	57	0.3	56.4	45 (47)	22
34	RO8565	-	85	65	0.3	64.4	55	22
40	RO10080	-	100	80	0.5	79	65	24
50	RO125100	-	125	100	0.5	99	85	24
59	RO150125	-	150	125	0.5	124	110	24
72	RO185160	-	185	160	0.5	159	145	37
82	RO210185	-	210	185	0.5	184	165	37
96	RO240210	-	240	210	0.5	199	185	38
116	RO290260	-	290	260	0.5	259	240	38

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CUSTOMIZED ROTASYN RESOLVERS



- To meet specific requirements
- Special windings
- Special sizes
- Large Air gap – up to 1mm
- External rotor
- Fast ROI: Admotec engineering provides optimal cost-effective solutions.

BENEFITS

Admotec will analyze your application and design a sensor solution to meet your demanding conditions of contamination, limited space, high temperature or high speed.



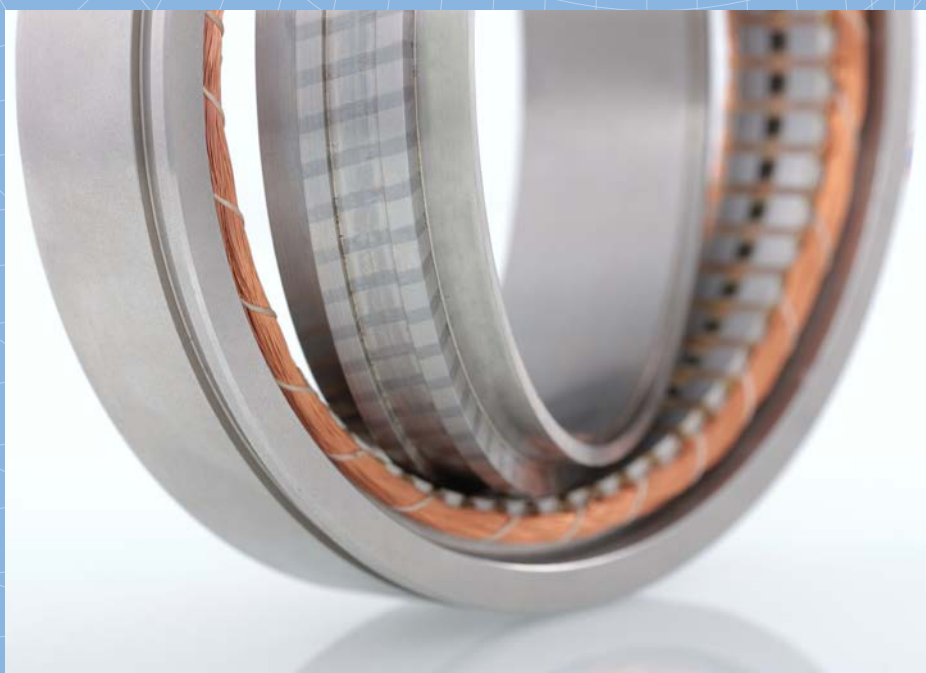
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MULTIPOLE RESOLVERS

- For 8 pole pairs and more
- Sizes 34 and larger

BENEFITS

Multipole resolvers are generally required for commutation of brushless motors with the same number of pole pairs



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ROTARY VARIABLE DIFFERENTIAL TRANSFORMERS RVDT



- Absolute Angular Transducer
- Reference Hole
- Sweep angle $\pm 180^\circ$
- Hermetical Units

BENEFITS

The absence of a rotating seal insures a longer life-time

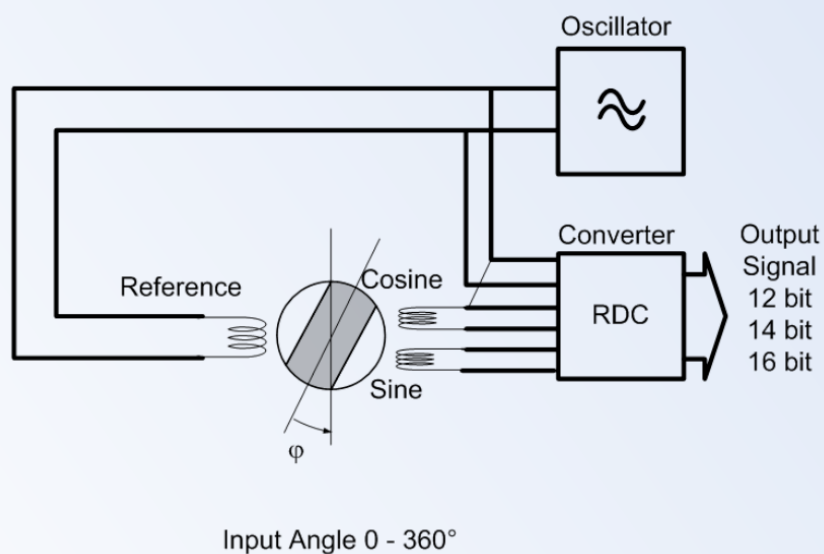
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COMPLETE SENSOR TO DIGITAL OUTPUT SOLUTION

- Optimized Combination of Mechanical and Electrical Knowhow
- Resolver Measuring Benches
- Hi-Speed electrical motors

BENEFITS

One stop solution Provides you an optimal function of your measuring problem



ADMOTEC CAPABILITIES

- Many production technologies including e-beam and laser welding
- EN 9100 and ISO 9001 Certified

Many of Admotec's customers have come to our engineers when their traditional motion and sensing products do not last or fail in difficult environments. We urge you to contact us early in your design process. We will Admotec uses the latest chip-on-board and work with you through die-attach technology.

We will work with you through using our multi-disciplinary approach and broad-based application experience. We will help you develop, test and refine prototype motion sensing components. And we will work quickly to finalize designs and start production runs. We are, of course, always ready to sign confidentiality agreements to protect your entire design process. Let our experience and magnetic technology solve your most demanding motion and position sensing problems.



Admotec was founded in 1987 to develop, design, manufacture, and market motion and position sensors and transducers for original equipment manufacturers. Admotec is dedicated to applying leading-edge magnetic technologies and manufacturing techniques to the production of high-performance cost-effective solutions for measuring linear and rotary position, speed, and angle for a wide variety of aerospace, automotive and industrial applications.

Glossary

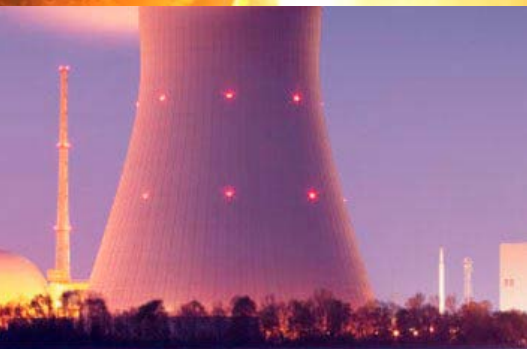
COMPARISON BETWEEN ROTASYN, BRUSHLESS RESOLVER AND RVDT

All 3 angular brushless sensors are rotating differential transformers with a precise E.Z. (Electrical zero) While the electrical design of Rotasyn and RVDT (Primary and secondary coils on stator, no coils on rotor) are similar, Brushless Resolver have primary coils on stator secondary coils on rotor and rotor fed by a rotating transformer.

Angular Sensor	Mechanical Design	Angular Range	Signal Input	Analog Signal Output	A/D Converter	Accuracy
Rotasyn	Frameless or housed	360°	Rotor Angle Φ	absolute $U_2 \sin =$ $TR \sin(\omega t) \sin \Phi$	RDC Resolver Digital Converter Resolution 12-16 Bit	Typically 20-40 Arcmin
	Housed with mech. zero reference	+/- 180°		$U_2 \cos =$ $TR \sin(\omega t) \cos \Phi$ Phase shift at E.Z.		Typically 0.1-0.2% of full scale
Brushless Resolver	Frameless or Housed	360°	Rotor Angle Φ	absolute $U_2 \sin =$ $TR \sin(\omega t) \sin \Phi$	RDC Resolver Digital Converter Resolution 12-16 Bit	Typically 10-20 Arcmin
	Housed	+/- 180°		$U_2 \cos =$ $TR \sin(\omega t) \cos \Phi$ Phase shift at E.Z.		
RVDT	Housed with mechanical zero reference	+/- 90°	Rotor Angle Φ	absolute $U_2 =$ $C \cdot U \sin(\omega t) \cdot \Phi$ Phase shift at $\Phi = 0^\circ$	Synchronous Demodulator	Typically 0.15-0.5% of full scale

admotec

Advanced Motion Technology



APPLICATION DOMAINS

- **Aerospace**

Power Unit, Hi-Lift Control,
Air Conditioning, Flaps Control,
Brakes ABS

- **Electrical Motors**

Electronic Commutation, Speed
loop and Position Loop Control

- **Automotive**

Turbocompressors, Starters,
Hybrid Drives,

- **Industrial Automation**

Robots in extreme environment

- **Nuclear Energy and Research**

Motor Commutation, Motion
Monitoring of Cooling Pumps and
Fuel Rod Position

- **Ship Building**

Rudder Position Feedback

- **Oil Drilling Equipment**

Motor Commutation, Drilling
Orientation

OUR REFERENCES

Airbus

Williams

Renault

Parker

Wittenstein

Safran

Ariane

UTC

AREVA

Admotec Precision AG

Kieselgasse 12
CH-8008 Zürich
Telefon +41 44 422 22 75
Fax +41 44 422 22 76

Admotec Precision LLC

27 Dunsinane Drive
Lebanon 03766-2306, NH
USA
Tel +1 603.727.4921

www.admotec.com