

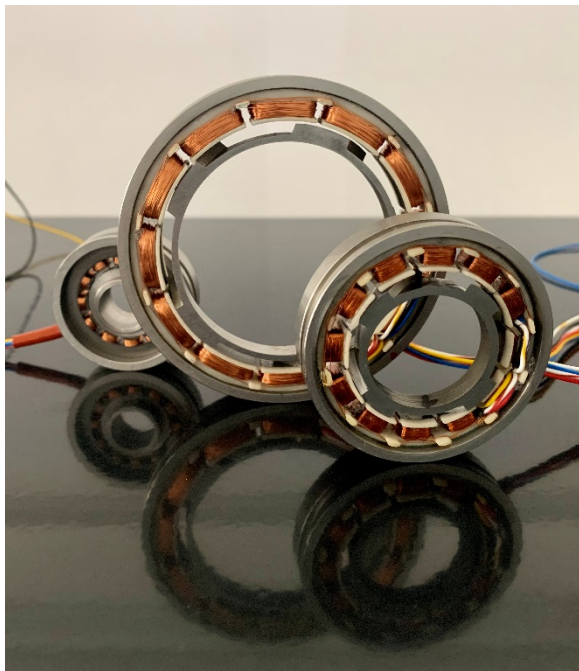
SLIMSYN Resolver

The new Multipole Resolver RM-Series (preliminary)

Main Features

Constant Air Gap	=>	High Accuracy
High Number of Poles Pairs	=>	High Resolution up to 32
CNC Winding	=>	Easy customizing
Robust Design	=>	High MTBF
Solid Rotor	=>	High Speed Applications

SLIMSYN a variable reluctance multipole resolver with a constant airgap for high accuracy is a new development of Admotec. They give the perfect interface for demanding motion control systems. High accuracy allows higher speed or position loop gains. This means a quiet run (less noise and higher efficiency).



Applications

Aerospace
Defence
E-Mobility
Machine Tool
Robotics
Oil drilling

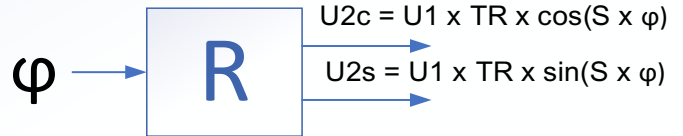
Synchronous motor control
Motion Control
Position measuring
Torque measuring
Speed measuring
Absolute position

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Resolver Function

φ	Input angle
U2c, U2s	Output
U1	Primary voltage
TR	Transformation ratio
S	Speed Number of pole pairs



Standard Sizes & Electrical Data

Primary Voltage:	1-10 V
Transformation Ratio:	0.4
Frequency:	2-10 kHz
I1 Current:	<100 mA
Insulation Resistance:	100 M ohm
Accuracy:	better 10 arcmin

Series	Size	Stator OD [mm]	Rotor ID [mm]	Length h [mm]	Speed S	Max speed [1/min]	Inertia [g*cm ²]
RM3620	3620	36.83	14	12	2 to 8	100'000	20
RM5032	5032	50	26	12	2 to 8	40'000	100
RM6040	6040	60	34	12	2 to 16	25'000	900
RM7557	7557	75	45	12	2 to 20	15'000	1400
RM9070	9070	90	70	12	2 to 32	10'000	2100
RM10080	10080	100	72	12	2 to 32	8'000	2750
RM120100	120100	120	85	12	2 to 32	6'500	4000
RM140120	140120	140	105	12	2 to 32	5'000	5400

Environmental Data

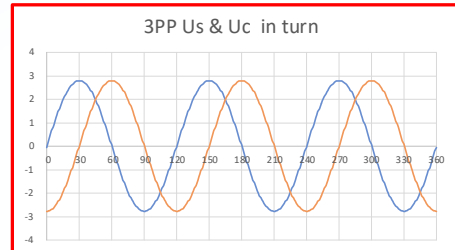
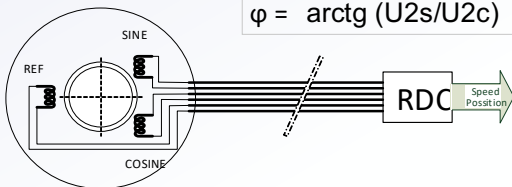
Temperature range	-55°C to 170°C Standard
Choc and Vibrations	30g (10-500Hz, 0.5Hr)

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Signal Processing

Resolver give analog signals and need either ADC with a microprocessor or a Resolver Digital Converter Chip (RDC) to calculate angle and speed. These chips give 10, 12, 14, 16 bits position per period and velocity signals.



Accuracy and Resolution

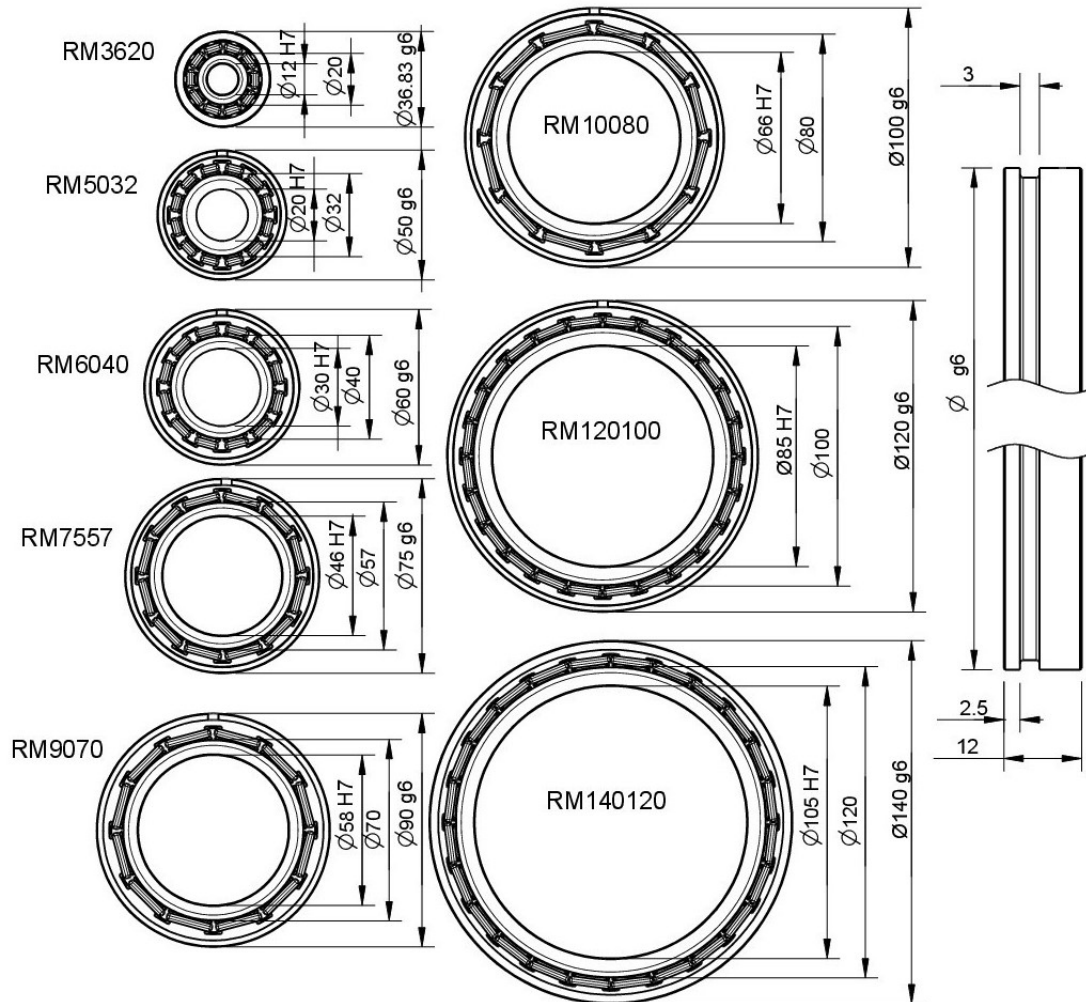
Following table shows in function of speed

Speed (nb. of pole pairs)	10bits RDC		12bits RDC		14bits RDC		16bits RDC	
	Resolution Increments In 1 turn	Increment [arcmin]	Resolution Increments. In 1 turn	Increment [arcmin]	Resolution Increments. In 1 turn	Increment [arcmin]	Resolution Increments In 1 turn	Increment [arcsec]
2	2048	10.55	8192	2.64	32768	0.66	131072	9.89
3	3072	7.03	12288	1.76	49152	0.44	196608	6.59
4	4096	5.27	16384	1.32	65536	0.33	262144	4.94
5	5120	4.22	20480	1.05	81920	0.26	327680	3.96
6	6144	3.52	24576	0.88	98304	0.22	393216	3.30
7	7168	3.01	28672	0.75	114688	0.19	458752	2.83
8	8192	2.64	32768	0.66	131072	0.16	524288	2.47
9	9216	2.34	36864	0.59	147456	0.15	589824	2.20
10	10240	2.11	40960	0.53	163840	0.13	655360	1.98
11	11264	1.92	45056	0.48	180224	0.12	720896	1.80
12	12288	1.76	49152	0.44	196608	0.11	786432	1.65
13	13312	1.62	53248	0.41	212992	0.10	851968	1.52
14	14336	1.51	57344	0.38	229376	0.09	917504	1.41
15	15360	1.41	61440	0.35	245760	0.09	983040	1.32
16	16384	1.32	65536	0.33	262144	0.08	1048576	1.24
17	17408	1.24	69632	0.31	278528	0.08	1114112	1.16
18	18432	1.17	73728	0.29	294912	0.07	1179648	1.10
19	19456	1.11	77824	0.28	311296	0.07	1245184	1.04
20	20480	1.05	81920	0.26	327680	0.07	1310720	0.99
21	21504	1.00	86016	0.25	344064	0.06	1376256	0.94
22	22528	0.96	90112	0.24	360448	0.06	1441792	0.90
23	23552	0.92	94208	0.23	376832	0.06	1507328	0.86

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Dimensional drawings



Ordering Data

RM	3620	/S		
Series	Size	Speed		

Cables AWG 26 Mil-Spec. length 300mm

Special designs on request:

- Customised Housing
- Hi-Speed Rotor
- Sealed Stator
- Extended Temperature Range
- Low Degassing for Vacuum Environment
- Dual Resolver to increase Redundancy
- Dual Resolver for Absolute Angle
- Bifilar Winding to increase Redundancy
- For Hi-Rad Environment
- For Hi-Temperature Environment