Sensor Bearing Units

About us 公司简介

SRG Bearings is an internationally renowned bearing brand belonging to SRG GROUP LIMITED. It is a bearing factory that integrates bearing production, research and development, and export. We mainly provide roller and ball bearings.

SRG Bearing Factory was established in 1997 and is located in Liaocheng City, Shandong Province. It is a long-standing bearing production enterprise. We have 120 CNC machine tools, 6 bearing processing production lines, and can independently complete bearing production, assembly, precision grinding, heat treatment, and other processes. The inner bore size range is from 3mm to 6.5m, and the weight range is from 10.5g to 2.6 tons.

Our main products include:

Miniature and medium-sized deep groove ball bearings

Double row self-aligning roller bearings

Four-row heavy-duty cylindrical roller bearings

Self-aligning roller bearings

Thrust ball bearings, thrust ball and roller bearings

Single and double row tapered roller bearings

Needle roller bearings

High-precision spindle bearings

Pillow block bearings, shaft sleeves, steel balls

Technical support

Maintenance and repair

Product training

SRG bearings are widely used in railways, mines, machinery, automobiles, ships, metallurgy, petroleum, electricity, agriculture, textile, and aviation industries.

SRG products have been sold to Europe, Asia, America, and Southeast Asia, which are our most important markets. We have spent a lot of time developing new products while also producing high-quality products. We are popular both domestically and internationally.

We welcome your inquiries and look forward to future cooperation.

Product introduction

Accurate monitoring of the state of rotating parts is critical for many applications. This is especially true for AC motors that require encoders to continuously measure speed and direction of rotation

SRG sensor bearing units are used to accurately monitor the condition of rotating or linear components and:

• Pocket

• Rugged and reliable

• Simple and ready to install

• Able to provide signal resolutions from 32 to 80 digital pulses per revolution

• Compact design, only 6.2 mm wider than corresponding standard deep groove ball bearings (fig. 2)

• Ready to install, can be installed in any bearing position of the AC motor

• Suitable for shaft diameters from 15 to 45 mm

Sensor bearing units provided by SRG have been used in many aspects, such as electric motors, electric vehicles, road rollers, tractors, forklifts and conveyors. Typical uses include:

- Motor management

- steering

- Speed and position sensing

- Angular position measurement

Designs and Variations

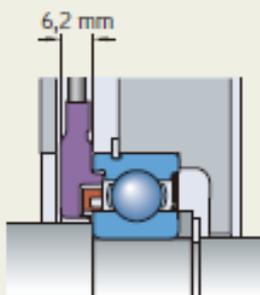SRG Motor Encoder Units are compact integrated units consisting of:
- 62 series deep groove ball bearings with snap ring grooves and RS1 contact seals in the outer ring
- Impulse ring
- Sensor body
- connecting cables

The impulse ring mounted on the inner ring of the bearing is a composite magnetized ring containing 32 to 80 north and south magnetic poles. The number of poles depends on the size of the bearing

The sensor body attached to the outer ring protects the patented SKF Hall effect cell The multi-wire connecting cable runs radially

The bearing is protected by a contact seal on one side On the other side of the bearing the impulse ring and sensor body form an effective labyrinth seal to keep lubricant out of the bearing and solid contaminants out

Extended width compared to a standard deep groove ball bearing

6,2 mm

Motor encoder unit

Connecting cable
Cable outlet
Sensor body
Magnetized impulse ring
SKF Explorer deep groove ball bearing
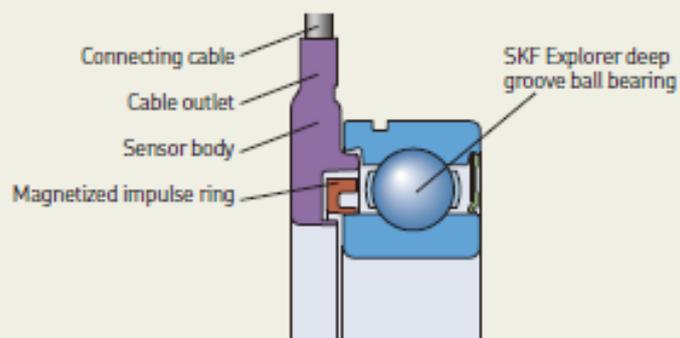
Sensor Technology

The SRG Motor Encoder Unit uses a compact and robust sensor that produces an incremental encoder signal The sensor is accurate to zero revolutions per minute Integrated active circuitry in the sensor body (requires external power supply) contains two Hall effect cells to produce an output A signal consisting of two square waves (Figure 4) These signals can be interpreted in different ways by the motor controller:
• Direction of rotation can be determined from the phase shift when the rising edge of the signal first occurs
• Low speed can be determined by measuring the time between two electrical events, which are the rising and falling edges of either square wave
• Can measure high speed by counting the number of electrical events in a given time period
The two square waves are 90° out of phase with each other. This phase shift changes sign with the direction of rotation ig. 4 shows the general specification of the signal
The presence of two quadrature signals enables the processing unit to multiply the number of angular position increments per revolution for example using a standard SRG sensor bearing with 64 pulses per revolution and a standard electronic interface that can detect rising (low/high) and both fall (high/low) time of each signals, it is possible to obtain 256 electrical events per revolution, which translates to an angular resolution of 1,4° (ig. 4, page 989).
SKF motor encoder units provide accurate and reliable signals for effective motor con- trol and are 100% tested for period accuracy, duty cycle and phase shift during manufacture
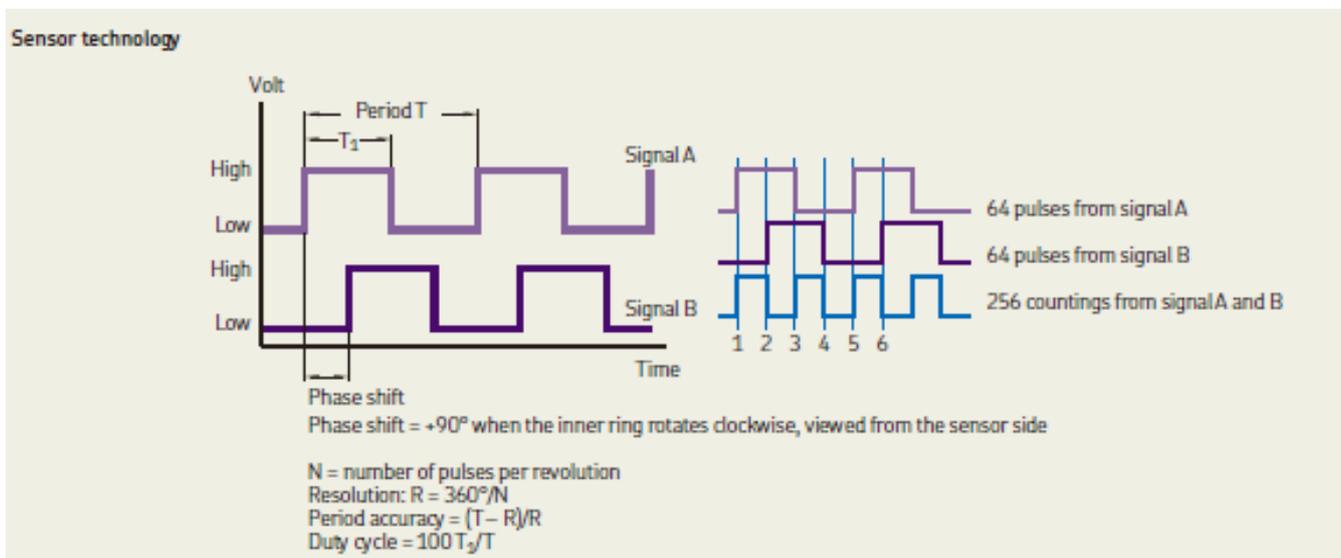
Cable connection

SRG motor encoder units are available as standard with one of the following:

• a free cable end with an output signal con- sisting of two square waves, designation sufix 008A
• an AMP Superseal™ connector (AMP Nos 282106-1 and 282404-1), designation sufix 108A

Standard cable lengths are listed in the product table, page 1002 For alternative connectors or cable lengths, contact SKF

lubricating

SRG motor encoder units are:

• Apply a good quality grease suitable for the motor's most common operating conditions in clean conditions
• Virtually maintenance-free

Grease life in bearings can be calculated according to the method described in Grease life of covered bearings

# Motor encoder units for extreme operating conditions

Magnetic sensors have temperature and motor power limitations For applications where magnetic sensors are not practical,
High performance inductive technology is available Inductive sensors use coils to sense the rotation of a specially designed inductive gear ring For more information on motor encoder units for extreme operating conditions please contact sales@srg-bearing.com
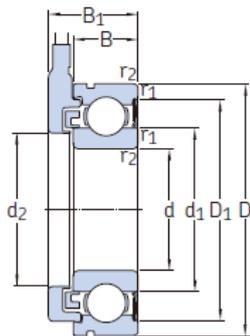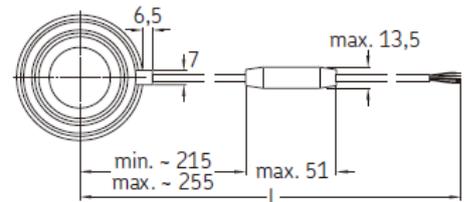
SRG
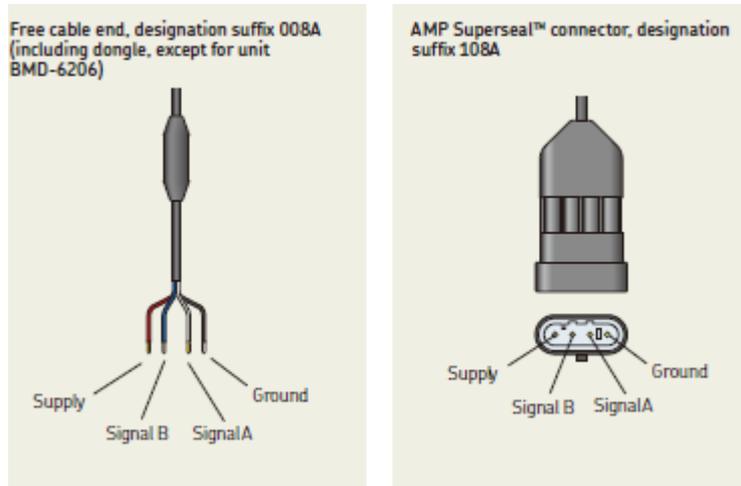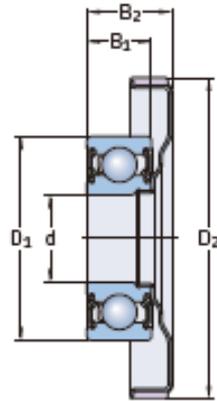
Designation	Bearing size	Principal dimensions					Number of pairs of poles	Limiting speed	Operating temperatures
		d	D1	D2	B_1	B_2			
–	–	mm					–	–	℃ (℉)
BMD-0123/ZJ6	6202	15	35	55	11	14,5	6	22 000	–40 to 150 (–40 to 300)
BMD-0123/ZJ8	6202	15	35	55	11	14,5	8	22 000	–40 to 150 (–40 to 300)

BMB
BM0
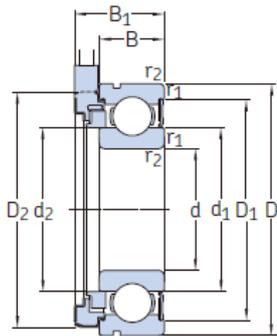
BMD
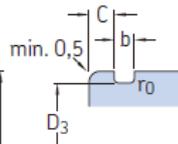
BMB ... 008A (Free cable end)
BM0 ... 008A (Free cable end)

BMB ... 108A (Superseal™)
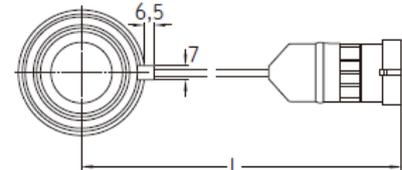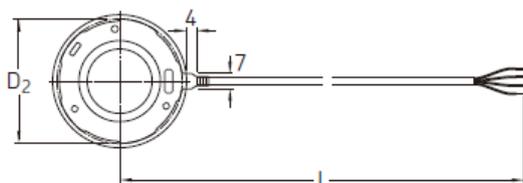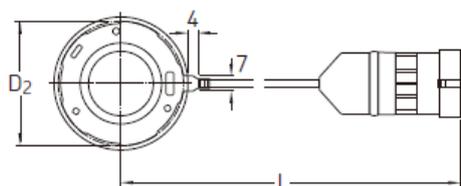BM0 ... 108A (Superseal™)

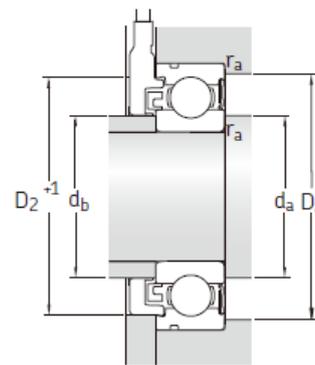| Bearing Principal dimensions			Basic load ratings		Fatigue load limit	Limiting speed	Sensor unit No of Period pulses	Phase		Cable length	Mass
			dynamic	static				accur-acy	shift output signal		
d	D	B	C	C_0	P_u		N			L ±10	
mm			kN		kN	r/min	–	%	°	mm	kg
15	35	11	7,8	3,75	0,16	13 000	32	±3	90 ±30	525	0,062
	35	11	7,8	3,75	0,16	13 000	32	±3	90 ±30	550	0,07
20	47	14	12,7	6,55	0,28	10 000	48	±3	90 ±20	535	0,13
	47	14	12,7	6,55	0,28	10 000	48	±3	90 ±20	560	0,14
25	52	15	14	7,8	0,335	8 500	48	±3	90 ±30	535	0,16
	52	15	14	7,8	0,335	8 500	48	±3	90 ±30	560	0,17
30	62	16	19,5	11,2	0,475	7 500	64	±4	90 ±30	540	0,22
	62	16	19,5	11,2	0,475	7 500	64	±4	90 ±30	565	0,24
40	80	18	30,7	19	0,8	5 600	80	±5	90 ±30	545	0,45
	80	18	30,7	19	0,8	5 600	80	±5	90 ±30	570	0,46
45	85	19	33,2	21,6	0,915	5 000	80	±5	90 ±30	545	0,54
	85	19	33,2	21,6	0,915	5 000	80	±5	90 ±30	570	0,54

BMD ... 008A (Free cable end)

BMD ... 108A (Superseal™)
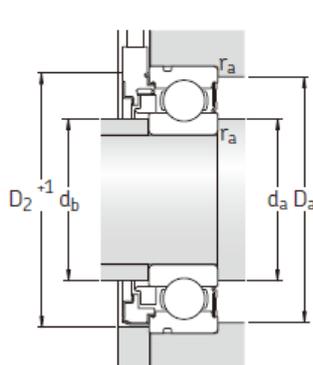
BMB
BM0
Bore diameter of end cover
≥ D_2 + 1 mm

BMD
Bore diameter of end cover
≥ D_2 + 1 mm

d	d_1 ≈	d_2	D_1 ≈	D_2	D_3	B_1	b	C	r_0	$r_{1,2}$ min	d_a, d_b min	d_b max	D_a max	r_a max	k_r	f_0
mm											mm			–		
15	21,7	19,5	30,4	34,46	33,17	17,2	1,35	2,06	0,4	0,6	19	19,4	31	0,6	0,025	13
	21,7	19,5	30,4	34,46	33,17	17,2	1,35	2,06	0,4	0,6	19	19,4	31	0,6	0,025	13
20	28,8	28,69	40,6	46,56	44,6	20,2	1,35	2,46	0,4	1	25	28,6	42	1	0,025	13
	28,8	28,69	40,6	46,56	44,6	20,2	1,35	2,46	0,4	1	25	28,6	42	1	0,025	13
25	34,3	31,6	46,3	51,46	49,73	21,2	1,35	2,46	0,4	1	30	31,3	47	1	0,025	14
	34,3	31,6	46,3	51,46	49,73	21,2	1,35	2,46	0,4	1	30	31,3	47	1	0,025	14
30	40,3	37,4	54,1	58,1	59,61	22,2	1,9	3,28	0,6	1	35	40	57	1	0,025	14
	40,3	37,4	54,1	58,1	59,61	22,2	1,9	3,28	0,6	1	35	40	57	1	0,025	14
40	52,6	48	69,8	75,06	76,81	24,2	1,9	3,28	0,6	1,1	46,5	47,4	73	1	0,025	14
	52,6	48	69,8	75,06	76,81	24,2	1,9	3,28	0,6	1,1	46,5	47,4	73	1	0,025	14
45	57,6	53	75,2	78,86	81,81	25,2	1,9	3,28	0,6	1,1	52	52	78	1	0,025	14
	57,6	53	75,2	78,86	81,81	25,2	1,9	3,28	0,6	1,1	52	52	78	1	0,025	14