

# SLIP RING



IP 67

EXPLOSION PROOF



*Transfer analog or digital energy signals*

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# The company



Since 1967 HBS Group operates in the production and marketing of hydraulic and electromechanical components. The constant search for technical solutions, the constant improving the quality of product and process, in addition to the efficiency and flexibility of the production allow HBS to the continued success in the global market. The presence of HBS with unit production and trade in different continents, alongside a qualified distribution network, provides customer assistance it needs. HBS is your partner for the development and supply of hydraulic components and electromechanical.

With its technical staff HBS is able to realize and customize, in synergy with the customer, highly innovative Slip Ring for each type of use, from transport to construction, from construction machinery to agriculture, from ecology to industrial systems.



## PHILOSOPHY



HBS bases its development on the singergy with the customer

## R&D

HBS is able to anticipate the needs of the changing market and to develop customized products



# Slip ring series

The Slip ring Series SR130, SR200 have been designed not only to transfer energy signals AC and DC type from a rotating platform to a stationary structure and vice versa, but also to transfer analog or digital

ones. This happens, for example, in case of remoted systems P/T, analog or digital type, according to the transfer of control signals for drive motors, and of feedback ones from the transducers of angular position.

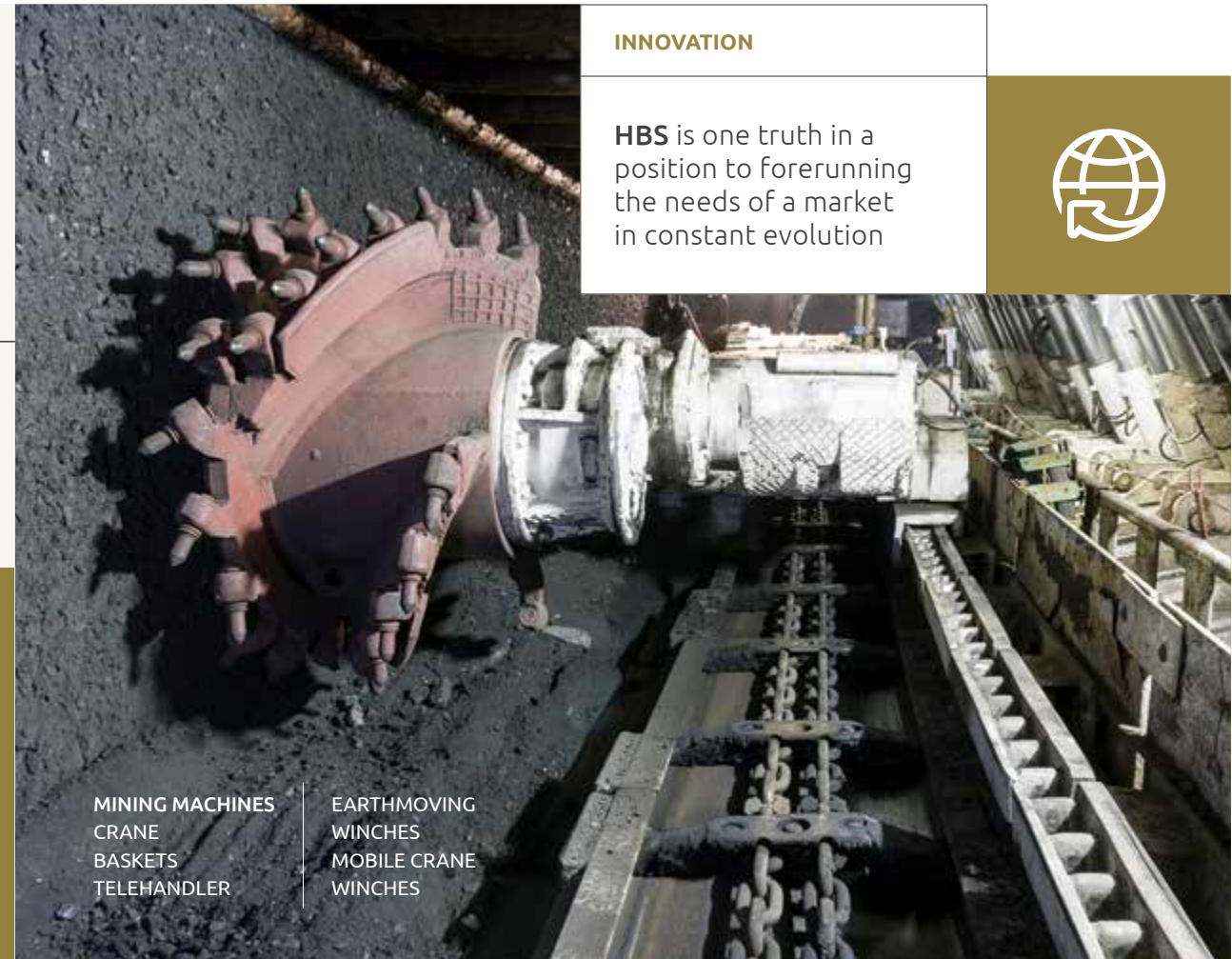


To choose technology **HBS**, mean to entrust themselves to a sure, synonymous partner of quality



## INNOVATION

**HBS** is one truth in a position to forerunning the needs of a market in constant evolution



MINING MACHINES  
CRANE  
BASKETS  
TELEHANDLER

EARTHMOVING  
WINCHES  
MOBILE CRANE  
WINCHES

## Application fields

With the unit planning, **HBS** is in a position to devise, realize and customize, in synergy with the customer, Slip Rings highly innovated for every type of employment,

from the transports to the earth movement, from the building to agriculture, from the ecology to the industrial systems.

# Slip ring SR130



IP67  
CE

<b>GENERAL SPECIFICATIONS</b>	Slip ring with variable size	
	Sizes under cover 30-260mm	
	Max 50 ring	
	Suitable for analog-to-digital, and auxiliary power	
	Maximum operating voltage 680Vac / Vdc.	
	Test voltage 2000 Vac.	
	Intensity max current monofilament: 20A continuous loop	
	Intensity max current electrografite: 12A continuous loop	
	Contact resistance brushes / rings <20 mhom	
	Degree of protection IP55/IP67	
Mounting Position Vertical / Horizontal		
Operating temp: -40/+60°C <i>(under -20°C it's recommended to use anti-condensation heater)</i>		
Direction of rotation CW / CCW		

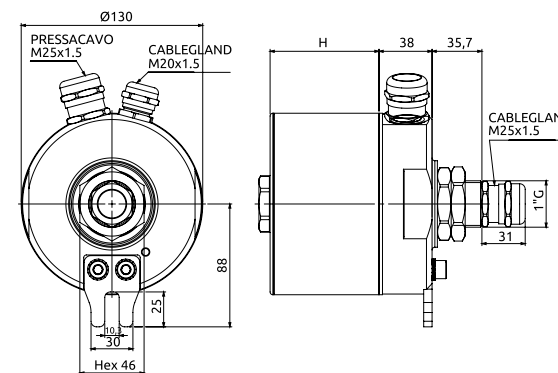
<b>STANDARD CONSTRUCTION</b>	Slip ring body: aluminium anticorodal	
	<b>Internal rings</b>	
	<i>Power:</i> brass with nickel plating	<i>Signals:</i> brass with gold plating
	<b>Type of brushes</b>	
	<i>Power:</i> metal coal with a high content of copper or monofilament in beryllium copper with nickel plating treatment	<i>Signals:</i> monofilament in beryllium copper with gold plating treatment
	Mechanics and screws: stainless steel	
Rotating shaft on ball bearings: sealed and lubricated for life		
Cable glands for multi-core cables		
Rating plate on the basis of the slip ring		

For special requirements, please contact our sales department

**REFERENCE STANDARDS** **i**

Machinery Directive 2006/42 (Annex B)  
Standards EN 60309-1-2  
Plugs and sockets for industrial use  
EN 60204-1 for electrical systems on board  
60947-1-1 Low-voltage switchgear  
Part1: General rules

## Standard dimensions



RING	H
1 - 12	80 mm
13 - 36	160 mm

IP rating	Cable exit
IP55	Conduit flexible PVC corrugated tube
IP67	Multipolar cable cable glands

Max capacity of the cables (CEI-UNEL)											
Cable cross-section (mm <sup>2</sup> )	0.5	1	1.5	2.5	4	6	10	16	25	35	50
Max Temperature on cable = 70 C°	3A	10A	16A	20A	30A	37A	46A	60A	105A	130A	155A

# Version monofilament

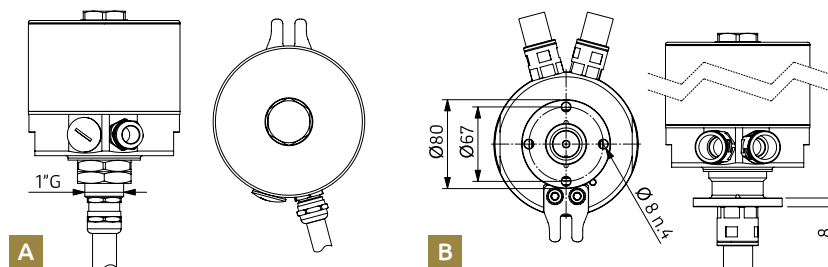
## brush standard versions

# Version electrografite

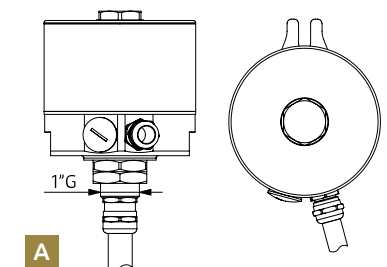
## brush standard versions

Version	Type	N. Ring	Rated current (A)	Cable (mm <sup>2</sup> ) L=2.5mt	VAC maximum voltage supply	Rpm Max	Protection class	Output type
A	S0541049900	1Earth+3	16	1.5	680	12	IP67	Multipolar cable4G1.5 pur
A	S0541069900	1Earth+5	16	1.5	680	12	IP67	Multipolar cable7G1.5 pur
A	S0541089900	1Earth+7	16	1.5	680	12	IP67	Multipolar cable12G1.5 pur
A	S0541129900	1Earth+11	16	1.5	680	12	IP67	Multipolar cable12G1.5 pur
A	S0541169900	1Earth+15	16	1.5	680	12	IP67	Multipolar cable18G1.5 pur
A	S0541189900	1Earth+17	16	1.5	680	12	IP67	Multipolar cable18G1.5 pur
A	S0541259900	1Earth+24	16	1.5	680	12	IP67	Multipolar cable25G1.5 pur
B	S0541309900	1Earth+29	16	1.5	680	12	IP55	Conduit / Unipolar cables
B	S0541369900	1Earth+35	16	1.5	680	12	IP55	Conduit / Unipolar cables

Version	Type	N. Ring	Rated current (A)	Cable (mm <sup>2</sup> ) L=2.5mt	VAC maximum voltage supply	Rpm Max	Protection class	Output type
A	S0542049900	1Earth+3	12	1.5	680	12	IP67	Multipolar cable4G1.5 pur
A	S0542069900	1Earth+5	12	1.5	680	12	IP67	Multipolar cable7G1.5 pur
A	S0542089900	1Earth+7	12	1.5	680	12	IP67	Multipolar cable12G1.5 pur
A	S0542129900	1Earth+11	12	1.5	680	12	IP67	Multipolar cable12G1.5 pur
A	S0542169900	1Earth+15	12	1.5	680	12	IP67	Multipolar cable18G1.5 pur
A	S0542189900	1Earth+17	12	1.5	680	12	IP67	Multipolar cable18G1.5 pur
A	S0542259900	1Earth+24	12	1.5	680	12	IP67	Multipolar cable25G1.5 pur



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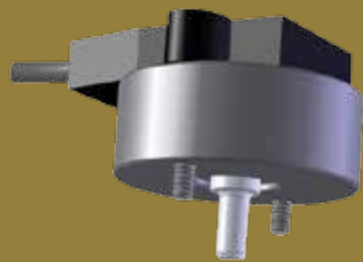


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# Accessories for special application

## ACCESSORIES

HBS offers a range of accessories for special applications associated with the series Slip ring SR130



**ROTARY SENSOR WITH SUPPORT BASE**  
*(internal installation)*

Version available:

- output can bus redundant
- single output can bus
- analog
- analog current



**AIR SWIVEL JOINT**  
*(internal installation)*

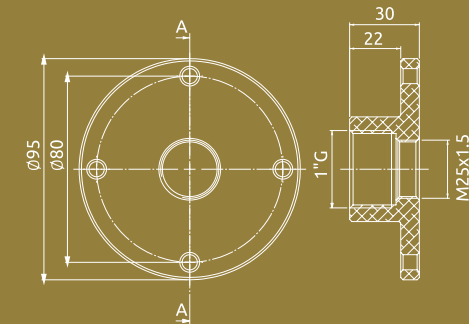
Version available:

- 1/4"G
- 3/8"G



**ANTI-CONDENSATION HEATER**

For applications ambient temperatures -20 to -40 °C



**FLANGE 1"G**  
*(available for standard models)*

To convert the 1"G connection in flanged connection

# Slip ring explosion proof SR130EX



## REFERENCE STANDARDS



Machinery Directive 2006/42 (Annex B)  
 Standards EN60309-1-2 Plugs and sockets for industrial use  
 EN 60204-1 for electrical systems on board  
 60947-1-1 Low-voltage switchgear Part 1: General rules  
 94/9/EC Atex Directive (Atmospheres Explosibles)  
 Technical protection for electrical equipment according to EN60079-0 and EN60079-1  
 13 ATEX 11X CESI Certificate Number EC Type-Notification of EC quality of production in accordance with Annex VII to Directive 94/9EC (ATEX)

### GENERAL SPECIFICATIONS

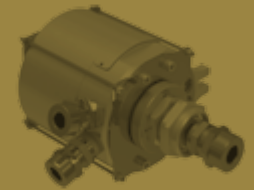
Slip ring with variable size
Sizes under cover 80/160/240mm
Max 50 ring
Suitable for analog-to-digital, and auxiliary power
Maximum operating voltage 680Vac / Vdc.
Test voltage 2000 Vac.
Intensity max current 20 A continuous loop
Contact resistance brushes / rings <20 mhom
Degree of protection IP55/IP66
Mounting Position Vertical / Horizontal
Operating temp: -40/+60°C <i>(under -20°C it's recommended to use anti-condensation heater)</i>
Direction of rotation CW / CCW

### STANDARD CONSTRUCTION

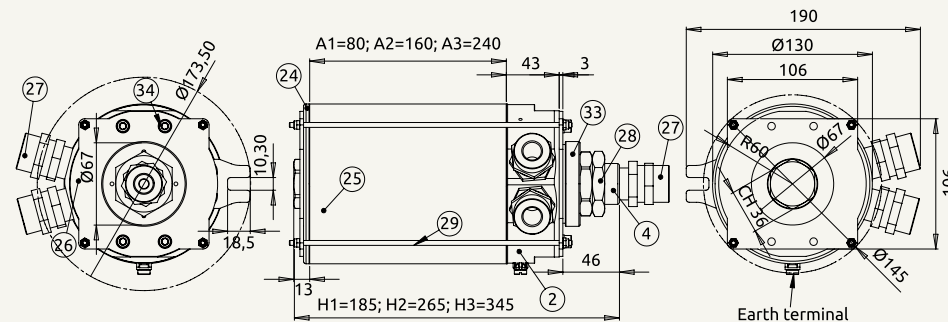
Slip ring body: aluminium anticorodal	
<b>Internal rings</b> <i>Power:</i> brass with nickel plating	<i>Signals:</i> brass with gold plating
<b>Type of brushes</b> <i>Power:</i> monofilament in beryllium copper with nickel plating treatment	<i>Signals:</i> monofilament in beryllium copper with gold plating treatment
Mechanics and screws: stainless steel	
Rotating shaft on ball bearings: sealed and lubricated for life	
Wiring cables: special explosion-proof	
Barrier cable glands for multi-core cables	
Protective sheath: special explosion-proof	
Rating plate on the basis of the slip ring	

For special requirements, please contact our sales department

# Slip ring explosion proof SR130EX



## Standard dimensions



Size	A	mm
PDEX01-000	A1	80
PDEX02-000	A2	160
PDEX03-000	A3	240

IP rating	Cable exit
IP66	Multipolar cable / NPT ATEX cable glands

Part	Pos
Basic body	2
Shaft	4
Earth terminal	E.T.
Cover	24
Cover tube	25
Closing plate	26
NPT cable gland	27
Closing device	28
M4 screw	29
Brass shaft	33
M4 bolts	34

## Use of Slip ring SR130EX

The Slip Ring Series SR130EX are used in potentially explosive atmospheres. We must therefore ensure that the slip ring is suitable for the area classification and the characteristics of the system to which it is intended. The essential safety requirements against the risk of explosion in hazardous areas with regard to the devices are set by European directives 94/9/EC of 23 March 1994 (1999/92/EC of 16.12.1999 for the plant).

Areas with a potentially explosive atmosphere are classified according to EN60079-10, while the technical requirements of electrical installations in hazardous areas are given in standard EN 60079-14. Technical protection for electrical equipment according to standards EN60079 and EN60079-0-1.

Based on these technician requirements and laws, the should be chosen taking into account the following factors:

- type of plant equipment group II surface;

- category Gas 2GD dust protection high use areas of zone 1 and zone 2 are present;
- the characteristics of the combustible materials present in the form of gas, vapor or mist;
- subgroup: IIB (ethylene), IIC (hydrogen);
- temperature class: T5 (300), T1 (450).

**Note:**

The slip ring of the group IIC are also suitable for areas IIB IIA (propane).

The slip ring with a given temperature class are also suitable for all substances with higher temperature class;

For example collectors T5 are also suitable for all substances with temperature class T4 (135), T3 (200), T2 (300), T1 (450).

**Slip ring SR130EX**

These series are suitable for the passage of signals of power.

The peculiarity of this series of slip ring is the radial dimension extremely content that allows its use in very small spaces.

For special requirements, please contact our sales department



# Power Slip ring SR220



Machinery Directive  
2006/42 Annex B

The sliding contacts of SR220 Series slip rings are designed to carry electrical signals AC and DC by a rotating platform to a stationary structure and vice versa, or with the same contacts with a galvanic gold plating surface treatment they are also suitable for the transport of analog or digital signals. The main characteristics of the six Series Slip Ring power that the sliding contacts are realized according to a technology in the form of monofilament with different types of surface treatments which give the best mechanical and electrical performance compared to the traditional metal graphite. 1) Of the mono filament point of contact with the rotating ring surface 2)

Contact surface that does not require lubrication, and low contact dynamic resistance (noise). 3) Long service life and low contact force. 4) High compaction of the rotor and stator. 5) High permissible current density and wide dynamic range of low electrical resistivity current job. 6) Very low generation of debris. Wide operating temperature range, good environmental conditions (no oxidation) high scroll speed. The structure is entirely in aluminum Marine Anticorrosive. The product for its ease in construction can be assembled to 'internal modulated with different sizes of rings and sliding contacts, in such a way as to optimize space and installation time.



## GENERAL SPECIFICATIONS

Slip ring with variable size
- suitable for analog-to-digital, and auxiliary power
- maximum operating voltage 690Vac / Vdc.
- test voltage 2500 Vac.
- intensity max current A continuous loop.
- contact resistance brushes / rings <0.5 mhom.
- degree of protection IP 66.
- maximum operating speed 17.5 rpm
- mounting Position Vertical / Horizontal.
- operating temperature - 40°C - +60°C
- direction of rotation CW / CCW

## STANDARD CONSTRUCTION

- slip ring body: Aluminium anticorrosive. Rings slip ring, silver or gold for signals
- brushes: power - metal coal with a high content of copper monofilament to beryllium copper with nickel plating treatment
- signals: monofilament treatment of browning
- mechanics and screws: stainless steel
- rotating shaft on ball bearings: sealed and lubricated for life
- cable glands for multi-core cables
- the rating plate on the basis of the slip ring

# Test schedule

## Power Slip ring SR200

	Type of test	Reference	Standard	Date	Executed
1	Degree of protection IP67	Degrees of protection provided by enclosures (IP Code)	EN 60529	03/05/2012	int.
2	Degree of impact IK	Plugs and sockets for industrial use	CEI EN 60309-1	05/04/2012	int.
3	Overheating and test current (thermal) $\Delta T$	Low voltage equipment	CEIEN 60947-1	14/05/2012	int.
4	Insulation resistance	Plugs and sockets for industrial use	CEI EN 60309-1	21/05/2012	int.
5	Verifications of voltage drop	Low voltage equipment	CEIEN 60947-1	14/05/2012	int.
6	Rigidity test	Plugs and sockets for industrial use	CEI EN 60309-1	21/05/2012	int.
7	Earth resistance	Plugs and sockets for industrial use	CEI EN 60309-1	21/05/2012	int.
8	B10 tests of wear	Safety of machinery	EN13489-1	29/05/2012	int.
9	Tear-proof terminals	Low voltage equipment	CEIEN 60947-1 CEI EN 60204-1	21/05/2012	int.
10	EMC test	Electromagnetic compatibility (EMC)	EN61000-6-4:2007+A1 (2011)	20/05/2014	External NEMko
11	Test aging	Plugs and sockets for industrial use	CEI EN 60309-1	28/06/2012	int.
12	Corrosion proof enclosure & electrical contact	Plugs and sockets for industrial use	CEI EN 60309-1	12/09/2012	External institution
13	Thermal test casing housing	Non-electrical equipment for potentially explosive atmospheres	UNI EN 13463-1	25/06/2012	int.
14	ATEX Explosion proof type tests	Electrical apparatus for explosive atmospheres due to the presence digas Part 1: explosion proof enclosures "d"	EN 60079-1/ EC:2008-03.	15/04/2013	External institution CESI





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