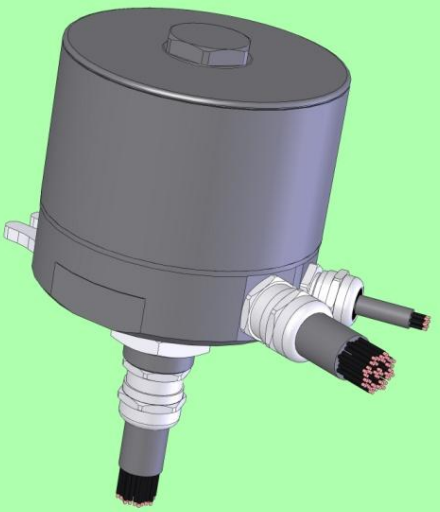
HBS TRANSMITTAL

Slip Ring
IP 67

Slip Ring
Explosion proof



HBS TRANSMITTAL via Mastroppa 4/6-46040 Monzambano (Mantova)-Italy customerservice@hbs.it tel. +39 0376800200 www.hbstransmittal.it

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- 2 Product introduction
- 6 Product features: SR130
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HBS TRANSMITTAL

This is the spirit we have been working since 1967, in the hydraulic field. Throughout the years we have directed our effort to achieve the best results in quality, reliability and development, and today our products are successfully utilized all over the world.

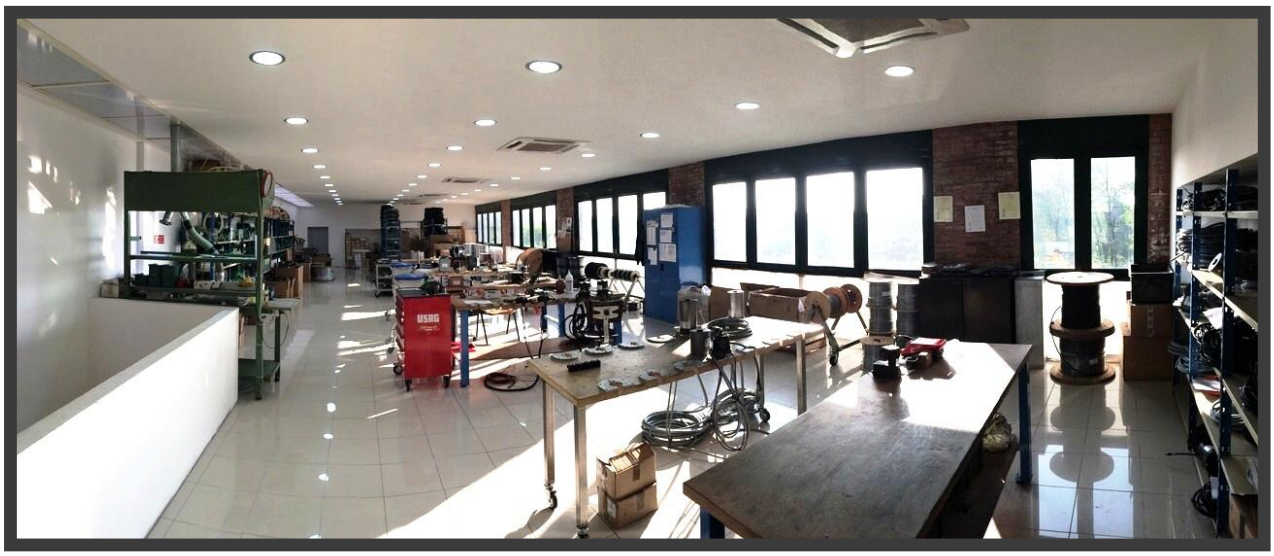
Our factories in Monzambano cover a surface of 12.000 square meters and include the manufacturing department, the research lab and the quality control department. We have a mission, we do not want to be just manufacturers of hydraulic parts. HBS is in a position to devise, to realize and to personalize, in synergy with the customer, highly innovated hydraulic valves and components for every type of employment, from transport to Earth movement, from building to agriculture, from ecology to industrial systems. HBS is an entity, which is able to anticipate needs of a market in constant evolution.

HBS bases the principle of its own development on synergism with the costumer.

ATEX Directive 94/9/EC COMPLIANT

Machinery Directive 2006/42 (Annex B)

CE



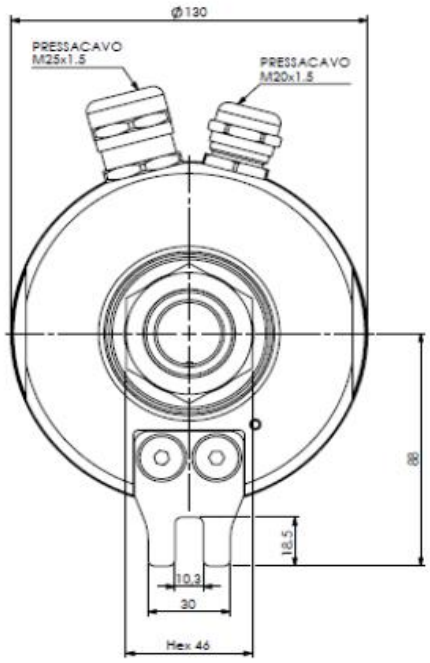
Introduction

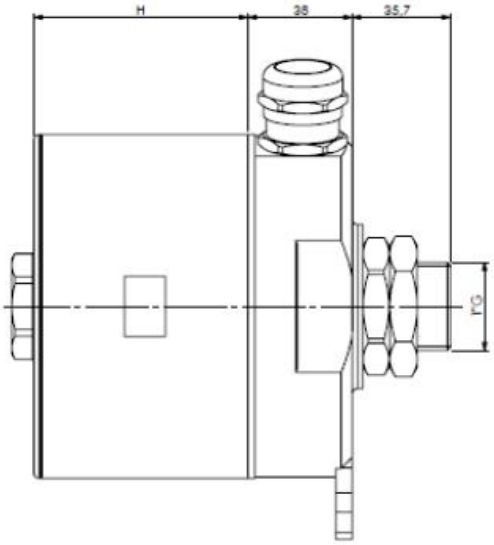
The Slip Ring series SR130 has been designed not only to transfer energy signals AC and DC type from a rotating platform to a stationery structure and vice versa, but also to transfer analog or digital ones.

This happens, for example, in the 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.

Application Sectors

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

Reference sandards

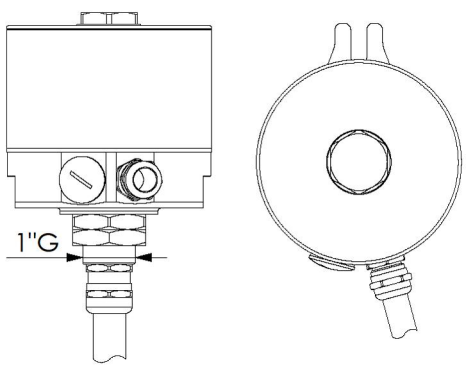
Machinery Directive 2006/42 (Annex B)
Standards EN 60309-1-2 Plugs and sockets for industrial use
EN 60204-1 for electrical systems on board.
60947-1-1 Low-voltage switchgear Part1: General rules

Max capacity of the cables (CEI ï UNEL)										
Cable cross-section (mm²)	**0.5**	**1**	**1.5**	**4**	**6**	**10**	**16**	**25**	**35**	**50**
PVC cable type Max Teperature on cable = 70 C°	3A	10A	16A	30A	30A	45A	60A	105A	130A	155A
Pur cable type Max Teperature on cable = 90 C°	6A	13A	2A	25A	37A	55A	72A	125A	150A	170A

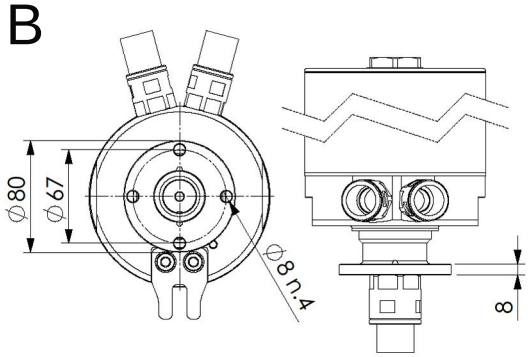
Version monofilament brush

Version	Type	N. Ring	Rated current (A)	Cable (mm²) L=2.5mt	VAC maximum voltage supply	Rpm Max	Protection Class	Output Type
A	S0541049900	1Earth+3	16	1.5	680	12	IP67	Multipolar cable 4G1.5 pur
A	S0541069900	1Earth+5	16	1.5	680	12	IP67	Multipolar cable 7G1.5 pur
A	S0541089900	1Earth+7	16	1.5	680	12	IP67	Multipolar cable 12G1.5 pur
A	S0541129900	1Earth+11	16	1.5	680	12	IP67	Multipolar cable 12G1.5 pur
A	S0541169900	1Earth+15	16	1.5	680	12	IP67	Multipolar cable 18G1.5 pur
A	S0541189900	1Earth+17	16	1.5	680	12	IP67	Multipolar cable 18G1.5 pur
A	S0541259900	1Earth+24	16	1.5	680	12	IP67	Multipolar cable 25G1.5 pur
B	S0541369900	1Earth+29	16	1.5	680	12	IP67	Conduit / Unipolar cables
B	S0541369900	1Earth+35	16	1.5	680	12	IP67	Conduit / Unipolar cables

A



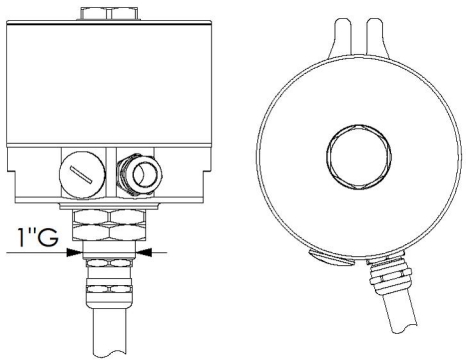
B



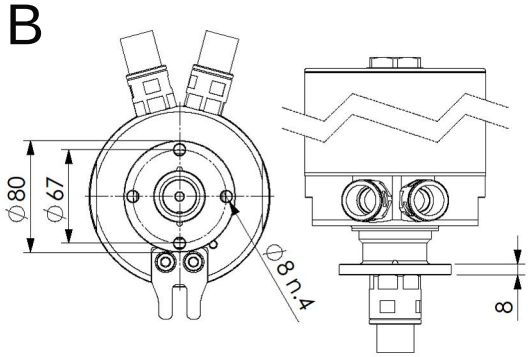
Version electrografite brush

Version	Type	N. Ring	Rated current (A)	Cable (mm²) L=2.5mt	VAC maximum voltage supply	Rpm Max	Protection Class	Output Type
A	S0542049900	1Earth+3	12	1.5	680	12	IP67	Multipolar cable 4G1.5 pur
A	S0542069900	1Earth+5	12	1.5	680	12	IP67	Multipolar cable 7G1.5 pur
A	S0542089900	1Earth+7	12	1.5	680	12	IP67	Multipolar cable 12G1.5 pur
A	S0542129900	1Earth+11	12	1.5	680	12	IP67	Multipolar cable 12G1.5 pur
A	S0542169900	1Earth+15	12	1.5	680	12	IP67	Multipolar cable 18G1.5 pur
A	S0542189900	1Earth+17	12	1.5	680	12	IP67	Multipolar cable 18G1.5 pur
A	S0542259900	1Earth+24	12	1.5	680	12	IP67	Multipolar cable 25G1.5 pur

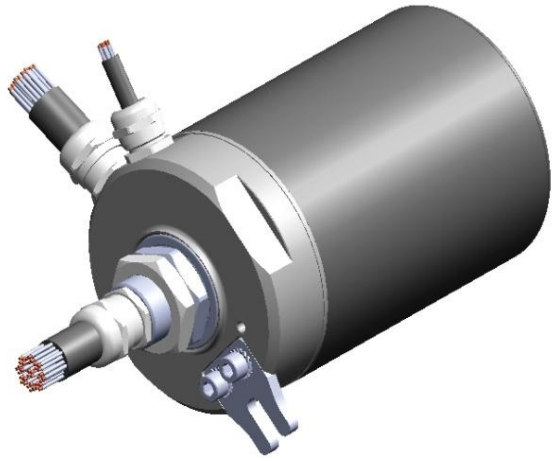
A



B



SLIP RING
SR130



IP67

CE

GENERAL SPECIFICATIONS

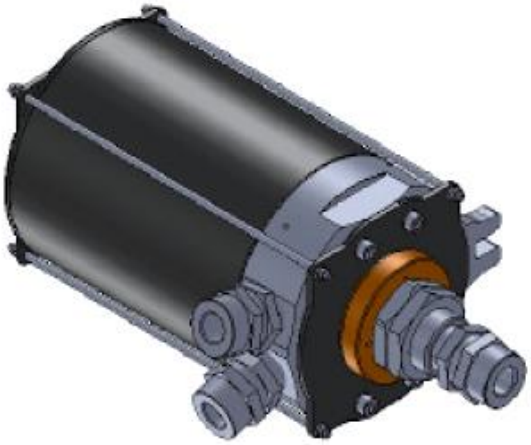
Slip ring with variable size
- Sizes under cover 30-/240mm.
- Max 50 ring
- Suitable for analog-to-digital, and auxiliary power
- Maximum operating voltage 680Vac / Vdc.
- Test voltage 2000 Vac.
- Intensity max current 20 A continuous loop.
- Contact resistance brushes / rings <20 mhom.
- Degree of protection IP 67.
- Maximum operating speed 100 rpm
- Mounting Position Vertical / Horizontal.
- Operating temperature - 40 °C - +60°C
- Direction of rotation CW / CCW.

STANDARD CONSTRUCTION

- Slip ring body: Aluminium anticorodal /
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.

SLIP RING EXPLOSION PROOF SR130EX

Exd IIC T5 Gb (gas)
Tamb -40 +55 °C



13ATEX11X

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 IP 66.
- Maximum operating speed 100 rpm
- Mounting Position Vertical / Horizontal.
- Ambient temperature - 40 °C - +60°C
- Direction of rotation CW / CCW.

STANDARD CONSTRUCTION

- Slip ring body: Aluminium anticorodal /
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.
- Wiring cables: Special explosion-proof, 2 m length
of collector rings.
- Barrier cable glands for multi-core cables:
- Protective sheath: Special explosion-proof.
- The rating plate on the basis of the slip ring.

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 S 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).

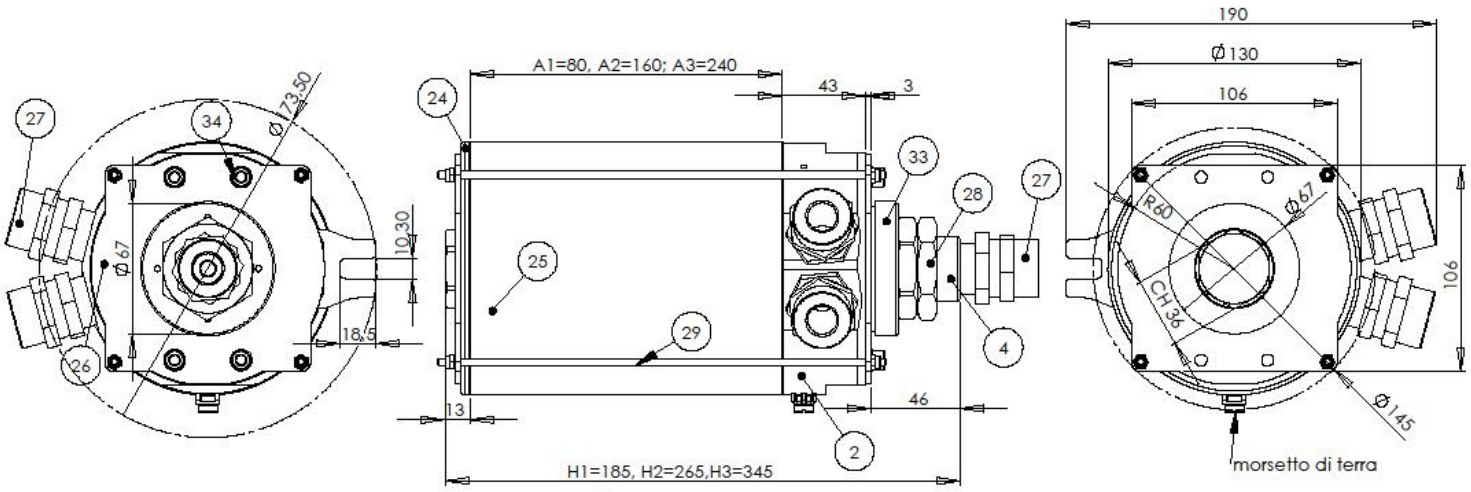
Note:
The slip ring of the group IIC are also suitable for areas IIB IIA (propane).
The slip ring with a given temperature class are also suitable for all substances with higher temperature class;
For example collectors T5 are also suitable for all substances with temperature class T4 (135), T3 (200), 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.

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).

Standard dimensions

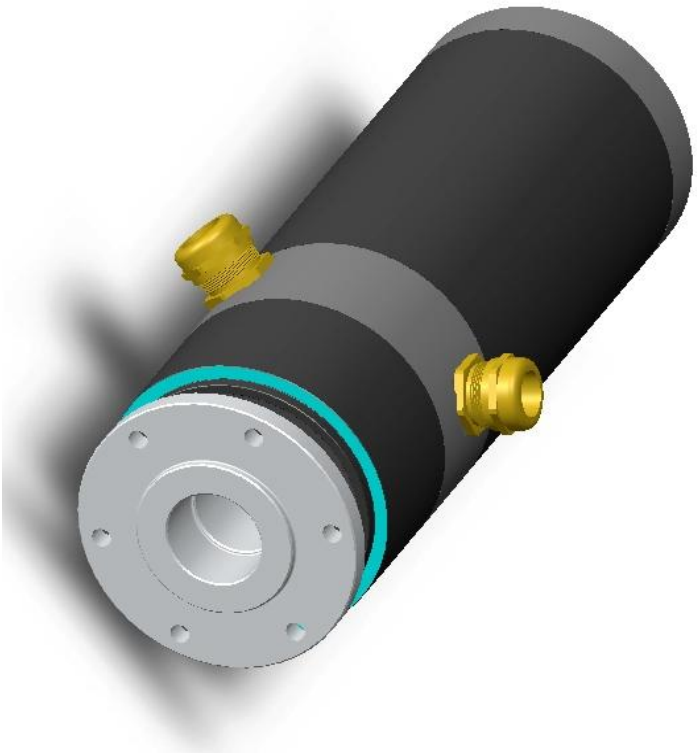


Size	A	mm
PDEX01-000	A1	80
PDEX02-000	A2	160
PDEX03-000	A3	240

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

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

Power Slip ring SR200



IP67

CE

General specifications

Slip ring with variable size

- Suitable for analog-to-digital, and auxiliary power
- Maximum operating voltage 680Vac / Vdc.
- Test voltage 2500 Vac.
- Intensity max current 130A continuous loop.
- Contact resistance brushes / rings <20 mhom.
- Degree of protection IP 67.
- Maximum operating speed 17.5 rpm
- Mounting Position: Vertical / Horizontal.
- Operating temperature - 30 °C - +60°C
- Direction of rotation CW / CCW.

Standard construction

- Slip ring body: Aluminium anticorodal

Rings slip ring:, silver or gold for signals.

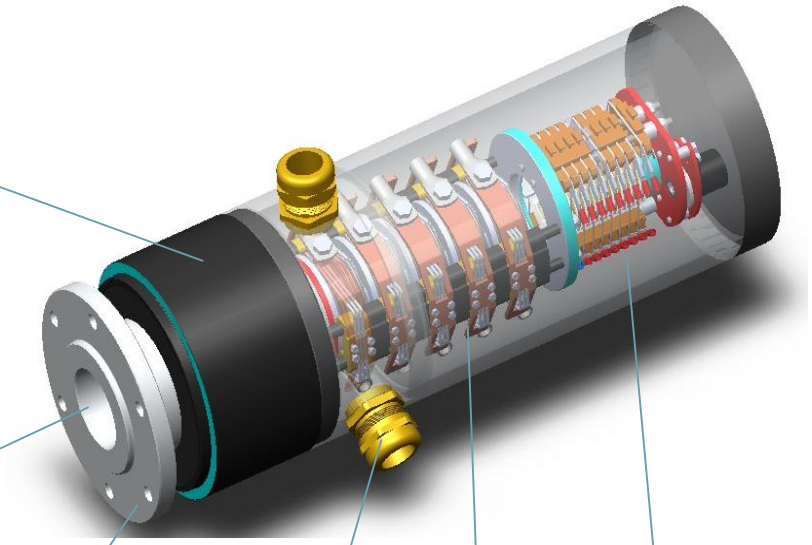
- Brushes: Power: metal coal with a high content of copper.

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.

Slip ring SR200

Body :
alluminium
marine



Exit cable :
Rotor M60
conduit

flage :
alluminium
marine

Signal
Digital slip
ring:

Exit cable :
Stator 4X
M40

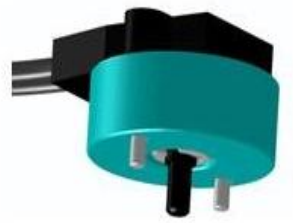
Power slip
ring:

ACCESSORIES

Rotary sensor with support base

Version avaible:

1. Output can bus redundant;
2. Single output can bus;
3. Analog;
4. Analog current;



Air Swivel Joint

Version avaible:

1/4”G;

3/8”G;

Anti-condensation heater

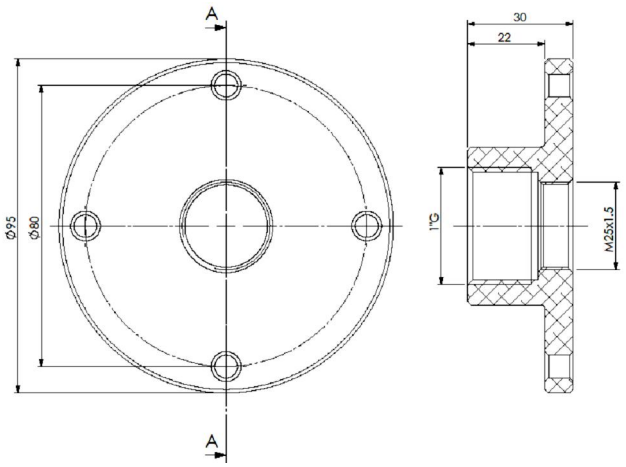
For applications ambient temperatures -20 to -40 °C

Flange 1”G

To convert the 1”G

connection in flanged

connection



TEST SCHEDULE

	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) ϕT	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

Nemko

ACCREDIA

CERTIFICATE

EN 61000-6-4:2007+ A1 (2011)
Electromagnetic compatibility (EMC) — Part 6-1: Generic standards
Immunity for residential, commercial and light-industrial environments
EN 61000-6-2 (2005)
Electromagnetic compatibility (EMC) — Part 6-2: Generic standards - Immunity for

Testing Labora
Address
Testing location
Address

is complies
The device has
standards.
EN61000-6-4:20
Immunity for resi
EN 61000-6-2 8 [
Immunity for ind

Report Refe
Test item desc
Trade Mark
Manufacturer
Address of ma
Model
Ratings

Tested by
(name, function a
Approved by
(name, function a
Date of issue

CERTIFICATE

TÜV NORD

Management system as per
EN ISO 9001 : 2008

In accordance with TÜV NORD

H.B.S. S.r.l.

with registered and operation
Via Mastroppa, 4/
46040 Monzamba
Italy

applies a management system

Research, develo
and hydraulic cor

Certificate Registration No. 44
Audit Report No. 35099994

Certification Body
at TÜV NORD CERT GmbH

This certification was conducte
subject to regular surveillance

TÜV NORD CERT GmbH

IAF

TGA-ZM-07-08-00

CESI

NOTIFICATION

PRODUCT QUALITY ASSURANCE
NOTIFICATION

[2] Equipment or Protective System or Component intended for use in potentially explosive atmospheres
Directive 94/9/EC

[3] Notification number:

[4]

[5]

[6]

[7]

[8]

[9]

[10]

ISMES
IPH
FGH

CESI-ATEX

Schema di certificazione

ACCREDIA
PRD N. 018B

CESI

CERTIFICATE

EC-TYPE EXAMINATION CERTIFICATE

[2] Equipment or Protective System intended for use in potentially explosive atmospheres
Directive 94/9/EC

[3] EC-Type Examination Certificate number:

CESI 13 ATEX 011 X

[4] Equipment: Slip Ring SR130EX model PDEX-01; PDEX-02 and PDEX-03

[5] Manufacturer: H.B.S. S.r.l.

[6] Address: Via Mastroppa 4/6, Monzambano (Mantova), Italy

[7] This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] CESI, notified body n. 0722 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report n. EX-B3005978.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0: 2012 ; EN 60079-1: 2007

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EC-TYPE EXAMINATION CERTIFICATE relates only to the design, examination and tests of the specified equipment or protective system in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

[12] The marking of the equipment or protective system shall include the following:

Ex II 2G Ex d IIC T5 Gb or

Ex II 2G Ex d IIB T5 Gb

This certificate may only be reproduced in its entirety and without any change, schedule included.

Date 15.04.2013 - Translation issued the 15th April 2013

Prepared	Verified	Approved
TM	Mirko Balaz	Fiorenzo Breganì

CESI S.p.A.
Testing & Certification Division
Business Area Certification
Responsabile

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HBS TRANSMITTAL

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