Slip Ring
IP 67

Slip Ring
Explosion proof
Index

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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.
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

<table>
<thead>
<tr>
<th>1-12</th>
<th>80 mm</th>
</tr>
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<tbody>
<tr>
<td>13-36</td>
<td>160 mm</td>
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### IP rating

<table>
<thead>
<tr>
<th>Cable exit</th>
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<tbody>
<tr>
<td>IP55 Conduit flexible / PVC corrugated tube</td>
</tr>
<tr>
<td>IP67 Multipolar cable / cable glands</td>
</tr>
</tbody>
</table>

## Reference Standards

- **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.
  - EN 60947-1-1 Low-voltage switchgear Part 1: General rules

## Max capacity of the cables (CEI –UNEL)

<table>
<thead>
<tr>
<th>Cable cross-section (mm²)</th>
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<th>4</th>
<th>6</th>
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<td>Max Temperature on cable = 70 °C</td>
<td>3A</td>
<td>10A</td>
<td>16A</td>
<td>30A</td>
<td>30A</td>
<td>45A</td>
<td>60A</td>
<td>105A</td>
<td>130A</td>
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<td>Pur cable type</td>
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<td>Cable (mm²)</td>
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<td>Rpm Max</td>
<td>Protection Class</td>
<td>Output Type</td>
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![Diagram A](image1.png)

![Diagram B](image2.png)
## Version electrografite brush

<table>
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<th>Version</th>
<th>Type</th>
<th>N. Ring</th>
<th>Rated current (A)</th>
<th>Voltage supply (mm²)</th>
<th>Rpm Max</th>
<th>Protection Class</th>
<th>Output Type</th>
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<td>680</td>
<td>12</td>
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</table>

![Diagram A](imageA)

![Diagram B](imageB)
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 mOhm.
• 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

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 mohm.
• 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 multicore cables:
  • Protective sheath: Special explosion-proof.
  • The rating plate on the basis of the slip ring.
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 and Dimensions

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<th>Size</th>
<th>A</th>
<th>mm</th>
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<td>PDEX01-000</td>
<td>A1</td>
<td>80</td>
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<tr>
<td>PDEX02-000</td>
<td>A2</td>
<td>160</td>
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<tr>
<td>PDEX03-000</td>
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<td>240</td>
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### Parts and Positions

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<th>Pos.</th>
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<td>Basic body</td>
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<td>Shaft</td>
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</tr>
<tr>
<td>Earth terminal (E.T.)</td>
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<tr>
<td>Cover tube</td>
<td>25</td>
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<tr>
<td>Closing plate</td>
<td>26</td>
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<tr>
<td>NPT cable gland</td>
<td>27</td>
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<tr>
<td>Closing device</td>
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<td>M4 screw</td>
<td>29</td>
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<td>Brass shaft</td>
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<tr>
<td>M4 bolts</td>
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### IP Rating and Cable Exit

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<th>Cable exit</th>
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</thead>
<tbody>
<tr>
<td>IP66</td>
<td>Multipolar cable / NPT ATEX cable glands</td>
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</tbody>
</table>
**Power Slip ring SR200**

**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 mhm.
- 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.
- 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

**Flag:**
- Alluminium Marine

**Exit cable:**
- Stator 4X M40

**Signal Digital slip ring:**

**Power slip ring:**
ACCESSORIES

Rotary sensor with support base

Version available:

1. Output can bus redundant;

2. Single output can bus;

3. Analog;

4. Analog current;

Air Swivel Joint

Version available:

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
<table>
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<tr>
<th></th>
<th>Type of test</th>
<th>reference</th>
<th>standard</th>
<th>date</th>
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<td>UNI EN 13463-1</td>
<td>25/06/2012</td>
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<td>Electrical apparatus for explosive atmospheres due to the presence digas Part 1: explosion proof enclosures &quot;d&quot;</td>
<td>EN 60079-1/EC:2008-03.</td>
<td>15/04/2013</td>
<td>external institution CESI</td>
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</table>
CERTIFICATE

Management system as per EN ISO 9001:2008

in accordance with TÜV NORD

H.B.S. Srl.

with equipment and operator
Via Mastroppa, 4/5
46040 Montzamba
Italy

Report Ref:

Research, develop and hydraulic co.

Test item des

in compliance

The device has standards
EN 61800-5-2:2007
Immunity for all
EN 61800-6-2:2008
Immunity for in

Model:

Report Ref:

test item des

Certificate Registration No: 44
Audit Report No: 120000001

This verification was carried out subject to regular surveillance

TÜV NORD CERT

CESI

EC-TYPE EXAMINATION CERTIFICATE

Equipment or Protective System intended for use in potentially explosive atmosphere

Directive 99/92/EC

CESI 13 ATEX 011 X

1. Equipment:
Stirring mixer model MUX D-60, PEG-20 and PEG-45

2. Manufacturer:
H.B.S. Srl

3. Address:
Via Mastroppa, 4/5, Montzamba (Mantova), Italy

4. This equipment or protective system and any accessory part thereof is specified in the schedule to this certificate and the documents referred to.

5. CEII notified body No. 0522 in accordance with Article 9 of the Council Directive 99/92/EC of 21 March 1999, certifies that the equipment or protective system has been found to comply with the Essential Safety and Health Requirements relating to the design and construction of equipment or protective system made for use in potentially explosive atmospheres (PEC) in Annex II to the Directive.

6. The examination and test results are recorded in confidential report, Ex-0000978.

7. Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 61800-5-2:2007; EN 61800-6-2:2008

8. If the sign “Ex” is followed by the certificate number, it indicates that the equipment or protective system is subject to specific conditions for use as specified in the schedule to this certificate.

9. The EC-TYPE EXAMINATION CERTIFICATE refers only to the design, examination and testing of the specified equipment or protective system in accordance with the Directive 99/92/EC. Further examination of the design refers to the equipment manufacturer and supply of this equipment for use in potentially explosive atmospheres (PEC) is subject to the conditions specified in the schedule to this certificate.

10. The marking of the equipment or protective system shall include the following:

II 2 T G Ex d IIC T6 Gd or

II 2 G Ex d IIB T6 Gd

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

Proposed

Th

Approved

M. Bognini

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