



ROTARX[®]

Miniature Hybrid Slip Rings

PNEUMATIC / LIQUID + ELECTRIC



High-Performance Power,
Signal and Media Transmission

COMPACT SLIP RINGS

Our other available catalogues:

COMPACT SLIP RINGS SOLUTIONS (General catalogue)	(256 pages)
CAPSULATED MINIATURE SLIP RINGS	(44 pages)
AUTOMATION SLIP RINGS	(32 pages)
THROUGH-BORE SLIP RINGS	(68 pages)
PANCAKE SLIP RINGS - with Housing - without Housing	(42 pages)
SEPARATE SLIP RINGS	(28 pages)
FASTON SLIP RINGS	(24 pages)
HYBRID SLIP RINGS - Pneumatic / Liquid + Electric	(72 pages)
HYBRID SLIP RINGS - Ethernet + Electric	(34 pages)
HYBRID SLIP RINGS - USB + Electric	(30 pages)
HYBRID SLIP RINGS - Fiber Optical + Electric	(44 pages)
HYBRID SLIP RINGS - Coax + Electric	(40 pages)
HYBRID SLIP RINGS - HD-SDI (1080p)+ Electric	(26 pages)

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The Company

Quality and Safety

B-COMMAND was founded in 1995. Since more than 20 years the company has put its focus on **production and sales of electro technical components to all parts of the globe.**

In the early years B-COMMAND focused on electro-mechanical control solutions mainly for the national crane market. Throughout the years the sales area was widened to many international countries and the second main product focus became wind power technology. The company started developing and manufacturing of special limit switches for wind turbines which are still one of the major product lines today.

After more than 10 years of growth and success with electro-mechanical products, another different technology division was established: **electrical transmission technology.**

Due to many analogies with electro-mechanical products and many skilled engineers the new technology focus for transmission of power and signals had been implemented.

QUALITY MANAGEMENT
Certification 2017



Production & Warehouse

In the beginning the products for electrical transmission technology included simple slip rings for transmitting small power ratings from fixed to rotating parts into machines.

Today, in times of Industry 4.0 and industrial networks, the program contains more than **20.000 possible solutions with combined power and signal transmission, high-frequency solutions, different housing types and super-miniature solutions.**



Offices of our Headquarters Hamburg



Our technical expertise guarantees the right solution for your applications.

Since more than 10 years the company is certified according to **DIN EN ISO9001:2015 by TÜV in Germany.** All management and production processes are created and approved according to international standards. Especially a **flexible production structure allows short delivery times also for small volume orders or prototypes.**

The purchasing organization of B-COMMAND is internationally targeted. Raw material and production components are sourced from best-rated suppliers worldwide. A network of specialists for all materials is available for developing the best solution for the customers requirements resulting in a perfect fitting product for all individual projects.

B-COMMAND has an international sales network of distributors and sales partners for all regions. Some of the distributors even offer spare parts or series demand products from their own stock in the different countries.

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All activities at B-COMMAND are focused on customer satisfaction. Creating perfect-fitting technical solutions with best quality for marked-based prices – this is our passion.



Slip Rings Technology

Slip rings are essential electromechanical parts of commercial or industrial machinery. They have to ensure transfer of data, media, energy and electrical signals in best possible conditions. This can only be realized by combination of a targeted design process, selection of best raw materials, professional production conditions, 100% quality control and skilled assembling on customer side.

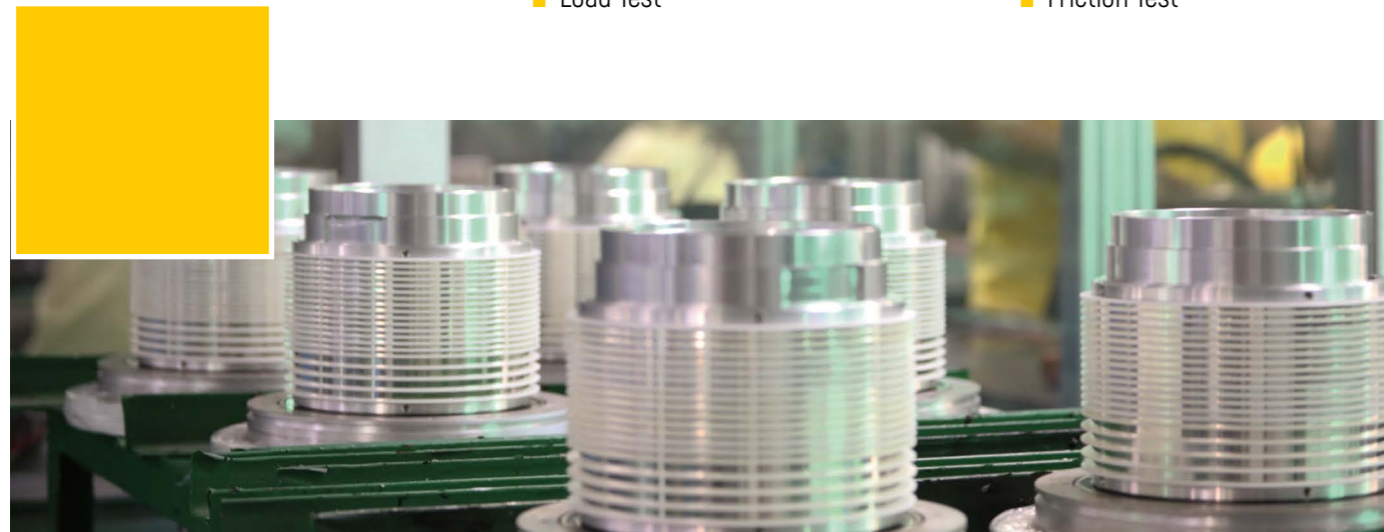


PREMIUM ENGINEERING

With many years experience and a deep knowledge of all relevant engineering disciplines, B-COMMAND engineering team can provide fast and innovative design solutions for customers around the world. Our engineers are constantly developing new designs and use new materials across a wide spectrum of diverse environments.

In order to ensure only premium-quality products B-COMMAND is able to undertake following tests in our in-house laboratory:

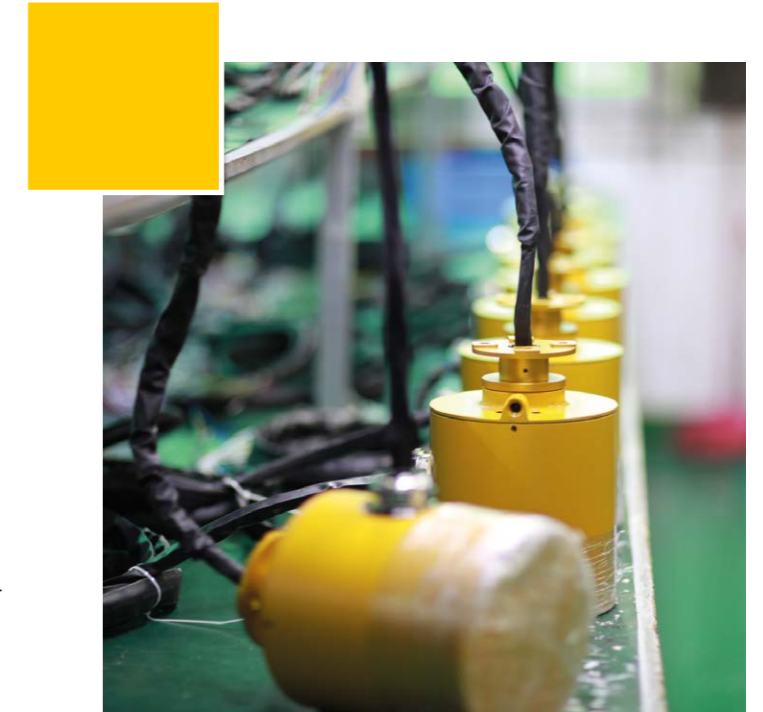
- Humidity Test
- Temperature Test
- Protection Degree Test
- Vibration / Shock Test
- High Pressure / Vacuum Test
- Torque Test
- High Voltage Test
- Large Current Test
- Salt Spray Test
- Load Test
- Electrical Noise Test
- Contact Resistance Test
- Lifetime Test
- Insulation Test
- Frequency Test
- Friction Test



ROTARX - MINIATURE SLIP RINGS

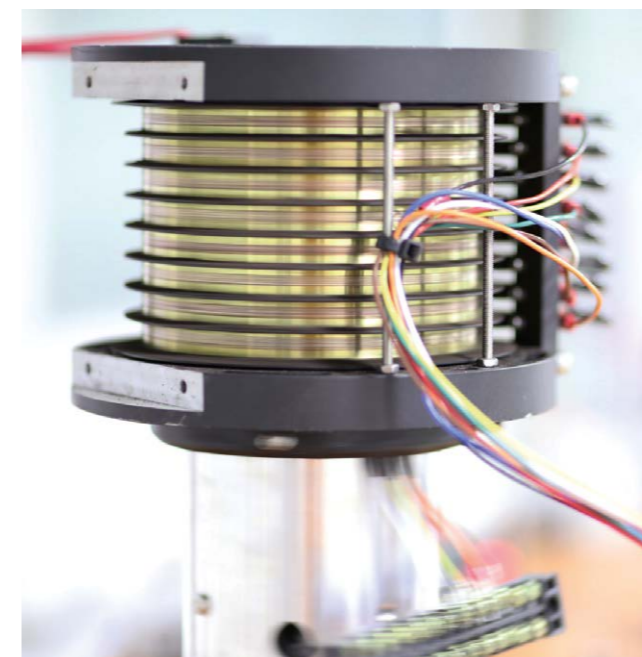
TOTAL QUALITY CONTROL

High production depth is the key to total quality control. Therefore B-COMMAND has established extended electrical and mechanical production capabilities. Different automatic and semi-automatic multiple axis CNC machining centers, grinding machines, milling machines and coating machines offer a wide range of mechanical options during production process. Only experts with long-term knowledge are operating our machinery in order to grant best quality products for our customers.



FLEXIBILITY

For B-COMMAND flexibility is not just a word, it is the basis of our organization. Flexible sales and R&D structures with capacity for extensive project inquiries from our customers are as well allocated as flexible production structures with high-volume series production and also fast-track options for small volume orders.



WWW.ROTARX.COM

INNOVATION

The willingness of lifelong-learning and permanent interest in new technological trends sets our engineering team apart. Industrial communication and electrical complexity of everyday life have moved to a new level and they are still developing fast. We keep an eye on all new technologies, new applications, new materials and forward-looking innovations which can improve or re-invent our products.

Slip Rings Applications



WIND POWER TECHNOLOGY

- Small Wind Turbines
- Multi-MW-Turbines
- Signal & Power Transmission



AEROSPACE TECHNOLOGY

- Drones
- Radars
- Thermal Imaging



ROBOTIC TECHNOLOGY

- Production Robots
- Inspection Robots
- Packaging Robots



CAMERA TECHNOLOGY

- TV-Cameras
- Security Cameras
- Inspection Cameras



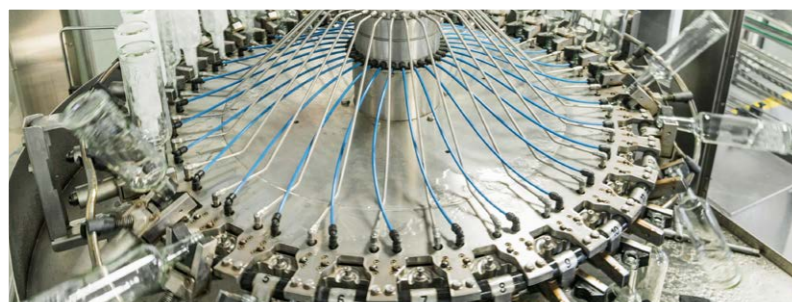
CRANE TECHNOLOGY

- Post Cranes
- Tower Cranes
- Mobile Cranes



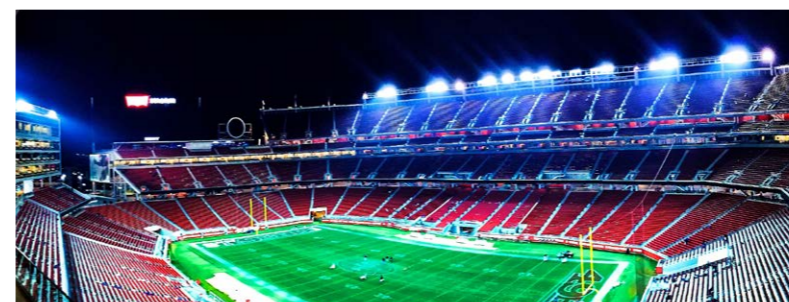
AMUSEMENT TECHNOLOGY

- Pendulum Rides
- Observation Wheel
- Merry-Go-Round



PACKAGING TECHNOLOGY

- Packaging Robots
- Filling Machines
- Capping Machines



STAGE TECHNOLOGY

- Rotating Stages
- Rotating Lights
- Revolving Platforms

RX-PMM Series



PRODUCT CODE

RX	-	AA	BB	CC	-	DD	E	-	F	GG	HH	S
		1	2	3		4	5		6	7	8	9

Example: RX-PMM503-QS1-A0006S
 (1) Miniature Pneumatic+Electric Slip Ring with (2) M5 Connection Size, (3) 3 passages, (4) Common Quality Version, (5) Signal transmission 2A, (6) No Flange Option, (7) 0 rings for power transmission, (8) 6 rings for signal transmission, (9) Standard Version

1	Series	PM - Miniature Hybrid Slip Rings Pneumatic/Liquid + Electric	6	Stator / Rotor Option	A - No option (see specifications for details)
2	Connection Size	M5 - M5 Connector Other connection sizes can be found in chapter 9	7	Number of Power Circuits	00 - No power transmission available for this series Option for power transmission can be found in chapter 9
3	Number of Passages	01 - 04	8	Number of Signal Circuits	6 or 12 rings
4	Quality Level	QS - Common Quality Version QI - Industrial Quality Version (see specifications for details)	9	Version	S - Standard C - Customized
5	Signal Level	1 - Signal transmission 2A			

Media Leadthrough (Gases or Liquids)
 Compact
 Long Life
 RoHS2 CE

Our miniature hybrid slip rings combine power & signal transmission with media leadthrough. These hybrid slip rings are often called pneumatic slip rings, hydraulic slip rings, steam rotary unions or air precision slip rings. With only 36mm diameter this series is the most compact hybrid slip ring on the market and can be equipped with max. 4 media passages and up to 12 rings for electrical transmission.

In many applications the transmission of air or liquids is required beside the general electrical lines. In these cases hybrid slip rings can be used. This miniature version offers 1-4 media passages to be connected with M5 size connectors. It can be ordered with media passage only, media + 6 rings or media + 12 rings.

For electrical transmission the miniature hybrid slip rings combine the best advanced fiber brush technology and precious metal or gold-to-gold multi-contacting, they offer low electrical noise for high data rate field bus transmission, low contact pressure for long lifetime and they are maintenance free.

We offer standardized & modularized design and fully customizable products according to the special requirements of customers in different applications.

If you have specific customized requirements, please feel free to consult us in order to create the most suitable recommendation for your specification.

ADVANTAGES

- + Combined Power & Signal & Air / Liquid Transmission
- + Small & Compact Design
- + 1-4 Media Passages
- + Media Types: Air, Gas, Chemicals, Water, Oil
- + Long Lifetime
- + 360° Continuous Rotation
- + Low Torque
- + Light Weight

MAIN APPLICATIONS

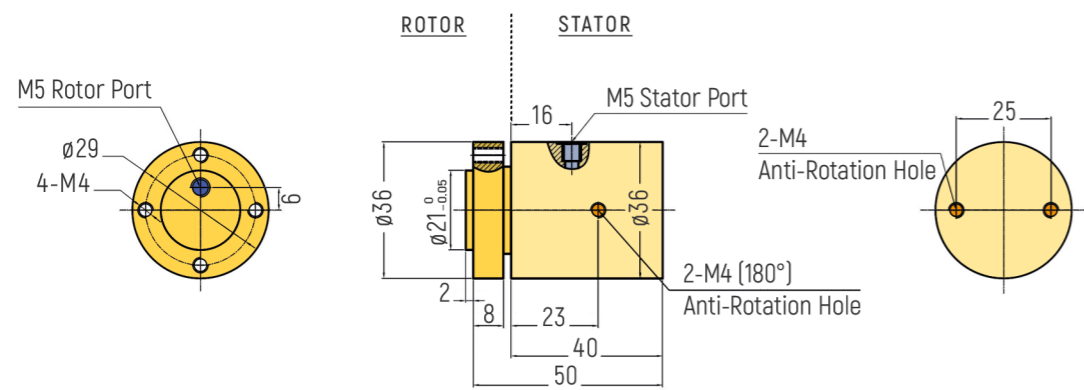
- > Vehicles
- > Cranes
- > Packaging Machines
- > Oil Exploration
- > Agricultural Machinery
- > Robots
- > Military Applications

SPECIFICATIONS

MINIATURE PNEUMATIC/LIQUID + ELECTRIC HYBRID SLIP RING SPECIFICATIONS	
NUMBER OF CIRCUITS	6 or 12 for signal transmission 1-4 passages for Pneumatic/Liquid transmission
PNEUMATIC/LIQUID PASSAGE SPECIFICATIONS	
MAX PRESSURE	5MPa 50Bar (can be customized), Vacuum 0.01torr
TORQUE	Type PMM501: 0.2N.m; Type PMM502: 0.4N.m; Type PMM503: 0.8N.m; Type PMM504: 1.2N.m
ELECTRICAL SPECIFICATIONS	
CURRENT RATING	Signal transmission circuits: 2A
VOLTAGE RATING	Signal transmission circuits: 440VAC/DC
ELECTRICAL NOISE	max 10mΩ
INSULATION RESISTANCE	≥1000 MΩ @ 500 VDC
LEAD CABLE SIZE	AWG28 Teflon
LEAD CABLE LENGTH	Standard 300mm (Rotor/Stator)
DIELECTRIC STRENGTH	500VAC @ 50Hz, 60s
MECHANICAL SPECIFICATIONS	
WORKING LIFE	Common Quality Level: 10 Million Revs Industrial Quality Level: 30 Million Revs
ROTATING SPEED	Common Quality Level: 0-100 rpm Industrial Quality Level: 0-300 rpm
TEMPERATURE RANGE	-30°C to +80°C
OPERATING HUMIDITY	0-85% RH
CONTACT MATERIAL	Common Quality Level: Precious Metal Industrial Quality Level: Gold-Gold
HOUSING MATERIAL	Aluminium Alloy
PROTECTION DEGREE	IP51 (higher or lower on request)

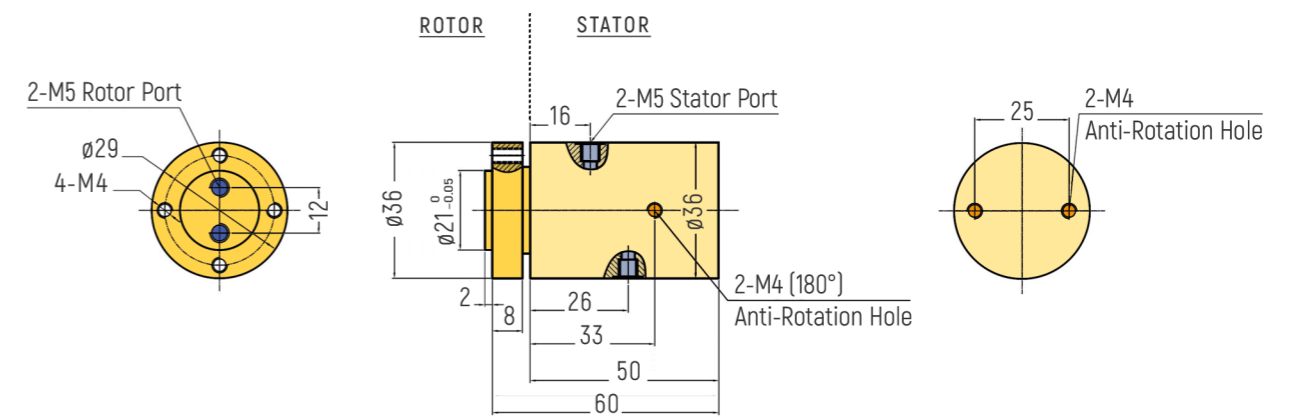
RX-PMM501

No Signal Rings



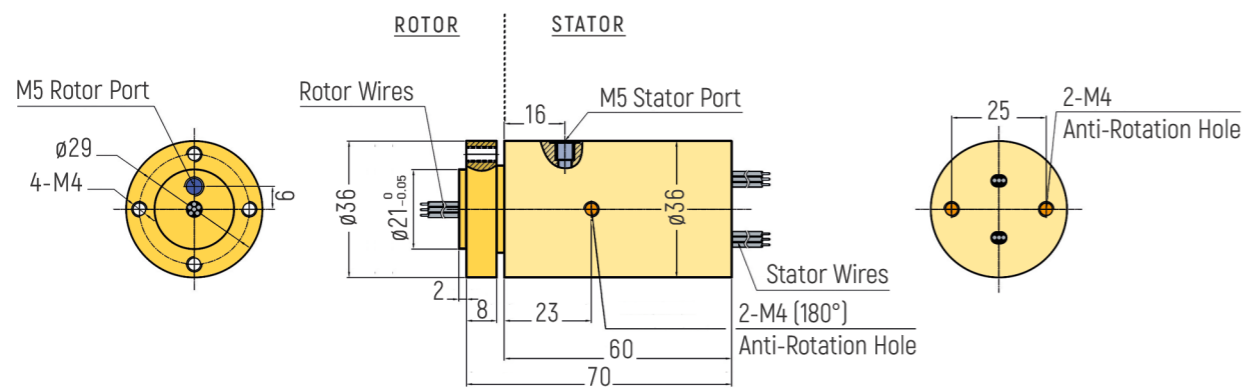
RX-PMM502

No Signal Rings



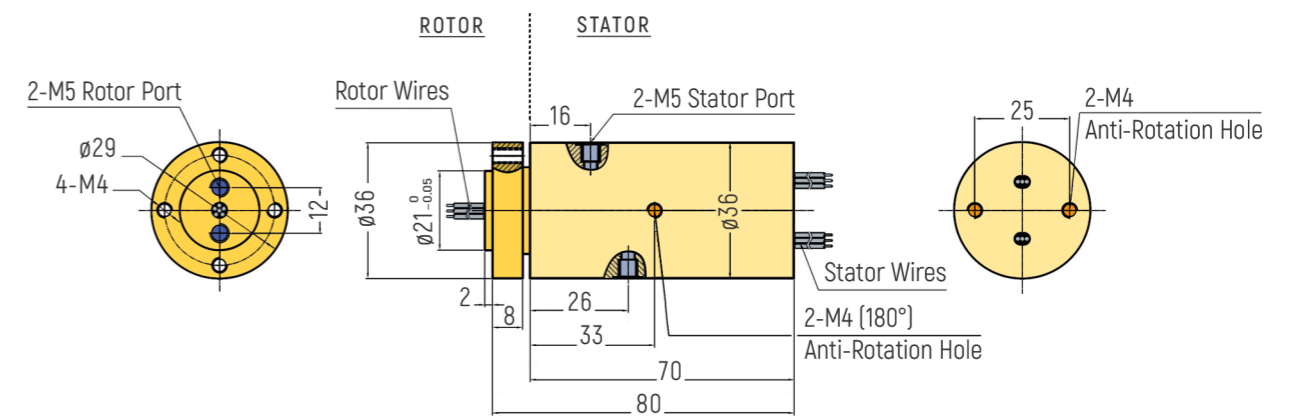
RX-PMM501

6 Signal Rings



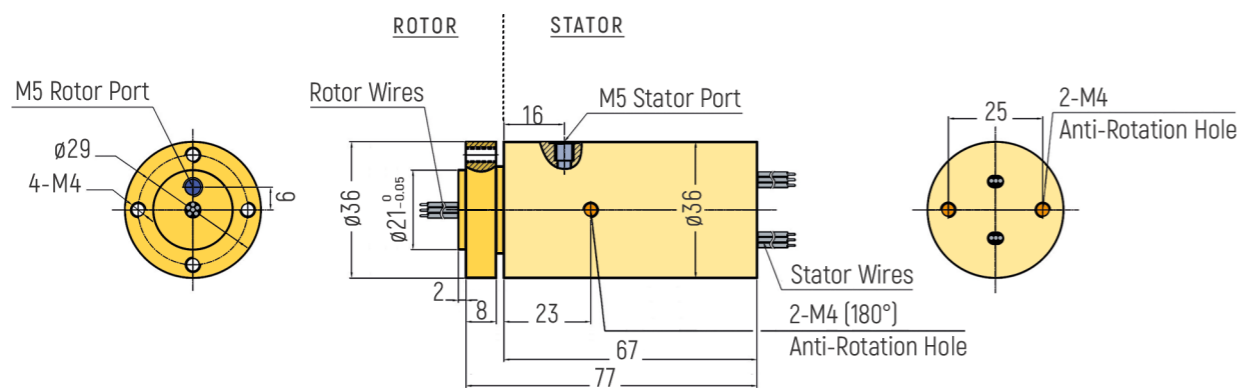
RX-PMM502

6 Signal Rings



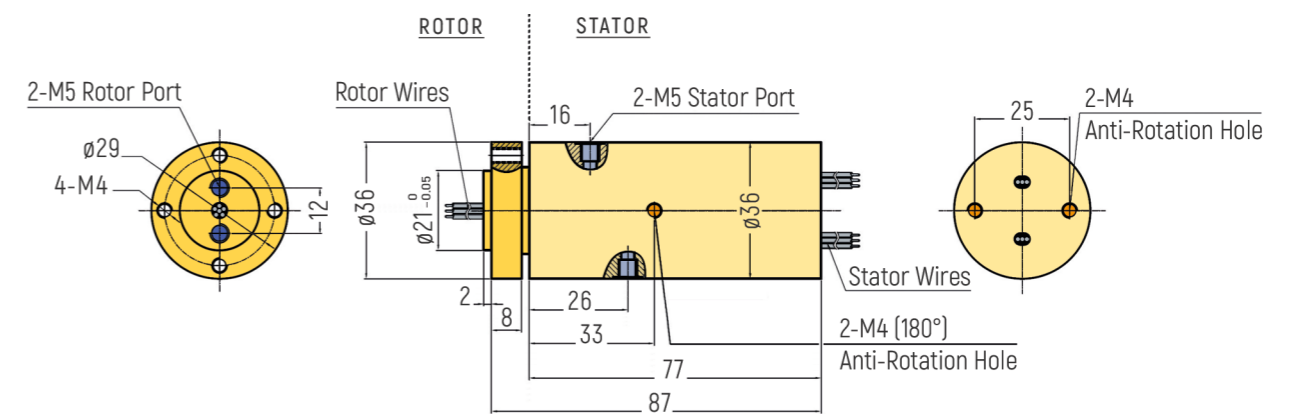
RX-PMM501

12 Signal Rings



RX-PMM502

12 Signal Rings



MODEL	CONNECTION SIZE	TORQUE (N.M)	Signal / 2A	PASSAGE
RX-PMM501-QS1-A0000S	M5	0.2N.m	-	1 port in, 1 port out
RX-PMM501-QS1-A0006S	M5	0.2N.m	6	1 port in, 1 port out
RX-PMM501-QS1-A0012S	M5	0.2N.m	12	1 port in, 1 port out

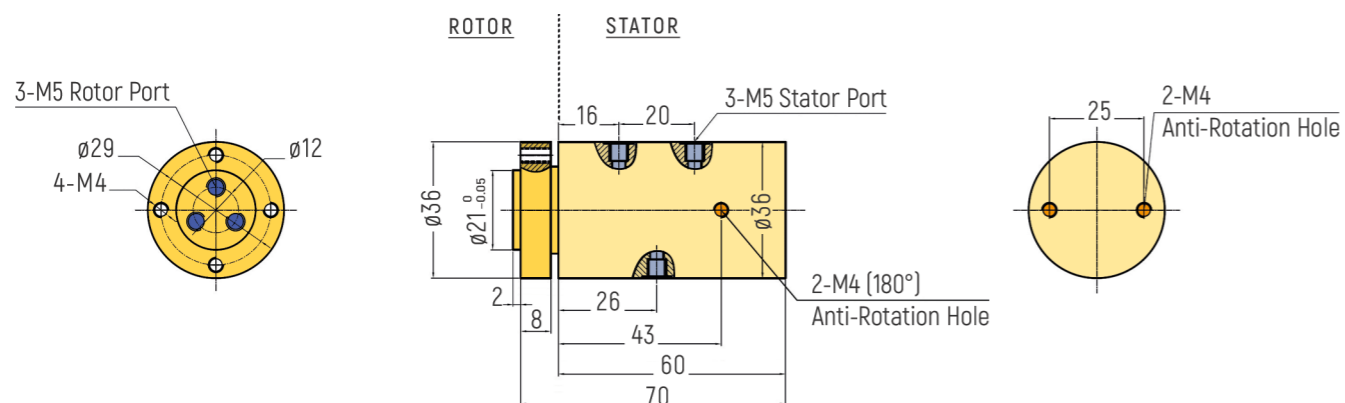
↳ N channels 2A rings parallel can be used as 1 channel N*2A current. Example: 2 rings 2A each can be used parallel for transmission of 4A.

MODEL	CONNECTION SIZE	TORQUE (N.M)	Signal / 2A	PASSAGE
RX-PMM502-QS1-A0000S	M5	0.4N.m	-	2 ports in, 2 ports out
RX-PMM502-QS1-A0006S	M5	0.4N.m	6	2 ports in, 2 ports out
RX-PMM502-QS1-A0012S	M5	0.4N.m	12	2 ports in, 2 ports out

↳ N channels 2A rings parallel can be used as 1 channel N*2A current. Example: 2 rings 2A each can be used parallel for transmission of 4A.

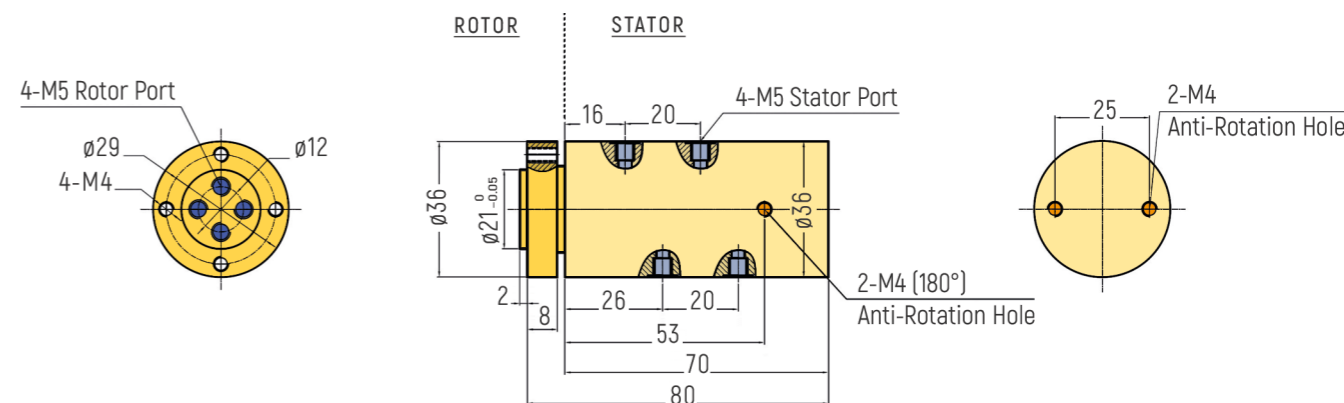
RX-PMM503

No Signal Rings



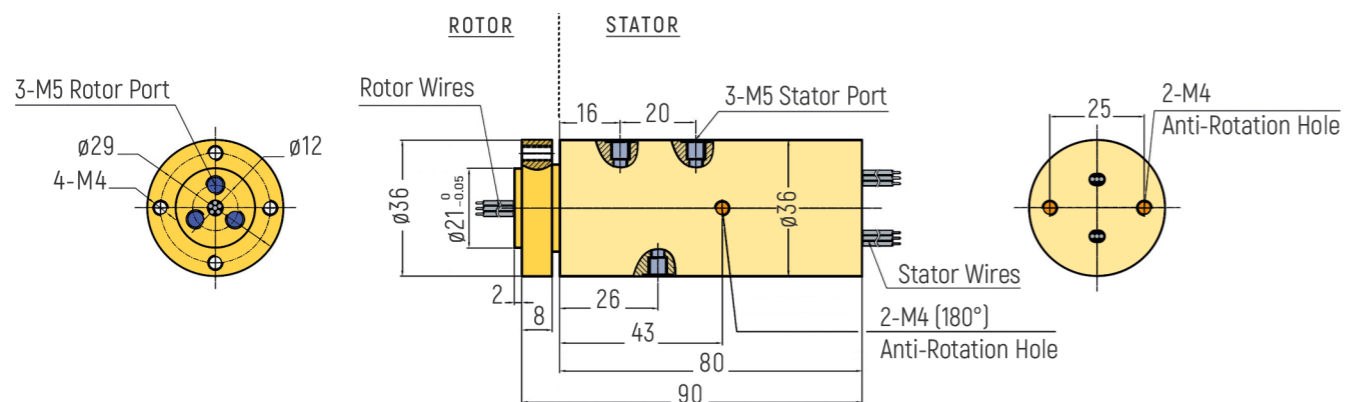
RX-PMM504

No Signal Rings



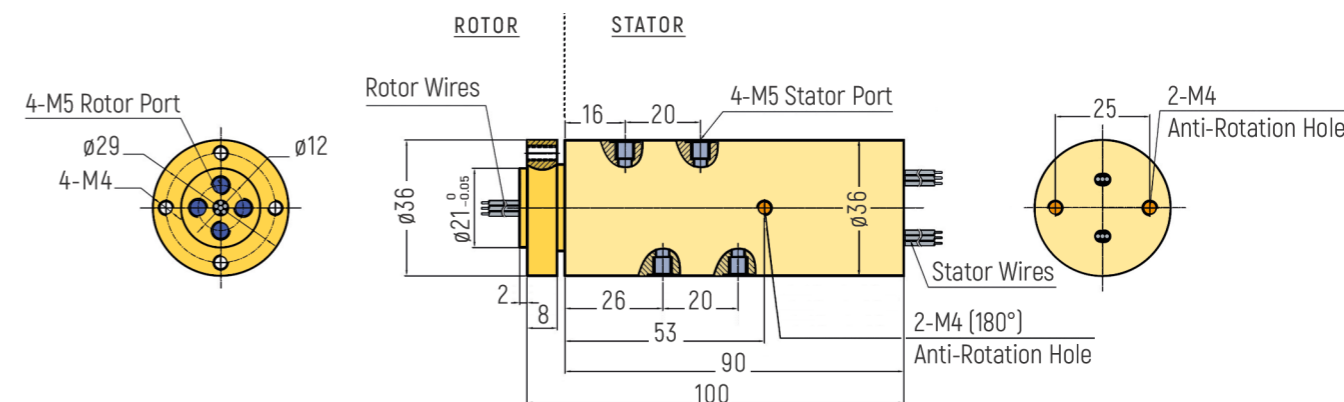
RX-PMM503

6 Signal Rings



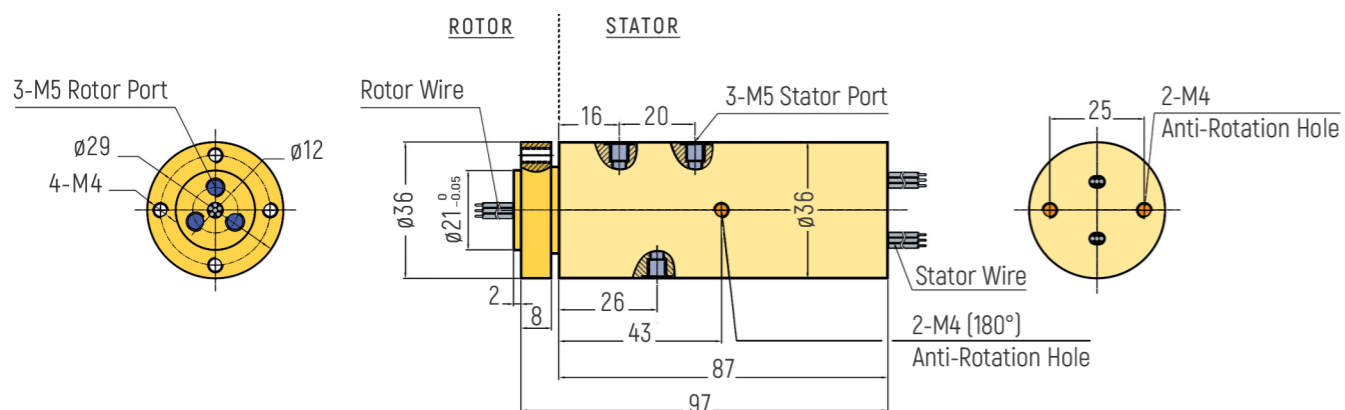
RX-PMM504

6 Signal Rings



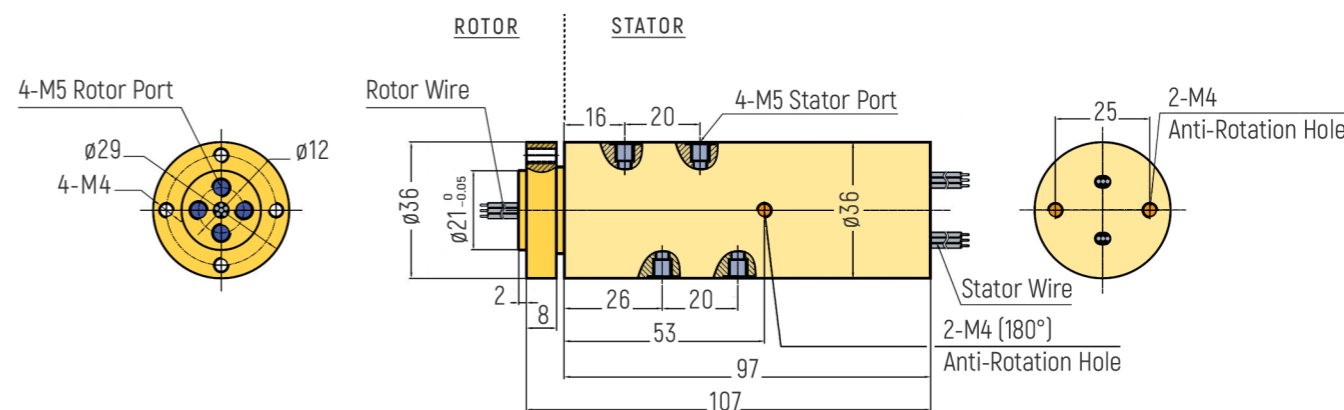
RX-PMM503

12 Signal Rings



RX-PMM504

12 Signal Rings



MODEL	CONNECTION SIZE	TORQUE (N.M)	Signal / 2A	PASSAGE
RX-PMM503-QS1-A0000S	M5	0.8N.m	-	3 ports in, 3 ports out
RX-PMM503-QS1-A0006S	M5	0.8N.m	6	3 ports in, 3 ports out
RX-PMM503-QS1-A0012S	M5	0.8N.m	12	3 ports in, 3 ports out

↳ N channels 2A rings parallel can be used as 1 channel N*2A current. Example: 2 rings 2A each can be used parallel for transmission of 4A.

MODEL	CONNECTION SIZE	TORQUE (N.M)	Signal / 2A	PASSAGE
RX-PMM504-QS1-A0000S	M5	1.2N.m	-	4 ports in, 4 ports out
RX-PMM504-QS1-A0006S	M5	1.2N.m	6	4 ports in, 4 ports out
RX-PMM504-QS1-A0012S	M5	1.2N.m	12	4 ports in, 4 ports out

↳ N channels 2A rings parallel can be used as 1 channel N*2A current. Example: 2 rings 2A each can be used parallel for transmission of 4A.

Customized Slip Rings



HYBRID SLIP RING FOR WATER, POWER AND SIGNAL TRANSMISSION

- 12 x 10A power, 1 x gigabit Ethernet, 1 x water leadthrough
- Harting connector for power lines
- Housing material aluminium



MEDIUM SIZE SLIP RING WITH MASSIVE FLANGE

- Axial cable outtake rotor, radial cable outtake stator
- Steel housing in customized color
- Special cable protection sleeve

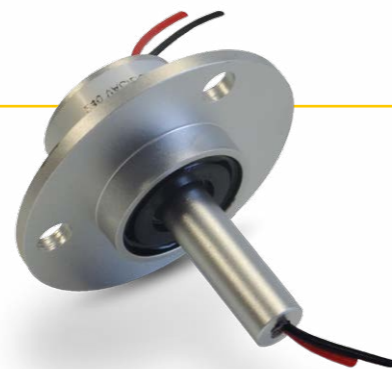
LARGE SLIP RING FOR MARITIME APPLICATIONS

- Outer diameter 14 meters, inner diameter 0.7 meters
- Housing material steel, color similar to maritime vessel
- Inspection porthole



MINIATURE METAL HOUSING WITH ELONGATED ROTOR SHAPE

- Special rotor design acc. to customer specification
- 4 x 2A signal rings
- Protection degree IP65



MEDIUM SIZE SLIP RING WITH MASSIVE FLANGE

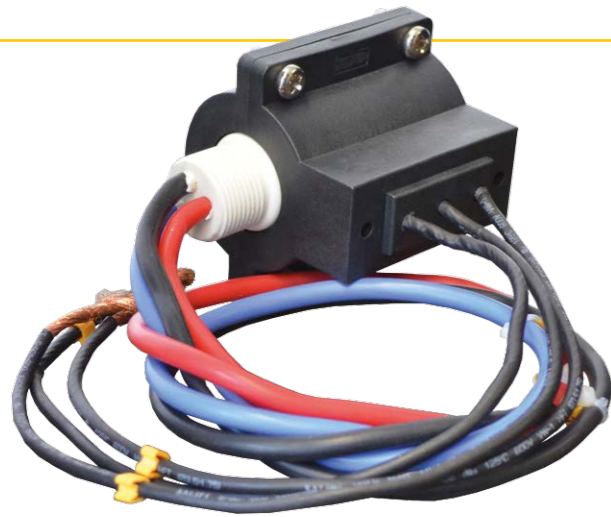
- Aluminium rotor flange with customized boreholes
- Flange thickness 13mm
- Protection degree IP65



HYBRID MEDIUM SIZE HOLLOW-SHAFT SLIP RING

- 10 x 10A signal transmission + EtherCat signals
- Massive housing for heavy-duty-applications
- Special flange and double-anti-rotation-tabs





MINIATURE POWER SLIP RING WITH CUSTOMIZED HOUSING

- 3 x 63A power transmission on minimum space
- Special plastic housing
- Cable color code according to customer requirement

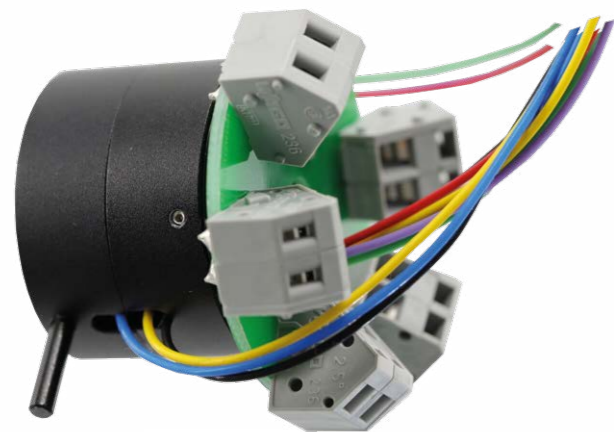
PANCAKE SLIP RING WITHOUT HOUSING

- Special diameter according to customer machine
- 2 rings for power transmission
- Brushholder with customized fixing holes and cable



MINIATURE SIZE SLIP RING WAGO CONNECTORS ON PCB

- 16 x 2A signal transmission
- Customized PCB with WAGO connectors for cable connection
- Special housing design with anti-rotation-bar



HYBRID MEDIUM SIZE SLIP RING WITH FIBER OPTIC AND COAX TRANSMISSION

- Customized housing shape with special rotor design
- Gearwheel teeth shape integrated in rotor design
- FORJ Fiber Optic + COAX transmission



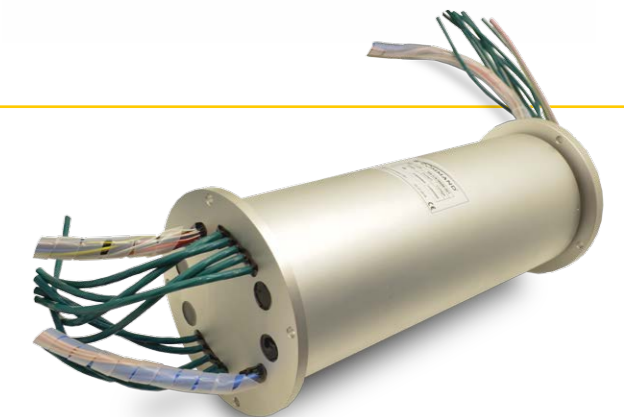
MINIATURE SLIP RING WITH CUSTOMIZED FLANGE

- 10 x 2A signal transmission
- Flange position and shape customized
- Cable color code according to customer requirement



LARGE METAL HOUSING WITH POWER / DATA TRANSMISSION

- Dimensions housing according to customer specification
- 86 Rings (63A, 32A, 16A, HD-SDI, EtherCat, Analogue)
- Special CAT7E data-cable with 10 meter length



MINIATURE SLIP RING WITH 128 RINGS

- Aluminium housing with rotor flange
- 128 signal rings for data transmission
- Protection degree IP65





SLIP RING WITH INTEGRATED CONNECTORS

- Customized fixation boreholes
- Customized connectors and cable with connectors
- Double anti-rotation-tab on stator side

MEDIUM SIZE HOLLOW-SHAFT SLIP RING WITH CONNECTORS

- 4 x customized connectors for signal transmission
- Aluminium housing with 150mm free inner diameter
- Housing without flange, axial cable outtakes



HYBRID MEDIUM SIZE SLIP RING WITH DOUBLE COAX LINE AND POWER TRANSMISSION

- Customized metal housing without flange
- 2 x COAX lines + several power rings
- Special cable protection sleeve and cable fixation

HYBRID MEDIUM SIZE SLIP RING WITH FIBER OPTIC AND POWER LINES

- Customized aluminium housing without flange
- FORJ Fiber Optic + power transmission
- Stainless steel rotor with cable protection sleeve



HYBRID MINIATURE SLIP RING FOR VIRTUAL REALITY APPLICATIONS

- Plastic housing with customized flange
- Power and data transmission by USB and HDMI
- Connectors on rotor and stator side for easy usage





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