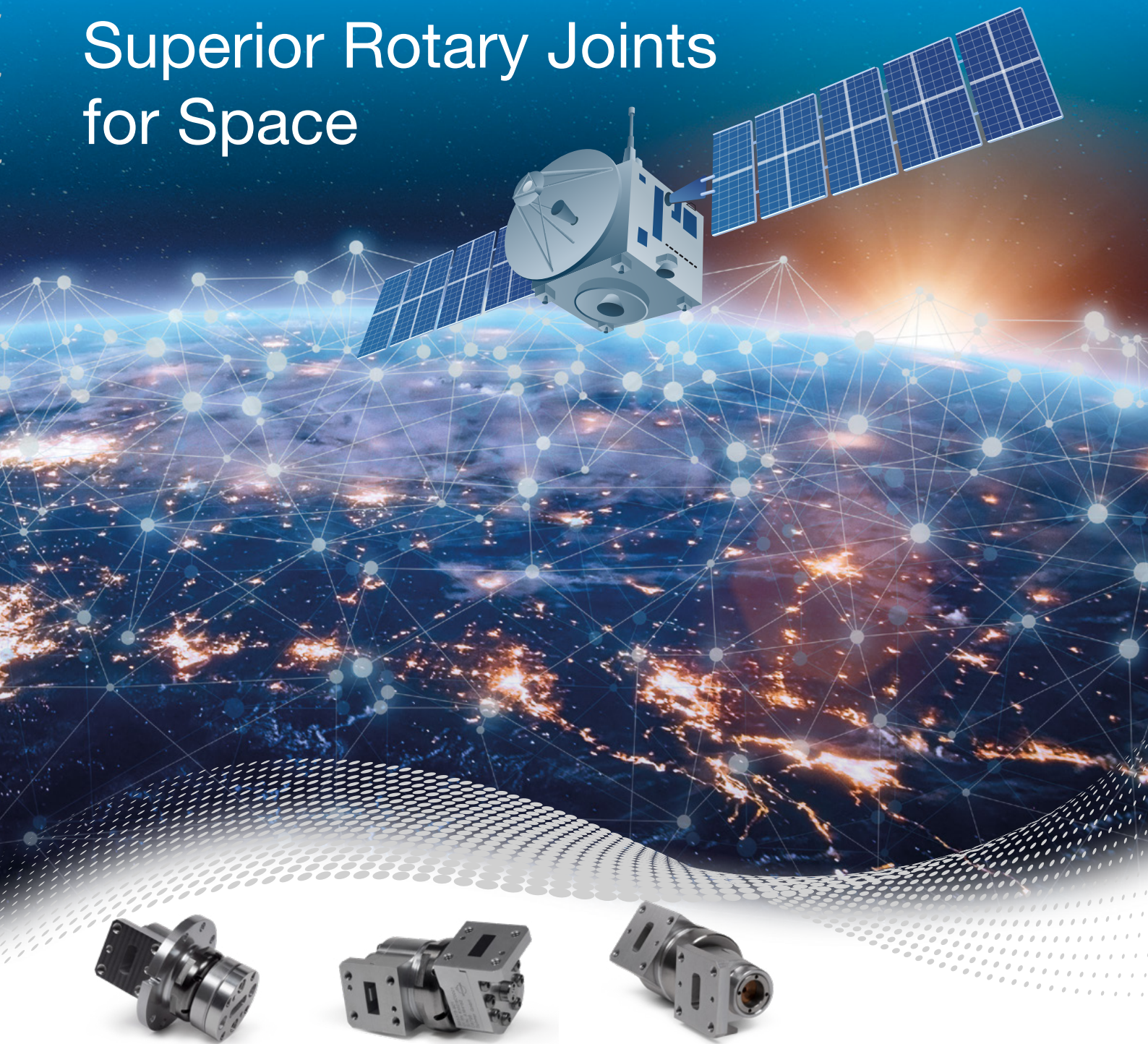


SPINNER

Superior Rotary Joints for Space



**Absolutely Reliable Signal Transmission
in Space Applications**

HIGH FREQUENCY PERFORMANCE WORLDWIDE
www.spinner-group.com



The SPINNER Group

For more than 75 years, the SPINNER Group has been setting new standards worldwide in high-frequency technology. Based in Munich with production facilities in Germany, Hungary and China, SPINNER currently has over 900 employees. Our international network of subsidiaries and distributors supports customers in over 40 countries.

SPINNER has become one of the leading manufacturers in **rotary joints** thanks to its innovative approach, technical expertise, and high standards of quality. Our products are used in **maritime applications (both above and below water), on land, in the air, and in space.**

Across all applications, the trend toward digitization and increasing data transmission rates is continuing. Our contactless modules for rotating systems deliver benefits whenever slip rings are inadequate due to large outer diameters and/or high data transmission rates.



SPACE



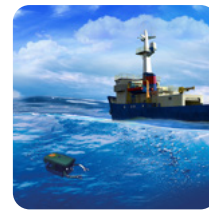
SATCOM



WIND ENERGY



INDUSTRY



SUBSEA/OFFSHORE



RADAR

Superior Rotary Joints for Space Applications

Our Rotating Solutions Division has developed and built **space-approved rotary joints and additional parts for many years.** For antenna pointing mechanisms of satellites, all leading firms trust us to provide them with innovative products and outstanding customised solutions.

With more than 700 delivered units we have gained great experience in rotary joints for extra-terrestrial use over the past couple of years.

Space Heritage

- Surrey SSTL-300
- ExoMars
- Iridium Next
- MetOp
- O3B
- NEC DRC
- KARI KPLO
- EgyptSat
- Galileo
- Many more

Future Needs

In order to keep up with the demand for ever-faster data transmission rates, SPINNER already supplies many other technologies alongside conventional RF rotary joints. They include contactless modules for transmitting data and power

as well as fiber optic rotary joints. Particularly the latter are now employed in a plethora of applications, and in the medium term are also poised to become an option in space.

Design Principles

The design for SPINNER Rotary Joints for Space Applications is in most cases a customized solution for each individual project. SPINNER does hereby use its experience in RF- and mechanical design, to best fit the customers needs and comply with ECSS standards. Simulation is used to optimize the RF Design and final verification measurements and tuning are performed on real-life samples.

Rotary Joints for Space Applications can in principle be designed with or without own bearing. In case a bearing is needed we work with qualified suppliers from Europe with a lot of space heritage. As a standard we offer bearings

lubricated with either Castrol Braycote Micronic 601EF or Molybdenum disulfide (MoS₂). Other customer specific lubricants are offered on request.

Test Capabilities

To guarantee the best possible fit of the design, SPINNER can perform the following tests:

- ✔ Dimensional Check
- ✔ RF Measurements
- ✔ FEM Analysis
- ✔ Thermal Cycling
- ✔ Shock & Vibration
- ✔ Thermal Vacuum Test
- ✔ Additional Test available on request

Additional Services – ISO Class 7 Cleanroom Environment

SPINNER can also offer assembly work performed to the highest standards for Space Applications inside an ISO Class 7 cleanroom spanning about 100 square meters. The Assembly team at SPINNER has a wide experience in RF-, Mechanical- and Optical Assemblies.



Two clean rooms with 18 and 100 m² of space are available

1-Channel Waveguide Rotary Joint



SPINNER 1-Channel Waveguide Rotary Joint

Type	L-Style
Frequency range	K-Band
Average power	2 x 30 W
VSWR, max.	1.20
Insertion loss, max.	0.3 dB
Temperature range	-55°C to +120°C
Rotational speed	5 rpm
Weight	40 g

1-Channel COAX Rotary Joint



SPINNER 1-Channel COAX Rotary Joint

Type	I-Style
Frequency range	X-Band
Average power	25 W
VSWR, max.	1.15
Insertion loss, max.	0.25 dB
Temperature range	-60°C to +120°C
Rotational speed	5 rpm
Weight	40 g

1-Channel Waveguide Rotary Joint



SPINNER dual band waveguide rotary joint with one channel

Type	U-Style
Frequency range	K-/Ka-Band
Average power	45 W
VSWR, max.	1.15
Insertion loss, max.	0.15 dB
Temperature range	-55°C to +120°C
Rotational speed	5 rpm
Weight	70 g

2-Channel Waveguide Rotary Joint



SPINNER 2-Channel Waveguide Rotary Joint

Type	U-Style
Frequency range	Ka-Band
Average power	150 W
VSWR, max.	1.25
Insertion loss, max.	0.3 dB
Temperature range	-50°C to +90°C
Rotational speed	6 rpm
Weight	170 g

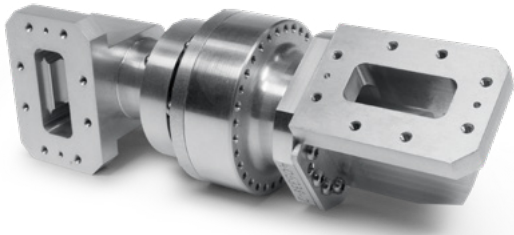
1-Channel COAX Rotary Joint



SPINNER 1-Channel COAX Rotary Joint

Type	I-Style
Frequency range	X-Band
Average power	50 W
VSWR, max.	1.30
Insertion loss, max.	0.3 dB
Temperature range	-40°C to +60°C
Rotational speed	100 rpm
Weight	22 g

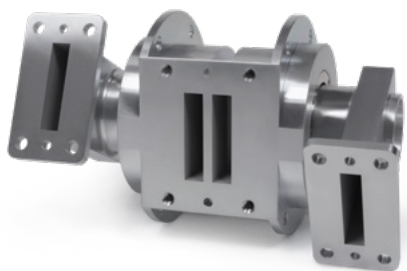
1-Channel Waveguide Rotary Joint



SPINNER 1-Channel Waveguide Rotary Joint

Type	U-Style
Frequency range	C-/X-Band
Average power	70 W
VSWR, max.	1.10
Insertion loss, max.	0.10 dB
Temperature range	-60°C to +120°C
Rotational speed	5 rpm
Weight	550 g

2-Channel Waveguide Rotary Joint



SPINNER 2-Channel Waveguide Rotary Joint

Type	U-Style
Frequency range	X-Band
Average power	120 W
VSWR, max.	1.15
Insertion loss, max.	0.15 dB
Temperature range	-70°C to +70°C
Rotational speed	6 rpm
Weight	550 g

1-Channel Waveguide Rotary Joint



SPINNER 1-Channel Waveguide Rotary Joint

Type	U-Style
Frequency range	K-Band
Average power	5 W
VSWR, max.	1.08
Insertion loss, max.	0.2 dB
Temperature range	-55°C to +95°C
Rotational speed	5 rpm
Weight	80 g

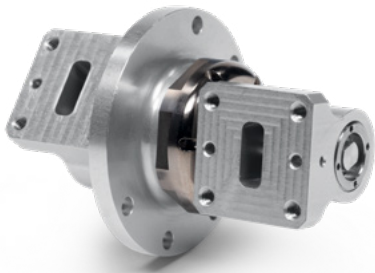
1-Channel COAX Rotary Joint



SPINNER 1-Channel COAX Rotary Joint

Type	I-Style
Frequency range	S-Band
Average power	10 W
VSWR, max.	1.15
Insertion loss, max.	0.3 dB
Temperature range	-60°C to +120°C
Rotational speed	5 rpm
Weight	85 g

1-Channel Waveguide Rotary Joint



SPINNER 1-Channel Waveguide Rotary Joint

Type	U-Style
Frequency range	K-Band
Average power	130 W
VSWR, max.	1.15
Insertion loss, max.	0.25 dB
Temperature range	-65°C to +120°C
Rotational speed	5 rpm
Weight	90 g

1-Channel Waveguide Rotary Joint



SPINNER 1-Channel Waveguide Rotary Joint

Type	I-Style
Frequency range	K-/Ka-Band
Average power	50 W
VSWR, max.	1.30
Insertion loss, max.	0.2 dB
Temperature range	-60°C to +90°C
Rotational speed	5 rpm
Weight	200 g



HIGH FREQUENCY PERFORMANCE WORLDWIDE

SPINNER designs and builds cutting-edge radio frequency systems, setting performance and longevity standards for others to follow. The company's track record of innovation dates back to 1946, and many of today's mainstream products are rooted in SPINNER inventions.

Industry leaders continue to count on SPINNER's engineering excellence to drive down their costs of service and ownership with premium-quality, off-the-shelf products and custom solutions. Headquartered in Munich, Germany, the global frontrunner in RF components remains the first choice in simple-yet-smart RF solutions.

www.spinner-group.com

SPINNER GmbH

Headquarters

Erzgiessereistr. 33
80335 Munich

GERMANY

Phone: +49 89 12601-0
info@spinner-group.com

SPINNER Austria GmbH

Modecenterstraße 22/C38
1030 Vienna

AUSTRIA

Phone: +43 1 66277 51
info-austria@spinner-group.com

SPINNER Electrotécnica S.L.

c/ Perú, 4 – Local nº 15
28230 Las Rozas (Madrid)

SPAIN

Phone: +34 91 6305 842
info-iberia@spinner-group.com

SPINNER France S.A.R.L.

24 Rue Albert Priolet
78100 St. Germain en Laye

FRANCE

Phone: +33 1 74 13 85 24
info-france@spinner-group.com

SPINNER ICT Inc.

2220 Northmont Parkway, 250
Duluth, GA 30096

USA

Phone: +1 770 2636 326
info@spinner-group.com

SPINNER Nordic AB

Kråketorpsgatan 20
43153 Mölndal

SWEDEN

Phone: +46 31 7061670
info-nordic@spinner-group.com

SPINNER Telecommunication

Devices (Shanghai) Co., Ltd.
351 Lian Yang Road
Songjiang Industrial Zone
Shanghai 201613

P.R. CHINA

Phone: +86 21 577 45377
info-china@spinner-group.com

SPINNER UK Ltd.

Suite 8 Phoenix House
Golborne Enterprise Park,
High Street
Golborne, Warrington
WA3 3DP

UNITED KINGDOM

Phone: +44 1942 275222
info-uk@spinner-group.com