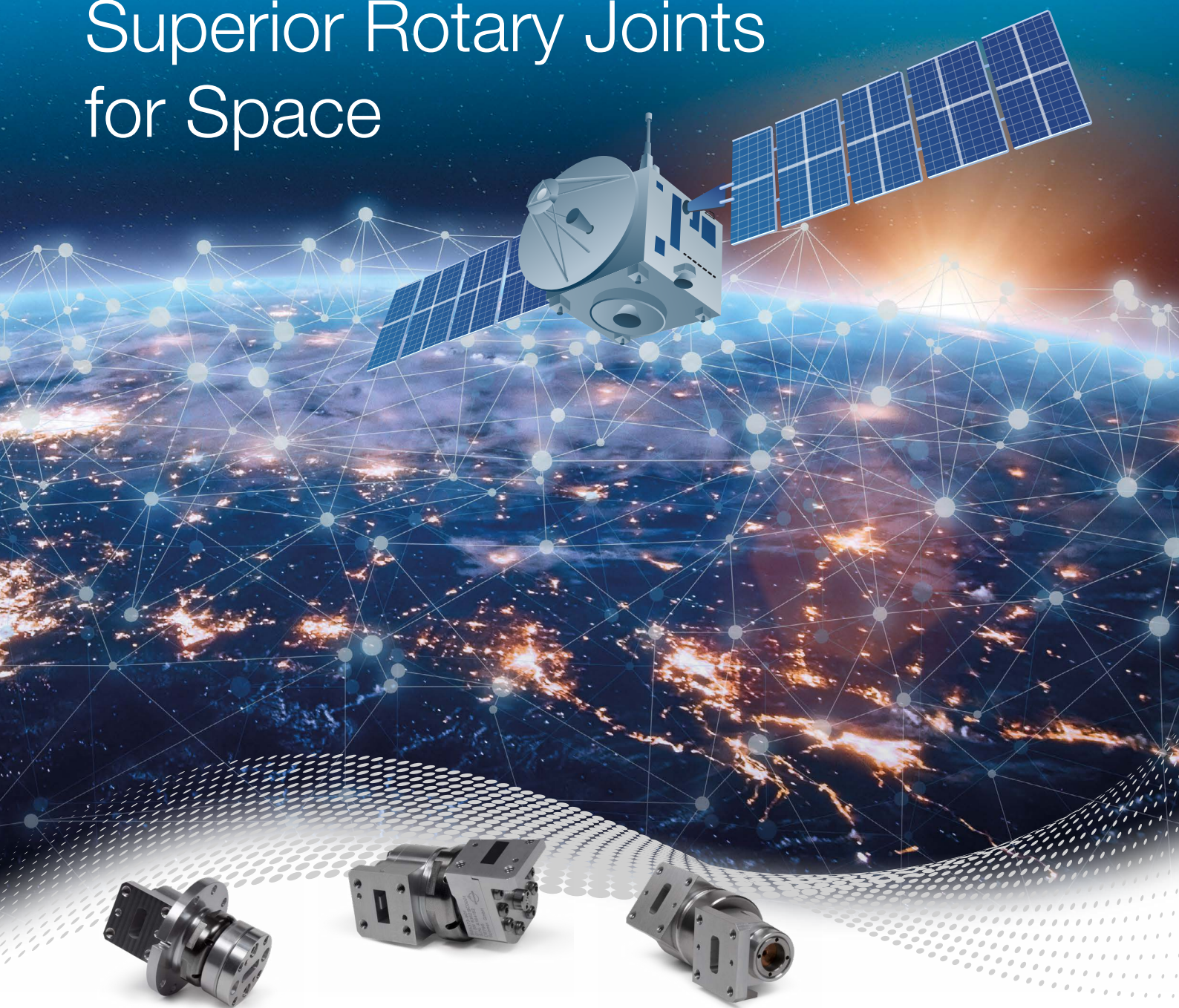


# SPINNER

## Superior Rotary Joints for Space



Absolutely Reliable Signal Transmission  
in Space Applications



HIGH FREQUENCY PERFORMANCE WORLDWIDE  
[www.spinner-group.com](http://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 800 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

For many years, our Rotating Solutions Division has been developing and producing space-qualified rotary joints and related components.

When it comes to antenna pointing mechanisms for satellites, leading companies around the world trust us to deliver

innovative products and highly customized solutions. With over 700 units delivered, we've built a strong track record and deep expertise in rotary joints for extraterrestrial applications.

## Space Missions and Satellite Platforms

SPINNER has contributed to various space missions and satellite platforms by providing advanced components that ensure reliable performance in the demanding conditions of space.

### Our contributions include:

- |                   |           |             |
|-------------------|-----------|-------------|
| ✓ Surrey SSTL-300 | ✓ MetOp   | ✓ KARI KPLO |
| ✓ ExoMars         | ✓ O3B     | ✓ EgyptSat  |
| ✓ Iridium Next    | ✓ NEC DRC | ✓ Galileo   |



SPINNER's space-qualified single- and dual-channel X-band rotary joints have even orbited Mars



## 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 of SPINNER rotary joints for space applications is, in most cases, a customized solution tailored to each individual project. SPINNER leverages its extensive experience in RF and mechanical design to best meet customer requirements while complying with ECSS standards. RF design is optimized through simulation, and final verification, including measurements and tuning, is performed on real-life samples.**

Rotary joints for space applications can, in principle, be designed with or without integrated bearings. When bearings are required, we collaborate with qualified European suppliers with significant space heritage. As a standard, we offer

bearings lubricated with either Castrol Braycote Micronic 601EF or molybdenum disulfide ( $\text{MoS}_2$ ). Customer-specific lubricants are available upon request.

## Test Capabilities

To guarantee the best possible quality of each product, SPINNER offers a wide range of tests. The requirements and procedures for all testing is specified according to customer needs. Most tests are performed in house, for others SPINNER does cooperate closely with space qualified laboratories close to the SPINNER Westerham site.

**Examples for possible testing include:**

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



SPINNER uses its own vacuum chamber for Thermal Vacuum Tests (TVAC) to simulate the harsh conditions of space, focusing primarily on vacuum and extreme temperatures

## 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	15 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

## 1-Channel Waveguide Rotary Joint



SPINNER 1-Channel Waveguide Rotary Joint

Type	U-Style
Frequency range	X-Band
Average power	120 W
VSWR, max.	1.20
Insertion loss, max.	0.25 dB
Temperature range	-70°C to +120°C
Rotational speed	6 rpm
Weight	500 g

## Additional Services & Capabilities

**SPINNER offers a wide range of additional services and capabilities to meet your technical requirements. Our expertise includes complete RF network integration with waveguides and cables, high-performance Fiber Optic Rotary Joints, and the precision assembly of RF and optical payloads in a Class 7 cleanroom environment.**

We also provide PCB launch connectors, advanced measurement equipment, and more—ensuring reliable, high-quality solutions for your projects.

### Precision Assembly in an ISO Class 7 Cleanroom

SPINNER also offers high-standard assembly work for space applications, performed in an ISO Class 7 cleanroom spanning approximately 100 square meters. The SPINNER assembly team has extensive experience in RF, mechanical, and optical assemblies.



Cleanroom with 100 m<sup>2</sup> of space – for space!

### Services & Capabilities at a Glance

- ✓ Full RF Network including waveguides and/or cables
- ✓ Fiber Optical Rotary Joints
- ✓ Assembly of RF payloads (Class 7 cleanroom)
- ✓ Assembly of optical payloads (Class 7 cleanroom)
- ✓ PCB launch connectors
- ✓ Measurement Equipment
- ✓ And many more

## Notes

[illegible]



## 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](http://www.spinner-group.com)

### **SPINNER GmbH**

#### **Headquarters**

Erzgiessereistr. 33  
80335 Munich

#### **GERMANY**

Phone: +49 89 12601-0  
[info@spinner-group.com](mailto:info@spinner-group.com)

### **SPINNER ANZ Pty. Ltd**

871 Dandenong Rd.  
Montrose VIC 3765

#### **AUSTRALIA**

Phone: +61 413 200677  
[info-anz@spinner-group.com](mailto:info-anz@spinner-group.com)

### **SPINNER Austria GmbH**

Modecenterstraße 22/C38  
1030 Vienna

#### **AUSTRIA**

Phone: +43 1 66277 51  
[info-austria@spinner-group.com](mailto:info-austria@spinner-group.com)

### **SPINNER Electrotécnica S.L.**

c/ Perú, 4 – Local n° 15  
28230 Las Rozas (Madrid)

#### **SPAIN**

Phone: +34 91 6305 842  
[info-iberia@spinner-group.com](mailto:info-iberia@spinner-group.com)

### **SPINNER France S.A.R.L.**

32-34 avenue Kléber  
75116 Paris

#### **FRANCE**

Phone: +33 6 32505210  
[info-france@spinner-group.com](mailto: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](mailto:info@spinner-group.com)

### **SPINNER Nordic AB**

Kråketorpsgatan 20  
43153 Mölndal

#### **SWEDEN**

Phone: +46 31 7061670  
[info-nordic@spinner-group.com](mailto: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](mailto: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](mailto:info-uk@spinner-group.com)