EDITION B

SPINNER

# DREHKUPPLUNGEN
# ROTARY JOINTS

# INHALTSVERZEICHNIS

## CONTENTS



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**This catalogue is also available as pdf file on CD-ROM.**

# EINLEITUNG

## PREFACE

SPINNER Drehkupplungen und Schleifringe finden vorwiegend Verwendung in zivilen und militärischen Radarsystemen.
Als Europas führender Hersteller haben wir viele internationale Flughäfen mit Drehverbindungen für die Luftraumüberwachung ausgerüstet. Bis heute wurden ca. 30.000 Drehkupplungen und Schleifringe an unsere Kunden geliefert.

SPINNER bietet Ihnen Komplettlösungen, ermöglicht durch:

- hoch motivierte Teams, ausgestattet mit modernsten Design- und Simulationstools
- CNC-gesteuerte Dreh- und Fräszentren und eine eigene Galvanik
- mannigfaltige Testmöglichkeiten bis in den Mikrometerbereich
- Klimaschränke und Salzsprühkammer für Umwelttests
- Schock- und Vibrationstests im eigenen Hause und in Kooperation mit externen Instituten

Als Service bietet SPINNER Reparatur und Wartung von Drehkupplungen – auch anderer Hersteller – an. Im Anhang finden Sie Spezifikationsvorlagen für Drehkupplungs- und Schleifringanfragen. Diese erleichtern Ihnen, die wesentlichen technischen Parameter zu definieren.

### KOOPERATION

Es besteht eine enge Kooperation zwischen SPINNER und der Schleifring und Apparate GmbH in Fürstenfeldbruck. Diese Verbindung zwischen Europas führendem Hersteller für HF-Drehkupplungen und dem Weltmarktführer für Schleifringe aller Art versetzt uns in die Lage, Ihnen das gesamte Spektrum möglicher HF-, Strom- und Datenübertragungsdrehverbindungen anzubieten.

High quality SPINNER rotary joints and slip rings are mainly used in military and civilian radar systems.
As Europe's leading supplier for rotary joints and slip rings a lot of international airports are equipped with SPINNER air traffic control rotary joints. As of today SPINNER has delivered around 30,000 rotary joints and slip rings.

SPINNER's system solutions are archieved by:

- a highly motivated team of R&D engineers equipped with state of the art design and simulation tools
- in-house CNC controlled turning and milling centers, electroplating
- testing equipment covering sub-micron range to ensure outstanding quality
- climate and salt-spray chambers for environmental tests
- in-house shock and vibration tests and in co-operation with external institutes

As an additional service SPINNER offers repair and maintenance of all rotary joints brands.
To assist in defining technical specifications, two questionnaires for rotary joints and slip rings can be found at the end of this catalogue.

### CO-OPERATION

There is a close co-operation between SPINNER and Schleifring und Apparate GmbH (Fürstenfeldbruck). This link of Europe's leading supplier for rotary joints and the world leader for slip ring assemblies enables us to offer the complete range of RF, power supply and data transmission rotary joints.

## GALVANISCHE DREHKUPPLUNGEN

Die Innen- und Außenleiter von Rotor und Stator sind galvanisch verbunden. Diese Variante wird für breitbandige Drehkupplungen verwendet. Bei koaxialer Ausführung ist die obere Grenzfrequenz abhängig vom Durchmesser der koaxialen Leitung. Für niedrige Frequenzen können alternativ Schleifringe verwendet werden.

## KONTAKTLOSE DREHKUPPLUNGEN

HF-Signale können über axiale und radiale Koppel-Strukturen übertragen werden.
Kontaktlose Ausführungen zeichnen sich durch eine lange Lebensdauer aus, sind in der Regel aber schmalbandig. Durch spezielle Techniken können unterschiedliche Frequenzbänder über eine Koppelstruktur übertragen werden (z.B. X- und L-Band).

## HOHLLEITER-/KOAXIAL-/SCHLEIFRING-KOMBINATIONEN

Dies sind die gängigsten Kombinationen in hochwertigen Radarsystemen.
In der Regel werden ein bis zwei Hochleistungskanäle (Koax / Hohlleiter) mit mehreren Kleinleistungskanälen kombiniert.
Für Stromversorgung und Datenübertragung werden zusätzlich Schleifringmodule integriert.

## KOMBINATIONEN MIT OPTISCHEN KANÄLEN

Optische Drehkupplungen kommen aufgrund ständig steigender Datenraten in der Signalübertragung immer häufiger zum Einsatz.
SPINNER hat dafür optische Drehkupplungen entwickelt, die im Innenleiter eines koaxialen Hauptkanals (ca. Ø 3 mm) integriert werden.

## CONTACTING ROTARY JOINTS

Inner and outer conductor of stator and rotor are DC coupled. These rotary joints are used for broadband applications. If a coaxial structure is used, the cut-off frequency depends on the diameter of the coaxial line.
In some cases, specially designed slip rings can be used for lower frequencies.

## NON-CONTACTING ROTARY JOINTS

RF signals can be transmitted via axial and radial coupling structures. Non-contacting solutions have an excellent life time and are used for narrow band transmissions. Additionally, with special coupling structures, two different bands can be transmitted within one module (e.g. X- and L-Band).

## WAVEGUIDE / COAXIAL / SLIP RING COMBINATIONS

These are the most commonly used combinations for high performance radar systems.
Normally, one or two high power channels (coax/waveguide) are combined with several low power channels.
Slip ring modules for power supply and data transmission are additionally integrated.

## COMBINATIONS WITH OPTICAL CHANNELS

Due to constantly increasing data rates, optical rotary joints are becoming more popular.
SPINNER designed an optical rotary joint that can be integrated into the inner conductor of a coax channel with a diameter of only 3 mm.

## OPTISCHE DREHKUPPLUNGEN

Optische Drehkupplungen werden vor allem für Datenübertragung verwendet. Vorteil ist die potenzialfreie Übertragung, die gegenüber elektromagnetischen Störfeldern unempfindlich ist. Wir liefern Drehkupplungen mit Multi- und Singlemode-Fasern.

## OPTISCHE 1-KANAL DREHKUPPLUNGEN

Die Fasern des Stators und Rotors liegen in der Drehachse. Das Licht wird über einen eng tolerierten Spalt eingekoppelt. Um Dämpfung und Dämpfungsänderungen bei Rotation zu vermeiden, müssen sich die Fasern präzise konzentrisch gegenüber stehen. Dies lässt sich nur mit einem ausgefeilten Kugellager-Konzept verwirklichen.

## OPTISCHE MEHRKANAL-DREHKUPPLUNGEN

Zur simultanen Übertragung von bis zu 42 optischen Kanälen über separate Glasfasern hat SPINNER in Zusammenarbeit mit der Schleifring GmbH eine optische Mehrkanal-Drehkupplung entwickelt.
Hierbei handelt es sich um das kleinste am Markt verfügbare System bei gleichzeitig höchster verfügbarer Kanalzahl. Die einzelnen Kanäle werden über ein speziell für dieses System entwickeltes Mikrokollimatorarray eingespeist.
Die Gesamtlänge ohne Anschlusskabel beträgt ca. 150 mm bei einem Durchmesser von 60 mm.
Die Drehkupplung ist für Singlemode- oder für Multimodefasern ausgelegt und für jedes Datenformat / Datenprotokoll sowie für analoge Übertragung nutzbar. Die Bauweise gewährleistet Störungsfreiheit und höchste Lebensdauer ohne Wartung. Umwelt- und Klimatests hat das System erfolgreich bestanden.

## OPTICAL ROTARY JOINTS

Optical rotary joints are mainly used for data transmission. Advantages are high transmission rates and resistance to electromagnetic fields. We supply rotary joints with single and multimode fibers.

## SINGLE CHANNEL OPTICAL ROTARY JOINTS

The fiber of stator and rotor are fixed in line. The light is transmitted through a small and well defined gap into the fiber of the rotating part.
To avoid attenuation and variation of attenuation the fibers must be positioned precisely in axis and both axes must be extremely concentric during rotation. This requires a sophisticated ball bearing concept.

## MULTI-CHANNEL OPTICAL ROTARY

For simultaneous transmission of up to 42 optical channels via separate fibers SPINNER and Schleifring GmbH jointly developed a optical multi-channel rotary joint.
It is the smallest available system in the market with the highest number of integrated channels.
All fiber inputs are aligned with a collimator array specially designed for this system. The overall length is approx. 150 mm with a diameter of only 60 mm.
The rotary joint is available for singlemode and multimode fibers and facilitates each data format and data protocol and may even be used for analogue transmission.
As the design principle is without physical contacts the units are wear resistant and maintenance free.
Environmental and climatic tests have been concluded successfully.

| Hohlleiter Bezeichnung Waveguide type | | | Innen-Abmessungen Inner dimensions | | | Betriebsfrequenz Operating frequency [2] | |
|---|---|---|---|---|---|---|---|
| DIN 47 302 corresponds to IEC 153 | RETMA WR | British standard | E-side mm | H-side mm | Band[1] | Frequency GHz | Attenuation[3] |
| R 14 | 650 | WG 6 | 165.10 | 82.55 | L | 1.13 ... 1.73 | 0.007 |
| R 22 | 430 | WG 8 | 109.22 | 54.61 | – | 1.72 ... 2.61 | 0.013 |
| R 26 | 340 | WG 9A | 86.36 | 43.18 | – | 2.17 ... 3.30 | 0.018 |
| R 32 | 284 | WG 10 | 72.14 | 34.04 | S | 2.60 ... 3.95 | 0.024 |
| R 40 | 229 | WG 11A | 58.17 | 29.08 | A | 3.22 ... 4.90 | 0.032 |
| R 48 | 187 | WG 12 | 47.55 | 22.15 | G | 3.94 ... 5.99 | 0.046 |
| R 58 | 159 | WG 13 | 40.39 | 20.19 | C | 4.64 ... 7.05 | 0.056 |
| R 70 | 137 | WG 14 | 34.85 | 15.80 | J | 5.38 ... 8.17 | 0.075 |
| R 84 | 112 | WG 15 | 28.50 | 12.62 | H | 6.57 ... 9.99 | 0.103 |
| R 100 | 90 | WG 16 | 22.86 | 10.16 | X | 8.20 ... 12.5 | 0.143 |
| R 120 | 75 | WG 17 | 19.05 | 9.53 | M | 9.84 ... 15.0 | 0.167 |
| R 140 | 62 | WG 18 | 15.80 | 7.90 | P | 11.9 ... 18.0 | 0.221 |
| R 180 | 51 | – | 12.95 | 6.48 | N | 14.5 ... 22.0 | 0.239 |
| R 220 | 42 | WG 20 | 10.67 | 4.32 | K | 17.6 ... 26.7 | 0.454 |
| R 260 | 34 | – | 8.64 | 4.32 | – | 21.7 ... 33.0 | 0.556 |
| R 320 | 28 | WG 22 | 7.11 | 3.56 | R | 26.3 ... 40.0 | 0.736 |

[1] Die Band-Normenklatur ist nicht weltweit genormt. Wir haben in dieser Tabelle die am häufigsten verwendeten Bezeichnungen aufgeführt.

[2] Der Frequenzbereich gibt einen Hinweis auf den Übertragungsbereich der $H_{10}$-Welle von 1,25...1,9 f.

[3] Die Dämpfungswerte beziehen sich auf Kupfer-Hohlleiter nach IEC Standard, sowie auf die Mittenfrequenz der angegebenen Frequenzbereiche.

[1] The nomenclature for bands is not standardised world-wide. In this table we have listed the most common designations.

[2] The frequency range is an indication of the transmission range of the $H_{10}$ wave from 1.25 to 1.9 f.

[3] The attenuation values refer to copper waveguides meeting the IEC standard and to the centre frequency of the indicated ranges.

## 1-Kanal Koax-Drehkupplungen ■ Single-Channel Coax Rotary Joints

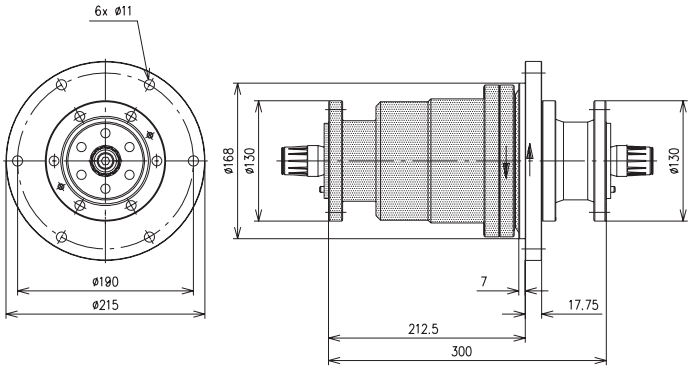
### CONTACTING

| Frequenzbereich<br>Frequency range | Anschluss<br>Connection | Bestell-Nummer<br>Part Number | Seite<br>Page |
|---|---|---|---|
| 0....003 GHz | 3 1/8" EIA | BN 94 54 41 | 10 |
| 0 ... 0.03 GHz | 6 1/8" EIA | BN 47 15 01 | 11 |
| 0 ... 2.15 GHz | F Stecker/Plug | BN 83 50 50 | 11 |
| 0 ... 2.8 GHz | 1 5/8" EIA | BN 84 06 01 | 12 |
| 0 ... 4 GHz | 7/8" EIA | BN 82 10 03 | 12 |
| 0 ... 5 GHz | 7-16 Kuppler/Socket | BN 94 54 36 | 13 |
| 0 ... 7 GHz | SC Kuppler/Socket | BN 94 54 28 | 13 |
| 0 ... 15 GHz | N Kuppler/Socket | BN 83 50 27 | 14 |
| 0 ... 15 GHz | N Kuppler/Socket | BN 83 50 30 | 14 |
| 0 ... 26.5 GHz | SMA Kuppler/Socket | BN 83 50 47 | 15 |
| 0 ... 40 GHz | K Kuppler/Socket | BN 83 50 45 | 15 |
| 1.525 ... 1.661 GHz | SMA/TNC Stecker/Plug | BN 83 50 44 | 16 |
| 4.4 ... 5.0 GHz | N Kuppler/Socket | BN 83 50 41 | 16 |

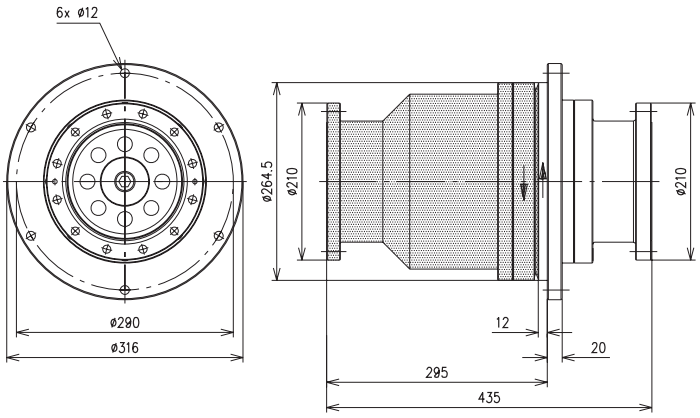
### NON-CONTACTING

| Frequenzbereich<br>Frequency range | Anschluss<br>Connection | Bestell-Nummer<br>Part Number | Seite<br>Page |
|---|---|---|---|
| 1.15 ... 1.45 GHz | HN Kuppler/Socket | BN 15 30 61 | 17 |
| 1.4 ... 1.6 GHz | SMA Kuppler/Socket | BN 83 50 28 | 17 |
| 2.0 ... 2.1 GHz | 1 5/8" EIA | BN 84 06 14 | 18 |
| 2.8 ... 3.3 GHz | 7-16 Kuppler/Socket | BN 94 54 08 | 18 |
| 2.8 ... 3.3 GHz | 7-16 Kuppler/Socket | BN 94 54 38 | 19 |
| 3.0 ... 3.4 GHz | 7-16 Kuppler/Socket | BN 94 54 20 | 19 |

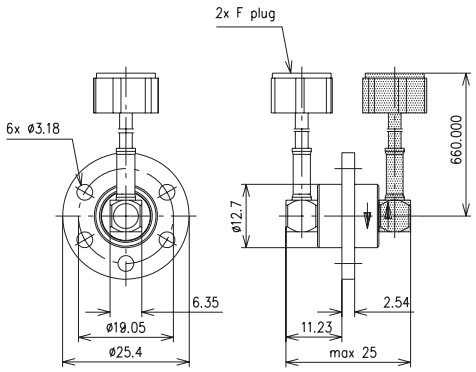
## SINGLE-CHANNEL COAX ROTARY JOINTS



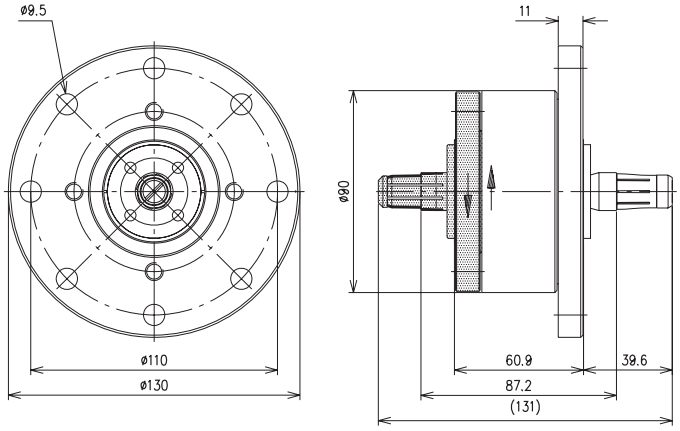

| BN 94 54 41 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0.003 |
| Spitzenleistung (kW)<br>Peak power | – |
| Mittlere Leistung (kW)<br>Average power | 50 |
| VSWR | ≤ 1.06 |
| VSWR - WOW | ≤ 0.005 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.05 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.01 |
| Phase - WOW | ≤ 1° |
| Anschluss<br>Connection | 3 1/8" EIA |



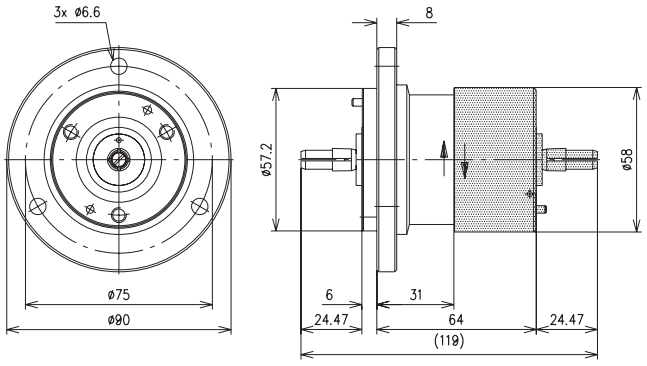

| BN 47 15 01 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0 ... 0.03 |
| Spitzenleistung (kW)<br>Peak power | – |
| Mittlere Leistung (kW)<br>Average power | 250 |
| VSWR | ≤ 1.02 |
| VSWR - WOW | ≤ 0.01 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.1 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 1° |
| Anschluss<br>Connection | 6 1/8" EIA |



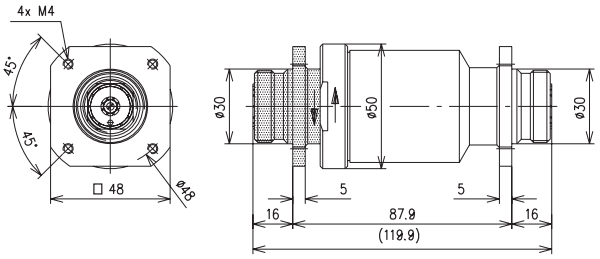

| BN 83 50 50 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0 ... 2.15 |
| Spitzenleistung (kW)<br>Peak power | – |
| Mittlere Leistung (W)<br>Average power | 18 |
| VSWR | ≤ 1.5 |
| VSWR - WOW | ≤ 0.02 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 2.0 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 2° |
| Anschluss<br>Connection | F Stecker<br>F Plug |



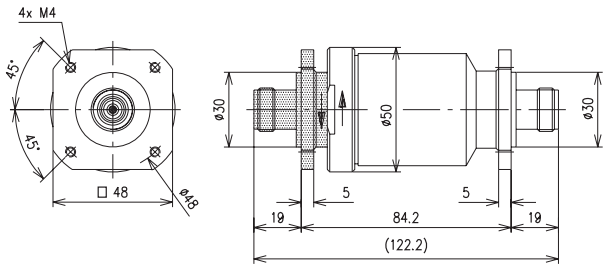

| BN 84 06 01 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0 ... 2.8 |
| Spitzenleistung (kW) bei 200 MHz<br>Peak power at 200 MHz | 70 |
| Mittlere Leistung (W) bei 200 MHz<br>Average power at 200 MHz | 10 |
| VSWR | ≤ 1.06 |
| VSWR - WOW | ≤ 0.01 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 1° |
| Anschluss<br>Connection | 1 5/8" EIA |



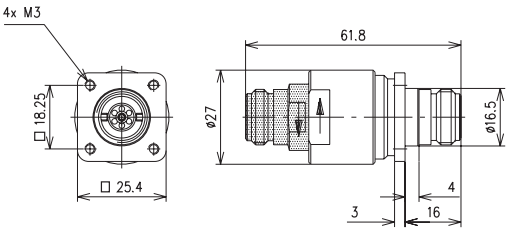

| BN 82 10 03 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0 ... 4 |
| Spitzenleistung (kW) bei 200 MHz<br>Peak power at 200 MHz | 50 |
| Mittlere Leistung (kW) bei 200 MHz<br>Average power at 200 MHz | 4.5 |
| VSWR | ≤ 1.12 |
| VSWR - WOW | ≤ 0.01 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.1 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 1° |
| Anschluss<br>Connection | 7/8" EIA |



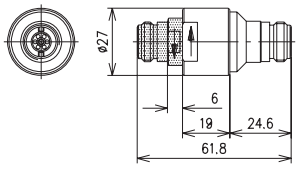

| BN 94 54 36 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0 ... 5 |
| Spitzenleistung (kW)<br>Peak power | 10 |
| Mittlere Leistung (W)<br>Average power | 600 |
| VSWR | ≤ 1.1 |
| VSWR - WOW | ≤ 0.006 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 1° |
| Anschluss<br>Connection | 7-16 Kuppler<br>7-16 Socket |



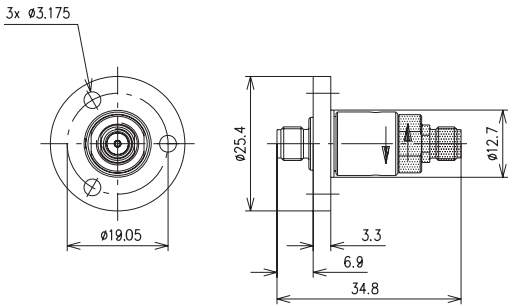

| BN 94 54 28 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0 ... 7 |
| Spitzenleistung (kW)<br>Peak power | 10 |
| Mittlere Leistung (kW) bei 200 MHz<br>Average power at 200 MHz | 2.8 |
| VSWR | ≤ 1.1 |
| VSWR - WOW | ≤ 0.03 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 1° |
| Anschluss<br>Connection | SC Kuppler<br>SC Socket |



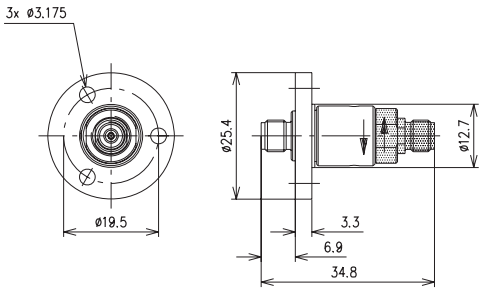

| BN 83 50 27 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0 ... 15 |
| Spitzenleistung (kW)<br>Peak power | 14 |
| Mittlere Leistung (W)<br>Average power | 70 |
| VSWR bei/at 8 ... 15 GHz | ≤ 1.2 |
| VSWR - WOW | ≤ 0.02 |
| Durchgangsdämpfung (dB) bei 8 ... 15 GHz<br>Insertion loss at 8 ... 15 GHz | ≤ 0.2 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.03 |
| Phase - WOW | ≤ 2° |
| Anschluss<br>Connection | N Kuppler<br>N Socket |



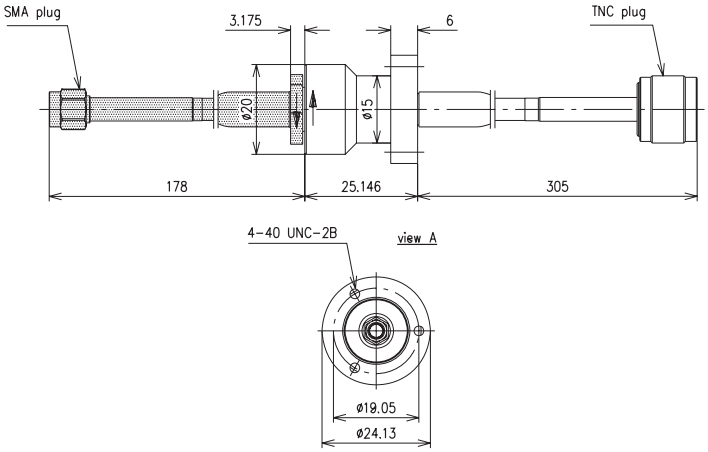

| BN 83 50 30 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0 ... 15 |
| Spitzenleistung (kW)<br>Peak power | 14 |
| Mittlere Leistung (W)<br>Average power | 70 |
| VSWR bei/at 8 ... 15 GHz | ≤ 1.2 |
| VSWR - WOW | ≤ 0.02 |
| Durchgangsdämpfung (dB) bei 8 ... 15 GHz<br>Insertion loss at 8 ... 15 GHz | ≤ 0.2 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.03 |
| Phase - WOW | ≤ 2° |
| Anschluss<br>Connection | N Kuppler<br>N Socket |



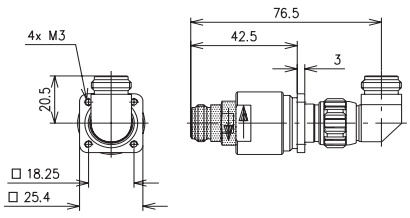

| BN 83 50 47 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0 ... 26.5 |
| Spitzenleistung (kW)<br>Peak power | 3.0 |
| Mittlere Leistung (W) bei 1 GHz<br>Average power at 1 GHz | 500 |
| VSWR bei/at 18 ... 26.5 GHz | ≤ 1.7 |
| VSWR - WOW | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.55 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.1 |
| Phase - WOW | ≤ 1° |
| Anschluss<br>Connection | SMA Kuppler<br>SMA Socket |



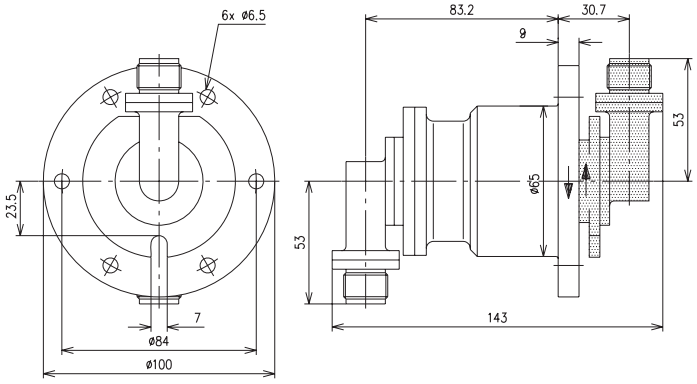

| BN 83 50 45 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0 ... 40 |
| Spitzenleistung (kW) bei 1 GHz<br>Peak power at 1 GHz | 0.5 |
| Mittlere Leistung (W) bei 1 GHz<br>Average power at 1 GHz | 50 |
| VSWR bei/at 40 GHz | ≤ 2.0 |
| VSWR - WOW | ≤ 0.1 |
| Durchgangsdämpfung (dB) bei 40 GHz<br>Insertion loss at 40 GHz | ≤ 1.2 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.1 |
| Phase - WOW | ≤ 3° |
| Anschluss<br>Connection | K Kuppler<br>K Socket |



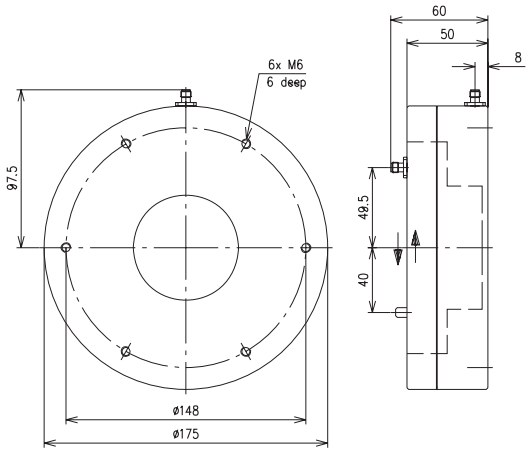

| BN 83 50 44 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 1.525 ... 1.661 |
| Spitzenleistung (kW)<br>Peak power | – |
| Mittlere Leistung (W)<br>Average power | 6.0 |
| VSWR | ≤ 1.15 |
| VSWR - WOW | ≤ 0.02 |
| Durchgangsdämpfung (dB) typ.<br>Insertion loss | ≤ 0.4 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 1° |
| Anschluss<br>Connection | SMA/TNC Stecker<br>SMA/TNC Plug |




| BN 83 50 41 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 4.4 ... 5.0 |
| Spitzenleistung (kW)<br>Peak power | 50 |
| Mittlere Leistung (W)<br>Average power | 300 |
| VSWR | ≤ 1.06 |
| VSWR - WOW | ≤ 0.02 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.1 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 2° |
| Anschluss<br>Connection | N Kuppler<br>N Socket |



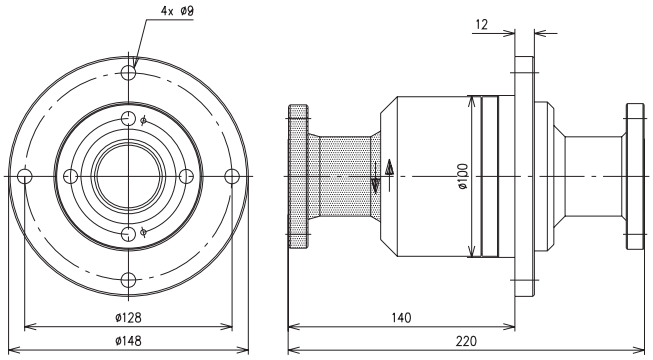

| BN 15 30 61 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 1.15 ... 1.45 |
| Spitzenleistung (kW)<br>Peak power | 50 |
| Mittlere Leistung (W)<br>Average power | 500 |
| VSWR | ≤ 1.3 |
| VSWR - WOW | ≤ 0.02 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.1 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 1° |
| Anschluss<br>Connection | HN Kuppler<br>HN Socket |



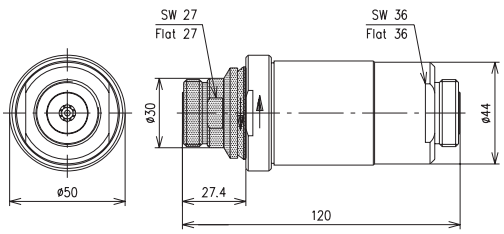

| BN 83 50 28 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 1.4 ... 1.6 |
| Spitzenleistung (kW)<br>Peak power | 3.0 |
| Mittlere Leistung (W)<br>Average power | 500 |
| VSWR | ≤ 1.5 |
| VSWR - WOW | ≤ 0.07 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 |
| Phase - WOW | ≤ 2° |
| Anschluss<br>Connection | SMA Kuppler<br>SMA Socket |

# 1-KANAL KOAX DREHKUPPLUNGEN – NON-CONTACTING

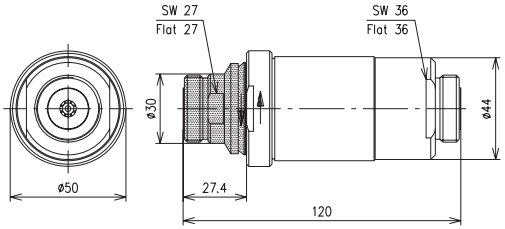
## SINGLE-CHANNEL COAX ROTARY JOINTS



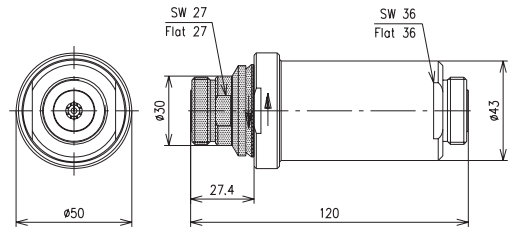

| BN 84 06 14 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 2.0 ... 2.1 |
| Spitzenleistung (kW)<br>Peak power | 50 |
| Mittlere Leistung (kW)<br>Average power | 3.0 |
| VSWR | ≤ 1.05 |
| VSWR - WOW | ≤ 0.01 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.1 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 1° |
| Anschluss<br>Connection | 1 5/8" EIA |




| BN 94 54 08 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 2.8 ... 3.3 |
| Spitzenleistung (kW)<br>Peak power | 50 |
| Mittlere Leistung (kW)<br>Average power | 0.85 |
| VSWR | ≤ 1.1 |
| VSWR - WOW | ≤ 0.005 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.1 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.01 |
| Phase - WOW | ≤ 1° |
| Anschluss<br>Connection | 7-16 Kuppler<br>7-16 Socket |




| BN 94 54 38 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 2.8 ... 3.3 |
| Spitzenleistung (kW)<br>Peak power | 50 |
| Mittlere Leistung (W)<br>Average power | 850 |
| VSWR | ≤ 1.1 |
| VSWR - WOW | ≤ 0.005 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.1 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.01 |
| Phase - WOW | ≤ 1° |
| Anschluss<br>Connection | 7-16 Kuppler<br>7-16 Socket |

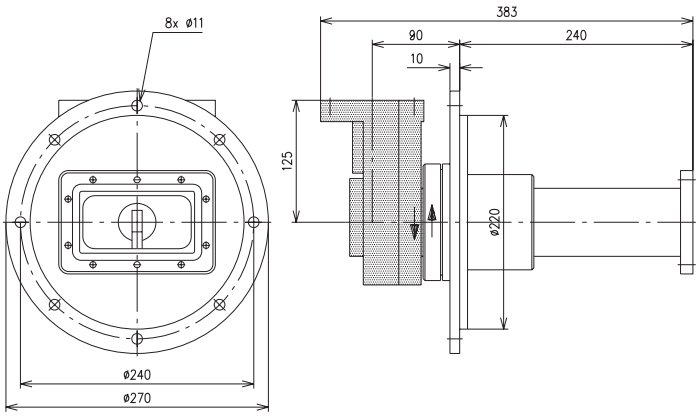



| BN 94 54 20 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 3.0 ... 3.4 |
| Spitzenleistung (kW)<br>Peak power | 50 |
| Mittlere Leistung (W)<br>Average power | 850 |
| VSWR | ≤ 1.06 |
| VSWR - WOW | ≤ 0.005 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.1 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.01 |
| Phase - WOW | ≤ 1° |
| Anschluss<br>Connection | 7-16 Kuppler<br>7-16 Socket |

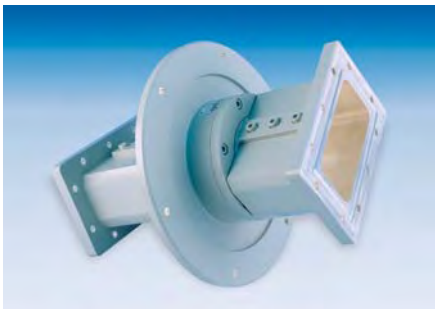
# 1-KANAL HOHLLEITER DREHKUPPLUNGEN

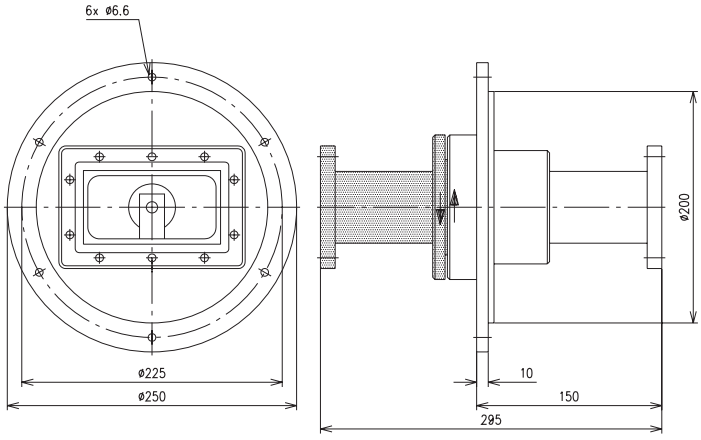
## SINGLE-CHANNEL WAVEGUIDE ROTARY JOINTS

| Frequenzbereich<br>Frequency range | Anschluss<br>Connection | Bestell-Nummer<br>Part Number | Seite<br>Page |
|---|---|---|---|
| 1.75 ... 1.85 GHz | PDR 22 | BN 63 48 09 | 21 |
| 2.025 ... 2.125 GHz | CPR 430 G | BN 63 48 08 | 21 |
| 2.0 ... 2.3 GHz | special / PJC 22 | BN 63 43 15 | 22 |
| 2.7 ... 2.9 GHz | CPR 284 G | BN 63 53 23 | 22 |
| 4.4 ... 5.0 GHz | PDR 48 | BN 63 47 22 | 23 |
| 5.2 ... 5.81 GHz | PDR 48 | BN 63 47 69 | 23 |
| 5.2 ... 5.81 GHz | UDR 48 | BN 63 47 68 | 24 |
| 5.4 ... 5.9 GHz | CPR 187 G | BN 63 47 39 | 24 |
| 5.8 ... 6.5 GHz | CPR 159 F | BN 63 47 25 | 25 |
| 5.82 ... 7.0 GHz | CPR 159 F | BN 63 47 35 | 25 |
| 5.82 ... 7.0 GHz | CPR 159 F | BN 63 47 36 | 26 |
| 5.82 ... 7.0 GHz | CPR 159 F | BN 63 47 37 | 26 |
| 5.85 ... 6.425 GHz | PDR 58 | BN 63 47 50 | 27 |
| 8.05 ... 12.35 GHz | UBR 100 | BN 63 50 21 | 27 |
| 8.5 ... 9.6 GHz | UBR 100 | BN 63 50 50 | 28 |
| 8.9 ... 9.5 GHz | UBR 100 / M 100 mod. | BN 63 50 33 | 28 |
| 8.9 ... 9.5 GHz | CBR 100 | BN 63 52 35 | 29 |
| 9.31 ... 9.43 GHz | UBR 100 | BN 63 50 32 | 29 |
| 14.0 ... 14.5 GHz | PDR 120 | BN 63 57 07 | 30 |
| 17.3 ... 17.8 GHz | R 140 special | BN 63 56 09 | 30 |
| 27.5 ... 30.0 GHz | PBR 320 | BN 63 62 03 | 31 |
| 33.0 ... 36.0 GHz | UG 599/U | BN 63 62 05 | 31 |




| BN 63 48 09 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 1.75 ... 1.85 |
| Spitzenleistung (kW)<br>Peak power | – |
| Mittlere Leistung (kW)<br>Average power | 12.0 |
| VSWR | ≤ 1.1 |
| VSWR - WOW | ≤ 0.04 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 2° |
| Flansche<br>Flanges | PDR 22 |

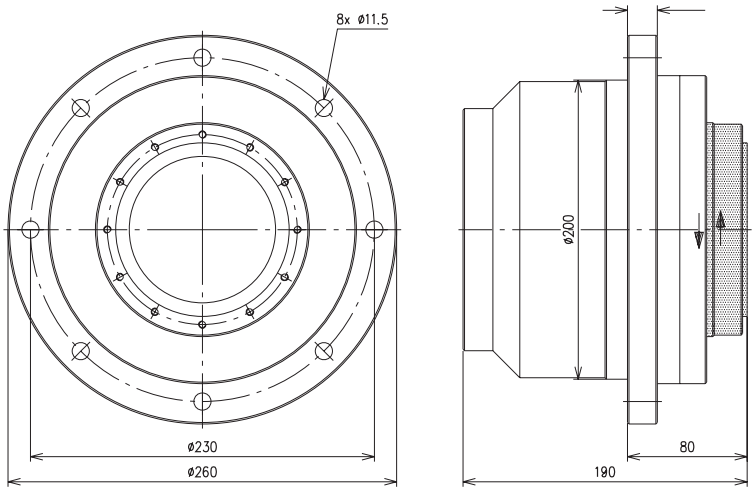




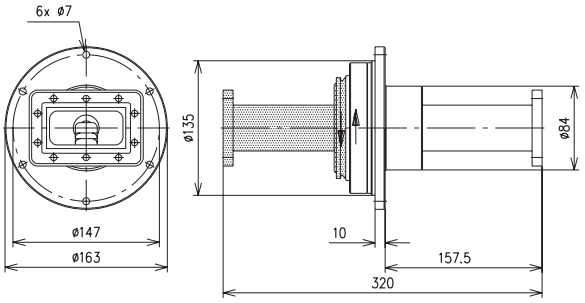

| BN 63 48 08 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 2.025 ... 2.125 |
| Spitzenleistung (kW)<br>Peak power | 100 |
| Mittlere Leistung (kW)<br>Average power | 5.0 |
| VSWR | ≤ 1.1 |
| VSWR - WOW | ≤ 0.04 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 2° |
| Flansche<br>Flanges | CPR 430 G |

# 1-KANAL HOHLLEITER DREHKUPPLUNGEN

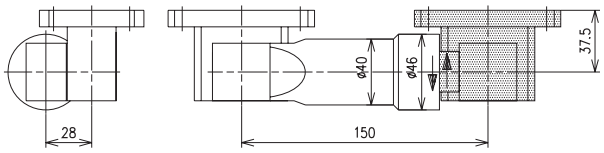
## SINGLE-CHANNEL WAVEGUIDE ROTARY JOINTS



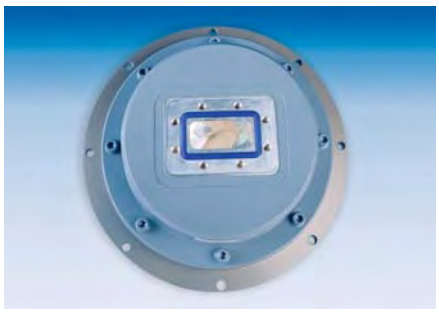

| BN 63 43 15 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 2.0 ... 2.3 |
| Spitzenleistung (kW)<br>Peak power | 12 |
| Mittlere Leistung (kW)<br>Average power | 4.0 |
| VSWR | ≤ 1.05 |
| VSWR - WOW | ≤ 0.005 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.1 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.01 |
| Phase - WOW | ≤ 1° |
| Flansche<br>Flanges | special/PJC 22 |

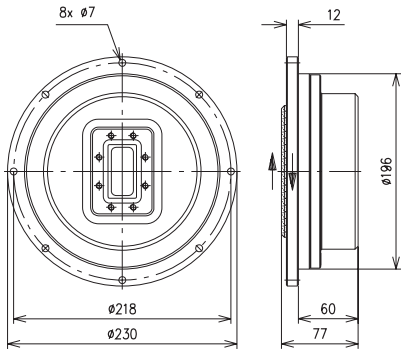



| BN 63 53 23 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 2.7 ... 2.9 |
| Spitzenleistung (kW) bei 2 bar absolut<br>Peak power at 2 bar | 1000 |
| Mittlere Leistung (kW)<br>Average power | 1.0 |
| VSWR | ≤ 1.2 |
| VSWR - WOW | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 |
| Phase - WOW | ± 3° |
| Flansche<br>Flanges | CPR 284 G |




| BN 63 47 22 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 4.4 ... 5.0 |
| Spitzenleistung (kW)<br>Peak power | 1.5 |
| Mittlere Leistung (kW)<br>Average power | 0.5 |
| VSWR | ≤ 1.06 |
| VSWR - WOW | ≤ 0.01 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.05 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 1° |
| Flansche<br>Flanges | PDR 48 |



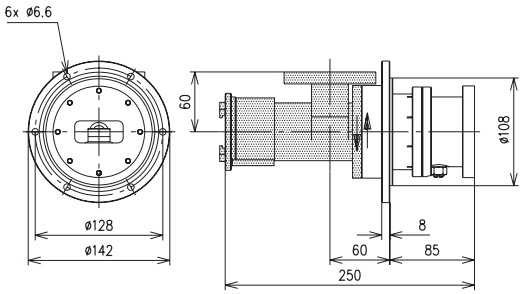



| BN 63 47 69 * | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 5.2 ... 5.81 |
| Spitzenleistung (kW)<br>Peak power | 150 |
| Mittlere Leistung (kW)<br>Average power | 1.5 |
| VSWR | ≤ 1.2 |
| VSWR - WOW | ≤ 0.1 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.03 |
| Phase - WOW | 7° |
| Flansche<br>Flanges | PDR 48 |

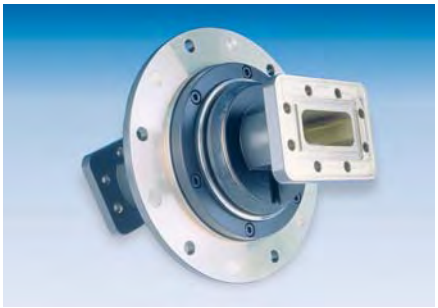
**) Swivel Joint, max.* ± 35°

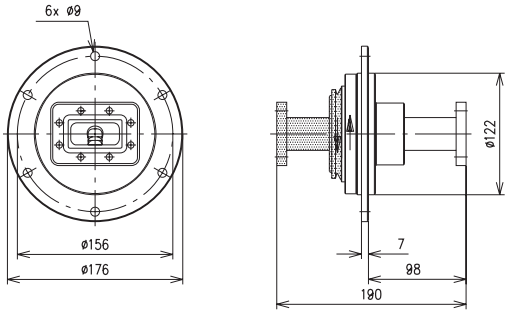
# 1-KANAL HOHLLEITER DREHKUPPLUNGEN

## SINGLE-CHANNEL WAVEGUIDE ROTARY JOINTS

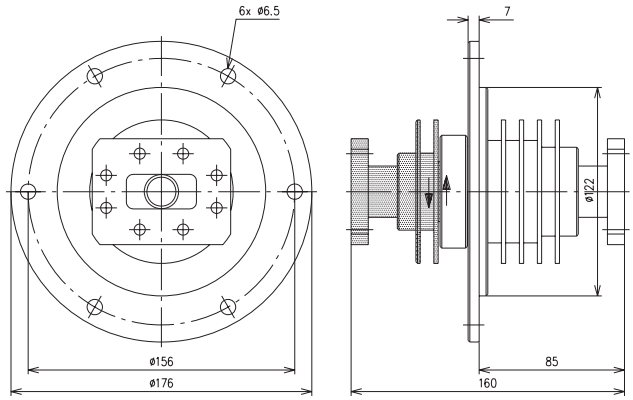



| BN 63 47 68 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 5.5 ... 5.81 |
| Spitzenleistung (kW)<br>Peak power | 150 |
| Mittlere Leistung (kW)<br>Average power | 1.5 |
| VSWR | ≤ 1.2 |
| VSWR - WOW | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.03 |
| Phase - WOW | ≤ 2° |
| Flansche<br>Flanges | UDR 48 |

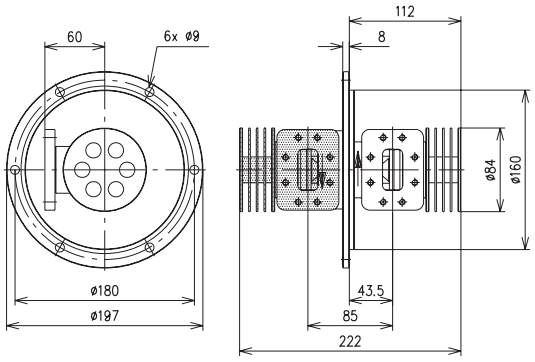





| BN 63 47 39 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 5.4 ... 5.9 |
| Spitzenleistung (kW) bei 2 bar absolut<br>Peak power at 2 bar | 1100 |
| Mittlere Leistung (kW)<br>Average power | 4.0 |
| VSWR | ≤ 1.2 |
| VSWR - WOW | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 |
| Phase - WOW | ≤ 3° |
| Flansche<br>Flanges | CPR 187 G |



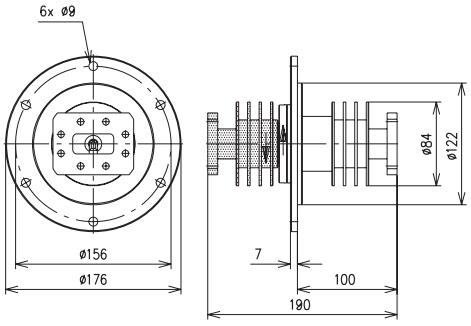

| BN 63 47 25 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 5.8 ... 6.5 |
| Spitzenleistung (kW)<br>Peak power | – |
| Mittlere Leistung (kW)<br>Average power | 10 |
| VSWR | ≤ 1.15 |
| VSWR - WOW | ≤ 0.04 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.04 |
| Phase - WOW | ≤ 2° |
| Flansche<br>Flanges | CPR 159 F |



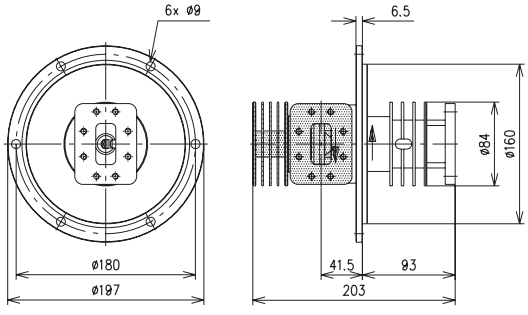

| BN 63 47 35 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 5.82 ... 7.0 |
| Spitzenleistung (kW)<br>Peak power | 70 |
| Mittlere Leistung (kW)<br>Average power | 10 |
| VSWR | ≤ 1.15 |
| VSWR - WOW | ≤ 0.04 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.04 |
| Phase - WOW | ≤ 2° |
| Flansche<br>Flanges | CPR 159 F |

# 1-KANAL HOHLLEITER DREHKUPPLUNGEN

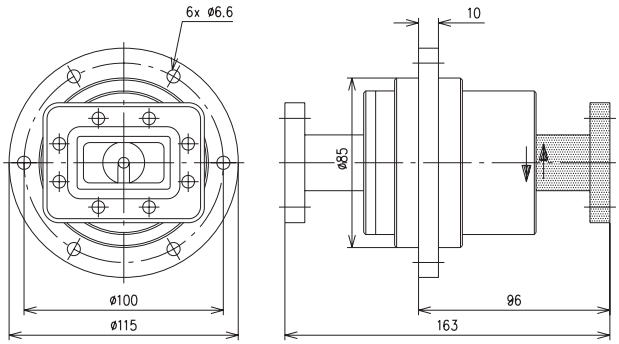
## SINGLE-CHANNEL WAVEGUIDE ROTARY JOINTS



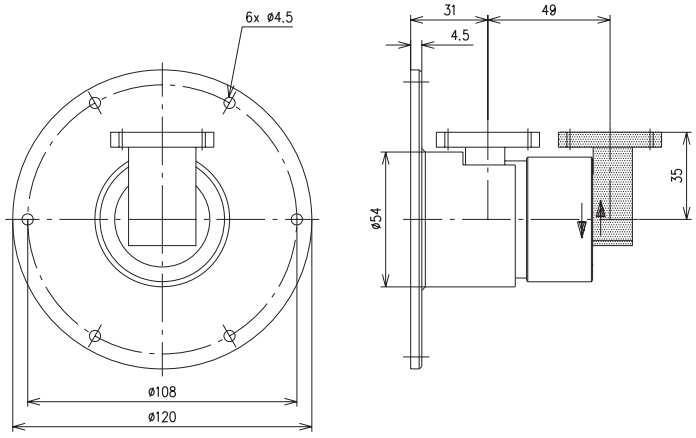

| BN 63 47 36 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 5.82 ... 7.0 |
| Spitzenleistung (kW)<br>Peak power | 70 |
| Mittlere Leistung (kW)<br>Average power | 10 |
| VSWR | ≤ 1.15 |
| VSWR - WOW | ≤ 0.04 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.04 |
| Phase - WOW | ≤ 2° |
| Flansche<br>Flanges | CPR 159 F |




| BN 63 47 37 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 5.82 ... 7.0 |
| Spitzenleistung (kW)<br>Peak power | 70 |
| Mittlere Leistung (kW)<br>Average power | 10 |
| VSWR | ≤ 1.15 |
| VSWR - WOW | ≤ 0.04 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.04 |
| Phase - WOW | ≤ 2° |
| Flansche<br>Flanges | CPR 159 F |



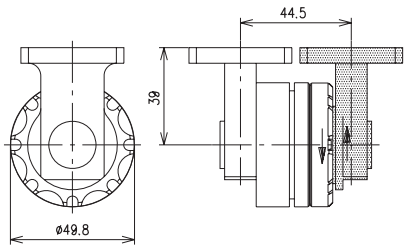

| BN 63 47 50 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 5.85 -6.425 |
| Spitzenleistung (kW)<br>Peak power | 70 |
| Mittlere Leistung (kW)<br>Average power | 5.0 |
| VSWR | ≤ 1.1 |
| VSWR - WOW | ≤ 0.02 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 |
| Phase - WOW | ≤ 2° |
| Flansche<br>Flanges | PDR 58 |



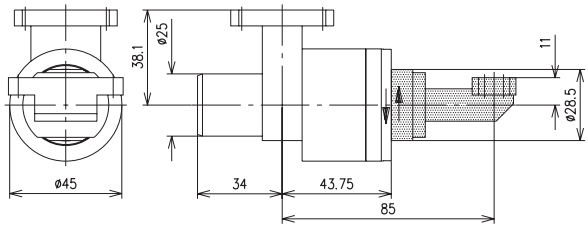

| BN 63 50 21 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 8.05 ... 12.35 |
| Spitzenleistung (W)<br>Peak power | 50 |
| Mittlere Leistung (W)<br>Average power | 1 |
| VSWR | ≤ 1.13 |
| VSWR - WOW | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.1 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 3° |
| Flansche<br>Flanges | UBR 100 |

# 1-KANAL HOHLLEITER DREHKUPPLUNGEN

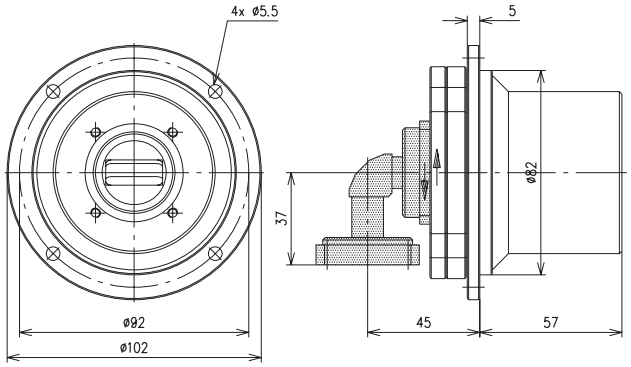
## SINGLE-CHANNEL WAVEGUIDE ROTARY JOINTS



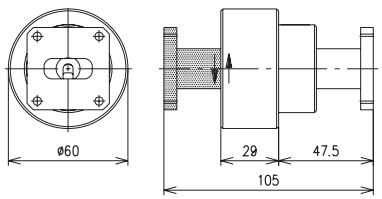

| BN 63 50 50 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 8.5 ... 9.6 |
| Spitzenleistung (kW)<br>Peak power | 100 |
| Mittlere Leistung (kW)<br>Average power | 0.2 |
| VSWR | ≤ 1.1 |
| VSWR - WOW | ≤ 0.02 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.1 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 2° |
| Flansche<br>Flanges | UBR 100 |




| BN 63 50 33 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 8.9 ... 9.5 |
| Spitzenleistung (kW)<br>Peak power | 8.0 |
| Mittlere Leistung (kW)<br>Average power | 0.5 |
| VSWR | ≤ 1.15 |
| VSWR - WOW | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 |
| Phase - WOW | ≤ 2° |
| Flansche<br>Flanges | UBR 100 /<br>M 100 mod. |



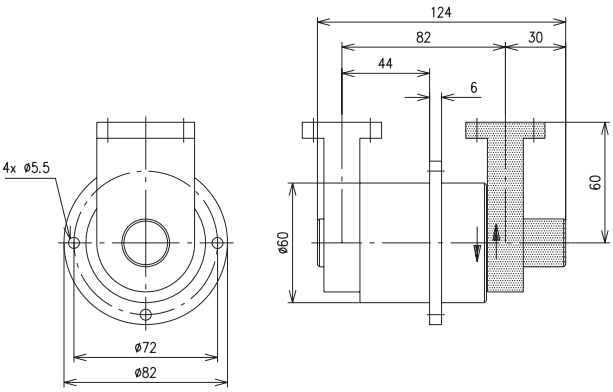

| BN 63 52 35 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 8.9 ... 9.5 |
| Spitzenleistung (kW)<br>Peak power | 100 |
| Mittlere Leistung (W)<br>Average power | 500 |
| VSWR | ≤ 1.1 |
| VSWR - WOW | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.05 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 3° |
| Flansche<br>Flanges | CBR 100 |



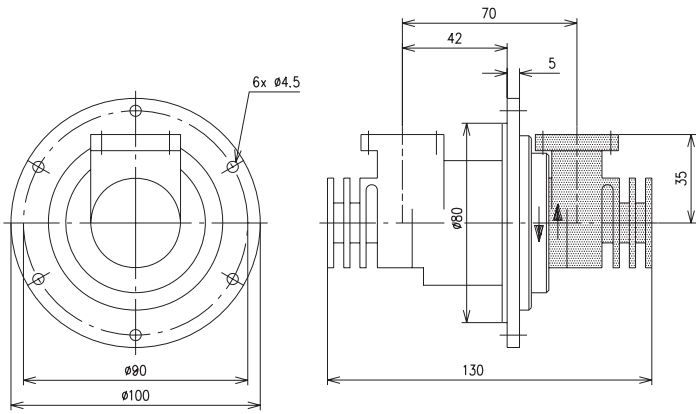

| BN 63 50 32 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 9.31 ... 9.43 |
| Spitzenleistung (kW)<br>Peak power | 50 |
| Mittlere Leistung (W)<br>Average power | 200 |
| VSWR | ≤ 1.1 |
| VSWR - WOW | ≤ 0.01 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.1 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 |
| Phase - WOW | ≤ 2° |
| Flansche<br>Flanges | UBR 100 |

# 1-KANAL HOHLLEITER DREHKUPPLUNGEN

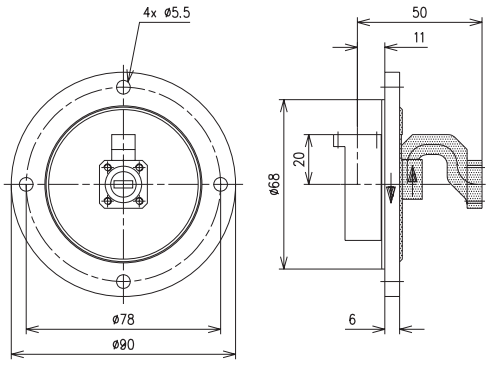
## SINGLE-CHANNEL WAVEGUIDE ROTARY JOINTS



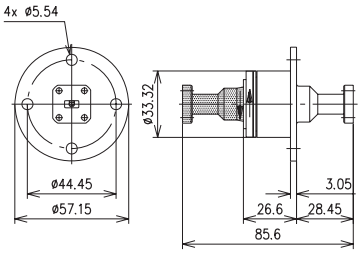

| BN 63 57 07 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 14 ... 14.5 |
| Spitzenleistung (kW)<br>Peak power | ≤ 100 |
| Mittlere Leistung (kW)<br>Average power | 2.0 |
| VSWR | ≤ 1.15 |
| VSWR - WOW | ≤ 0.1 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.04 |
| Phase - WOW | ≤ 3° |
| Flansche<br>Flanges | PDR 120 |




| BN 63 56 09 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 17.3 ... 17.8 |
| Spitzenleistung (kW)<br>Peak power | 80 |
| Mittlere Leistung (kW)<br>Average power | 2.0 |
| VSWR | ≤ 1.1 |
| VSWR - WOW | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.04 |
| Phase - WOW | ≤ 3° |
| Flansche<br>Flanges | R 140 special |




| BN 63 62 03 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 27.5 ... 30 |
| Spitzenleistung (kW)<br>Peak power | 10 |
| Mittlere Leistung (W)<br>Average power | 300 |
| VSWR | ≤ 1.2 |
| VSWR - WOW | ≤ 0.15 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 |
| Phase - WOW | ≤ 5° |
| Flansche<br>Flanges | PBR 320 |




| BN 63 62 05 | Kanal 1<br>Channel 1 |
|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 33 ... 36 |
| Spitzenleistung (kW)<br>Peak power | 5 |
| Mittlere Leistung (W)<br>Average power | 10 |
| VSWR | ≤ 1.2 |
| VSWR - WOW | ≤ 0.07 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.4 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 |
| Phase - WOW | ≤ 2° |
| Flansche<br>Flanges | UG 599 U |

## 2-Kanal Koax-Drehkupplungen ■ Dual-Channel Coax Rotary Joints

| Frequenzbereich Hauptkanal<br>Frequency range main channel | Anschluss<br>Connection | Bestell-Nummer<br>Part Number | Seite<br>Page |
|---|---|---|---|
| 0 ... 18 GHz | SMA Kuppler<br>SMA socket | BN 15 31 88 | 34 |
| 0 ... 18 GHz | SMA Kuppler<br>SMA socket | BN 15 31 89 | 35 |
| 0 ... 18 GHz | SMA Kuppler<br>SMA socket | BN 15 31 99 | 36 |
| 0.03 ... 18 GHz | SMA Kuppler<br>SMA socket | BN 63 66 65 | 37 |
| 0.9 ... 1.2 GHz | N Kuppler<br>N socket | BN 15 31 50 | 38 |
| 1.025 ... 1.035 GHz | N Kuppler<br>N socket | BN 15 31 81 | 39 |
| 13.75 ... 14.5 GHz | SMA Kuppler<br>SMA socket | BN 15 31 98 | 40 |

## 2-Kanal Hohlleiter / Koax-Drehkupplungen ■ Dual-Channel Waveguide / Coax Rotary Joints

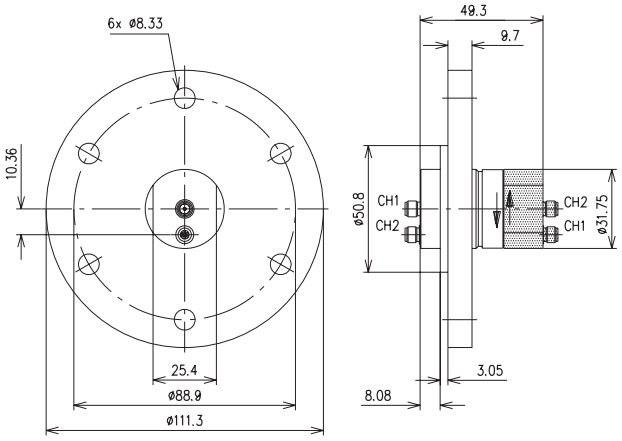
| Frequenzbereich Hauptkanal<br>Frequency range main channel | Anschluss<br>Connection | Bestell-Nummer<br>Part Number | Seite<br>Page |
|---|---|---|---|
| 8.5 ... 9.6 GHz | CBR 100 | BN 63 50 27 | 41 |

## 2-Kanal Koax / LWL-Drehkupplungen ■ Dual-Channel Coax / Optical Rotary Joints

| Frequenzbereich Hauptkanal<br>Frequency range main channel | Anschluss<br>Connection | Bestell-Nummer<br>Part Number | Seite<br>Page |
|---|---|---|---|
| 0 ... 18 GHz | SMA Kuppler<br>SMA socket | BN 63 66 30 | 42 |

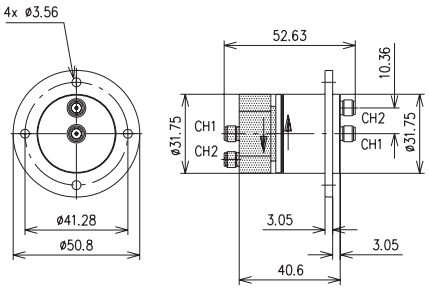
## 2-Kanal Hohlleiter Drehkupplungen ■ Dual-Channel Waveguide Rotary Joints

| Frequenzbereich Hauptkanal<br>Frequency range main channel | Anschluss<br>Connection | Bestell-Nummer<br>Part Number | Seite<br>Page |
|---|---|---|---|
| 7.145 ... 8.45 GHz | R 84 special | BN 63 50 35 | 43 |
| 8.5 ... 9.5 GHz | CBR 100 | BN 63 52 36 | 44 |
| 9.3 ... 9.5 | UG 135/U | BN 63 50 37 | 45 |



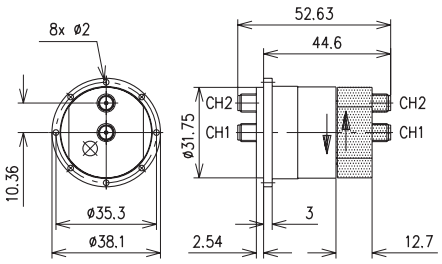

## 2-Kanal Koax-Drehkupplungen ■ Dual-Channel Coax Rotary Joints

| **BN 15 31 88** | Kanal 1<br>Channel 1 | | Kanal 2<br>Channel 2 | | | |
|---|---|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0 ... 12 | 12 ... 18 | 0 ... 4 | 4 ... 12 | 12 ... 17 | 17 ... 18 |
| Spitzenleistung (kW)<br>Peak power | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Mittlere Leistung (W)<br>Average power | 10 | 10 | 10 | 10 | 10 | 10 |
| VSWR | ≤ 1.75 | ≤ 1.75 | ≤ 2.0 | ≤ 3.5 | ≤ 3.0 | ≤ 5.0 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.1 | ≤ 0.4 | ≤ 1.0 | ≤ 2.0 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.3 | ≤ 0.5 | ≤ 1.0 | ≤ 2.5 | ≤ 2.5 | ≤ 4.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.1 | ≤ 0.4 | ≤ 0.6 | ≤ 2.0 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 |
| Phase - WOW | ≤ 1° | ≤ 1° | ≤ 10° | ≤ 10° | ≤ 10° | ≤ 10° |
| Anschluss<br>Connection | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket |



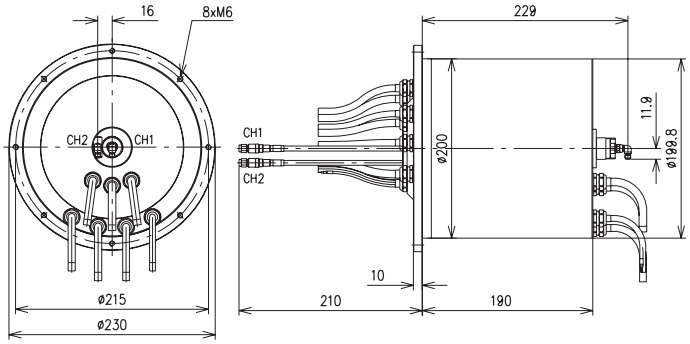

## 2-Kanal Koax-Drehkupplungen ■ Dual-Channel Coax Rotary Joints

| **BN 15 31 89** | Kanal 1<br>Channel 1 | | Kanal 2<br>Channel 2 | | | |
|---|---|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0 ... 1.4 | 1.4 ... 18 | 0 ... 1.4 | 1.4 ... 2.0 | 2.0 ... 3.0 | 3.0 ... 4.0 |
| Spitzenleistung (kW)<br>Peak power | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Mittlere Leistung (W) bei 1 GHz<br>Average power at 1 GHz | 200 | 200 | 200 | 200 | 200 | 200 |
| VSWR | ≤ 1.2 | ≤ 1.8 | ≤ 1.2 | ≤ 1.4 | ≤ 1.8 | ≤ 2.5 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.1 | ≤ 0.1 | ≤ 0.4 | ≤ 0.4 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.1 | ≤ 0.7 | ≤ 0.5 | ≤ 0.5 | ≤ 1.5 | ≤ 1.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.1 | ≤ 0.1 | ≤ 0.3 | ≤ 0.3 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 |
| Phase - WOW | ≤ 1° | ≤ 1° | ≤ 2° | ≤ 2° | ≤ 2° | ≤ 2° |
| Anschluss<br>Connection | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket |




## 2-Kanal Koax-Drehkupplungen ■ Dual-Channel Coax Rotary Joints

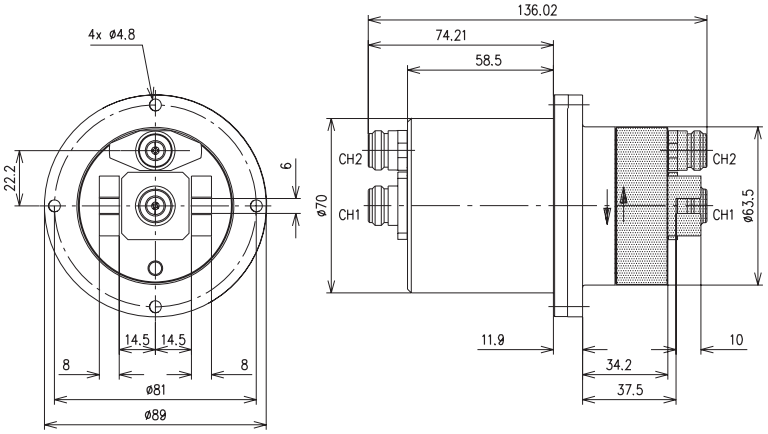
| **BN 15 31 99** | Kanal 1<br>Channel 1 | | Kanal 2<br>Channel 2 | | | |
|---|---|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0 ... 1.4 | 1.4 ... 18 | 0 ... 1.4 | 1.4 ... 2 | 2 ... 3 | 3 ... 4 |
| Spitzenleistung (kW)<br>Peak power | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Mittlere Leistung (W) bei 1 GHz<br>Average power at 1 GHz | 200 | 200 | 200 | 200 | 200 | 200 |
| VSWR | ≤ 1.2 | ≤ 1.8 | ≤ 1.2 | ≤ 1.4 | ≤ 1.8 | ≤ 2.5 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.1 | ≤ 0.1 | ≤ 0.4 | ≤ 0.4 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.1 | ≤ 1.0 | ≤ 0.5 | ≤ 0.5 | ≤ 1.5 | ≤ 1.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.1 | ≤ 0.1 | ≤ 0.3 | ≤ 0.3 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 |
| Phase - WOW | ≤ 1° | ≤ 1° | ≤ 2° | ≤ 2° | ≤ 2° | ≤ 2° |
| Anschluss<br>Connection | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket |




## 2-Kanal Koax-Drehkupplungen ■ Dual-Channel Coax Rotary Joints

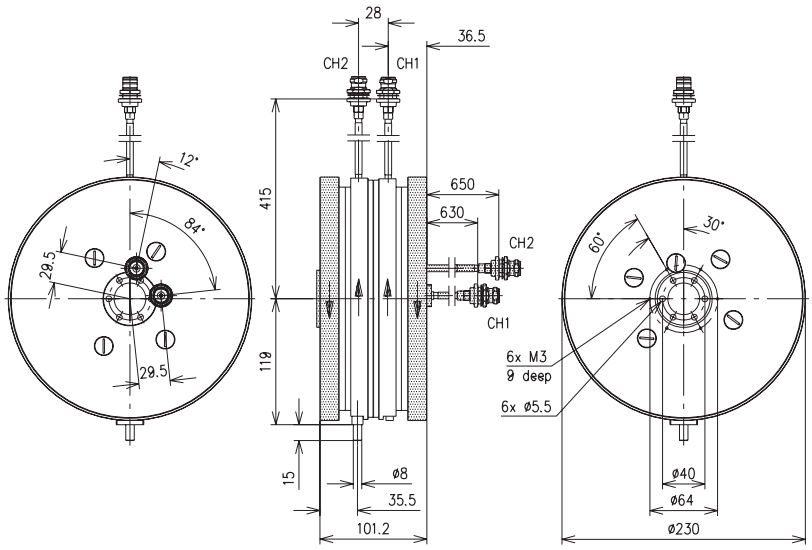
| **BN 63 66 65*** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 |
|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0.03 ... 18 | 1 ... 6 |
| Spitzenleistung (kW)<br>Peak power | 1.0 | 1.0 |
| Mittlere Leistung (W)<br>Average power | 50 | 50 |
| VSWR | ≤ 1.5 | ≤ 1.8 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.06 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 1.0 | ≤ 1.0 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 50 | ≥ 50 |
| Phase - WOW | ≤ 0.5° | ≤ 2° |
| Anschluss<br>Connection | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket |

**) mit 112 Wege Schleifring / with 112 way slip ring module*



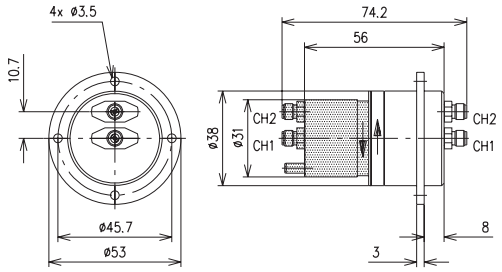

## 2-Kanal Koax-Drehkupplungen ■ Dual-Channel Coax Rotary Joints

| **BN 15 31 50** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 |
|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0.9 ... 1.2 | 0.9 ... 1.2 |
| Spitzenleistung (kW)<br>Peak power | 5.0 | 5.0 |
| Mittlere Leistung (W)<br>Average power | 250 | 250 |
| VSWR | ≤ 1.2 | ≤ 1.2 |
| VSWR - WOW | ≤ 0.07 | ≤ 0.07 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.4 | ≤ 0.4 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.1 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 2° | ≤ 2° |
| Anschluss<br>Connection | N-Kuppler<br>N socket | N-Kuppler<br>N socket |



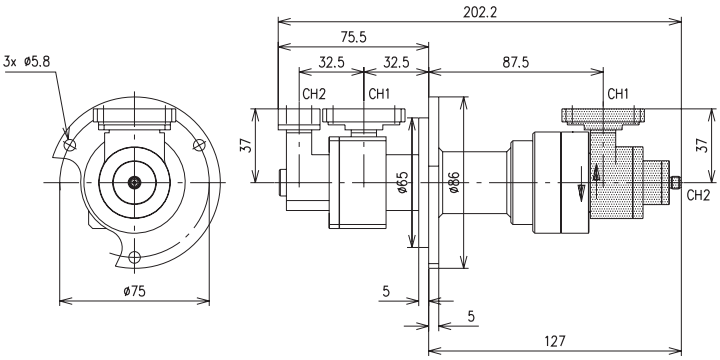

## 2-Kanal Koax-Drehkupplungen ■ Dual-Channel Coax Rotary Joints

| **BN 15 31 81** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 |
|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 1.025 ... 1.035<br>1.084 ... 1.095 | 1.025 ... 1.035<br>1.084 ... 1.095 |
| Spitzenleistung (kW)<br>Peak power | 2.0 | 2.0 |
| Mittlere Leistung (W)<br>Average power | 200 | 200 |
| VSWR | ≤ 1.5 | ≤ 1.5 |
| VSWR - WOW | ≤ 0.03 | ≤ 0.03 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.75 | ≤ 0.75 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 | ≤ 0.02 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 1° | ≤ 1° |
| Anschluss<br>Connection | N-Kuppler<br>N socket | N-Kuppler<br>N socket |



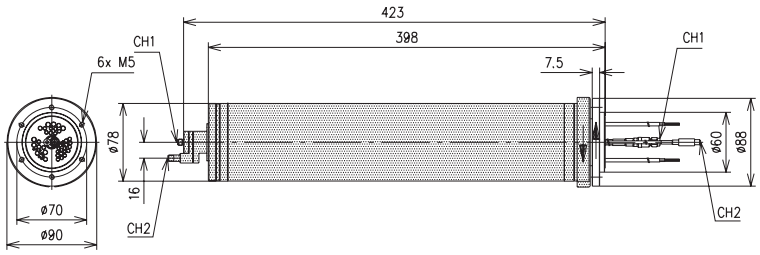

## 2-Kanal Koax-Drehkupplungen ■ Dual-Channel Coax Rotary Joints

| **BN 15 31 98** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 |
|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 13.75 ... 14.5 | 10.7 ... 12.75 |
| Spitzenleistung (kW)<br>Peak power | 0.005 | 0.001 |
| Mittlere Leistung (W)<br>Average power | 0.5 | 0.5 |
| VSWR | ≤ 1.3 | ≤ 2.0 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.4 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.5 | ≤ 1.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.1 | ≤ 0.25 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 45 | ≥ 45 |
| Phase - WOW | ≤ 1° | ≤ 0.1° |
| Anschluss<br>Connection | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket |




## 2-Kanal Hohlleiter / Koax-Drehkupplungen ■ Dual-Channel Waveguide / Coax Rotary Joints

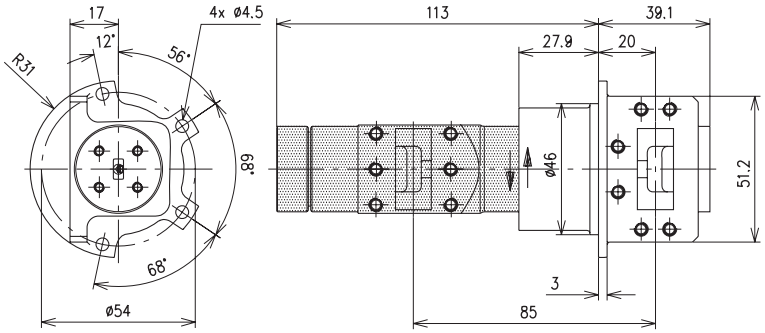
| **BN 63 50 27** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 |
|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 8.5 ... 9.6 | 8.5 ... 9.6 |
| Spitzenleistung (kW)<br>Peak power | 100 | 3 |
| Mittlere Leistung (W)<br>Average power | 500 | 10 |
| VSWR | ≤ 1.2 | ≤ 1.3 |
| VSWR - WOW | ≤ 0.04 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 | ≤ 0.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 | ≤ 0.02 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 50 | ≥ 50 |
| Phase - WOW | ≤ 1° | ≤ 2° |
| Anschluss<br>Connection | CBR 100 | SMA-Kuppler / R100 spezial<br>SMA Socket / R100 special |




## 2-Kanal Koax / LWL-Drehkupplungen ■ Dual-Channel Coax / Optical Rotary Joints

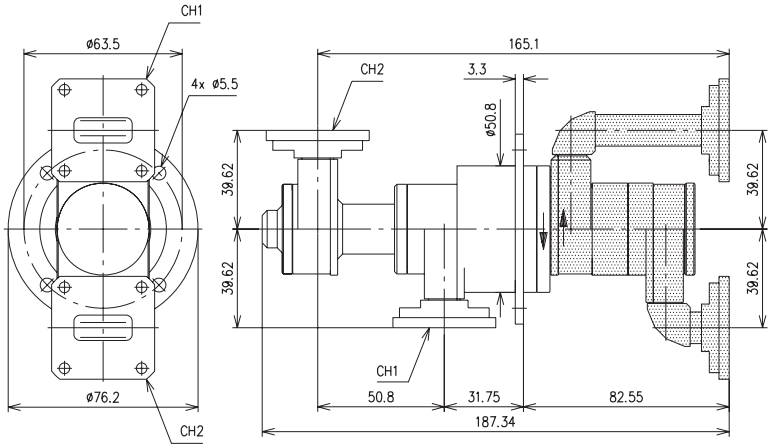
| **BN 63 66 30*** | Kanal 1<br>Channel 1 | | Kanal 2 LWL<br>Channel 2 |
|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0 ... 12 | 12 ... 18 | $\lambda_1$ = 830 nm<br>$\lambda_2$ = 1300 nm |
| Spitzenleistung (kW)<br>Peak power | 1.0 | 1.0 | – |
| Mittlere Leistung (W)<br>Average power | 50 | 50 | – |
| VSWR | ≤ 1.3 | ≤ 1.5 | – |
| VSWR - WOW | ≤ 0.1 | ≤ 0.1 | – |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.3 | ≤ 0.3 | ≤ 4.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.6 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | – | – | – |
| Phase - WOW | ≤ 2° | ≤ 2° | – |
| Anschluss<br>Connection | SMA-Kuppler<br>SMA socket | SMA-Kuppler<br>SMA socket | F-SMA/BR 40 |

**) mit 126 Wege Schleifring / with 126 way slip ring module*



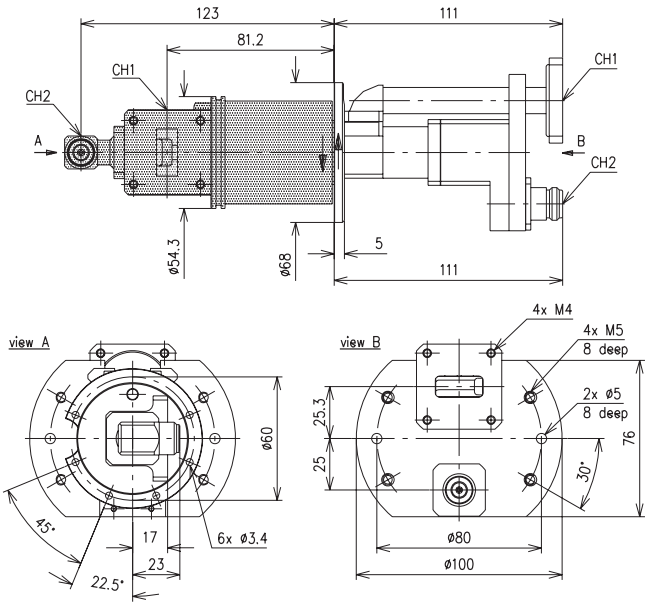

## 2-Kanal Hohlleiter Drehkupplungen ■ Dual-Channel Waveguide Rotary Joints

| **BN 63 50 35** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 |
|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 7.145 ... 8.45 | 32 ... 35 |
| Spitzenleistung (kW)<br>Peak power | – | – |
| Mittlere Leistung (W)<br>Average power | 1000 | 30 |
| VSWR | ≤ 1.2 | ≤ 1.2 |
| VSWR - WOW | ≤ 0.02 | ≤ 0.02 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.1 | ≤ 0.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 | ≤ 0.05 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 80 | ≥ 60 |
| Phase - WOW | ≤ 1° | ≤ 1° |
| Anschluss<br>Connection | R 84 special | UBR 320 |




## 2-Kanal Hohlleiter Drehkupplungen ■ Dual-Channel Waveguide Rotary Joints

| **BN 63 52 36** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 |
|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 8.5 ... 9.5 | 8.5 ... 9.5 |
| Spitzenleistung (kW)<br>Peak power | 250 | 10 |
| Mittlere Leistung (W)<br>Average power | 500 | 150 |
| VSWR | ≤ 1.2 | ≤ 1.35 |
| VSWR - WOW | ≤ 0.1 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 | ≤ 0.4 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.02 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 1° | ≤ 1° |
| Anschluss<br>Connection | CBR 100/UBR 100 | CBR 100/UBR 100 |




## 2-Kanal Hohlleiter Drehkupplungen ■ Dual-Channel Waveguide Rotary Joints

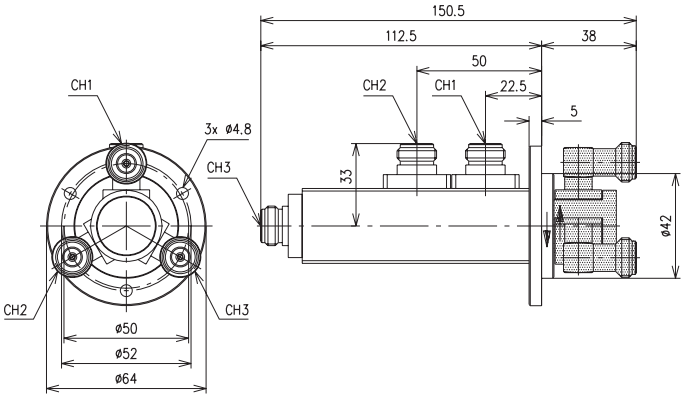
| **BN 63 50 37** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 |
|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 9.3 ... 9.5 | 9.3 ... 9.5 |
| Spitzenleistung (kW)<br>Peak power | 50 | – |
| Mittlere Leistung (W)<br>Average power | 100 | 5 |
| VSWR | ≤ 1.1 | ≤ 1.15 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 | ≤ 0.4 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.03 | ≤ 0.03 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 70 | ≥ 70 |
| Phase - WOW | ≤ 1° | ≤ 1° |
| Anschluss<br>Connection | UB 135/U | N-Kuppler<br>N socket |

### 3-Kanal Koax-Drehkupplungen ■ Three-Channel Coax Rotary Joints

| Frequenzbereich Hauptkanal<br>Frequency range main channel | Anschluss<br>Connection | Bestell-Nummer<br>Part Number | Seite<br>Page |
|---|---|---|---|
| 0 ... 1.2 GHz | N Kuppler<br>N socket | BN 53 23 06 | 48 |
| 0 ... 3.0 GHz | SMA Kuppler<br>SMA socket | BN 53 23 33 | 49 |
| 1.0 ... 1.1 GHz | N Kuppler<br>N socket | BN 53 25 17 | 50 |
| 1.02 ... 1.1 GHz | N Kuppler<br>N socket | BN 53 23 23 | 51 |
| 1.025 ... 1.095 GHz | N Kuppler<br>N socket | BN 53 23 37 | 52 |
| 3.0 ... 3.5 GHz | N Kuppler<br>N socket | BN 53 23 28 | 53 |
| 9.0 ... 10.0 GHz | SMA Kuppler<br>SMA socket | BN 53 23 34 | 54 |

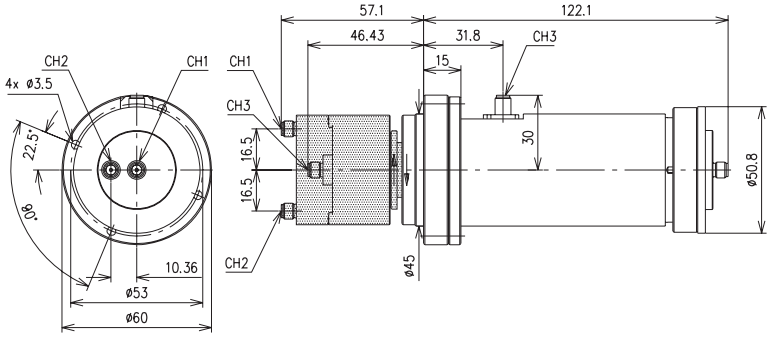
### 3-Kanal Hohlleiter / Koax-Drehkupplungen ■ Three-Channel Waveguide / Coax Rotary Joints

| Frequenzbereich Hauptkanal<br>Frequency range main channel | Anschluss<br>Connection | Bestell-Nummer<br>Part Number | Seite<br>Page |
|---|---|---|---|
| 5.25 ... 5.8 GHz | UG 1729 U / UG 1731 U | BN 63 47 65 | 55 |
| 8.9 ... 9.5 GHz | UBR 100 | BN 63 50 34 | 56 |
| 9.0 ... 9.5 GHz | UG 135 | BN 53 23 38 | 57 |
| F = 1:1.1 in/within 8.5 ... 9.5 GHz | R 100 special | BN 53 23 24 | 58 |
| F = 1:1.1 in/within 8.5 ... 9.5 GHz | R 100 special | BN 53 23 31 | 59 |
| 8.5 ... 9.5 GHz | UG 39 U / UG 40 B/U | BN 63 52 34 | 60 |
| 8.5 ... 9.5 GHz | CBR 100 | BN 53 23 19 | 61 |



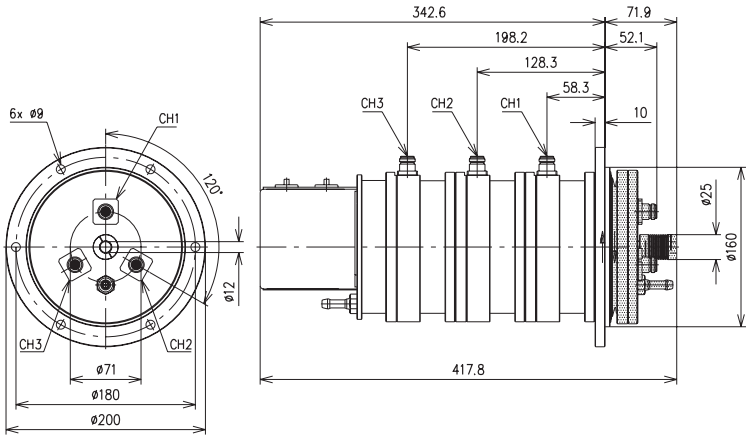

## 3-Kanal Koax-Drehkupplungen ■ Three-Channel Coax Rotary Joints

| **BN 53 23 06** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 |
|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0 ... 1.2 | 0 ... 1.2 | 0 ... 10 |
| Spitzenleistung (kW)<br>Peak power | 1.0 | 1.0 | 1.0 |
| Mittlere Leistung (W)<br>Average power | 100 | 100 | 50 |
| VSWR | ≤ 1.2 | ≤ 1.2 | ≤ 1.3 |
| VSWR - WOW | ≤ 0.1 | ≤ 0.1 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.3 | ≤ 0.3 | ≤ 0.4 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 | ≥ 70 |
| Phase - WOW | ≤ 2° | ≤ 2° | ≤ 1° |
| Anschluss<br>Connection | N Kuppler<br>N Socket | N Kuppler<br>N Socket | N Kuppler<br>N Socket |



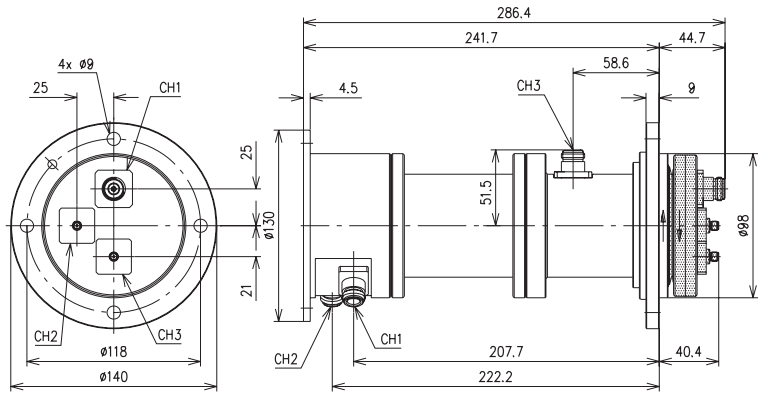

## 3-Kanal Koax-Drehkupplungen ■ Three-Channel Coax Rotary Joints

| **BN 53 23 33** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 |
|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 0 ... 3.0 | 0 ... 3.0 | 0 ... 3.0 |
| Spitzenleistung (kW)<br>Peak power | 1.0 | 1.0 | 1.0 |
| Mittlere Leistung (W) bei 1 GHz<br>Average power at 1 GHZ | 50 | 50 | 50 |
| VSWR | ≤ 1.5 | ≤ 2.5 | ≤ 2.5 |
| VSWR - WOW | ≤ 0.2 | ≤ 0.3 | ≤ 0.2 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.5 | ≤ 0.7 | ≤ 0.7 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.1 | ≤ 0.2 | ≤ 0.2 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 1° | ≤ 2° | ≤ 2° |
| Anschluss<br>Connection | SMA Kuppler<br>SMA Socket | SMA Kuppler<br>SMA Socket | SMA Kuppler<br>SMA Socket |



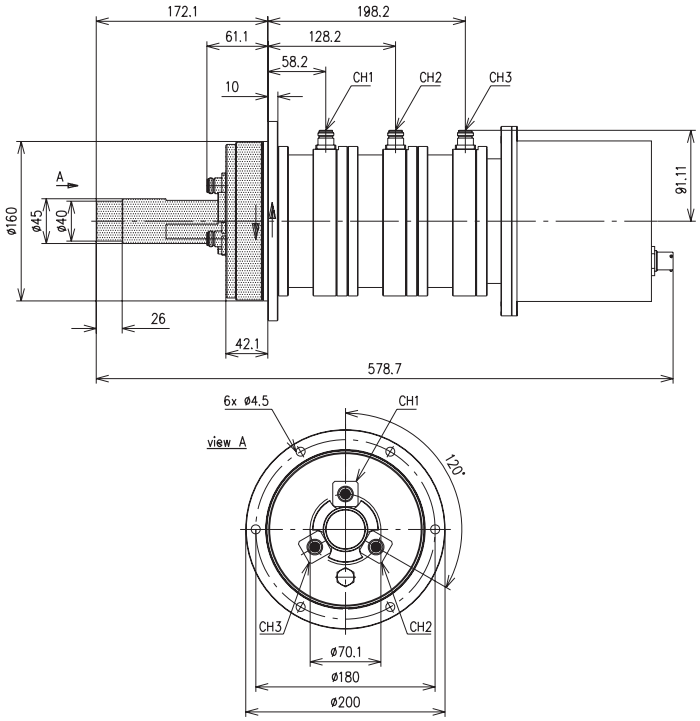

## 3-Kanal Koax-Drehkupplungen ■ Three-Channel Coax Rotary Joints

| **BN 53 25 17** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 |
|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 1.0 ... 1.1 | 1.0 ... 1.1 | 1.0 ... 1.1 |
| Spitzenleistung (kW)<br>Peak power | 2 | 2 | 2 |
| Mittlere Leistung (W)<br>Average power | 8 | 10 | 10 |
| VSWR | ≤ 1.25 | ≤ 1.25 | ≤ 1.25 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.5 | ≤ 0.5 | ≤ 0.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 1° | ≤ 1° | ≤ 1° |
| Anschluss<br>Connection | N Kuppler<br>N Socket | N Kuppler<br>N Socket | N Kuppler<br>N Socket |



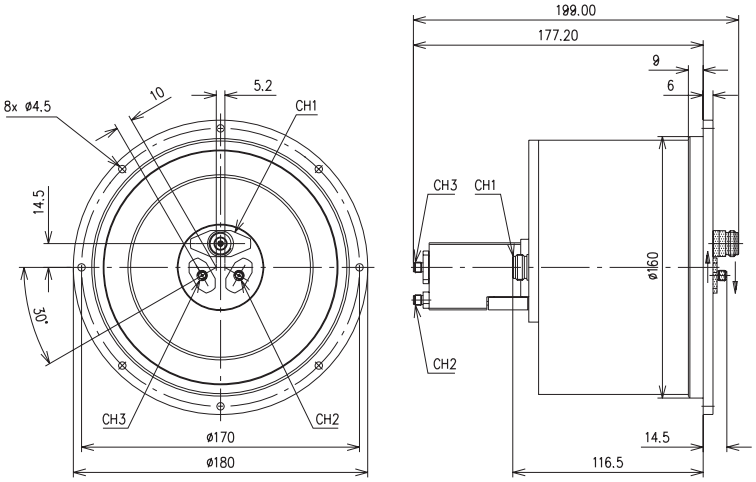

## 3-Kanal Koax-Drehkupplungen ■ Three-Channel Coax Rotary Joints

| **BN 53 23 23** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 |
|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 1.02 ... 1.1 | 1.02 ... 1.1 | 5.2 ... 5.9 |
| Spitzenleistung (kW)<br>Peak power | 5.0 | 5.0 | 1.0 |
| Mittlere Leistung (W)<br>Average power | 150 | 150 | 40 |
| VSWR | ≤ 1.2 | ≤ 1.2 | ≤ 1.25 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.07 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.4 | ≤ 0.4 | ≤ 0.7 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 2° | ≤ 2° | ≤ 2° |
| Anschluss<br>Connection | N Kuppler<br>N Socket | N Kuppler / SMA Kuppler<br>N Socket / SMA Socket | |



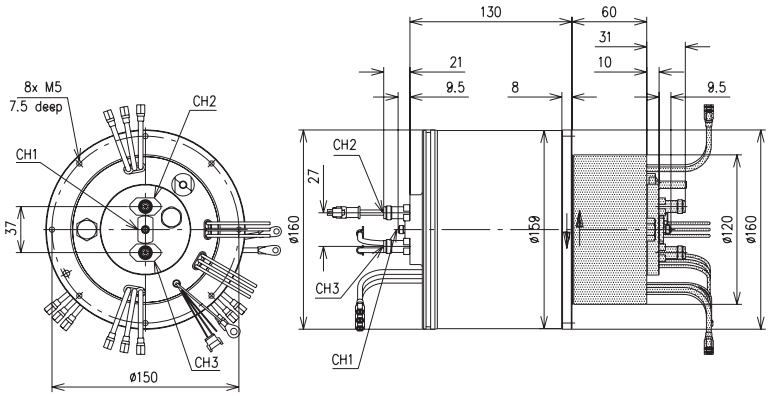

## 3-Kanal Koax-Drehkupplungen ■ Three-Channel Coax Rotary Joints

| **BN 53 23 37** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 |
|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 1.025 ... 1.095 | 1.025 ... 1.095 | 1.025 ... 1.095 |
| Spitzenleistung (kW)<br>Peak power | 3.2 | 3.2 | 3.2 |
| Mittlere Leistung (W)<br>Average power | 6 | 6 | 6 |
| VSWR | ≤ 1.35 | ≤ 1.35 | ≤ 1.35 |
| VSWR - WOW | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.4 | ≤ 0.4 | ≤ 0.4 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.15 | ≤ 0.15 | ≤ 0.15 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 5° | ≤ 5° | ≤ 5° |
| Anschluss<br>Connection | N Kuppler<br>N Socket | N Kuppler<br>N Socket | N Kuppler<br>N Socket |




## 3-Kanal Koax-Drehkupplungen ■ Three-Channel Coax Rotary Joints

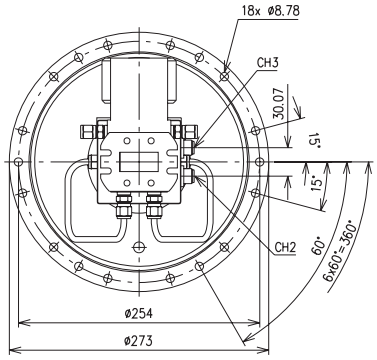
| **BN 53 23 28** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 |
|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 3.0 ... 3.5 | 1.02 ... 1.1 | 1.02 ... 1.1 |
| Spitzenleistung (kW)<br>Peak power | 3.0 | 0.2 | 0.2 |
| Mittlere Leistung (W)<br>Average power | 300 | 10 | 10 |
| VSWR | ≤ 1.2 | ≤ 1.2 | ≤ 1.2 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 | ≤ 0.2 | ≤ 0.2 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 50 | ≥ 50 | ≥ 50 |
| Phase - WOW | ≤ 2° | ≤ 2° | ≤ 2° |
| Anschluss<br>Connection | N Kuppler<br>N Socket | SMA Kuppler<br>SMA Socket | SMA Kuppler<br>SMA Socket |

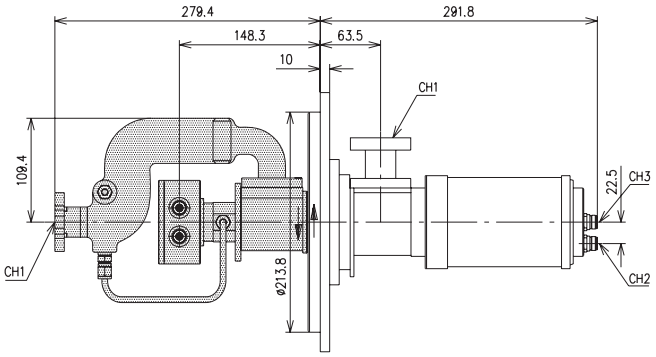



## 3-Kanal Koax-Drehkupplungen ■ Three-Channel Coax Rotary Joints

| **BN 53 23 34*** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 |
|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 9.0 ... 10.0 | 1.0 ... 1.1 | 1.0 ... 1.1 |
| Spitzenleistung (kW)<br>Peak power | 0.012 | 2 | 2 |
| Mittlere Leistung (W)<br>Average power | 4 | 50 | 50 |
| VSWR | ≤ 1.3 | ≤ 1.3 | ≤ 1.3 |
| VSWR - WOW | ≤ 0.025 | ≤ 0.025 | ≤ 0.025 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 1.0 | ≤ 0.5 | ≤ 0.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 1° | ≤ 3° | ≤ 3° |
| Anschluss<br>Connection | SMA Kuppler<br>SMA Socket | TNC Kuppler<br>TNC Socket | TNC Kuppler<br>TNC Socket |

**) mit 22 Wege Schleifring / with 22 way slip ring module*

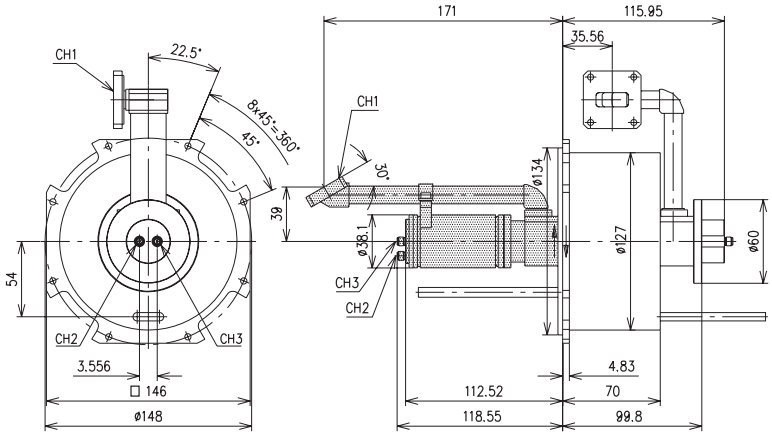



## 3-Kanal Hohlleiter / Koax-Drehkupplungen ■ Three-Channel Waveguide / Coax Rotary Joints

| **BN 63 47 65*** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 |
|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 5.25 ... 5.8 | 0.75 ... 0.85 | 4.4 ... 5.0 |
| Spitzenleistung (kW)<br>Peak power | 180 | 0.001 | 0.001 |
| Mittlere Leistung (W)<br>Average power | 18000 | 1 | 1 |
| VSWR | ≤ 1.2 | ≤ 1.3 | ≤ 1.3 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 | ≤ 1.0 | ≤ 1.0 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 80 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 1° | ≤ 2° | ≤ 2° |
| Anschluss<br>Connection | UG 1729 U<br>UG 1731 U | N Kuppler<br>N Socket | N Kuppler<br>N Socket |

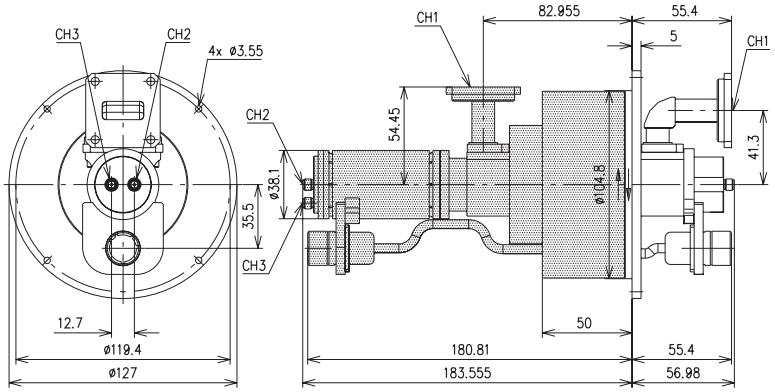
*) *Kanal 1 wassergekühlt / channel 1 water cooled*




## 3-Kanal Hohlleiter / Koax-Drehkupplungen ■ Three-Channel Waveguide / Coax Rotary Joints

| **BN 63 50 34*** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 |
|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 8.9 ... 9.5 | 1.0 ... 1.1 | 1.0 ... 1.1 |
| Spitzenleistung (kW)<br>Peak power | 8 | 2 | 2 |
| Mittlere Leistung (W)<br>Average power | 500 | 10 | 10 |
| VSWR | ≤ 1.2 | ≤ 1.3 | ≤ 1.3 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.25 | ≤ 0.5 | ≤ 0.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 55 | ≥ 55 | ≥ 55 |
| Phase - WOW | ≤ 4° | ≤ 1° | ≤ 1° |
| Anschluss<br>Connection | UBR 100 | SMA Kuppler<br>SMA Socket | SMA Kuppler<br>SMA Socket |

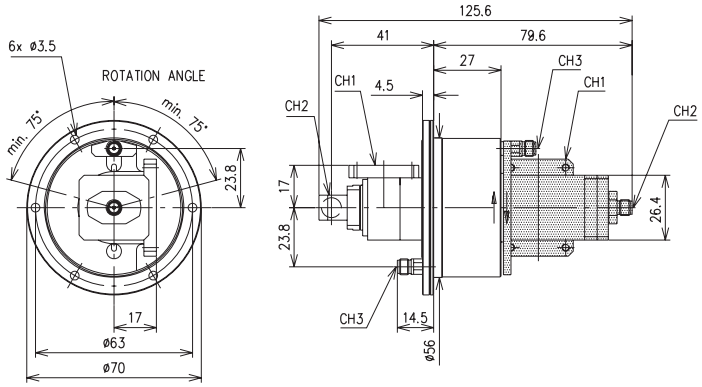
**) mit 33 Wege Schleifring / with 33 way slip ring module*




## 3-Kanal Hohlleiter / Koax-Drehkupplungen ■ Three-Channel Waveguide / Coax Rotary Joints

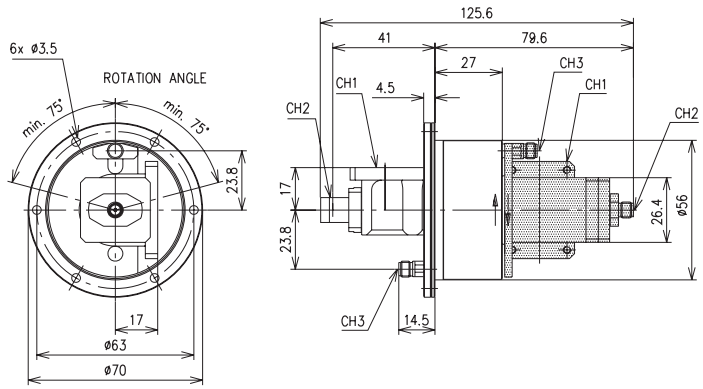
| **BN 53 23 38*** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 |
|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 9.0 ... 9.5 | 1.0 ... 1.1 | 1.0 ... 1.1 |
| Spitzenleistung (kW)<br>Peak power | 25 | 2 | 2 |
| Mittlere Leistung (W)<br>Average power | 500 | 10 | 10 |
| VSWR | ≤ 1.2 | ≤ 1.2 | ≤ 1.2 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 | ≤ 0.5 | ≤ 0.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.1 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 70 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 1° | ≤ 1° | ≤ 2° |
| Anschluss<br>Connection | UG 135 | SMA Kuppler<br>SMA Socket | SMA Kuppler<br>SMA Socket |

**) mit 12 Wege Schleifring / with 12 way slip ring module*



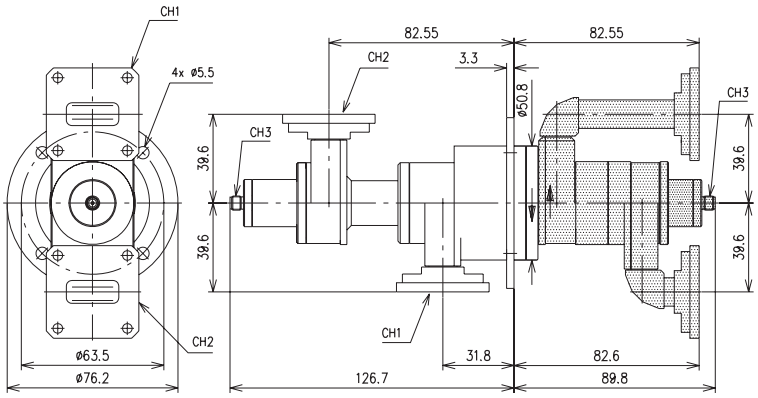

## 3-Kanal Hohlleiter / Koax-Drehkupplungen ■ Three-Channel Waveguide / Coax Rotary Joints

| **BN 53 23 24** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | | Kanal 3<br>Channel 3 | |
|---|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | F = 1:1.1<br>in/within 8.5 ... 9.5 | F = 1:1.1<br>in/within 1.0 ... 1.2 | F = 1:1.1<br>in/within 8.5 ... 9.5 | F = 1:1.1<br>in/within 1.0 ... 1.2 | F = 1:1.1<br>in/within 8.5 ... 9.5 |
| Spitzenleistung (kW)<br>Peak power | 63 | 1.5 | 0.001 | 1.5 | 0.002 |
| Mittlere Leistung (W)<br>Average power | 1600 | 15 | 0.1 | 15 | 0.1 |
| VSWR | ≤ 1.2 | ≤ 1.08 | ≤ 1.15 | ≤ 1.1 | ≤ 1.25 |
| VSWR - WOW | ≤ 0.06 | ≤ 0.02 | ≤ 0.02 | ≤ 0.02 | ≤ 0.02 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 | ≤ 0.12 | ≤ 0.3 | ≤ 1.0 | ≤ 3.0 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.03 | ≤ 0.02 | ≤ 0.02 | ≤ 0.02 | ≤ 0.02 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 70 | ≥ 70 | ≥ 70 | ≥ 70 | ≥ 70 |
| Phase - WOW | ≤ 2° | ≤ 1° | ≤ 1° | ≤ 1° | ≤ 1° |
| Anschluss<br>Connection | R 100 special | SMA Kuppler<br>SMA Socket | SMA Kuppler<br>SMA Socket | SMA Kuppler<br>SMA Socket | SMA Kuppler<br>SMA Socket |



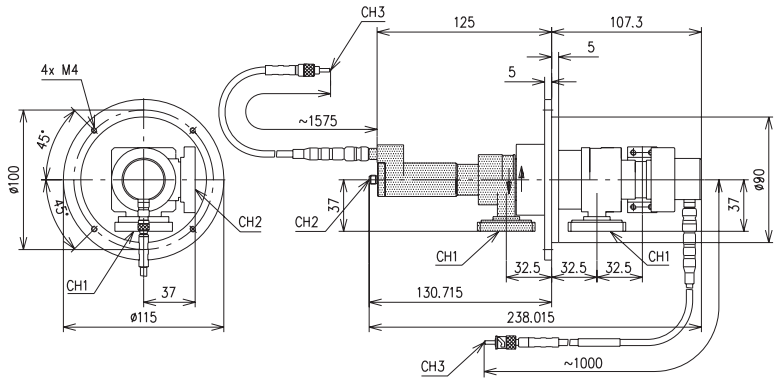

## 3-Kanal Hohlleiter / Koax-Drehkupplungen ■ Three-Channel Waveguide / Coax Rotary Joints

| **BN 53 23 31** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 |
|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | F = 1:1.1<br>in/within 8.5 ... 9.5 | F = 1:1.1<br>in/within 8.5 ... 9.5 | F = 1:1.1<br>in/within 8.5 ... 9.5 |
| Spitzenleistung (kW)<br>Peak power | 60 | 0.001 | 2.0 |
| Mittlere Leistung (W)<br>Average power | 1500 | 0.1 | 0.1 |
| VSWR | ≤ 1.2 | ≤ 1.15 | ≤ 1.25 |
| VSWR - WOW | ≤ 0.06 | ≤ 0.02 | ≤ 0.02 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 | ≤ 0.3 | ≤ 3.0 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.03 | ≤ 0.02 | ≤ 0.02 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 70 | ≥ 70 | ≥ 70 |
| Phase - WOW | ≤ 2° | ≤ 1° | ≤ 1° |
| Anschluss<br>Connection | R 100 special | SMA Kuppler<br>SMA Socket | SMA Kuppler<br>SMA Socket |




## 3-Kanal Hohlleiter / Koax-Drehkupplungen ■ Three-Channel Waveguide / Coax Rotary Joints

| **BN 63 52 34** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 |
|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 8.5 ... 9.6 | 8.5 ... 9.6 | 0 ... 12.0 |
| Spitzenleistung (kW)<br>Peak power | 250 | 0.001 | 5 |
| Mittlere Leistung (W)<br>Average power | 500 | 1 | 50 |
| VSWR | ≤ 1.2 | ≤ 1.35 | ≤ 1.5 |
| VSWR - WOW | ≤ 0.1 | ≤ 0.05 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 | ≤ 0.4 | ≤ 0.75 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 2° | ≤ 1° | ≤ 1° |
| Anschluss<br>Connection | UG 39 U<br>UG 40 B/U | UG 39 U<br>UG 40 B/U | SMA Kuppler<br>SMA Socket |




## 3-Kanal Hohlleiter / Koax-Drehkupplungen ■ Three-Channel Waveguide / Coax Rotary Joints

| **BN 53 23 19** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 (optical) |
|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 8.5 ... 9.6 | 8.5 ... 9.6 | $\lambda_1$ = 780 nm $\lambda_3$ = 1300 nm<br>$\lambda_2$ = 850 nm $\lambda_4$ = 1550 nm |
| Spitzenleistung (kW)<br>Peak power | 100 | – | – |
| Mittlere Leistung (W)<br>Average power | 500 | 10 | – |
| VSWR | ≤ 1.2 | ≤ 1.3 | ≤ 1.5 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.1 | – |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 | ≤ 1.0 | ≤ 5.2 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.02 | ≤ 0.02 | ≤ 1.0 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 50 | ≥ 50 | – |
| Phase - WOW | ≤ 1° | ≤ 1° | – |
| Anschluss<br>Connection | CBR 100 | SMA / R 100 special | F-SMA Stecker/plug |

## 4-Kanal Koax-Drehkupplungen ■ Four-Channel Coax Rotary Joints

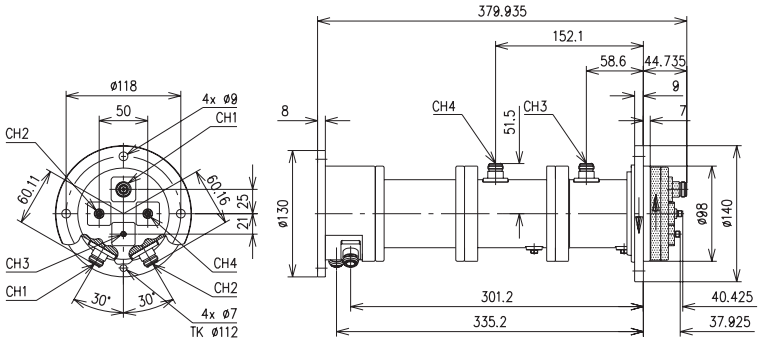
| Frequenzbereich Hauptkanal<br>Frequency range Main channel | Anschluss<br>Connection | Bestell-Nummer<br>Part Number | Seite<br>Page |
|---|---|---|---|
| 1.02 ... 1.1 GHz | N Kuppler<br>N socket | BN 53 24 13 | 64 |
| 1.2 ... 1.4 GHz | SMA Kuppler<br>SMA socket | BN 53 24 16 | 65 |
| 2.7 ... 2.9 GHz | N Kuppler<br>N socket | BN 53 24 08 | 66 |
| 2.8 ... 3.5 GHz | N Kuppler<br>N socket | BN 53 24 07 | 67 |

## 4-Kanal Hohlleiter / Koax-Drehkupplungen ■ Four-Channel Waveguide / Coax Rotary Joints

| Frequenzbereich Hauptkanal<br>Frequency range Main channel | Anschluss<br>Connection | Bestell-Nummer<br>Part Number | Seite<br>Page |
|---|---|---|---|
| 5.2 ... 5.81 GHz | CPR 187 | BN 63 47 14 | 68 |

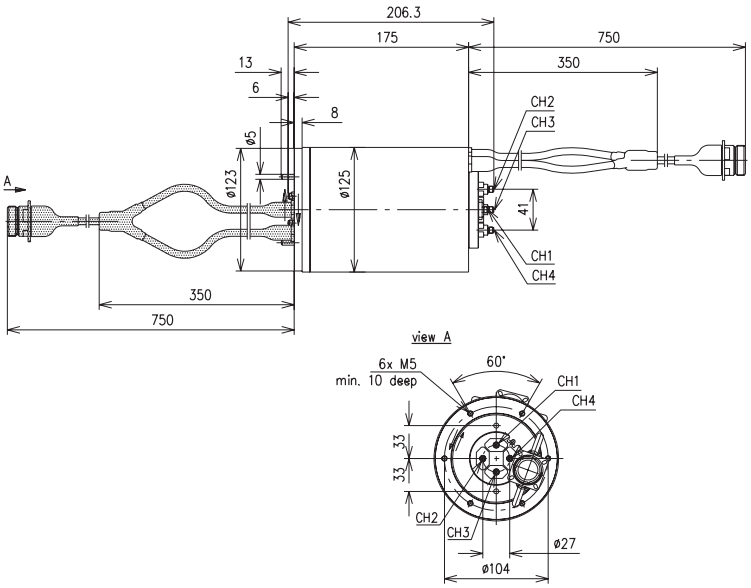
# 4-KANAL DREHKUPPLUNGEN

## FOUR-CHANNEL ROTARY JOINTS




### 4-Kanal Koax-Drehkupplungen ■ Four-Channel Coax Rotary Joints

| **BN 53 24 13** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 | Kanal 4<br>Channel 4 |
|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 1.02 ... 1.1 | 1.02 ... 1.1 | 5.2 ... 5.9 | 5.2 ... 5.9 |
| Spitzenleistung (kW)<br>Peak power | 5 | 5 | 5 | 5 |
| Mittlere Leistung (W)<br>Average power | 150 | 150 | 60 | 60 |
| VSWR | ≤ 1.2 | ≤ 1.2 | ≤ 1.25 | ≤ 1.25 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.09 | ≤ 0.09 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.4 | ≤ 0.4 | ≤ 0.7 | ≤ 0.7 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 3° | ≤ 3° | ≤ 2° | ≤ 2° |
| Anschluss<br>Connection | N Kuppler<br>N socket | N Kuppler / SMA Kuppler<br>N socket / SMA socket | N Kuppler / SMA Kuppler<br>N socket / SMA socket | N Kuppler / SMA Kuppler<br>N socket / SMA socket |



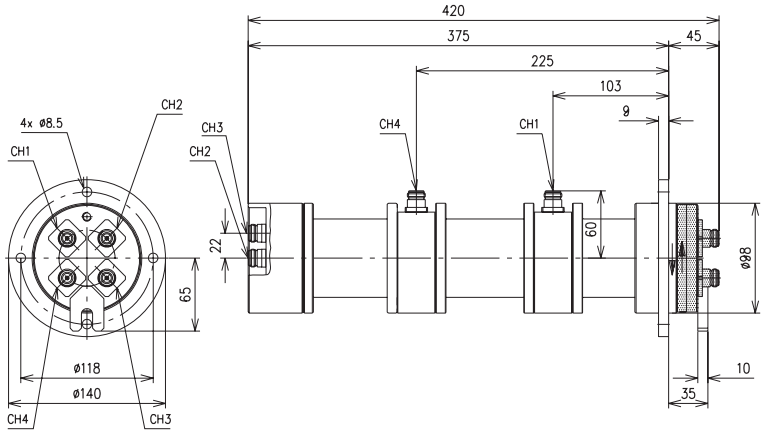

## 4-Kanal Koax-Drehkupplungen ■ Four-Channel Coax Rotary Joints

| **BN 53 24 16*** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 | Kanal 4<br>Channel 4 |
|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 1.2 ... 1.4 | 1.2 ... 1.4 | 1.2 ... 1.4 | 1.01 ... 1.1 |
| Spitzenleistung (kW)<br>Peak power | 0.01 | 0.01 | 0.01 | 2 |
| Mittlere Leistung (W)<br>Average power | 1 | 1 | 1 | 2 |
| VSWR | ≤ 1.15 | ≤ 1.15 | ≤ 1.15 | ≤ 1.15 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.25 | ≤ 0.35 | ≤ 0.35 | ≤ 0.35 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 2° | ≤ 2° | ≤ 2° | ≤ 2° |
| Anschluss<br>Connection | SMA Kuppler<br>SMA socket | SMA Kuppler<br>SMA socket | SMA Kuppler<br>SMA socket | SMA Kuppler<br>SMA socket |

**) mit 36 Wege Schleifring / with 36 way slip ring module*

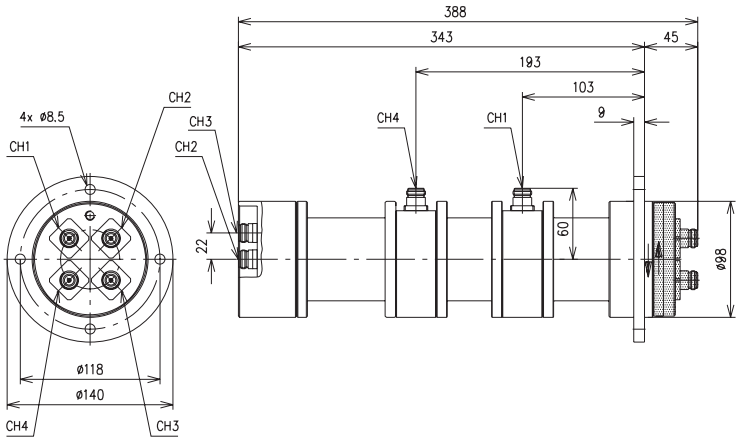
# 4-KANAL DREHKUPPLUNGEN

## FOUR-CHANNEL ROTARY JOINTS




### 4-Kanal Koax-Drehkupplungen ■ Four-Channel Coax Rotary Joints

| **BN 53 24 08** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 | Kanal 4<br>Channel 4 |
|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 2.7 ... 2.9 | 1.0 ... 1.1 | 1.0 ... 1.1 | 1.0 ... 1.1 |
| Spitzenleistung (kW)<br>Peak power | 5 | 5 | 5 | 5 |
| Mittlere Leistung (W)<br>Average power | 0.1 | 0.15 | 0.15 | 0.15 |
| VSWR | ≤ 1.3 | ≤ 1.3 | ≤ 1.3 | ≤ 1.3 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.03 | ≤ 0.03 | ≤ 0.03 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.3 | ≤ 0.3 | ≤ 0.3 | ≤ 0.3 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 2° | ≤ 2° | ≤ 2° | ≤ 2° |
| Anschluss<br>Connection | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket |



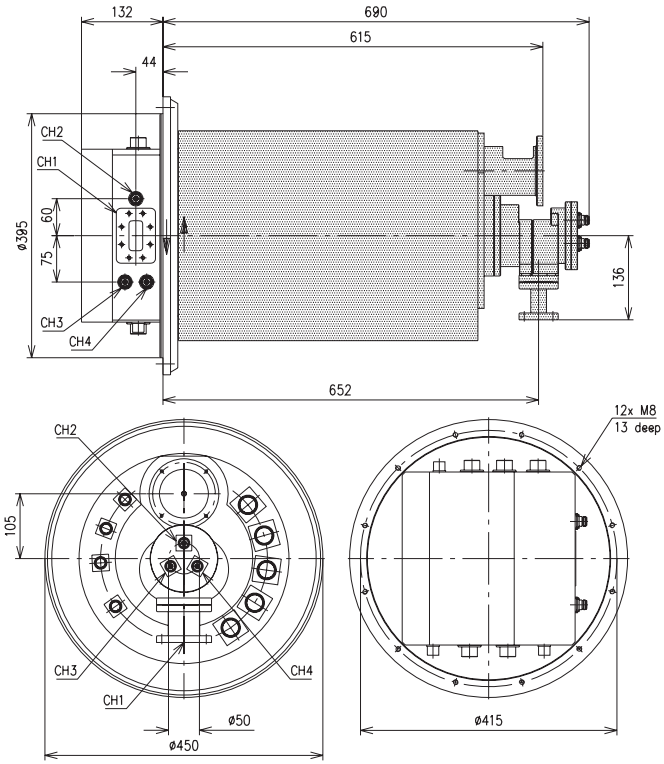

## 4-Kanal Koax-Drehkupplungen ■ Four-Channel Coax Rotary Joints

| **BN 53 24 07** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 | Kanal 4<br>Channel 4 |
|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 2.8 ... 3.5 | 1.0 ... 1.15 | 1.0 ... 1.15 | 2.8 ... 3.5 |
| Spitzenleistung (kW)<br>Peak power | 10 | 10 | 10 | 10 |
| Mittlere Leistung (W)<br>Average power | 200 | 100 | 100 | 100 |
| VSWR | ≤ 1.3 | ≤ 1.25 | ≤ 1.25 | ≤ 1.3 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.3 | ≤ 0.5 | ≤ 0.5 | ≤ 1.0 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.03 | ≤ 0.05 | ≤ 0.05 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 2.5° | ≤ 2° | ≤ 2° | ≤ 2.5° |
| Anschluss<br>Connection | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket |

# 4-KANAL DREHKUPPLUNGEN

## FOUR-CHANNEL ROTARY JOINTS

Abb. ohne Gehäuse / Fig. without housing




### 4-Kanal Hohlleiter / Koax-Drehkupplungen ■ Four-Channel Waveguide / Coax Rotary Joints

| **BN 63 47 14*** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 | Kanal 4<br>Channel 4 |
|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 5.2 ... 5.81 | 5.2 ... 5.81 | 1.015 ... 1.105 | 1.015 ... 1.105 |
| Spitzenleistung (kW)<br>Peak power | 800 | 0.1 | 3 | 3 |
| Mittlere Leistung (W)<br>Average power | 4500 | 10 | 100 | 100 |
| VSWR | ≤ 1.3 | ≤ 1.3 | ≤ 1.3 | ≤ 1.3 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.08 | ≤ 0.05 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 | ≤ 0.75 | ≤ 0.5 | ≤ 0.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 |
| Phase - WOW | ≤ 2° | ≤ 2° | ≤ 2° | ≤ 2° |
| Anschluss<br>Connection | CPR 187 F | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket |

**) mit 60 Wege Schleifring / with 60 way slip ring module*

## 5-Kanal Koax-Drehkupplungen ■ Five-Channel Coax Rotary Joints

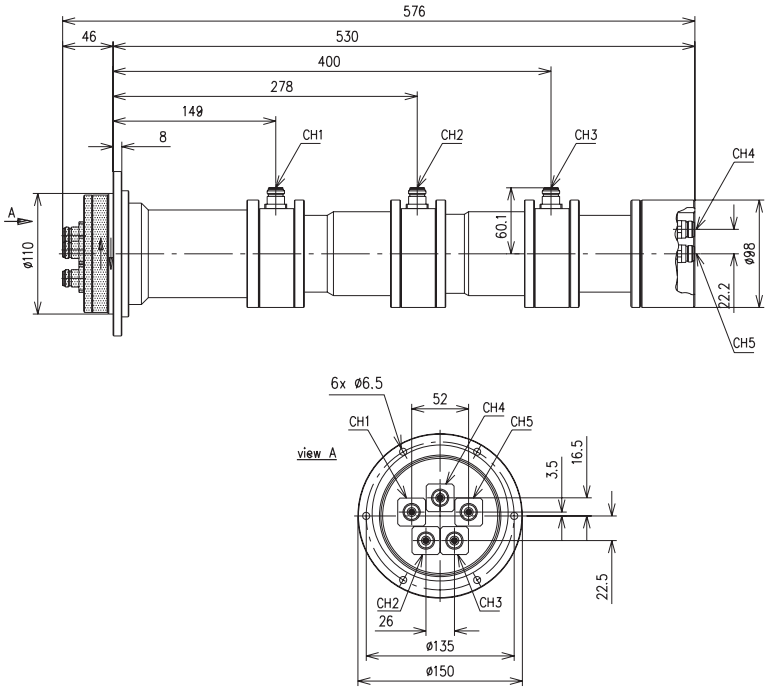
| Frequenzbereich Hauptkanal<br>Frequency range main channel | Anschluss<br>Connection | Bestell-Nummer<br>Part Number | Seite<br>Page |
|---|---|---|---|
| 1.0 ... 1.1 GHz | N Kuppler<br>N socket | BN 53 25 16 | 70 |
| 1.235 ... 1.365 GHz | 7-16 Kuppler<br>7-16 socket | BN 53 25 10 | 71 |
| 2.85 ... 3.3 GHz | N Kuppler<br>N socket | BN 53 25 12 | 72 |

## 5-Kanal Hohlleiter / Koax-Drehkupplungen ■ Five-Channel Waveguide / Coax Rotary Joints

| Frequenzbereich Hauptkanal<br>Frequency range main channel | Anschluss<br>Connection | Bestell-Nummer<br>Part Number | Seite<br>Page |
|---|---|---|---|
| 2.85 ... 3.15 GHz | N Kuppler<br>N socket | BN 53 25 02 | 73 |
| 5.2 ... 5.81 GHz | CPR 187 F | BN 63 47 23 | 74 |
| 5.2 ... 5.81 GHz | CPR 187 F | BN 63 47 34 | 75 |

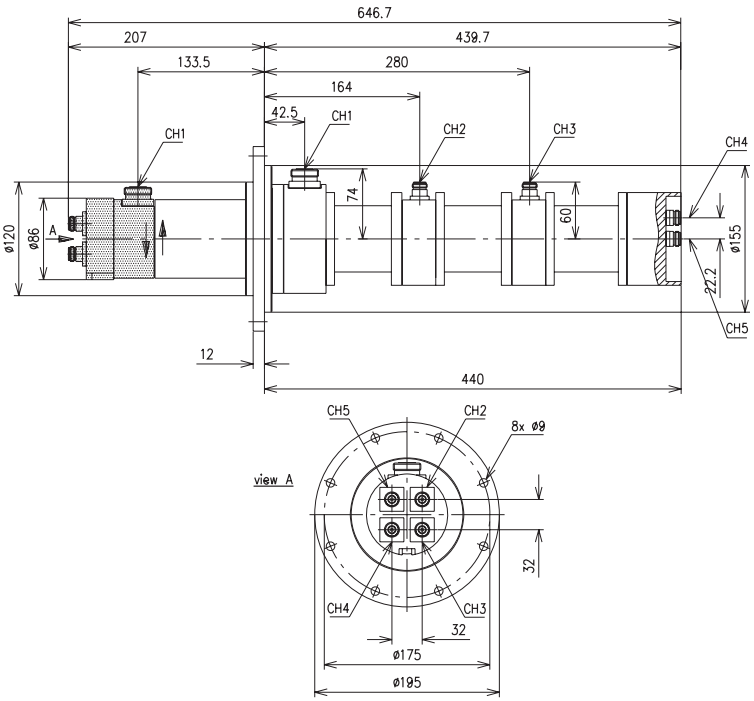
# 5-KANAL DREHKUPPLUNGEN

## FIVE-CHANNEL ROTARY JOINTS



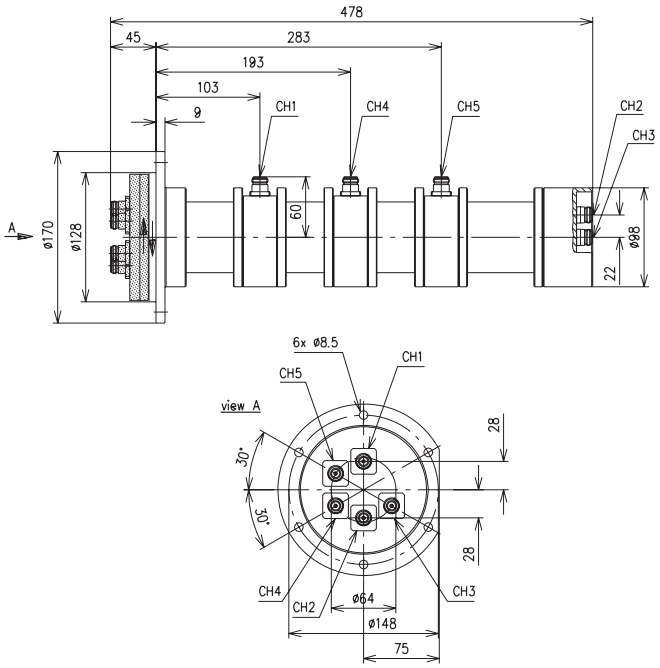

### 5-Kanal Koax-Drehkupplungen ■ Five-Channel Coax Rotary Joints

| **BN 53 25 16** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 | Kanal 4<br>Channel 4 | Kanal 5<br>Channel 5 |
|---|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 1.0 ... 1.1 | 1.0 ... 1.1 | 1.0 ... 1.1 | 1.7 ... 2.0 | 1.7 ... 2.0 |
| Spitzenleistung (kW)<br>Peak power | 10 | 10 | 10 | – | – |
| Mittlere Leistung (W)<br>Average power | 300 | 50 | 50 | 2 | 2 |
| VSWR | ≤ 1.2 | ≤ 1.2 | ≤ 1.2 | ≤ 1.25 | ≤ 1.25 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 | ≤ 0.08 | ≤ 0.08 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.5 | ≤ 0.5 | ≤ 0.5 | ≤ 0.5 | ≤ 0.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 | ≥ 60 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 2.5° | ≤ 2.5° | ≤ 2.5° | ≤ 2.5° | ≤ 2.5° |
| Anschluss<br>Connection | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket |



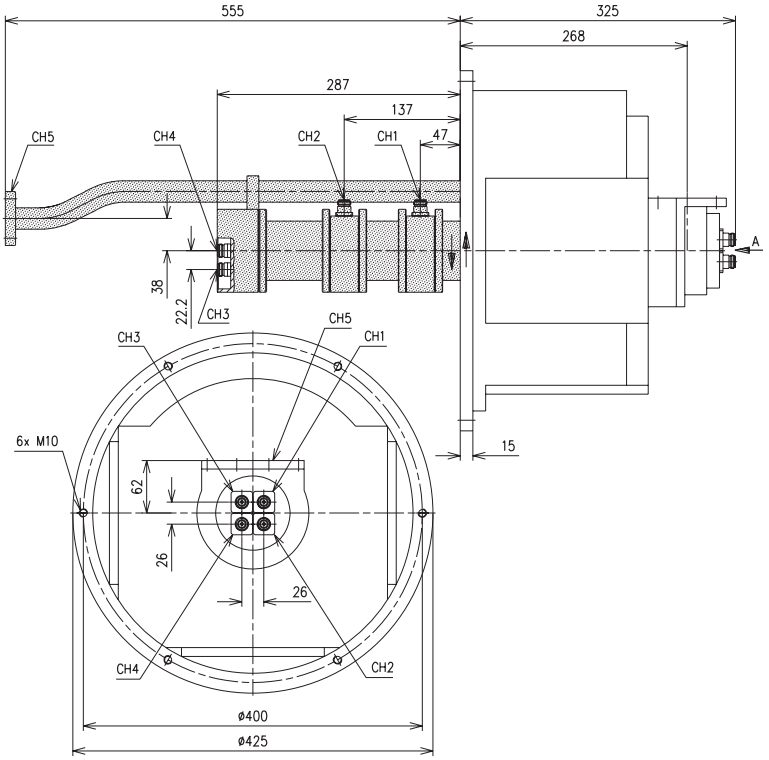

## 5-Kanal Koax-Drehkupplungen ■ Five-Channel Coax Rotary Joints

| **BN 53 25 10** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 | Kanal 4<br>Channel 4 | Kanal 5<br>Channel 5 |
|---|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 1.235 ... 1.365 | 1.235 ... 1.365 | 1.235 ... 1.365 | 1.235 ... 1.365 | 1.235 ... 1.365 |
| Spitzenleistung (kW)<br>Peak power | 6 | – | – | – | – |
| Mittlere Leistung (W)<br>Average power | 600 | 10 | 10 | 10 | 10 |
| VSWR | ≤ 1.4 | ≤ 1.2 | ≤ 1.2 | ≤ 1.2 | ≤ 1.2 |
| VSWR - WOW | ≤ 0.02 | ≤ 0.03 | ≤ 0.03 | ≤ 0.03 | ≤ 0.03 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.3 | ≤ 0.4 | ≤ 0.4 | ≤ 0.4 | ≤ 0.4 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 80 | ≥ 80 | ≥ 80 | ≥ 80 |
| Phase - WOW | ≤ 2° | ≤ 2° | ≤ 2° | ≤ 2° | ≤ 2° |
| Anschluss<br>Connection | 7-16 Kuppler<br>7-16 socket | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket |




## 5-Kanal Koax-Drehkupplungen ■ Five-Channel Coax Rotary Joints

| **BN 53 25 12** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 | Kanal 4<br>Channel 4 | Kanal 5<br>Channel 5 |
|---|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 2.85 ... 3.3 | 1.0 ... 1.15 | 1.0 ... 1.15 | 2.85 ... 3.3 | 2.85 ... 3.3 |
| Spitzenleistung (kW)<br>Peak power | 10 | 10 | 10 | 10 | 10 |
| Mittlere Leistung (W)<br>Average power | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| VSWR | ≤ 1.25 | ≤ 1.25 | ≤ 1.25 | ≤ 1.25 | ≤ 1.25 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.02 | ≤ 0.02 | ≤ 0.05 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.5 | ≤ 0.5 | ≤ 0.5 | ≤ 0.5 | ≤ 0.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.1 | ≤ 0.05 | ≤ 0.05 | ≤ 0.1 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 | ≥ 60 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 2° | ≤ 2° | ≤ 2° | ≤ 2° | ≤ 2° |
| Anschluss<br>Connection | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket |



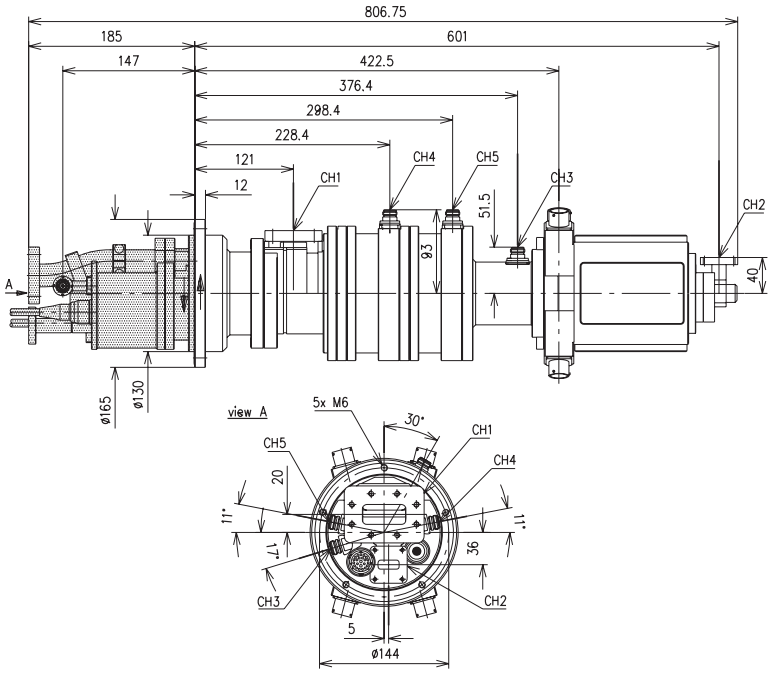

## 5-Kanal Hohlleiter / Koax-Drehkupplungen ■ Five-Channel Waveguide / Coax Rotary Joints

| **BN 53 25 02*** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 | Kanal 4<br>Channel 4 | Kanal 5<br>Channel 5 |
|---|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 2.85 ... 3.15 | 2.85 ... 3.15 | 0.9 ... 1.2 | 0.9 ... 1.2 | 2.85 ... 3.15 |
| Spitzenleistung (kW)<br>Peak power | 10 | 10 | 5 | 5 | 1000 |
| Mittlere Leistung (W)<br>Average power | 30 | 30 | 30 | 30 | 8000 |
| VSWR | ≤ 1.25 | ≤ 1.25 | ≤ 1.25 | ≤ 1.25 | ≤ 1.15 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.4 | ≤ 1.0 | ≤ 1.0 | ≤ 1.0 | ≤ 0.2 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.04 | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 | ≥ 60 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 2.5° | ≤ 2.5° | ≤ 2.5° | ≤ 2.5° | ≤ 2.5° |
| Anschluss<br>Connection | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket | UDR 32 |

**) mit 26 Wege Schleifring / with 26 way slip ring module*

# 5-KANAL DREHKUPPLUNGEN

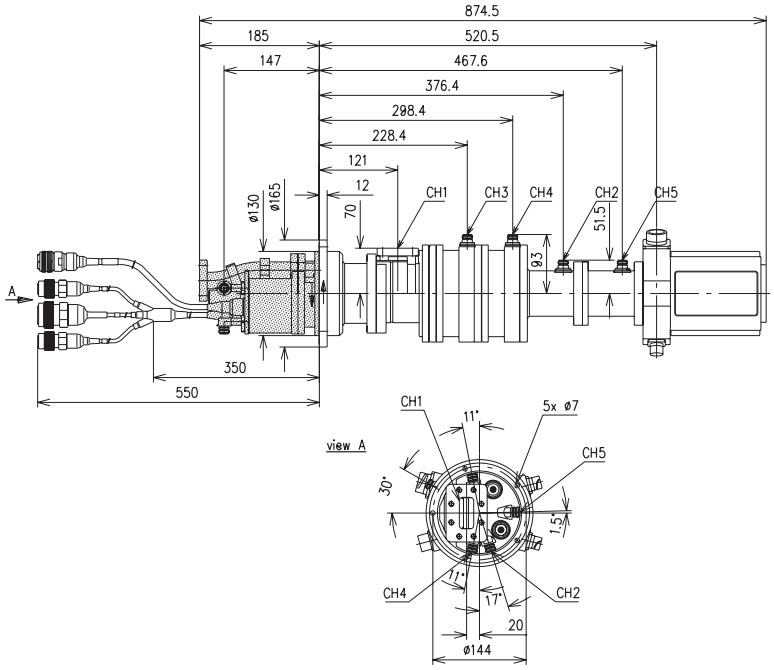
## FIVE-CHANNEL ROTARY JOINTS




### 5-Kanal Hohlleiter / Koax-Drehkupplungen ■ Five-Channel Waveguide / Coax Rotary Joints

| **BN 63 47 23*** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 | Kanal 4<br>Channel 4 | Kanal 5<br>Channel 5 |
|---|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 5.2 ... 5.81 | 9.35 ... 9.4 | 5.2 ... 5.81 | 1.015 ... 1.105 | 1.015 ... 1.105 |
| Spitzenleistung (kW)<br>Peak power | 150 | 20 | 0.1 | 2 | 2 |
| Mittlere Leistung (W)<br>Average power | 1500 | 60 | 5 | 20 | 20 |
| VSWR | ≤ 1.2 | ≤ 1.2 | ≤ 1.2 | ≤ 1.3 | ≤ 1.3 |
| VSWR - WOW | ≤ 0.07 | ≤ 0.07 | ≤ 0.09 | ≤ 0.07 | ≤ 0.07 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 | ≤ 1.0 | ≤ 0.8 | ≤ 0.5 | ≤ 0.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.03 | ≤ 0.03 | ≤ 0.1 | ≤ 0.05 | ≤ 0.05 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 |
| Phase - WOW | ≤ 5° | ≤ 2° | ≤ 2° | ≤ 2° | ≤ 2° |
| Anschluss<br>Connection | CPR 187 F | UBR 100 | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket |

**) mit 32 Wege Schleifring / with 32 way slip ring module*




## 5-Kanal Hohlleiter / Koax-Drehkupplungen ■ Five-Channel Waveguide / Coax Rotary Joints

| **BN 63 47 34*** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 | Kanal 4<br>Channel 4 | Kanal 5<br>Channel 5 |
|---|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 5.2 ... 5.81 | 5.2 ... 5.81 | 1.015 ... 1.105 | 1.015 ... 1.105 | 5.2 ... 5.81 |
| Spitzenleistung (kW)<br>Peak power | 150 | 0.1 | 0.05 | 0.05 | 0.1 |
| Mittlere Leistung (W)<br>Average power | 1500 | 5 | 20 | 20 | 5 |
| VSWR | ≤ 1.2 | ≤ 1.2 | ≤ 1.3 | ≤ 1.3 | ≤ 1.3 |
| VSWR - WOW | ≤ 0.07 | ≤ 0.09 | ≤ 0.07 | ≤ 0.07 | ≤ 0.09 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 | ≤ 1.2 | ≤ 0.5 | ≤ 0.5 | ≤ 1.4 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.03 | ≤ 0.1 | ≤ 0.05 | ≤ 0.05 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 |
| Phase - WOW | ≤ 5° | ≤ 5° | ≤ 2° | ≤ 2° | ≤ 5° |
| Anschluss<br>Connection | CPR 187 F | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket |

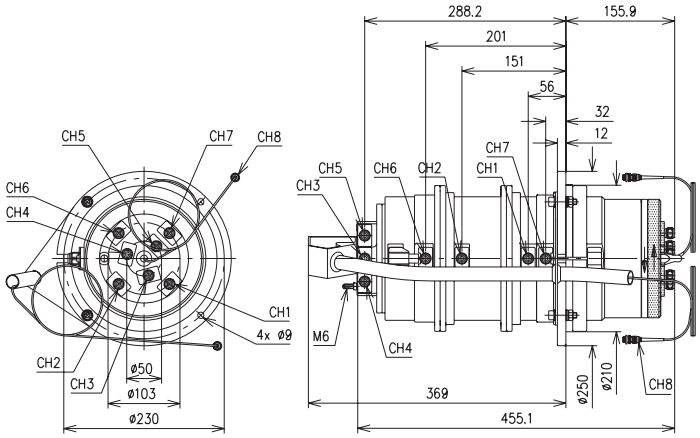
**) mit 30 Wege Schleifring / with 30 way slip ring module*

## Mehrkanal Koax-Drehkupplungen ■ Multichannel Coax Rotary Joints

| Frequenzbereich Hauptkanal<br>Frequency range main channel | Anschluss<br>Connection | Bestell-Nummer<br>Part Number | Seite<br>Page |
|---|---|---|---|
| 1.025 ... 1.095 GHz | TNC Kuppler<br>TNC socket | BN 53 26 14 | 78 |
| 2.85 ... 3.3 GHz | N Kuppler<br>N socket | BN 53 26 13 | 79 |

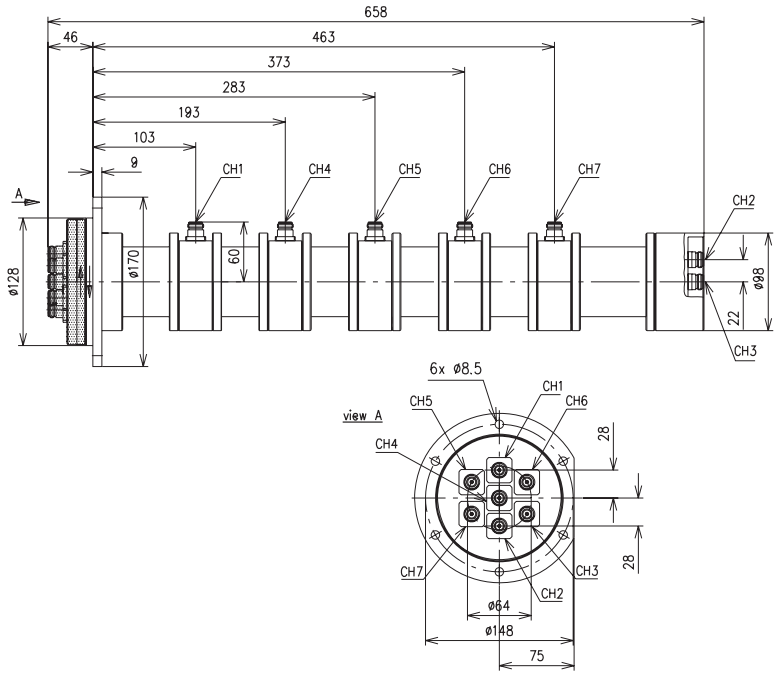
## Mehrkanal Hohlleiter / Koax-Drehkupplungen ■ Multichannel Waveguide / Coax Rotary Joints

| Frequenzbereich Hauptkanal<br>Frequency range main channel | Anschluss<br>Connection | Bestell-Nummer<br>Part Number | Seite<br>Page |
|---|---|---|---|
| 2.7 ... 2.9 GHz | UDR 32 | BN 63 53 21 | 80 |
| 2.7 ... 2.9 GHz | CPR 284G | BN 63 53 22 | 81 |
| 3.1 ... 3.5 GHz | PDR 32 | BN 63 53 25 | 82 |
| 5.2 ... 5.81 GHz | R 48 | BN 63 47 66 | 83 |
| 5.4 ... 5.9 GHz | CPR 187 G | BN 63 47 38 | 84 |



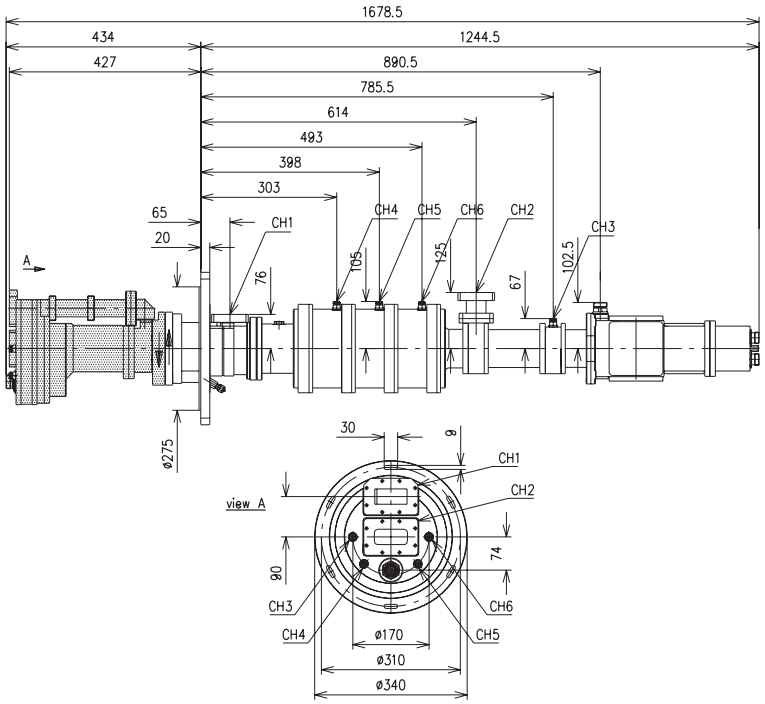

## Mehrkanal Koax-Drehkupplungen ■ Multichannel Coax Rotary Joints

| **BN 53 26 14** | Kanal 1-2<br>Channel 1-2 | Kanal 3<br>Channel 3 | Kanal 4-5<br>Channel 4-5 | Kanal 6<br>Channel 6 | Kanal 7<br>Channel 7 | Kanal 8<br>Channel 8 (optical) |
|---|---|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 1.025 ... 1.095 | 7.0 ... 8.5 | 8.4 ... 10.0 | 1.025 ... 1.095 | 1.025 ... 1.095 | λ= 1520 ... 1580 nm |
| Spitzenleistung (kW)<br>Peak power | 5 | 1 | 1 | 5 | 1 | – |
| Mittlere Leistung (W)<br>Average power | 200 | 0.4 | 0.4 | 200 | 0.4 | – |
| VSWR | ≤ 1.2 | ≤ 1.4 | ≤ 1.4 | ≤ 1.2 | ≤ 1.3 | RL > 40 dB |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 | – |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.4 | ≤ 1.25 | ≤ 1.25 | ≤ 0.4 | ≤ 0.4 | ≤ 3.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.1 | – | – | ≤ 0.1 | – | ≤ 1.0 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 | – |
| Phase - WOW | ≤ 3° | – | – | ≤ 3° | – | – |
| Anschluss<br>Connection | TNC Kuppler<br>TNC socket | TNC Kuppler<br>TNC socket | TNC Kuppler<br>TNC socket | TNC Kuppler<br>TNC socket | TNC Kuppler<br>TNC socket | E 2000 Stecker<br>E 2000 plug |



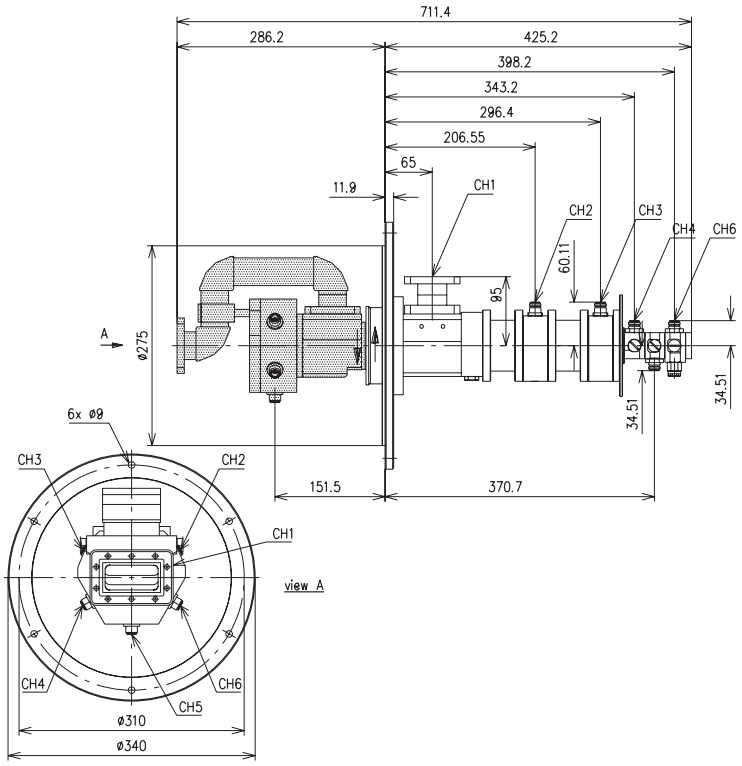

## Mehrkanal Koax-Drehkupplungen ■ Multichannel Coax Rotary Joints

| **BN 53 26 13** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 | Kanal 4-7<br>Channel 4-7 |
|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 2.85 ... 3.3 | 1.0 ... 1.15 | 1.0 ... 1.15 | 2.85 ... 3.3 |
| Spitzenleistung (kW)<br>Peak power | 10 | 10 | 10 | 10 |
| Mittlere Leistung (W)<br>Average power | 100 | 100 | 100 | 100 |
| VSWR | ≤ 1.25 | ≤ 1.25 | ≤ 1.25 | ≤ 1.25 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.3 | ≤ 0.4 | ≤ 0.5 | ≤ 0.75 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.1 | ≤ 0.05 | ≤ 0.05 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 3° | ≤ 2° | ≤ 2° | ≤ 3° |
| Anschluss<br>Connection | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket |



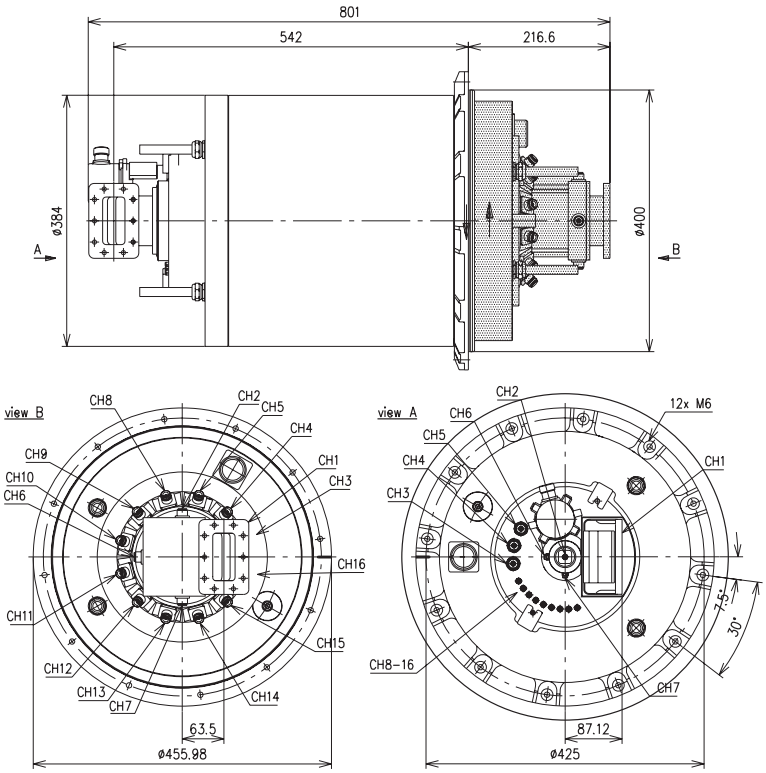

## Mehrkanal Hohlleiter / Koax-Drehkupplungen ■ Multichannel Waveguide / Coax Rotary Joints

| **BN 63 53 21** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 | Kanal 4-6<br>Channel 4-6 |
|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 2.7 ... 2.9 | 2.7 ... 2.9 | 2.7 ... 2.9 | 1.025 ... 1.095 |
| Spitzenleistung (kW)<br>Peak power | 1320 | 5 | 5 | 5 |
| Mittlere Leistung (W)<br>Average power | 3200 | 250 | 250 | 250 |
| VSWR | ≤ 1.15 | ≤ 1.2 | ≤ 1.2 | ≤ 1.2 |
| VSWR - WOW | ≤ 0.025 | ≤ 0.05 | ≤ 0.05 | ≤ 0.07 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.1 | ≤ 0.5 | ≤ 0.75 | ≤ 0.75 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.1 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 |
| Phase - WOW | ≤ 5° | ≤ 5° | ≤ 5° | ≤ 2° |
| Anschluss<br>Connection | UDR 32 | UDR 32 | N Kuppler<br>N socket | N Kuppler<br>N socket |




**Mehrkanal Hohlleiter / Koax-Drehkupplungen** ■ **Multichannel Waveguide / Coax Rotary Joints**

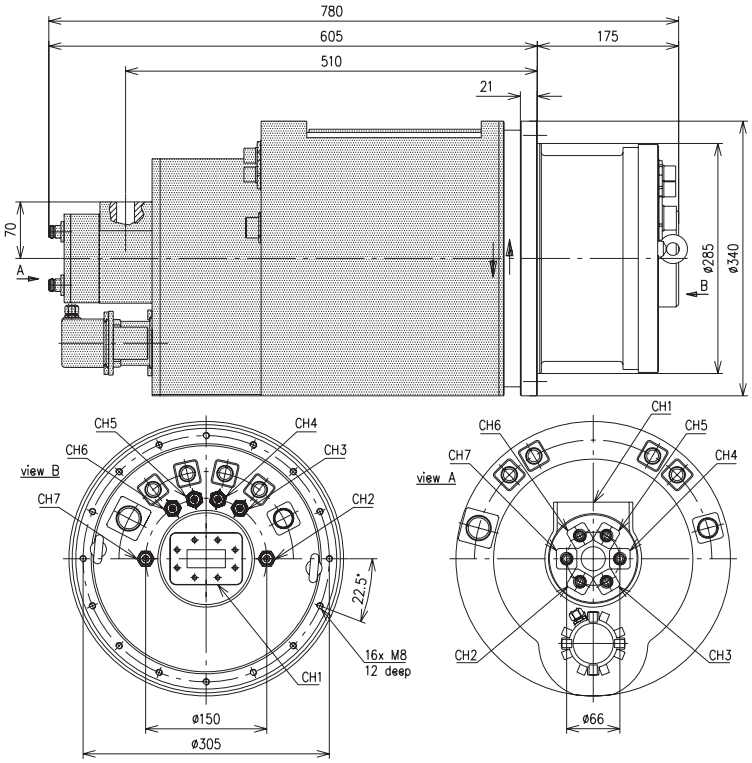
| **BN 63 53 22** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 | Kanal 4-6<br>Channel 4-6 |
|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 2.7 ... 2.9 | 2.7 ... 2.9 | 2.7 ... 2.9 | 0.025 ... 0.035 |
| Spitzenleistung (kW)<br>Peak power | 1000 | 1 | 1 | 1 |
| Mittlere Leistung (W)<br>Average power | 1000 | 1 | 1 | 1 |
| VSWR | ≤ 1.2 | ≤ 1.4 | ≤ 1.4 | ≤ 1.4 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 | ≤ 1.0 | ≤ 1.0 | ≤ 0.2 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 50 | ≥ 50 | ≥ 50 |
| Phase - WOW | ≤ 3° | ≤ 3° | ≤ 3° | ≤ 2° |
| Anschluss<br>Connection | CPR 284G | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket |




**Mehrkanal Hohlleiter / Koax-Drehkupplungen ■ Multichannel Waveguide / Coax Rotary Joints**

| **BN 63 53 25 *** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3-5<br>Channel 3-5 | Kanal 6<br>Channel 6 | Kanal 7<br>Channel 7 | Kanal 8-15<br>Channel 8-15 | Kanal 16<br>Channel 16 |
|---|---|---|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 3.1 ... 3.5 | 3.1 ... 3.5 | 1.0 ... 1.1 | 2.5 ... 2.9 | 0.53 ... 0.55 | 0.06 ... 0.08 | 0.01 ... 0.03 |
| Spitzenleistung (kW)<br>Peak power | 1000 | 0.002 | 2.5 | 0.002 | 0.002 | 0.002 | 0.002 |
| Mittlere Leistung (W)<br>Average power | 5500 | 2 | 10 | 2 | 2 | 2 | 2 |
| VSWR | ≤ 1.2 | ≤ 1.2 | ≤ 1.3 | ≤ 1.7 | ≤ 1.25 | ≤ 1.5 | ≤ 1.5 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 | ≤ 0.02 | ≤ 0.02 | ≤ 0.02 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 | ≤ 1.5 | ≤ 0.75 | ≤ 1.5 | ≤ 0.75 | ≤ 0.5 | ≤ 0.5 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.1 | ≤ 0.05 | ≤ 0.1 | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 60 | ≥ 60 | ≥ 60 | ≥ 60 | ≥ 60 | ≥ 60 |
| Phase - WOW | ≤ 2° | ≤ 2° | ≤ 2° | ≤ 2° | ≤ 2° | ≤ 2° | ≤ 2° |
| Anschluss<br>Connection | PDR 32 | SMA Kuppler<br>SMA socket | N Kuppler<br>N socket | SMA Kuppler<br>SMA socket | SMA Kuppler<br>SMA socket | SMA Kuppler<br>SMA socket | SMA Kuppler<br>SMA socket |

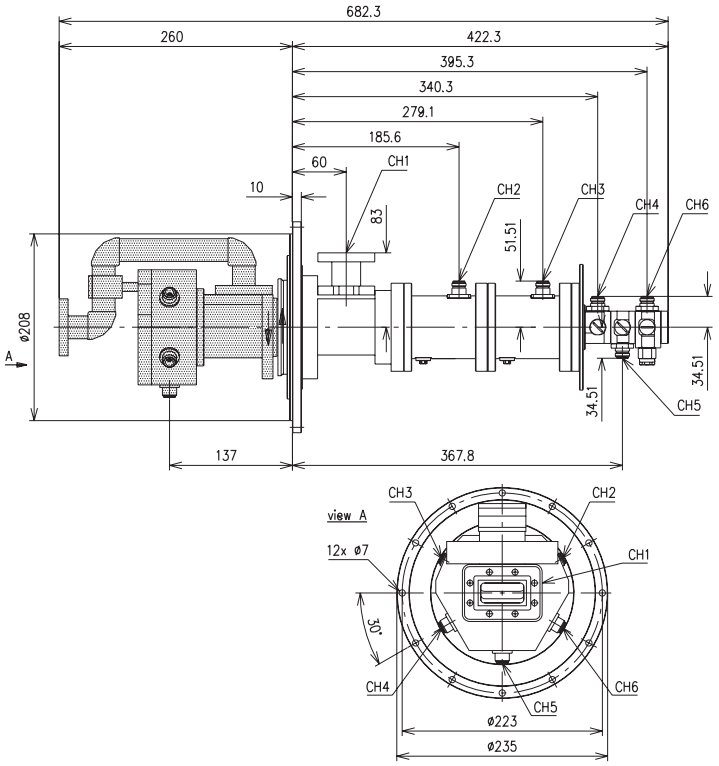
**) mit 126 Wege Schleifring / with 126way slip ring module*




## Mehrkanal Hohlleiter / Koax-Drehkupplungen ■ Multichannel Waveguide / Coax Rotary Joints

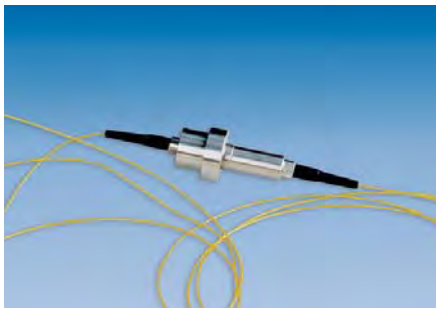
| **BN 63 47 66*** | Kanal 1<br>Channel 1 | Kanal 2-3<br>Channel 2-3 | Kanal 4-6<br>Channel 4-6 | Kanal 7<br>Channel 7 |
|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 5.2 ... 5.81 | 5.2 ... 5.81 | 1.015 ... 1.105 | 0.95 ... 1.215 |
| Spitzenleistung (kW)<br>Peak power | 150 | 0.1 | 2 | 1.2 |
| Mittlere Leistung (W)<br>Average power | 3000 | 5 | 20 | 140 |
| VSWR | ≤ 1.2 | ≤ 1.2 | ≤ 1.3 | ≤ 1.5 |
| VSWR - WOW | ≤ 0.07 | ≤ 0.09 | ≤ 0.07 | ≤ 0.07 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.15 | ≤ 1.2 | ≤ 0.5 | ≤ 0.6 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.03 | ≤ 0.1 | ≤ 0.05 | ≤ 0.05 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 |
| Phase - WOW | ≤ 5° | ≤ 5° | ≤ 2° | ≤ 2° |
| Anschluss<br>Connection | R 48 | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket |

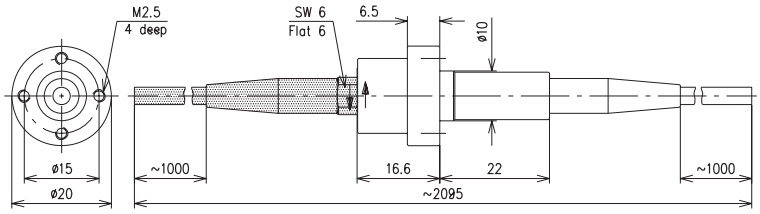
**) mit 36 Wege Schleifring / with 36 way slip ring module*




**Mehrkanal Hohlleiter / Koax-Drehkupplungen ■ Multichannel Waveguide / Coax Rotary Joints**

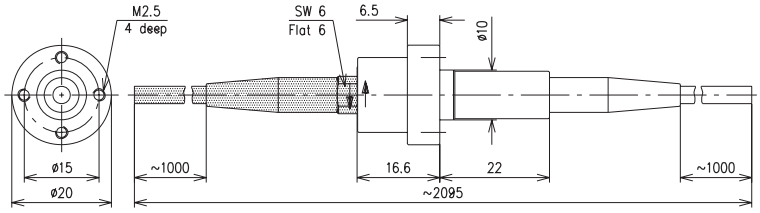
| **BN 63 47 38** | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 | Kanal 4-6<br>Channel 4-6 |
|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | 5.4 ... 5.9 | 5.4 ... 5.9 | 5.4 ... 5.9 | 0.025 ... 0.035 |
| Spitzenleistung (kW)<br>Peak power | 1000 | 1 | 1 | 1 |
| Mittlere Leistung (W)<br>Average power | 1000 | 1 | 1 | 1 |
| VSWR | ≤ 1.2 | ≤ 1.4 | ≤ 1.4 | ≤ 1.4 |
| VSWR - WOW | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 | ≤ 0.05 |
| Durchgangsdämpfung (dB)<br>Insertion loss | ≤ 0.2 | ≤ 1.0 | ≤ 1.0 | ≤ 1.0 |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | ≤ 0.05 | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 |
| Übersprechdämpfung (dB)<br>Isolation between other channels | ≥ 60 | ≥ 50 | ≥ 50 | ≥ 50 |
| Phase - WOW | ≤ 3° | ≤ 3° | ≤ 3° | ≤ 3° |
| Anschluss<br>Connection | CPR 187 G | N Kuppler<br>N socket | N Kuppler<br>N socket | N Kuppler<br>N socket |





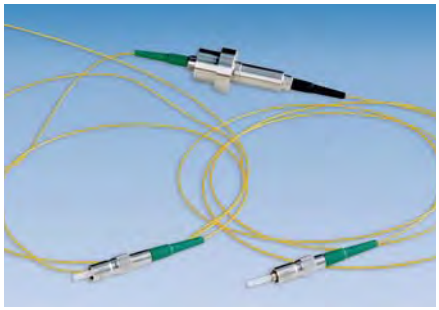

| BN 54 93 21 | |
|---|---|
| Fasertyp<br>Fiber type | E9/125 |
| Einfügedämpfung (dB)<br>Insertion loss | ≤ 4.5 |
| Rückflussdämpfung (dB)<br>Return loss | ≥ 14 |
| Dämpfungsschwankung (dB)<br>Δ Attenuation | ≤ 1.5 |
| Drehzahl (rpm)<br>Rotational speed | ≤ 5000 |
| Lebensdauer Umdrehungen<br>Life time rotations | > $10^9$ |
| Betriebstemperatur<br>Operating temperature | -25° C ... + 70° C |
| Lagertemperatur<br>Storage temperature | -40° C ... + 70° C |
| Anschluss*<br>Connection | pigtail |

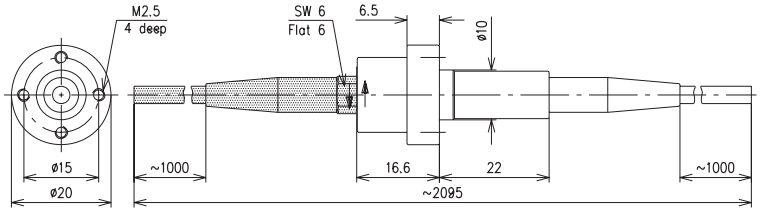
* weitere Anschlüsse auf Anfrage
further connections are available on request




| BN 54 93 51 | |
|---|---|
| Fasertyp<br>Fiber type | E9/125 |
| Einfügedämpfung (dB)<br>Insertion loss | ≤ 4.5 |
| Rückflussdämpfung (dB)<br>Return loss | ≥ 14 |
| Dämpfungsschwankung (dB)<br>Δ Attenuation | ≤ 1.5 |
| Drehzahl (rpm)<br>Rotational speed | ≤ 5000 |
| Lebensdauer Umdrehungen<br>Life time rotations | > $10^9$ |
| Betriebstemperatur<br>Operating temperature | -25° C ... + 70° C |
| Lagertemperatur<br>Storage temperature | -40° C ... + 70° C |
| Anschluss*<br>Connection | pigtail with FC/PC |

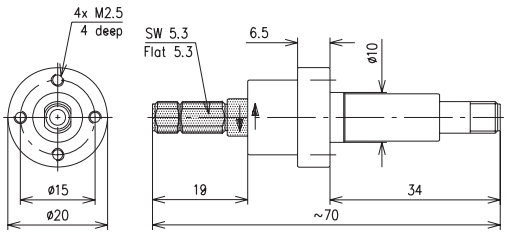
* weitere Anschlüsse auf Anfrage
further connections are available on request



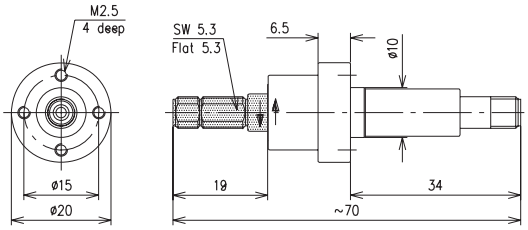



| BN 54 93 52 | |
|---|---|
| Fasertyp<br>Fiber type | E9/125 |
| Einfügedämpfung (dB)<br>Insertion loss | ≤ 2.5 |
| Rückflussdämpfung (dB)<br>Return loss | ≥ 30 |
| Dämpfungsschwankung (dB)<br>Δ Attenuation | ≤ 0.5 |
| Drehzahl (rpm)<br>Rotational speed | ≤ 5000 |
| Lebensdauer Umdrehungen<br>Life time rotations | > $10^9$ |
| Betriebstemperatur<br>Operating temperature | -31° C ... + 70° C |
| Lagertemperatur<br>Storage temperature | -40° C ... + 70° C |
| Anschluss*<br>Connection | pigtail with<br>DIN LSA HRL |

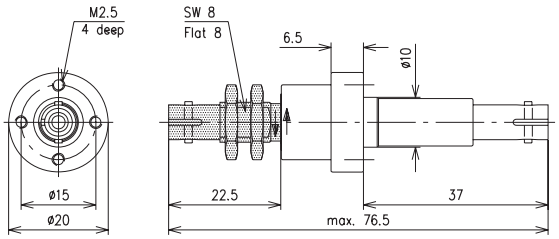
* weitere Anschlüsse auf Anfrage
further connections are available on request



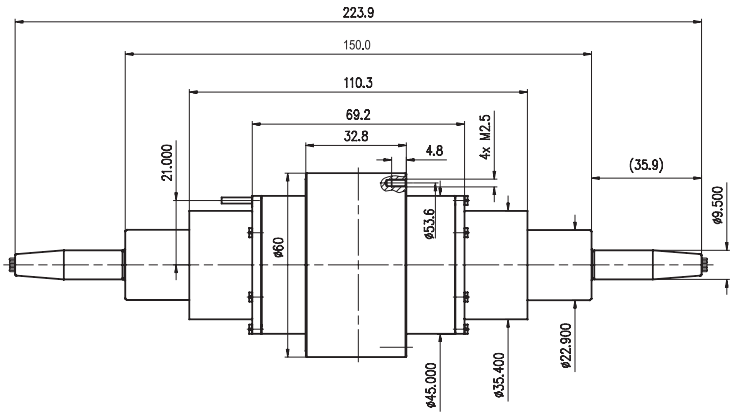

| BN 52 90 13 | |
|---|---|
| Fasertyp<br>Fiber type | G50/125 |
| Einfügedämpfung (dB)<br>Insertion loss | ≤ 2.0 |
| Rückflussdämpfung (dB)<br>Return loss | – |
| Dämpfungsschwankung (dB)<br>Δ Attenuation | ≤ 0.5 |
| Drehzahl (rpm)<br>Rotational speed | ≤ 5000 |
| Lebensdauer Umdrehungen<br>Life time rotations | > $10^9$ |
| Betriebstemperatur<br>Operating temperature | -40° C ... + 85° C |
| Lagertemperatur<br>Storage temperature | -40° C ... + 85° C |
| Anschluss<br>Connection | F-SMA Stecker-Kuppler<br>F-SMA plug-socket |




| BN 54 93 22 | |
|---|---|
| Fasertyp<br>Fiber type | GI 62.5/125 |
| Einfügedämpfung (dB)<br>Insertion loss | ≤ 2.0 |
| Rückflussdämpfung (dB)<br>Return loss | – |
| Dämpfungsschwankung (dB)<br>Δ Attenuation | ≤ 0.5 |
| Drehzahl (rpm)<br>Rotational speed | ≤ 5000 |
| Lebensdauer Umdrehungen<br>Life time rotations | > $10^9$ |
| Betriebstemperatur<br>Operating temperature | -40° C ... + 85° C |
| Lagertemperatur<br>Storage temperature | -40° C ... + 85° C |
| Anschluss<br>Connection | F-SMA Stecker-Kuppler<br>F-SMA plug-socket |




| BN 52 90 10 | |
|---|---|
| Fasertyp<br>Fiber type | GI 50/125 |
| Einfügedämpfung (dB)<br>Insertion loss | ≤ 2.0 |
| Rückflussdämpfung (dB)<br>Return loss | – |
| Dämpfungsschwankung (dB)<br>Δ Attenuation | ≤ 0.5 |
| Drehzahl (rpm)<br>Rotational speed | ≤ 5000 |
| Lebensdauer Umdrehungen<br>Life time rotations | > $10^9$ |
| Betriebstemperatur<br>Operating temperature | -40° C ... + 85° C |
| Lagertemperatur<br>Storage temperature | -40° C ... + 85° C |
| Anschluss<br>Connection | ST |




## Optische Mehrkanal Drehkupplungen ■ Multichannel Optical Rotary Joints

| | singlemode | multimode |
|---|---|---|
| Fasertyp<br>fiber typ | E9/125 | G50/125 oder/or G62.5/125 |
| Kanalzahl<br>number of channels | 0...6 max. 21 | max. 42 |
| max. Einfügedämpfung<br>max. insertion loss | 1310 nm Laser 3.5 dB<br>1550 nm Laser 3.5 dB | 850 nm LED 4.5 dB<br>1310 nm LED 4.5 dB<br>1310 nm Laser 2.5 dB<br>1550 nm Laser 2.5 dB |
| max. Dämpfungsschwankung<br>max. Δ attenuation | 1.0 dB | |
| Rückflussdämpfung<br>return loss | ≥ 40 dB ≥ 30 dB | – |
| Übersprechen<br>cross talk | ≤ 50 dB | |
| max. Drehzahl<br>max. rotational speed | 100 rpm | |
| typ. Reibemoment<br>typ. torque | 8 Ncm | |
| Lebensdauer<br>life time | > $10^8$ Umdr./Revs. | |
| max. zulässiges äußeres Drehmoment<br>max. external load under a bending | 40 Ncm | |
| Betriebstemperatur<br>operating temperature | -33...+71°C MIL-STD-610E | |
| Lagertemperatur<br>storage temperature | -40...+85°C | |
| Vibration | MIL-STD-167-1 (ship) | |
| Schock<br>shock | MIL-STD-202F | |

## SPEZIFIKATION DREHKUPPLUNGEN | SPECIFICATION ROTARY JOINTS

Kontaktdaten | Contact details: _____ e-mail: _____

Projekt | Project: _____ Datum | Date: _____

Anwendung | Application:
- ☐ militärisch | military use
- ☐ zivil | civil use

- ☐ Boden | Ground
- ☐ Luft | Airborne
- ☐ Weltraum | Space
- ☐ See | Naval
- ☐ _____

**Technische Daten | Technical Data**

| | Kanal 1<br>Channel 1 | Kanal 2<br>Channel 2 | Kanal 3<br>Channel 3 | Kanal 4<br>Channel 4 | Kanal 5<br>Channel 5 | Kanal 6<br>Channel 6 |
|---|---|---|---|---|---|---|
| Frequenzbereich (GHz)<br>Frequency range | | | | | | |
| Spitzenleistung (kW) / Pulsbreite (µs)<br>Peak power / Pulse width | | | | | | |
| Mittlere Leistung (W)<br>Average power | | | | | | |
| VSWR | | | | | | |
| VSWR - WOW | | | | | | |
| Durchgangsdämpfung (dB)<br>Insertion loss | | | | | | |
| Durchgangsdämpfung - WOW (dB)<br>Insertion loss - WOW | | | | | | |
| Übersprechdämpfung (dB)<br>Isolation between other channels | | | | | | |
| Phase - WOW | | | | | | |
| Anschluss<br>Connection | | | | | | |

**Mechanische Daten | Mechanical Data**

Betriebsdruck (bar)
Operating pressure _____

Lebensdauer (Umdrehungen)
Life time (revolutions): _____

Drehzahl (rpm)
Rotation speed: _____

Anlaufdrehmoment (Nm)
Starting torque: _____

Lackierung (RAL)
Painting: _____

max. Maße (LxBxH mm)
max. Dimensions (LxWxH mm): _____

**Umgebungsbedingungen | Environmental Data**

Betriebstemperatur
Operating temperature: _____

Lagertemperatur
Storage temperature: _____

Luftfeuchtigkeit
Humidity (RH): _____

Schutzart (IP)
Protection level: _____

**Weitere Spezifikationen | Additional Specification:**

## SPEZIFIKATION SCHLEIFRINGE | SPECIFICATION SLIP RINGS

Kontaktdaten | Contact details: _____ e-mail: _____

Projekt | Project: _____ Datum | Date: _____

Anwendung | Application:
☐ militärisch | military use
☐ zivil | civil use

☐ Boden | Ground
☐ Luft | Airborne
☐ Weltraum | Space
☐ See | Naval
☐ _____

**Technische Daten | Technical Data**

| Gruppe<br>Group | Anzahl der Bahnen<br>Numbers of ways | Anwendung<br>Use | Spannung (V)<br>Voltage | Strom (A)<br>Current | Frequenzbereich / Datenrate<br>Frequency range / Data rate |
|---|---|---|---|---|---|
| PE | | | | | |
| A | | | | | |
| B | | | | | |
| C | | | | | |
| D | | | | | |

**Mechanische Daten | Mechanical Data**

Betriebsdruck (bar)
Operating pressure: _____

Lebensdauer (Umdrehungen)
Life time (revolutions): _____

Drehzahl (rpm)
Rotation speed : _____

Anlaufdrehmoment (Nm)
Starting torque: _____

Außendurchmesser (mm)
Outer diameter: _____

Durchlass (mm)
Free inner bore: _____

Länge (mm)
Length: _____

Einbaulage
Installation position:
☐ horizontal
☐ vertical

Anschlüsse
Connectors / Cables: _____

**Umgebungsbedingungen | Environmental Data**

Betriebstemperatur (°C)
Operating temperature: _____

Lagertemperatur (°C)
Storage temperature: _____

Luftfeuchtigkeit
Humidity (RH): _____

Schutzart (IP)
Protection level: _____

Vibration / Schock
Vibration / Shock: _____

**Weitere Spezifikationen | Additional Specification:**

- Airbus
- Bharat Electronics Ltd.
- Bundesamt für Wehrtechnik
- Deutsche Flugsicherung (DFS)
- EADS
- Elecma
- ELTA
- ESW, Extel Systems Wedel

- HTS AG
- KVH (USA)
- Larsen & Tubro
- PIT Polen
- LRDE
- Namsa
- NEC
- NETAS

- Northrop Grumman
- ORBIS
- Oerlikon Contraves
- Raytheon
- Rohde & Schwarz
- Selex
- THALES
- Zeiss-Optronic GmbH

## Flugsicherheit ■ Air Traffic Control


## Flugabwehrsysteme ■ Defense Systems


## Navigationsradar ■ Navigational Radar

## Satellitensysteme ■ Satellite Systems

# INDEX

# VSWR UMRECHNUNGSTABELLE

## VSWR CONVERSION TABLE

| VSWR | Reflection (r) | Return loss (dB) |
|---|---|---|
| 1,010 | 0,005 | 46,1 |
| 1,015 | 0,007 | 42,6 |
| 1,020 | 0,010 | 40,1 |
| 1,025 | 0,012 | 38,2 |
| 1,030 | 0,015 | 36,6 |
| 1,035 | 0,017 | 35,3 |
| 1,040 | 0,020 | 34,2 |
| 1,045 | 0,022 | 33,1 |
| 1,050 | 0,024 | 32,3 |
| 1,055 | 0,027 | 31,4 |
| 1,060 | 0,029 | 30,7 |
| 1,065 | 0,031 | 30,0 |
| 1,070 | 0,034 | 29,4 |
| 1,075 | 0,036 | 28,8 |
| 1,080 | 0,038 | 28,3 |
| 1,085 | 0,041 | 27,8 |
| 1,090 | 0,043 | 27,3 |
| 1,095 | 0,045 | 26,9 |
| 1,100 | 0,048 | 26,4 |
| 1,110 | 0,052 | 25,7 |
| 1,120 | 0,057 | 24,9 |
| 1,130 | 0,061 | 24,3 |
| 1,140 | 0,065 | 23,7 |
| 1,150 | 0,070 | 23,1 |
| 1,160 | 0,074 | 22,6 |
| 1,170 | 0,078 | 22,1 |
| 1,180 | 0,083 | 21,7 |
| 1,190 | 0,087 | 21,2 |
| 1,200 | 0,091 | 20,8 |
| 1,210 | 0,095 | 20,4 |
| 1,220 | 0,099 | 20,1 |
| 1,230 | 0,103 | 19,7 |
| 1,240 | 0,107 | 19,4 |
| 1,250 | 0,111 | 19,1 |
| 1,260 | 0,115 | 18,8 |
| 1,270 | 0,119 | 18,5 |
| 1,280 | 0,123 | 18,2 |
| 1,290 | 0,127 | 17,9 |
| 1,300 | 0,130 | 17,7 |
| 1,310 | 0,134 | 17,4 |
| 1,320 | 0,138 | 17,2 |
| 1,330 | 0,142 | 17,0 |
| 1,340 | 0,145 | 16,8 |
| 1,350 | 0,149 | 16,5 |
| 1,360 | 0,153 | 16,3 |
| 1,370 | 0,156 | 16,1 |
| 1,380 | 0,160 | 15,9 |
| 1,390 | 0,163 | 15,7 |
| 1,400 | 0,167 | 15,6 |
| 1,410 | 0,170 | 15,4 |
| 1,420 | 0,174 | 15,2 |

| VSWR | Reflection (r) | Return loss (dB) |
|---|---|---|
| 1,430 | 0,177 | 15,0 |
| 1,440 | 0,180 | 14,9 |
| 1,450 | 0,184 | 14,7 |
| 1,460 | 0,187 | 14,6 |
| 1,470 | 0,190 | 14,4 |
| 1,480 | 0,194 | 14,3 |
| 1,490 | 0,197 | 14,1 |
| 1,500 | 0,200 | 14,0 |
| 1,510 | 0,203 | 13,8 |
| 1,520 | 0,206 | 13,7 |
| 1,530 | 0,209 | 13,6 |
| 1,540 | 0,213 | 13,4 |
| 1,550 | 0,216 | 13,3 |
| 1,560 | 0,219 | 13,2 |
| 1,570 | 0,222 | 13,1 |
| 1,580 | 0,225 | 13,0 |
| 1,590 | 0,228 | 12,8 |
| 1,600 | 0,231 | 12,7 |
| 1,610 | 0,234 | 12,6 |
| 1,620 | 0,237 | 12,5 |
| 1,630 | 0,240 | 12,4 |
| 1,640 | 0,242 | 12,3 |
| 1,650 | 0,245 | 12,2 |
| 1,660 | 0,248 | 12,1 |
| 1,670 | 0,251 | 12,0 |
| 1,680 | 0,254 | 11,9 |
| 1,690 | 0,257 | 11,8 |
| 1,700 | 0,259 | 11,7 |
| 1,710 | 0,262 | 11,6 |
| 1,720 | 0,265 | 11,5 |
| 1,730 | 0,267 | 11,5 |
| 1,740 | 0,270 | 11,4 |
| 1,750 | 0,273 | 11,3 |
| 1,760 | 0,275 | 11,2 |
| 1,770 | 0,278 | 11,1 |
| 1,780 | 0,281 | 11,0 |
| 1,790 | 0,283 | 11,0 |
| 1,800 | 0,286 | 10,9 |
| 1,810 | 0,288 | 10,8 |
| 1,820 | 0,291 | 10,7 |
| 1,830 | 0,293 | 10,7 |
| 1,840 | 0,296 | 10,6 |
| 1,850 | 0,298 | 10,5 |
| 1,860 | 0,301 | 10,4 |
| 1,870 | 0,303 | 10,4 |
| 1,880 | 0,306 | 10,3 |
| 1,890 | 0,308 | 10,2 |
| 1,900 | 0,310 | 10,2 |
| 1,910 | 0,313 | 10,1 |
| 1,920 | 0,315 | 10,0 |
| 1,930 | 0,317 | 10,0 |

Auf unserer Webseite finden Sie einen VSWR-Rechner zum Download.
On our website you will find under downloads a VSWR converter tool.

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