

# R&S® DDC25

# DUAL DIRECTIONAL COUPLER

Specifications

Specifications  
Version 07.00

**ROHDE & SCHWARZ**

Make ideas real



# CONTENTS

<b>Definitions .....</b>	<b>5</b>
<b>R&amp;S®DDC25-A dual directional coupler, 9 kHz to 250 MHz.....</b>	<b>6</b>
Directivity.....	6
Coupling.....	6
RF specifications .....	6
Mechanical specifications .....	6
R&S®DDC25-A54 .....	7
R&S®DDC25-A63 .....	8
R&S®DDC25-A67 .....	9
<b>R&amp;S®DDC25-AB dual directional coupler, 9 kHz to 400 MHz .....</b>	<b>10</b>
Directivity.....	10
Coupling.....	10
RF specifications .....	10
Mechanical specifications .....	10
R&S®DDC25-AB55.....	11
<b>R&amp;S®DDC25-BC dual directional coupler, 80 MHz to 1 GHz .....</b>	<b>12</b>
Directivity.....	12
Coupling.....	12
RF specifications .....	12
Mechanical specifications .....	13
R&S®DDC25-BC59.....	14
R&S®DDC25-BC60.....	15
R&S®DDC25-BC66.....	16
R&S®DDC25-BC71.....	17
<b>R&amp;S®DDC25-D dual directional coupler, 690 MHz to 3.2 GHz .....</b>	<b>18</b>
Directivity.....	18
Coupling.....	18
RF specifications .....	18
Mechanical specifications .....	19
R&S®DDC25-D56 .....	20
R&S®DDC25-D59 .....	21
R&S®DDC25-D62.....	22
<b>R&amp;S®DDC25-E dual directional coupler, 2.5 GHz to 6 GHz .....</b>	<b>23</b>
Directivity.....	23
Coupling.....	23
RF specifications .....	23
Mechanical specifications .....	23
R&S®DDC25-E55 .....	24
R&S®DDC25-E58 .....	25

<b>R&amp;S®DDC25-CDE dual directional coupler, 380 MHz to 6 GHz .....</b>	<b>26</b>
Directivity .....	26
Coupling .....	26
RF specifications .....	26
Mechanical specifications .....	26
R&S®DDC25-CDE53 .....	27
R&S®DDC25-CDE56 .....	28
<b>General data .....</b>	<b>29</b>
Environmental specifications .....	29
Calibration .....	29
<b>Ordering information .....</b>	<b>30</b>
Frequency band from 9 kHz to 250 MHz .....	30
Frequency band from 9 kHz to 400 MHz .....	30
Frequency band from 80 MHz to 1.0 GHz .....	30
Frequency band from 690 MHz to 3.2 GHz .....	30
Frequency band from 2.5 GHz to 6.0 GHz .....	30
Frequency band from 380 MHz to 6.0 GHz .....	30
Service .....	30

Rohde & Schwarz equipment is designed for reliable operation up to an altitude of 2000 m above sea level, and for transport up to an altitude of 4600 m above sea level.

All specified parameters are valid for an ambient temperature of +25 °C, input impedance of 50 Ω and output impedance of 50 Ω. Data without tolerance limits is not binding.

RoHS Europe, Directive 2011/65/EU: Equipment category 9, fulfilled without any exceptions.

WEEE Europe, Directive 2002/96/EC:

No disposing with unsorted municipal waste; no return with collection of waste electrical and electronic equipment from private households. Separate collection necessary. Ask Rohde & Schwarz representatives about recovery.

# Definitions

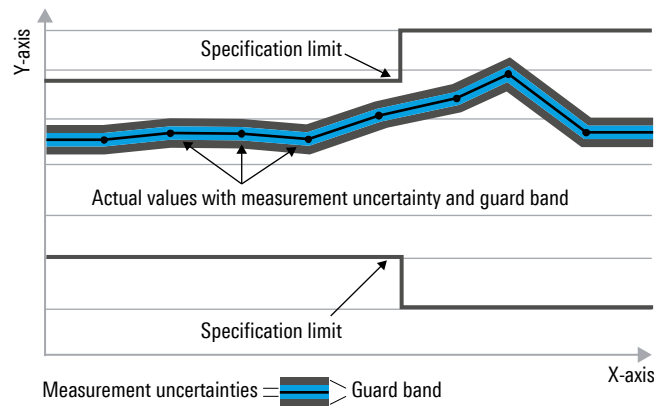
## General

Product data applies under the following conditions:

- Three hours of storage at ambient temperature followed by 30 minutes of warm-up operation
- All specified parameters are valid for an ambient temperature of +25 °C
- Specified environmental conditions met
- Recommended calibration interval adhered to
- All internal automatic adjustments performed, if applicable

## Specifications with limits

Represent warranted product performance by means of a range of values for the specified parameter. These specifications are marked with limiting symbols such as  $<$ ,  $\leq$ ,  $>$ ,  $\geq$ ,  $\pm$ , or descriptions such as maximum, limit of, minimum. Compliance is ensured by testing or is derived from the design. Test limits are narrowed by guard bands to take into account measurement uncertainties, drift and aging, if applicable.



## Specifications without limits

Represent warranted product performance for the specified parameter. These specifications are not specially marked and represent values with no or negligible deviations from the given value (e.g. dimensions or resolution of a setting parameter). Compliance is ensured by design.

## Typical data (typ.)

Characterizes product performance by means of representative information for the given parameter. When marked with  $<$ ,  $>$  or as a range, it represents the performance met by approximately 80 % of the instruments at production time. Otherwise, it represents the mean value.

## Nominal values (nom.)

Characterize product performance by means of a representative value for the given parameter (e.g. nominal impedance). In contrast to typical data, a statistical evaluation does not take place and the parameter is not tested during production.

## Measured values (meas.)

Characterize expected product performance by means of measurement results gained from individual samples.

## Uncertainties

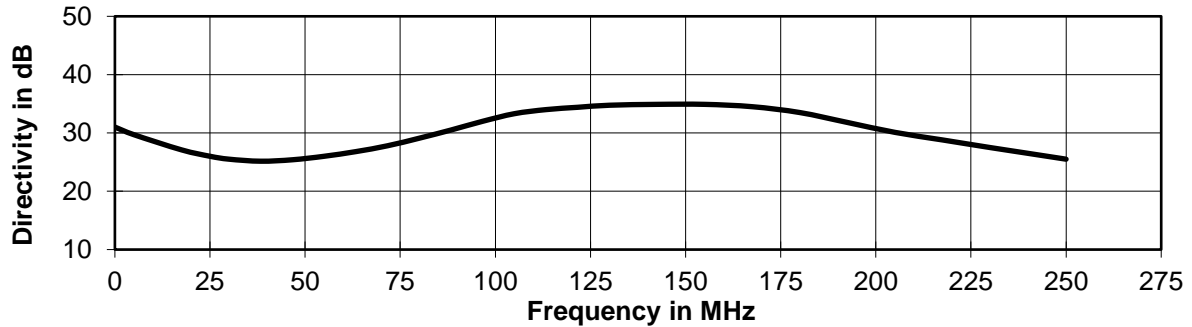
Represent limits of measurement uncertainty for a given measurand. Uncertainty is defined with a coverage factor of 2 and has been calculated in line with the rules of the Guide to the Expression of Uncertainty in Measurement (GUM), taking into account environmental conditions, aging, wear and tear.

Device settings and GUI parameters are indicated as follows: "parameter: value".

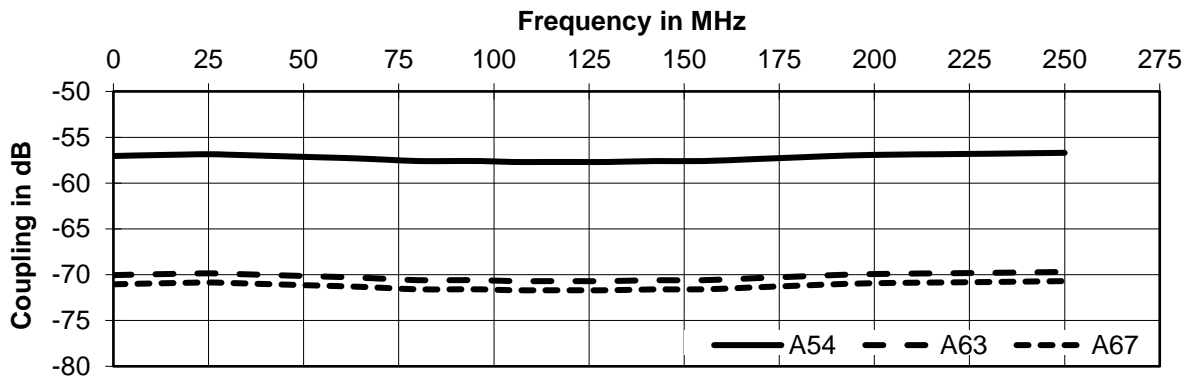
Typical data as well as nominal and measured values are not warranted by Rohde & Schwarz.

# R&S® DDC25-A dual directional coupler, 9 kHz to 250 MHz

## Directivity



## Coupling



## RF specifications

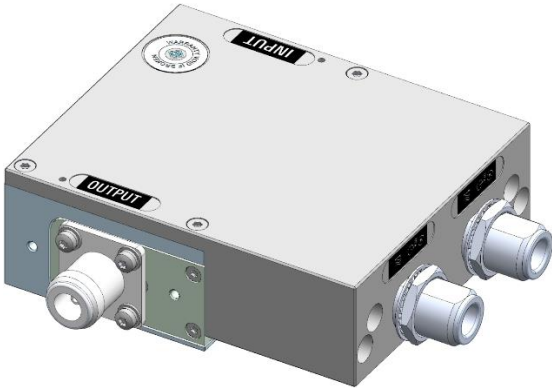
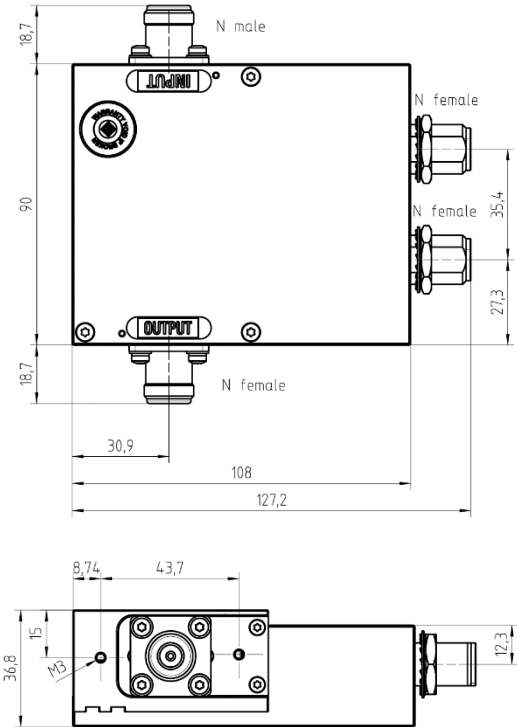
Main parameters		
Frequency range		9 kHz to 250 MHz
Maximum CW power at 50 Ω <sup>1</sup>   CW power at 50 Ω   at VSWR 6:1	R&S® DDC25-A54 (N female, N female) R&S® DDC25-A63 (7-16 female, N female) R&S® DDC25-A67 (1 5/8" EIA, N female)	max. 500 W <sup>1</sup>   400 W   250 W max. 4000 W <sup>1</sup>   3000 W   2000 W max. 10000 W <sup>1</sup>   6000 W   4000 W
Directivity		min. 22 dB
Coupling	R&S® DDC25-A54 R&S® DDC25-A63 R&S® DDC25-A67	57 dB ± 2 dB 71 dB ± 2 dB 71 dB ± 2 dB
Flatness		±1.5 dB
Insertion loss		max. 0.2 dB
VSWR	at 50 Ω	max. 1.1:1
Mismatch tolerance	at specified CW power for VSWR 6:1	unlimited
Nominal impedance		50 Ω

## Mechanical specifications

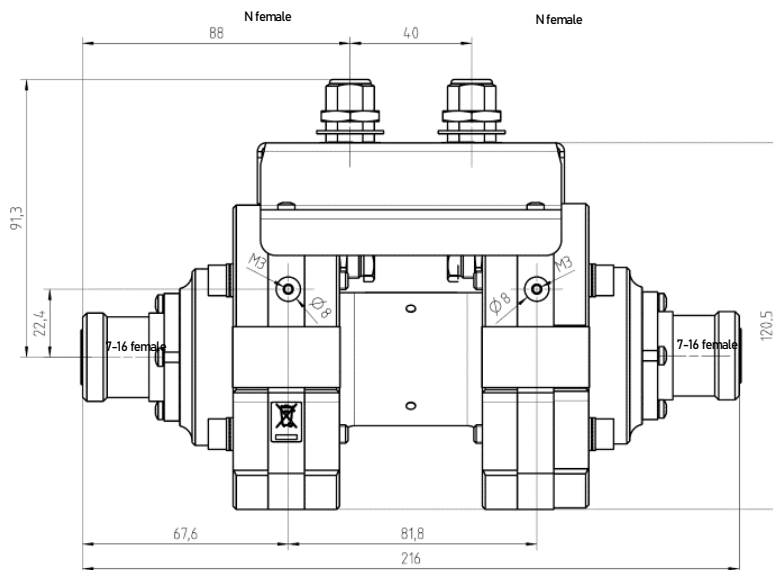
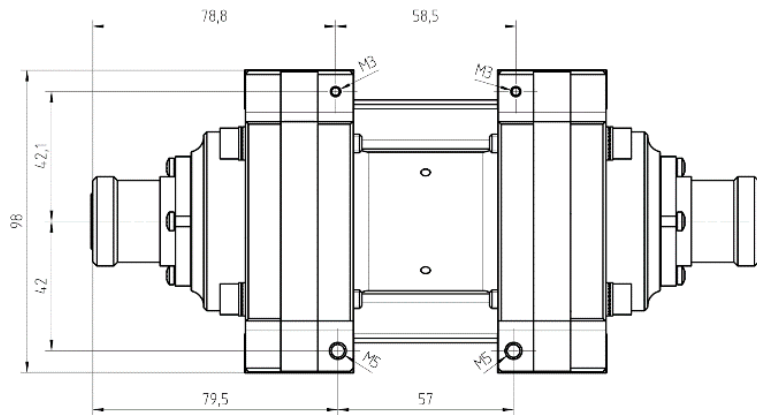
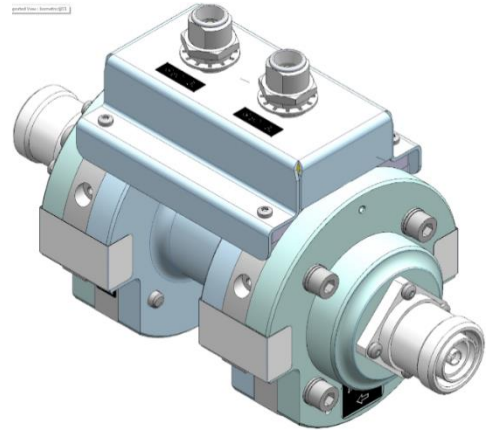
Dimensions (W × H × D)	R&S® DDC25-A54	108 mm × 36.8 mm × 90 mm (4.25 in × 1.45 in × 3.55 in)
	R&S® DDC25-A63	216 mm × 120.5 mm × 98 mm (8.5 in × 4.74 in × 3.86 in)
	R&S® DDC25-A67	234 mm × 125 mm × 98 mm (9.21 in × 4.92 in × 3.86 in)
Weight	R&S® DDC25-A54	approx. 1.5 kg (3.3 lb)
	R&S® DDC25-A63	approx. 1.5 kg (3.3 lb)
	R&S® DDC25-A67	approx. 1.8 kg (3.9 lb)

<sup>1</sup> Maximum CW power for maximum 2 minutes and R&S® DDC25 case temperature < +50 °C (additional measures such as forced air might be required).

# R&S® DDC25-A54

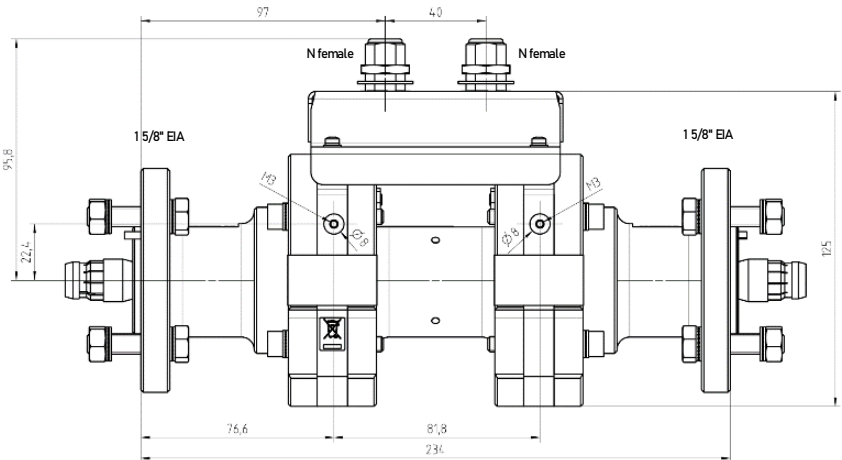
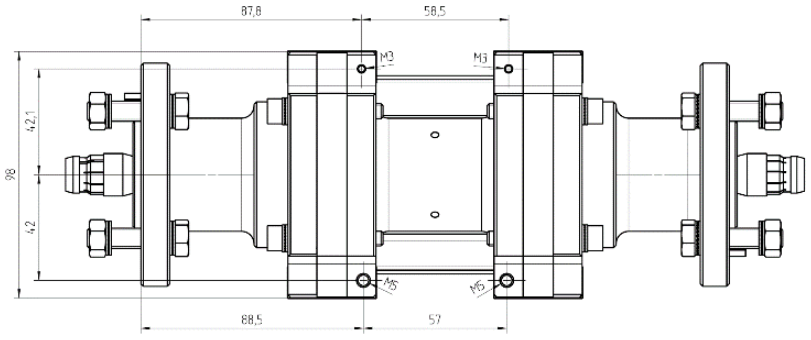
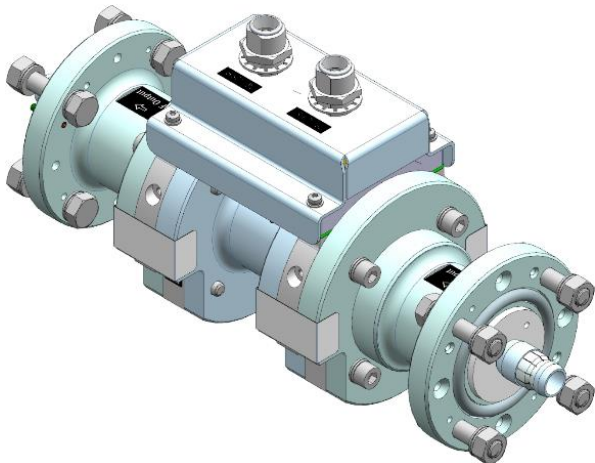


# R&S® DDC25-A63



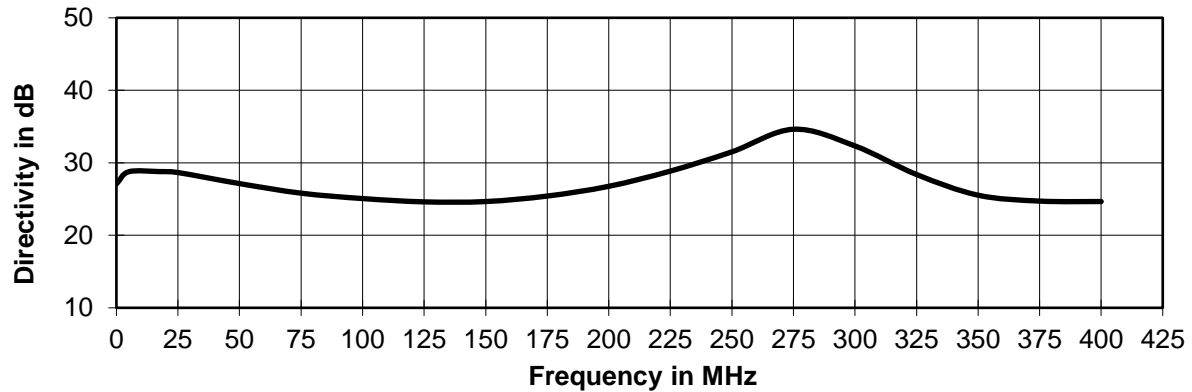


R&S®DDC25-A67

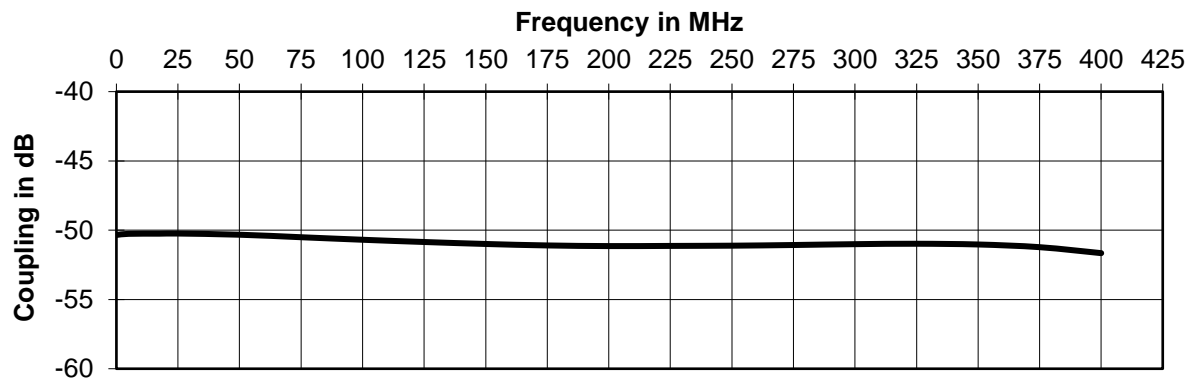


# R&S® DDC25-AB dual directional coupler, 9 kHz to 400 MHz

## Directivity



## Coupling



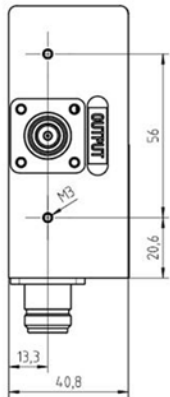
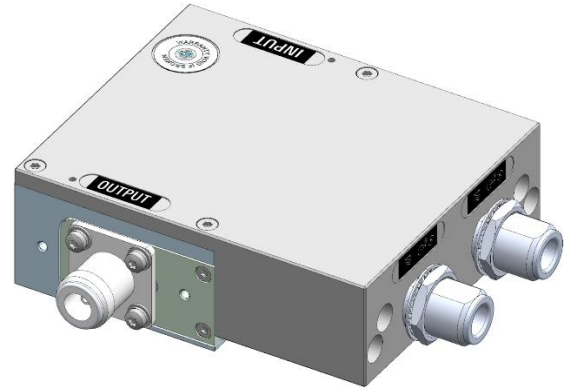
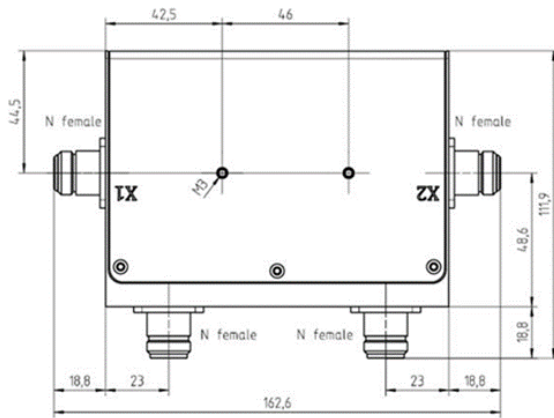
## RF specifications

Main parameters		
Frequency range		9 kHz to 400 MHz
CW power at 50 Ω   at VSWR 6:1	R&S® DDC25-AB55 (N female)	max. 300 W   200 W
Directivity		min. 20 dB
Coupling	R&S® DDC25-AB55	51 dB ± 2 dB
Flatness		±1.5 dB
Insertion loss		max. 0.4 dB
VSWR	at 50 Ω	max. 1.1:1
Mismatch tolerance	at specified CW power for VSWR 6:1	unlimited
Nominal impedance		50 Ω

## Mechanical specifications

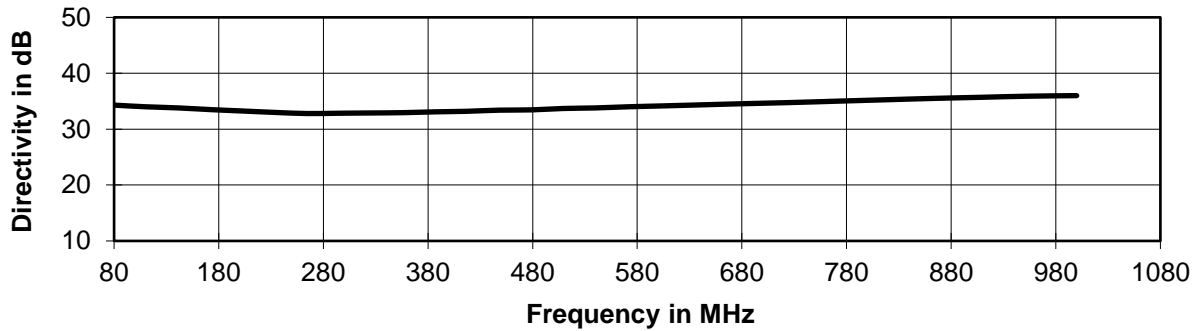
Dimensions (W × H × D)	R&S® DDC25-AB55	163 mm × 112 mm × 41 mm (4.25 in × 1.45 in × 3.55 in)
Weight	R&S® DDC25-AB55	approx. 1 kg (3.3 lb)

## R&amp;S® DDC25-AB55

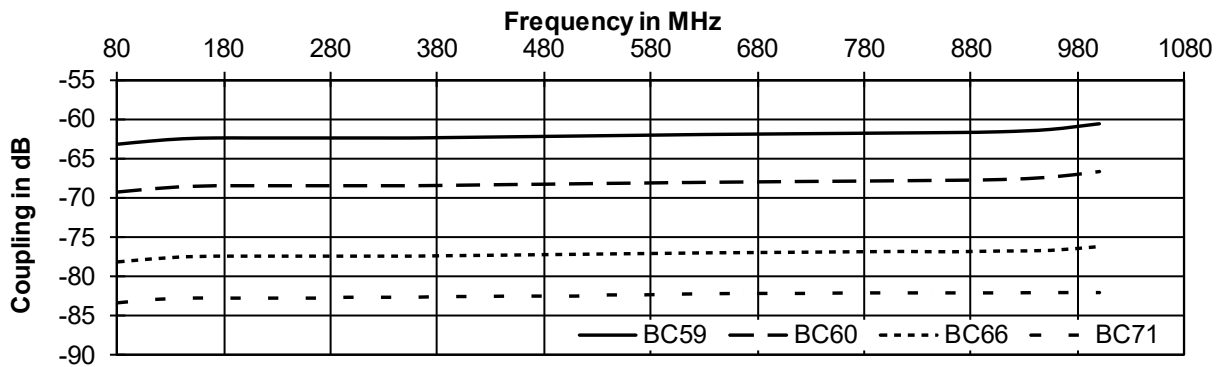


# R&S®DDC25-BC dual directional coupler, 80 MHz to 1 GHz

## Directivity



## Coupling



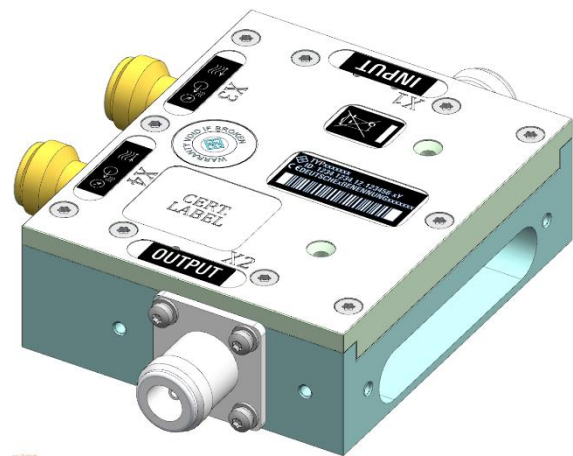
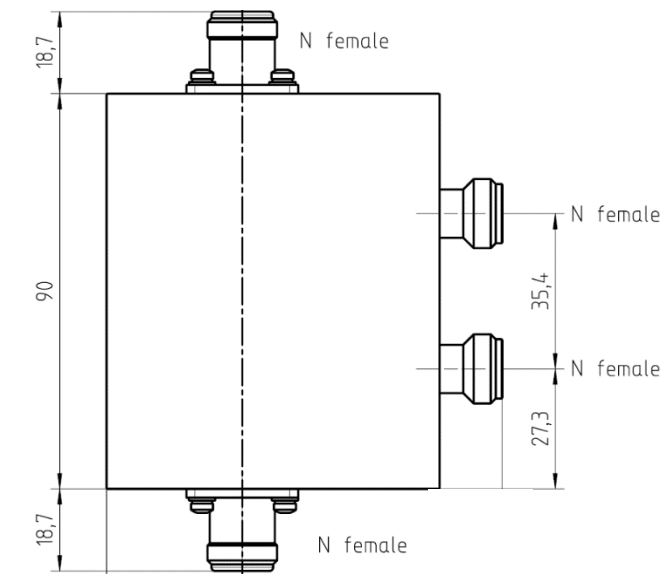
## RF specifications

Main parameters		
Frequency range		80 MHz to 1 GHz
CW power at 50 Ω   at VSWR 6:1	R&S®DDC25-BC59 (N female, N female)	max. 1000 W   750 W
	R&S®DDC25-BC60 (7-16, N female)	max. 1500 W   1000 W
	R&S®DDC25-BC66 (1 5/8" EIA, N female)	max. 5500 W   4000 W
	R&S®DDC25-BC71 (3 1/8" EIA, N female)	
	100 MHz	max. 67 kW   33 kW
	250 MHz	max. 44 kW   22 kW
	1000 MHz	max. 21 kW   10 kW
Directivity		min. 25 dB
Coupling	R&S®DDC25-BC59	62 dB ± 4 dB
	R&S®DDC25-BC60	67 dB ± 4 dB
	R&S®DDC25-BC66	76 dB ± 4 dB
	R&S®DDC25-BC71	82.5 dB ± 1 dB
Flatness		±2 dB
Insertion loss		max. 0.2 dB
VSWR	at 50 Ω	max. 1.1:1
Mismatch tolerance	at specified CW power for VSWR 6:1	unlimited
Nominal impedance		50 Ω

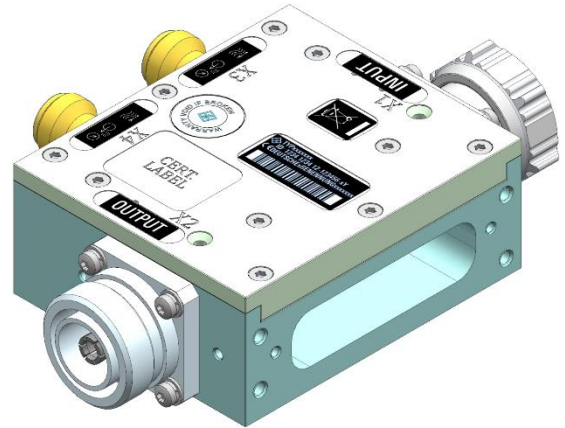
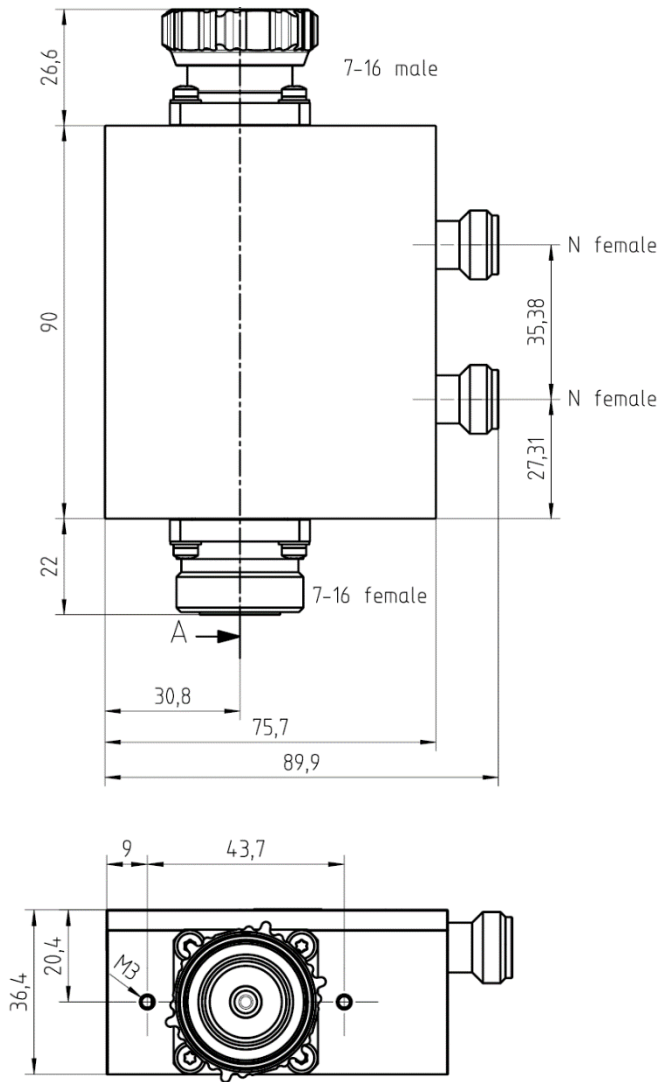
## Mechanical specifications

Dimensions (W x H x D)	R&S <sup>®</sup> DDC25-BC59	75.7 mm x 29.6 mm x 90 mm (2.98 in x 1.16 in x 3.55 in)
	R&S <sup>®</sup> DDC25-BC60	75.7 mm x 36.4 mm x 90 mm (2.98 in x 1.43 in x 3.55 in)
	R&S <sup>®</sup> DDC25-BC66	185 mm x 88.8 mm x 103.5 mm (7.28 in x 3.50 in x 4.07 in)
	R&S <sup>®</sup> DDC25-BC71	314 mm x 95.85 mm x 116.1 mm (12.36 in x 3.76 in x 4.57 in)
Weight	R&S <sup>®</sup> DDC25-BC59	approx. 1.5 kg (3.3 lb)
	R&S <sup>®</sup> DDC25-BC60	approx. 1.5 kg (3.3 lb)
	R&S <sup>®</sup> DDC25-BC66	approx. 1.8 kg (3.9 lb)

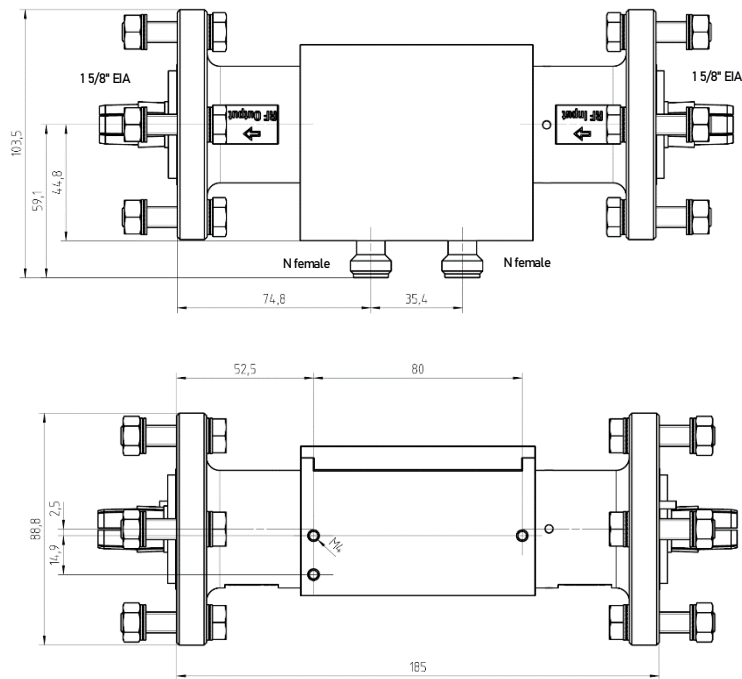
# R&S® DDC25-BC59



# R&S® DDC25-BC60

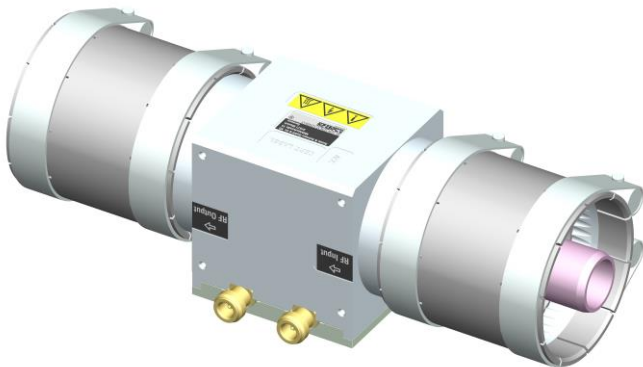
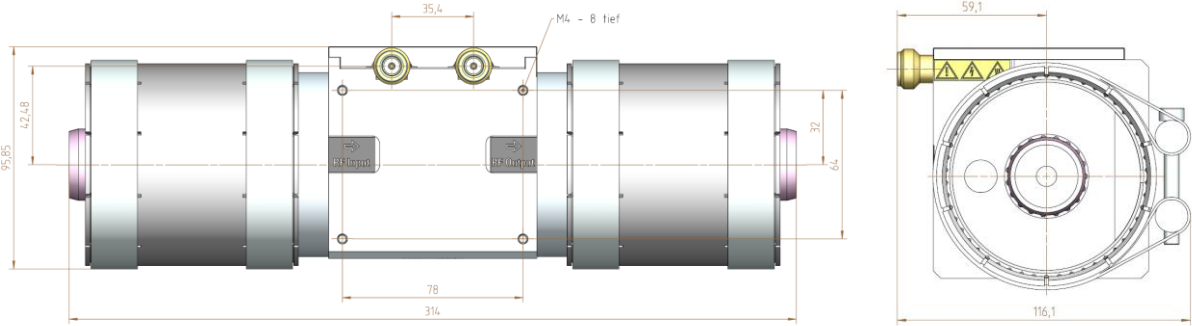


# R&S® DDC25-BC66



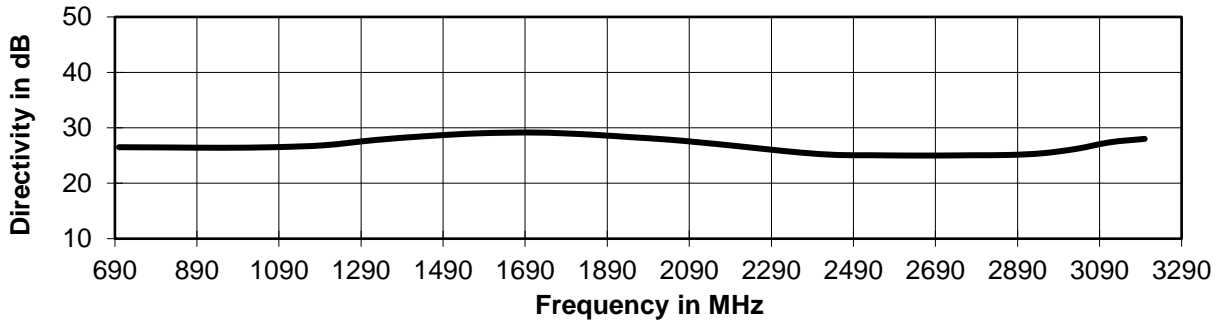


# R&S® DDC25-BC71

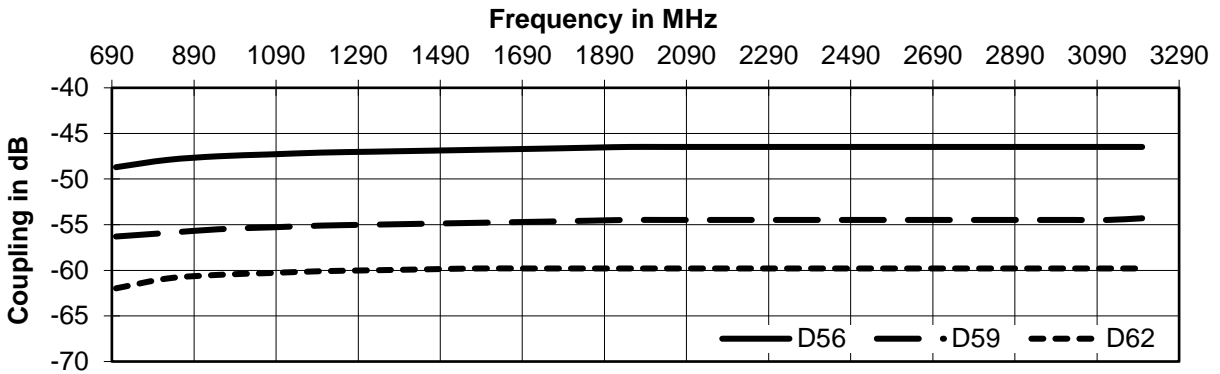


# R&S®DDC25-D dual directional coupler, 690 MHz to 3.2 GHz

## Directivity



## Coupling



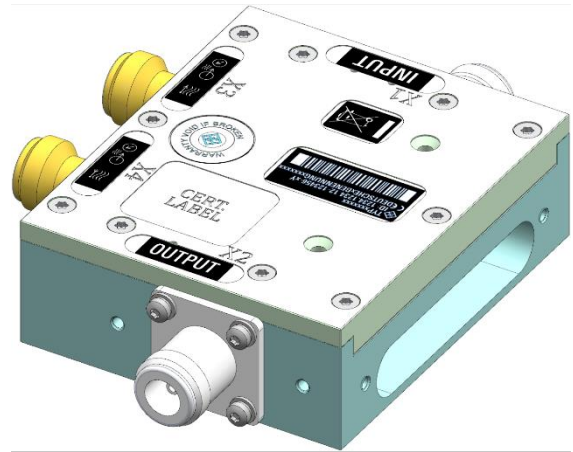
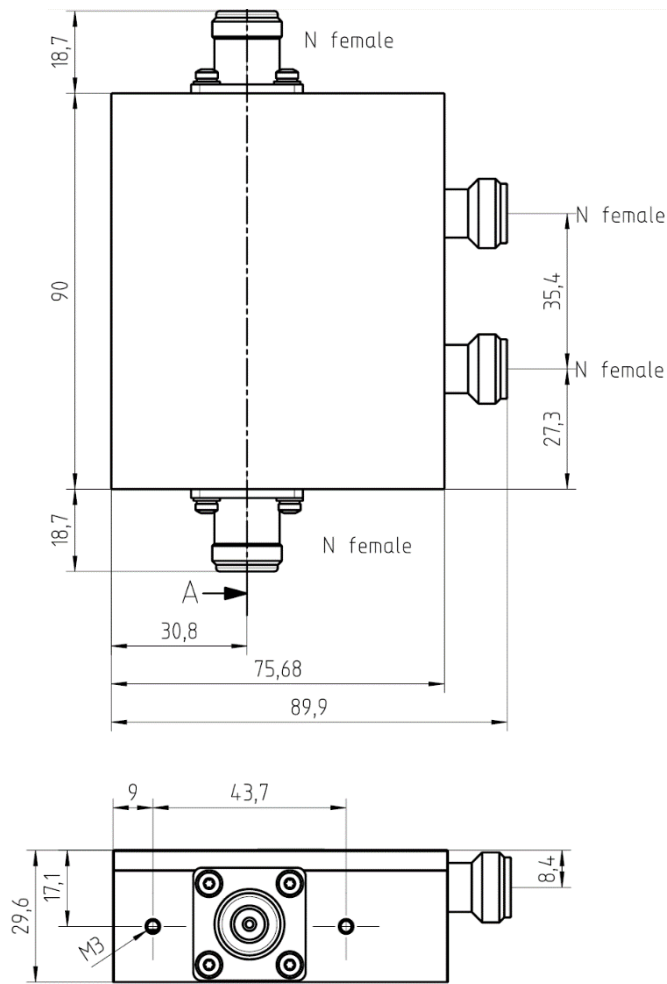
## RF specifications

Main parameters		
Frequency range		0.69 GHz to 3.2 GHz
CW power at 50 Ω   at VSWR 6:1	R&S®DDC25-D56 (N female, N female)	max. 600 W   400 W
	R&S®DDC25-D59 (7-16, N female)	max. 1500 W   750 W
	R&S®DDC25-D62	max. 2250 W   1500 W
	(13/30 with 7/8" EIA adapter, N female)	
Directivity		min. 23 dB
Coupling	R&S®DDC25-D56	49 dB ± 5 dB
	R&S®DDC25-D59	55.5 dB ± 5 dB
	R&S®DDC25-D62	61.5 dB ± 5 dB
Flatness		±3 dB
Insertion loss		max. 0.2 dB
VSWR	at 50 Ω	max. 1.1:1
Mismatch tolerance	at specified CW power for VSWR 6:1	unlimited
Nominal impedance		50 Ω

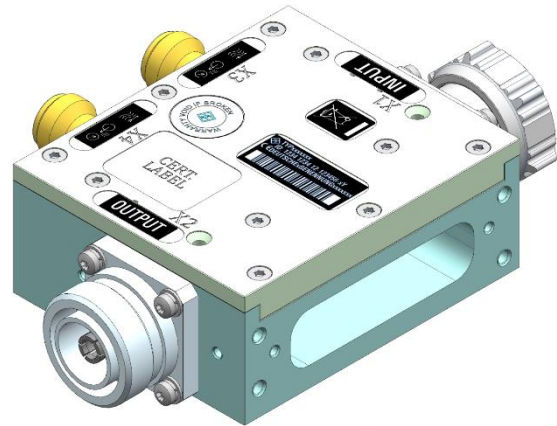
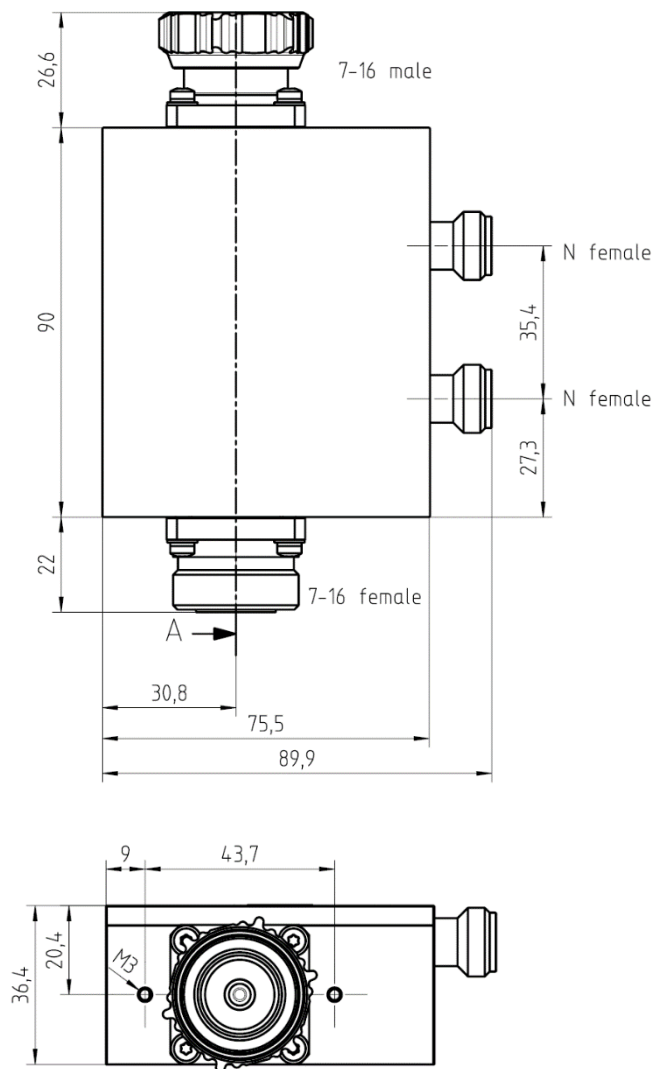
## Mechanical specifications

Dimensions (W x H x D)	R&S®DDC25-D56	75.7 mm x 29.6 mm x 90 mm (2.98 in x 1.16 in x 3.55 in)
	R&S®DDC25-D59	75.5 mm x 36.4 mm x 90 mm (2.97 in x 1.43 in x 3.55 in)
	R&S®DDC25-D62	232 mm x 75.7 mm x 57.2 mm (9.13 in x 2.98 in x 2.25 in)
Weight	R&S®DDC25-D56	approx. 1.5 kg (3.3 lb)
	R&S®DDC25-D59	approx. 1.5 kg (3.3 lb)
	R&S®DDC25-D62	approx. 1.8 kg (3.9 lb)

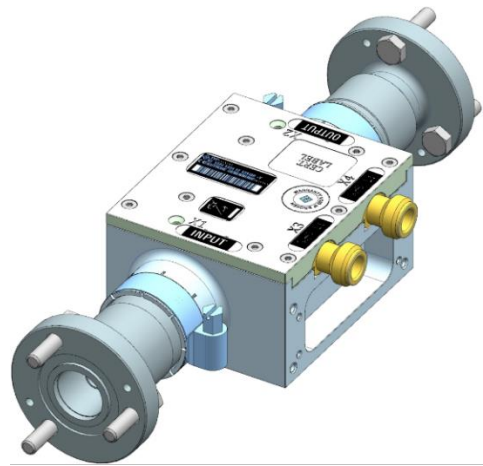
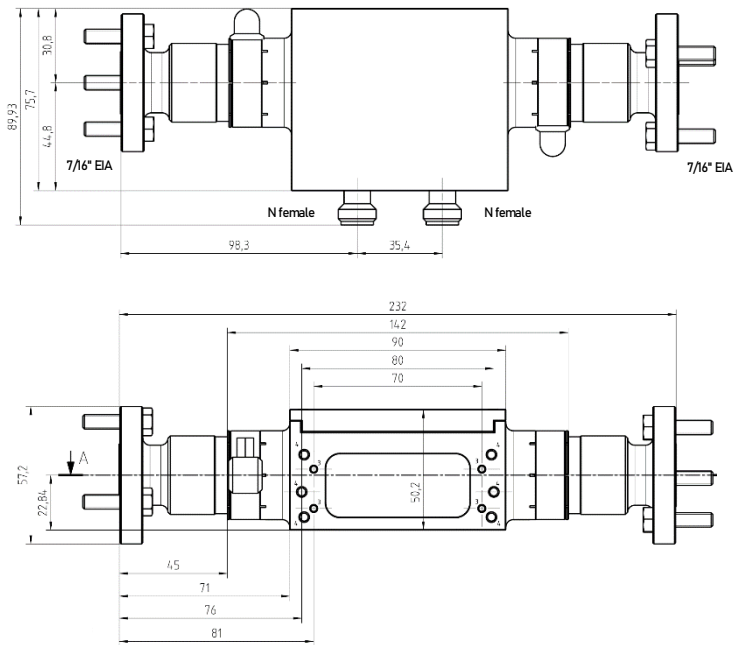
# R&S®DDC25-D56



## R&amp;S® DDC25-D59

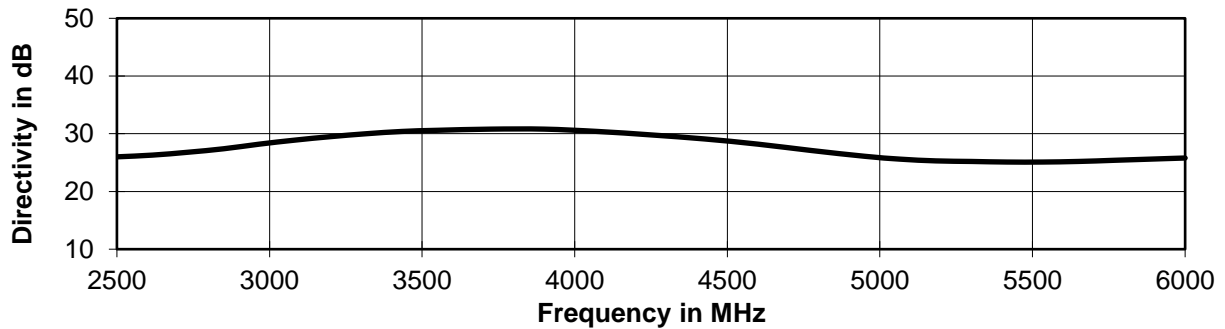


# R&S® DDC25-D62

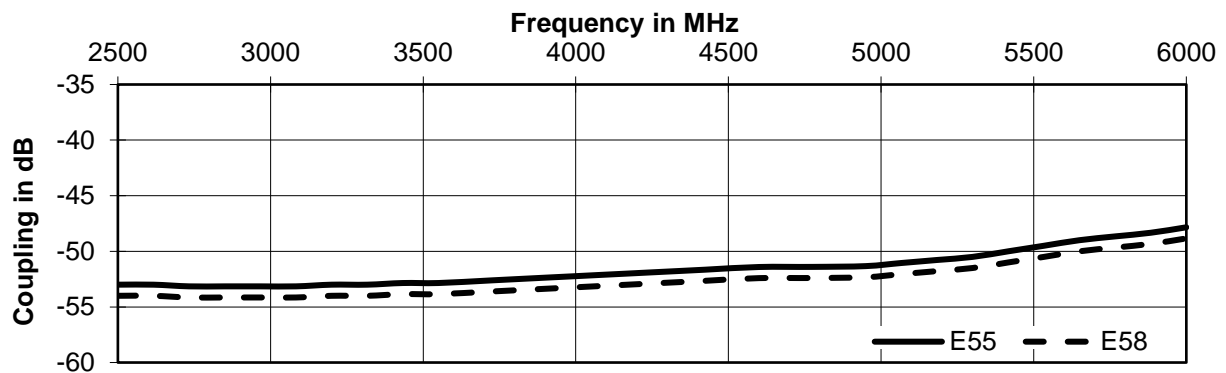


# R&S®DDC25-E dual directional coupler, 2.5 GHz to 6 GHz

## Directivity



## Coupling



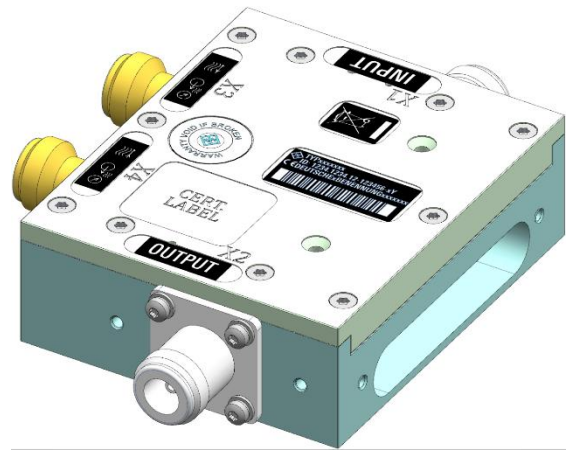
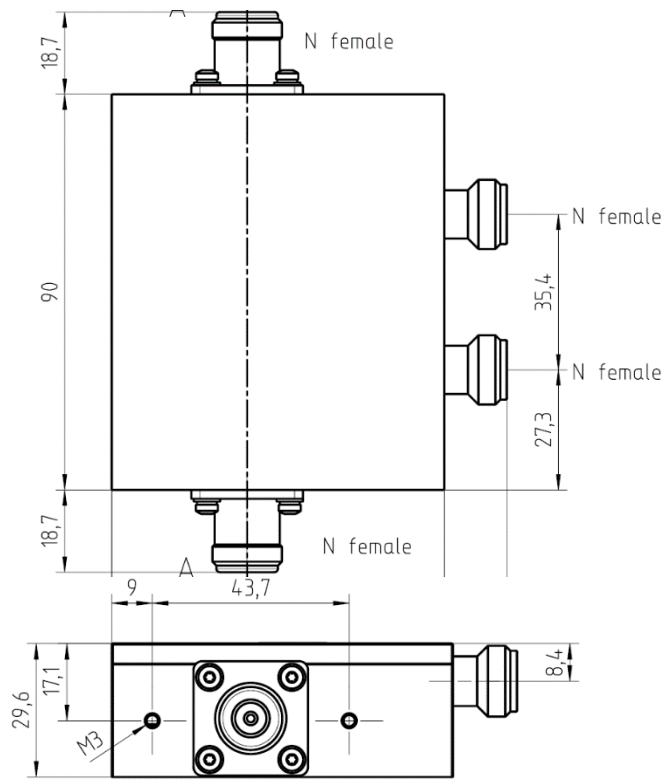
## RF specifications

Main parameters		
Frequency range		2.5 GHz to 6 GHz
CW power at 50 Ω   at VSWR 6:1	R&S®DDC25-E55 (N female, N female)	max. 350 W   250 W
	R&S®DDC25-E58 (7-16, N female)	max. 600 W   450 W
Directivity		min. 20 dB
Coupling	R&S®DDC25-E55	49 dB ± 5 dB
	R&S®DDC25-E58	49 dB ± 5 dB
Flatness		±3 dB
Insertion loss		max. 0.3 dB
VSWR	at 50 Ω	max. 1.2:1
Mismatch tolerance	at specified CW power for VSWR 6:1	unlimited
Nominal impedance		50 Ω

## Mechanical specifications

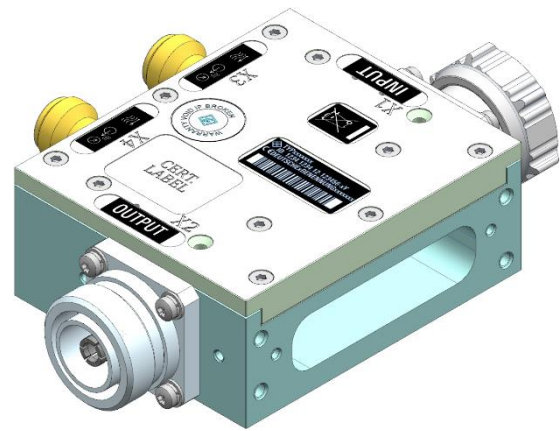
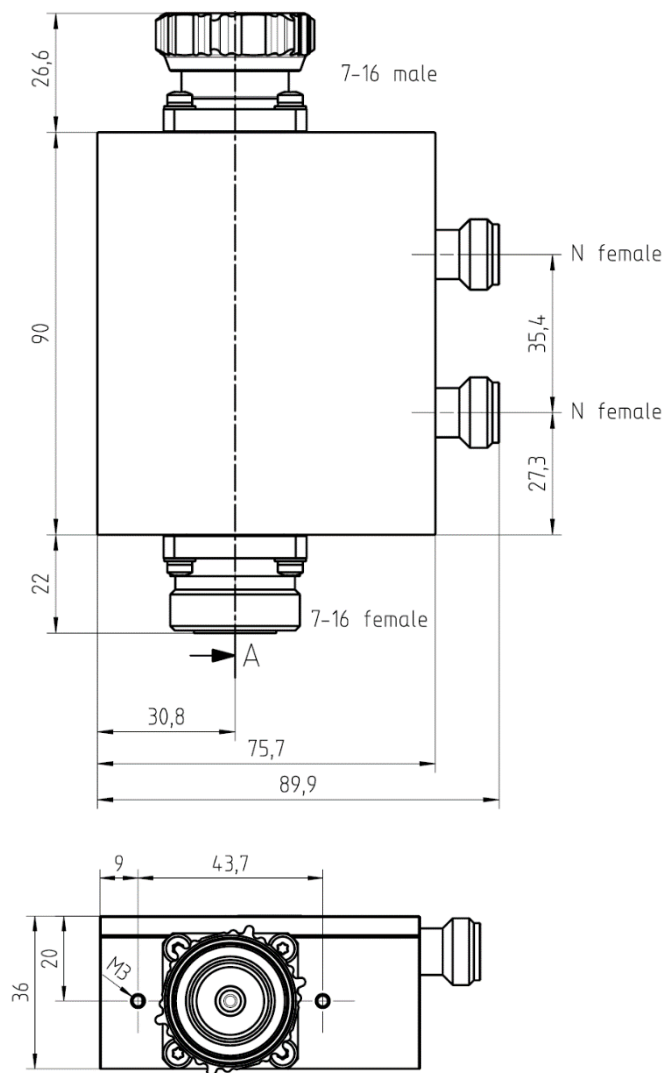
Dimensions (W × H × D)	R&S®DDC25-E55	75.7 mm × 29.6 mm × 90 mm (2.98 in × 1.16 in × 3.55 in)
	R&S®DDC25-E58	75.7 mm × 36.0 mm × 90 mm (2.98 in × 1.42 in × 3.55 in)
Weight	R&S®DDC25-E55	approx. 1.5 kg (3.3 lb)
	R&S®DDC25-E58	approx. 1.5 kg (3.3 lb)

# R&S®DDC25-E55



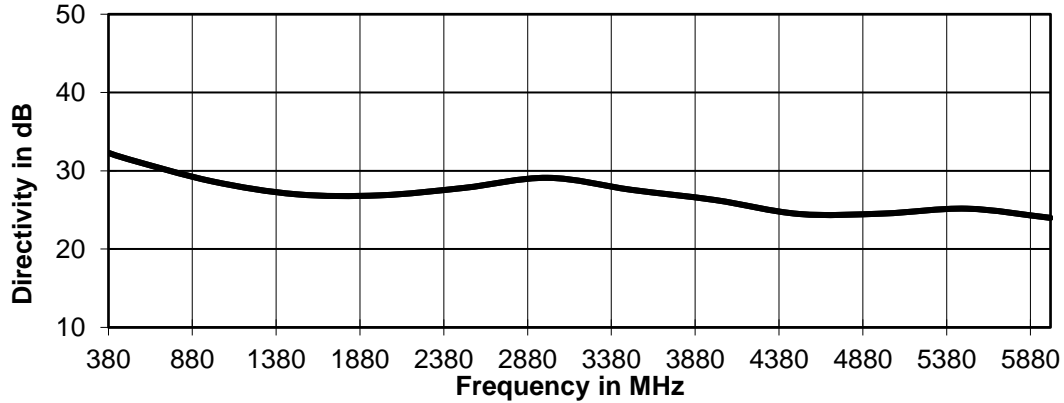


## R&amp;S®DDC25-E58

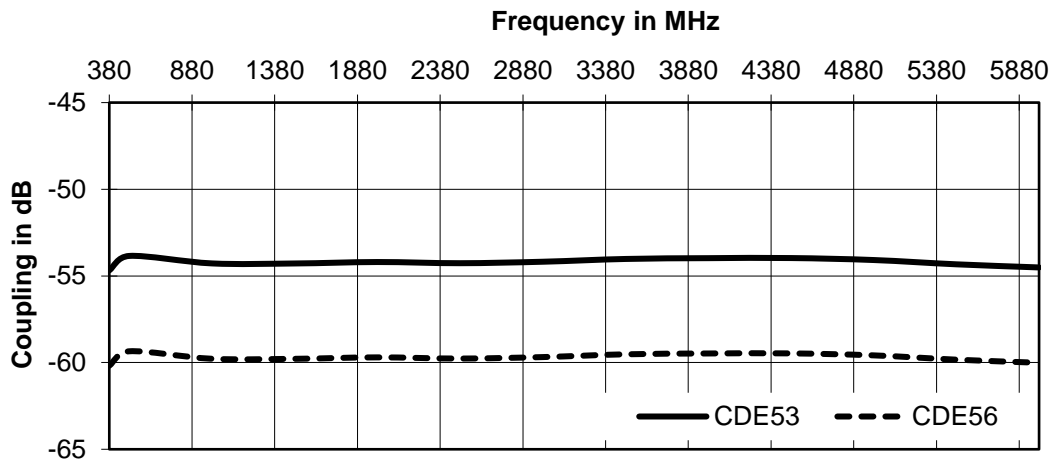


# R&S®DDC25-CDE dual directional coupler, 380 MHz to 6 GHz

## Directivity



## Coupling



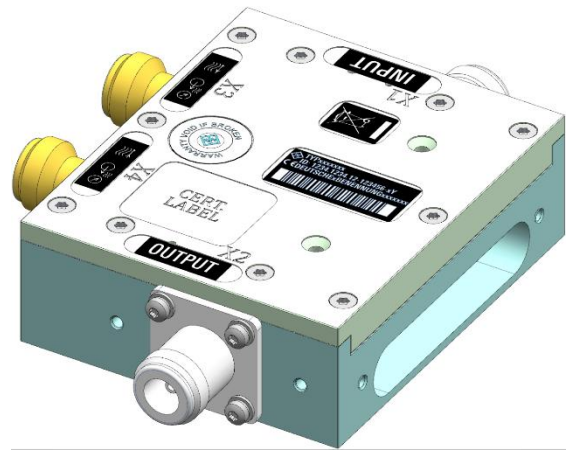
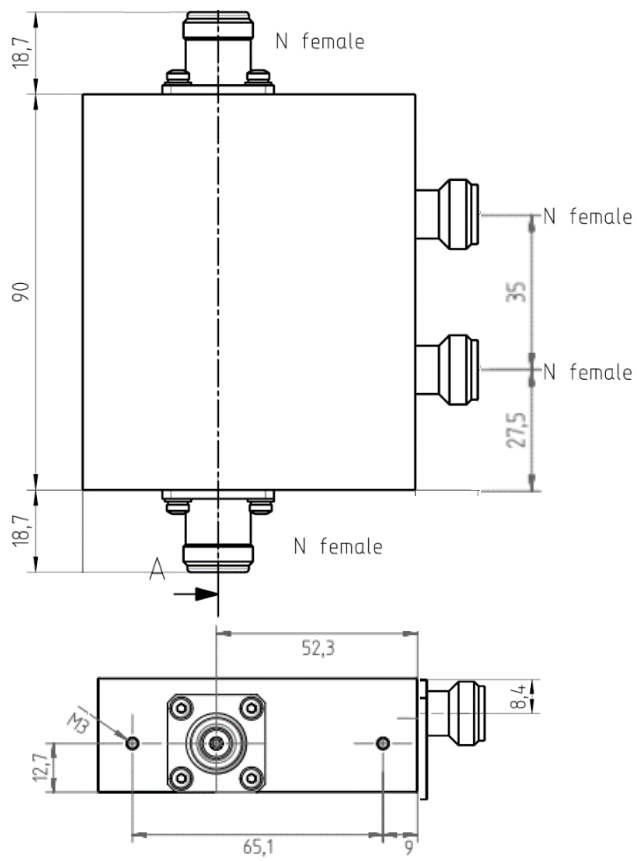
## RF specifications

Main parameters		
Frequency range		380 MHz to 6 GHz
CW power at 50 Ω   at VSWR 6:1	R&S®DDC25-CDE53(N female, N female) R&S®DDC25-CDE56 (7-16 , N female)	max. 300 W   200 W max. 400 W   300 W
Directivity		min. 22 dB
Coupling	R&S®DDC25-CDE53 R&S®DDC25-CDE56	54 dB ± 1 dB 60 dB ± 1 dB
Flatness		±0.75 dB
Insertion loss		max. 0.15 dB
VSWR	at 50 Ω	max. 1.2:1
Mismatch tolerance	at specified CW power for VSWR 6:1	unlimited
Nominal impedance		50 Ω

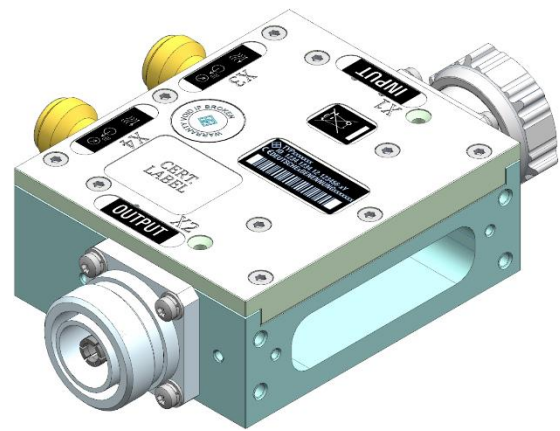
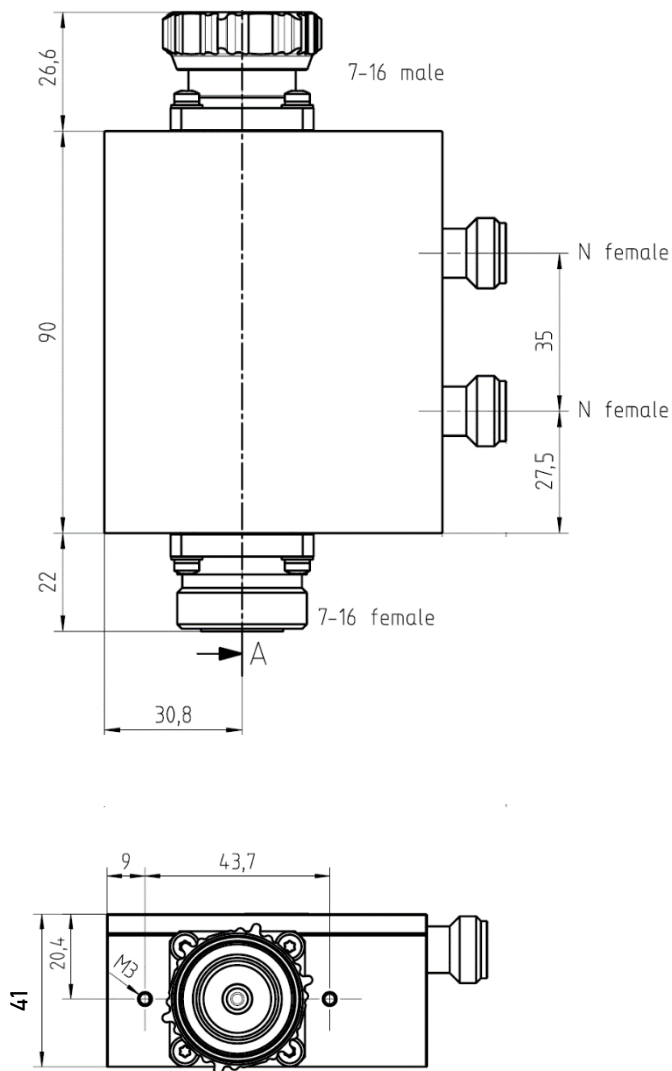
## Mechanical specifications

Dimensions (W × H × D)	R&S®DDC25-CDE53	75.7 mm × 29.6 mm × 90 mm (2.98 in × 1.16 in × 3.55 in)
	R&S®DDC25-CDE56	75.7 mm × 29.6 mm × 90 mm (2.98 in × 1.16 in × 3.55 in)
Weight	R&S®DDC25-CDE53	approx. 1.5 kg (3.3 lb)
	R&S®DDC25-CDE56	approx. 1.5 kg (3.3 lb)

## R&amp;S®DDC25-CDE53



# R&S® DDC25-CDE56



## General data

### Environmental specifications

Temperature loading	operating temperature range	0 °C to +40 °C
	storage temperature range	-20 °C to +70 °C
Damp heat		max. +40 °C at 95 % relative humidity, without condensation
Altitude	operating altitude	up to 2000 m
	storage altitude	up to 4600 m
Mechanical resistance test values of desktop models	vibration, sinusoidal	in line with EN 60068-2-6: 5 Hz to 55 Hz, displacement: 0.15 mm, > 55 Hz to 150 Hz, acceleration: 0.5 g
	vibration, random	in line with EN 60068-2-64: effective acceleration $\leq 1.2$ g, 10 Hz to 300 Hz, acceleration density: 0.003 g <sup>2</sup> /Hz
	shock	in line with EN 60068-2-27: 18 saw tooth shocks, each 40 g in 11 ms MIL-STD-810E method no. 516.4, procedure I
Calibration interval		2 years

### Calibration

Manufacturer calibration, ISO 17025		included
Accredited calibration, ISO 17025 (DKD)		optional
Calibration interval		2 years

## Ordering information

### Frequency band from 9 kHz to 250 MHz

Designation	Type	Order No.
Dual directional coupler, 9 kHz to 250 MHz, 400 W, N connection	R&S <sup>®</sup> DDC25-A54	5355.4902.10
Dual directional coupler, 9 kHz to 250 MHz, 3000 W, 7-16 connection	R&S <sup>®</sup> DDC25-A63	5355.4902.20
Dual directional coupler, 9 kHz to 250 MHz, 6000 W, 1 5/8" EIA connection	R&S <sup>®</sup> DDC25-A67	5355.4902.50

### Frequency band from 9 kHz to 400 MHz

Designation	Type	Order No.
Dual directional coupler, 9 kHz to 400 MHz, 300 W, N connection	R&S <sup>®</sup> DDC25-AB55	5355.4983.11

### Frequency band from 80 MHz to 1.0 GHz

Designation	Type	Order No.
Dual directional coupler, 80 MHz to 1 GHz, 1000 W, N connection	R&S <sup>®</sup> DDC25-BC59	5355.4919.10
Dual directional coupler, 80 MHz to 1 GHz, 1500 W, 7-16 connection	R&S <sup>®</sup> DDC25-BC60	5355.4919.20
Dual directional coupler, 80 MHz to 1 GHz, 5500 W, 1 5/8" EIA connection	R&S <sup>®</sup> DDC25-BC66	5355.4919.50
Dual directional coupler, 80 MHz to 1 GHz, 67 kW/21 kW, 3 1/8" EIA connection	R&S <sup>®</sup> DDC25-BC71	5355.4919.70

### Frequency band from 690 MHz to 3.2 GHz

Designation	Type	Order No.
Dual directional coupler, 0.69 GHz to 3.2 GHz, 600 W, N connection	R&S <sup>®</sup> DDC25-D56	5355.4925.10
Dual directional coupler, 0.69 GHz to 3.2 GHz, 1500 W, 7-16 connection	R&S <sup>®</sup> DDC25-D59	5355.4925.20
Dual directional coupler, 0.69 GHz to 3.2 GHz, 2250 W, 7/8" EIA connection	R&S <sup>®</sup> DDC25-D62	5355.4925.30

### Frequency band from 2.5 GHz to 6.0 GHz

Designation	Type	Order No.
Dual directional coupler, 2.5 GHz to 6 GHz, 350 W, N connection	R&S <sup>®</sup> DDC25-E55	5355.4931.10
Dual directional coupler, 2.5 GHz to 6 GHz, 600 W, 7-16 connection	R&S <sup>®</sup> DDC25-E58	5355.4931.20

### Frequency band from 380 MHz to 6.0 GHz

Designation	Type	Order No.
Dual directional coupler, 380 MHz to 6.0 GHz, 300 W, N connection	R&S <sup>®</sup> DDC25-CDE53	5355.4990.10
Dual directional coupler, 380 MHz to 6.0 GHz, 400 W, 7-16 connection	R&S <sup>®</sup> DDC25-CDE56	5355.4990.20

## Service

Designation	Type	Order No.
Manufacturer calibration, ISO 17025, recalibration	R&S <sup>®</sup> CAL-MAN	5930.0015.00
Accredited calibration, ISO 17025 (DKD), for R&S <sup>®</sup> DDC25-A54	R&S <sup>®</sup> ACADDC25-A	3597.0091.03
Accredited calibration, ISO 17025 (DKD), for R&S <sup>®</sup> DDC25-A63	R&S <sup>®</sup> ACADDC25-A	3597.0104.03
Accredited calibration, ISO 17025 (DKD), for R&S <sup>®</sup> DDC25-A67	R&S <sup>®</sup> ACADDC25-A	3597.0110.03
Accredited calibration, ISO 17025 (DKD), for R&S <sup>®</sup> DDC25-AB55	R&S <sup>®</sup> ACADDC25-A	3598.3907.03
Accredited calibration, ISO 17025 (DKD), for R&S <sup>®</sup> DDC25-BC59	R&S <sup>®</sup> ACADDC25-B	3597.0191.03
Accredited calibration, ISO 17025 (DKD), for R&S <sup>®</sup> DDC25-BC60	R&S <sup>®</sup> ACADDC25-B	3597.0185.03
Accredited calibration, ISO 17025 (DKD), for R&S <sup>®</sup> DDC25-BC66	R&S <sup>®</sup> ACADDC25-B	3597.0179.03
Accredited calibration, ISO 17025 (DKD), for R&S <sup>®</sup> DDC25-BC71	R&S <sup>®</sup> ACADDC25-B	3598.5797.03
Accredited calibration, ISO 17025 (DKD), for R&S <sup>®</sup> DDC25-D56	R&S <sup>®</sup> ACADDC25-D	3597.0162.03
Accredited calibration, ISO 17025 (DKD), for R&S <sup>®</sup> DDC25-D59	R&S <sup>®</sup> ACADDC25-D	3597.0156.03
Accredited calibration, ISO 17025 (DKD), for R&S <sup>®</sup> DDC25-D62	R&S <sup>®</sup> ACADDC25-D	3597.0140.03
Accredited calibration, ISO 17025 (DKD), for R&S <sup>®</sup> DDC25-E55	R&S <sup>®</sup> ACADDC25-E	3597.0133.03
Accredited calibration, ISO 17025 (DKD), for R&S <sup>®</sup> DDC25-E58	R&S <sup>®</sup> ACADDC25-E	3597.0127.03
Accredited calibration, ISO 17025 (DKD), for R&S <sup>®</sup> DDC25-CDE53	R&S <sup>®</sup> ACADDC25-CDE	3599.2310.03
Accredited calibration, ISO 17025 (DKD), for R&S <sup>®</sup> DDC25-CDE56	R&S <sup>®</sup> ACADDC25-CDE	3598.9792.03



**Service at Rohde & Schwarz**  
**You're in great hands**

- ▶ Worldwide
- ▶ Local and personalized
- ▶ Customized and flexible
- ▶ Uncompromising quality
- ▶ Long-term dependability

**Rohde & Schwarz**

The Rohde & Schwarz technology group is among the trailblazers when it comes to paving the way for a safer and connected world with its leading solutions in test & measurement, technology systems and networks & cybersecurity. Founded 90 years ago, the group is a reliable partner for industry and government customers around the globe. The independent company is headquartered in Munich, Germany and has an extensive sales and service network with locations in more than 70 countries.

[www.rohde-schwarz.com](http://www.rohde-schwarz.com)

**Sustainable product design**

- ▶ Environmental compatibility and eco-footprint
- ▶ Energy efficiency and low emissions
- ▶ Longevity and optimized total cost of ownership

Certified Quality Management

**ISO 9001**

Certified Environmental Management

**ISO 14001**

**Rohde & Schwarz training**

[www.training.rohde-schwarz.com](http://www.training.rohde-schwarz.com)

**Rohde & Schwarz customer support**

[www.rohde-schwarz.com/support](http://www.rohde-schwarz.com/support)

