

SpinnerFlex® TopFit Jumper SF 1/2"-50-PE; SF 1/2"-50-FR and SF 1/2"-50-CPR



Electrical Specification						
Impedance	50 Ω					
IM3 (2 x 20 W) <sup>1)</sup>	≤ -160 dBc / typ. -165 dBc					
1) Jumper cables with improved IM3 values are available on request.						
VSWR <sup>2)</sup>	Length ≤ 6 m			Length > 6 m		
Frequency range	straight/ straight	straight/ right angle	right angle/ right angle	straight/ straight	straight/ right angle	right angle/ right angle
≤ 960 MHz	≤ 1.05 typ. 1.03	≤ 1.06 typ. 1.04	≤ 1.07 typ. 1.05	≤ 1.07 typ. 1.04	≤ 1.08 typ. 1.05	≤ 1.09 typ. 1.06
≤ 2,200 MHz	≤ 1.06 typ. 1.05	≤ 1.08 typ. 1.06	≤ 1.10 typ. 1.07	≤ 1.08 typ. 1.06	≤ 1.10 typ. 1.07	≤ 1.12 typ. 1.08
≤ 2,700 MHz	≤ 1.10 typ. 1.06	≤ 1.12 typ. 1.07	≤ 1.14 typ. 1.08	≤ 1.12 typ. 1.07	≤ 1.14 typ. 1.08	≤ 1.16 typ. 1.09
≤ 3,800 MHz	≤ 1.12 typ. 1.10	≤ 1.14 typ. 1.11	≤ 1.16 typ. 1.12	≤ 1.14 typ. 1.11	≤ 1.16 typ. 1.12	≤ 1.18 typ. 1.13
≤ 5,825 MHz <sup>3)</sup>	≤ 1.18 typ. 1.14	≤ 1.20 typ. 1.16	≤ 1.22 typ. 1.18	≤ 1.20 typ. 1.15	≤ 1.22 typ. 1.17	≤ 1.24 typ. 1.19
2) The given VSWR values are maintained within all global cellular frequency bands.						
3) Extended frequency range for premium quality. Please specify before order.						
	960 MHz	2,200 MHz	2,700 MHz	3,800 MHz	5,825 MHz	
Insertion loss, nominal <small>(20 °C cable temperature values without connectors, typ. connector attenuation is ≤ 0.01 dB)</small>	11.56 dB/100m	18.64 dB/100m	21.06 dB/100m	25.90 dB/100m	33.79 dB/100m	
max. Power rating <small>(40 °C ambient temperature)</small>	0.91 kW	0.56 kW	0.49 kW	0.42 kW	0.31 kW	

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Mechanical Specification								
Minimum bending radius	Single / repeated bending radius 25 mm / 32 mm							
Crush resistance	20.4 N/mm							
Recommended clamp spacing	800 mm							
Cable jacket	PE black (grey jacket available on request)							
Nominal outer jacket diameter	13.7 mm							
Connector	Material				Surface			
Inner conductor	Cu-alloy				Ag-plated			
Outer conductor	Cu-alloy				Ag-plated or CuSnZn-plated			
Other metal parts	Cu-alloy				Ni-plated			
Insulation	PTFE, PE							
Sealing	Silicone rubber							
Installation instruction	M30804							
Length definition								
Length [m]	> 0.5 - 1.0	> 1.0 - 1.5	> 1.5 - 2.5	> 2.5 - 4.0	> 4.0 - 6.0	> 6.0 - 10.0	> 10.0 - 15.0	> 15.0 - 20.0
Tolerances [mm]	± 10	± 15	± 25	± 40	± 60	± 100	± 150	± 200

Environmental Specification			
Degree of protection	IP 68 (0.1 bar / 6 hours / unmated) IP 68 (1 bar / 1 hour / mated)		
Recommended temperature range	Storage	Installation	Operation
SF 1/2"-50-PE	-70 °C to +85 °C	-40 °C to +60 °C	-55 °C to +85 °C
SF 1/2"-50-FR	-30 °C to +80 °C	-25 °C to +60 °C	-30 °C to +80 °C
SF 1/2"-50-CPR	-30 °C to +80 °C	-15 °C to +60 °C	-30 °C to +80 °C
Cable jacket	Halogen free acc. to IEC 60754-1 and IEC 60754-2		
All jacket types (PE, FR and CPR)	Fire retardant acc. to IEC 60332-1, IEC 60332-3.C, IEC 61034 and UL 1581-1991		
SF 1/2"-50-FR	Fire class: B2ca, s1a, d0, a1 acc. to CPR: EN 50575		
SF 1/2"-50-CPR	Fire class: B2ca, s1a, d0, a1 acc. to CPR: EN 50575		
RoHS	compliant to directive 2011/65/EU and amendment (EU) 2015/863		

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Sales product numbers

Jumper	Cable Type	Cable Size	Cable Jacket	Connector 1	Connector 2	Length	Unit	Length	Extra Features		
<b>J</b>	<b>Z</b>	<b>X</b>	<b>Z</b>	<b>-</b>	<b>XZ</b>	<b>XZ</b>	<b>-</b>	<b>X</b>	<b>Z</b>	<b>X</b>	<b>-Z</b>
LF	L		Blank for PE	Any combination of connectors below is possible.							Leave blank if not applicable
SF	S			Please specify an XZ combination for connectors 1 and 2.							
1/4"		14		In case of pigtail leave blank for connector 2							
3/8"		38									
1/2"		12									
Fire retardant			F								
Construction Products Regulation (CPR)			C								
Gray			G								
X = Connector System	Z = Connector Style			X	Z						
7-16	Male			7	M						
4.1-9.5	Male right angle			41	R						
N	Female (right angle)			N	F(R)						
	Female bulkhead (right angle)				B(R)						
	Female four-hole panel (right angle)				P(R)						
4.3-10	Male; screw			43	MS						
2.2-5	Male; hand screw			22	MH						
NEX10®	Male; push-pull			X	MP						
	Male right angle; screw				RS						
	Male right angle; hand screw				RH						
	Male right angle; push-pull				RP						
	Female (right angle)				F(R)						
	Female bulkhead (right angle)				B(R)						
	Female four-hole panel (right angle)			P(R)							
Length in meters/feet (depending on unit specified)											
Meters as unit								M			
Feet as unit								F			
Length in decimeters/inches (depending on unit specified)											
Low PIM Measurement Cable (only available with PE jacket)											
- Passive intermodulation (IM3) @ 2 x 20 W ≤ -160 dBc <sup>1)</sup> , inspection certificate 3.1 <sup>2)</sup> , per jumper									I0		
- Passive intermodulation (IM3) @ 2 x 20 W ≤ -160 dBc <sup>1)</sup> , inspection certificate 3.1 <sup>2)</sup> , per order									I1		
- Passive intermodulation (IM3) @ 2 x 20 W ≤ -165 dBc <sup>1)</sup> , inspection certificate 3.1 <sup>2)</sup> , per jumper									I2		
- Passive intermodulation (IM3) @ 2 x 20 W ≤ -165 dBc <sup>1)</sup> , inspection certificate 3.1 <sup>2)</sup> , per order									I3		
- Passive intermodulation (IM3) @ 2 x 20 W ≤ -170 dBc <sup>1)</sup> , inspection certificate 3.1 <sup>2)</sup> , per jumper									I4		
- Passive intermodulation (IM3) @ 2 x 20 W ≤ -170 dBc <sup>1)</sup> , inspection certificate 3.1 <sup>2)</sup> , per order									I5		
Defined phase length									P		
Extended frequency range (> 3800 MHz)									E		
Connector specified on side B kitted to the jumper									K		
Jumper set									S		

1) According to IEC 62037-2 and WN 20 000  
 2) According to EN 10204

Examples, see next page

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#### Sales product numbers – Examples for Jumper

- **JL12-7M43RS-2M5**  
Jumper LF 1/2", connectors 7-16 male and 4.3-10 male right angle screw type, length 2.5 meter
- **JS12-43MS-20F5**  
Jumper SF 1/2", connectors 4.3-10 male screw type and pigtail; length 20 feet 5 inch
- **JL12-7M7MR-10M-K**  
Jumper LF 1/2", connectors 7-16 male and 7-16 male right angle, length 10 meter, 7-16 male right angle MultiFit connector is kitted to the loose end

#### Examples for measurement cables

- **JS38-7M7F-2M-I3**  
Jumper SF 3/8", connectors 7-16 male and 7-16 female, length 2 meter, low PIM performance with  $\leq -165$  dBc, inspection certificate 3.1 per order
- **JS12-7M43RS-1M3-I4**  
Jumper SF 1/2", connectors 7-16 male and 4.3-10 male right angle screw type, length 1.3 meter, low PIM performance with  $\leq -170$  dBc, inspection certificate 3.1 per jumper

#### Customized jumpers

The jumpers shown above can be customized to meet specific requirements such as grey cable jacket, extended frequency range, predefined phase length or for measurement purpose. In latter case please specify required inspection certificate 3.1. In case of low PIM test cables please specify the required IM3 thresholds (e.g. -170 dBc max.).



Figure shows low PIM measurement jumpers with 4.3-10 male screw type and 7-16 interfaces.

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**7-16 connector system (according to IEC 61169-4)**

Plug straight	Plug right angle	Socket

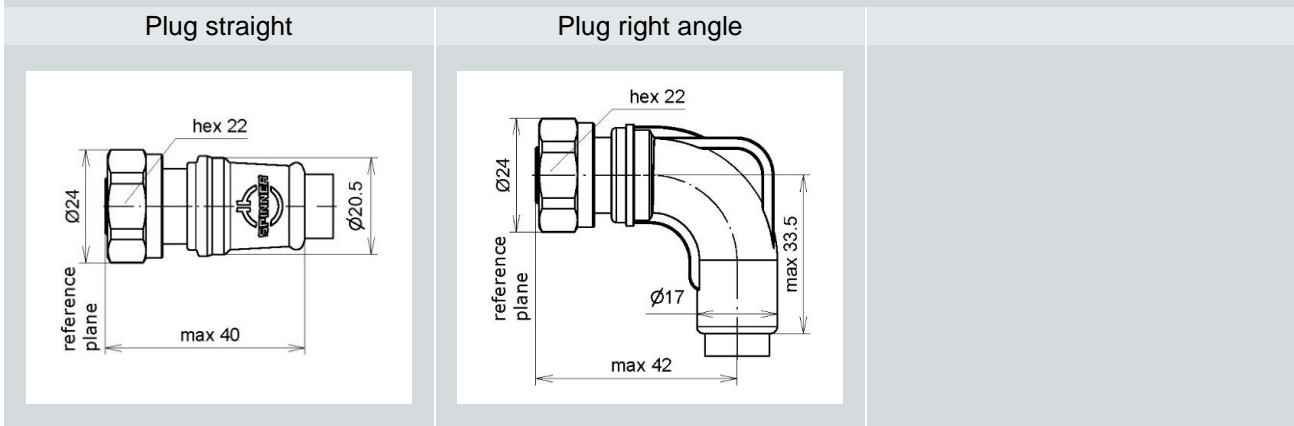
**4.3-10 connector system (according to IEC 61169-54)**

Plug straight (screw)	Plug right angle (screw)	Socket
Plug straight (hand-screw)	Plug right angle (hand-screw)	
Plug straight (push pull)	Plug right angle (push pull)	

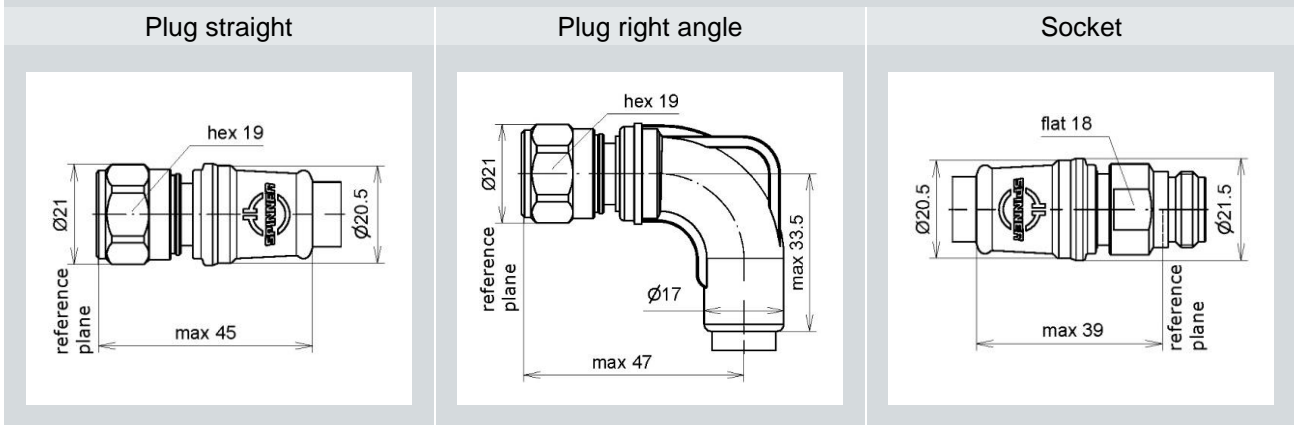
Dimensions in mm, values above are maximum dimensions and can vary slightly dependent on the cable clamp used.

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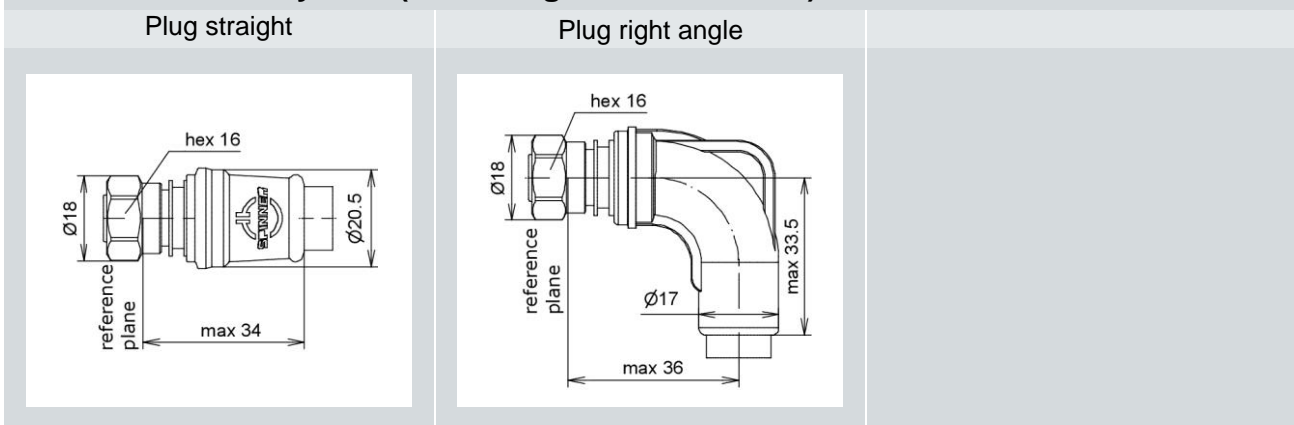
**4.1-9.5 connector system (according to IEC 60169-11)**



**N connector system (according to IEC 61169-16)**

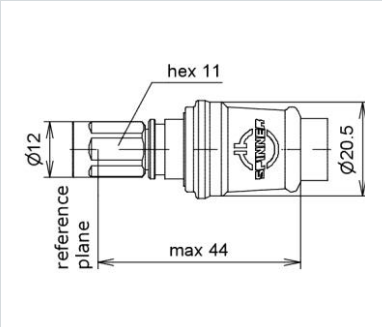
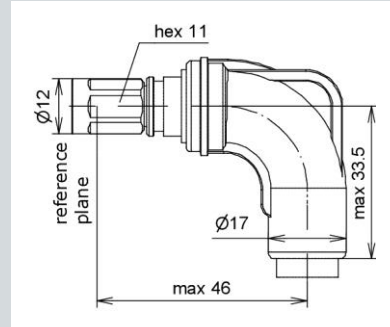
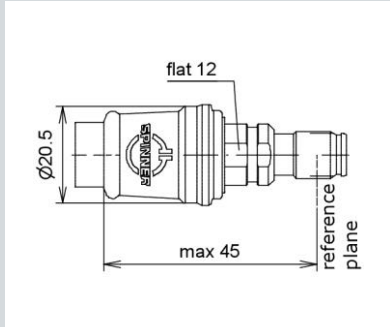


**2.2-5 connector system (according to IEC 61169-66)**



Dimensions in mm, values above are maximum dimensions and can vary slightly dependent on the cable clamp used.

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NEX10 connector system (according to IEC 61169-71)		
Plug straight	Plug right angle	Socket
		

Dimensions in mm, values above are maximum dimensions and can vary slightly dependent on the cable clamp used.