

SECTION 5

COMBINATION CONNECTORS DIN EN

The combination connectors in accordance with DIN EN 60603-2 offer a variety of applications. The design allows a combination of signal, high current, high voltage and coaxial contacts.

Standard termination types such as solder cup, PCB solder tails, straight right angle and wire wrap tails are available.



60603-2

**Product features:**

- Saves space on your PCB
- Various termination method
- Cost factor, one item as compared with separate connectors
- Easy assembly of high power and coaxial contacts
- High power and coaxial contacts are screw-machine types
- Gold plating options available

Fully assembled connectors with high power or coaxial contacts are available.



PART NUMBER CREATOR

9 0 7 8 M 2 M A T 1 1 X 9 0 X

Type

9 = Type M - DIN EN 60603-2

Variations

Type M = 40+4, 42+6, 52+2, 60+4, 78+2

Type M = 16+8, 24+8, 28+6

Mini type M = 8+4, 12+4, 20+2, 30+2

+ = to substitute "M" (look at example)

Type of contact

M = Male connector

F = Female connector

Quality class for contacts

A = Quality class 3 = 50 cycles

B = Quality class 2 = 400 cycles

C* = Quality class 1 = 500 cycles *on request

Termination only for signal contacts

N* = Wire Wrap *not available as male connector

R = solder pin straight

T* = solder pin angled *not available as female connector

Termination for high power and coaxial contacts

11/27 = Solder lug 10 A

12/28 = Solder lug 20 A

14/29 = Solder lug 40 A

19/39 = Solder pin straight 20 A

20/40 = Solder pin straight 40 A

18/17 = Solder pin angled 10 A

21/16 = Solder pin angled 20 A

23/15 = Solder pin angled 40 A

26/13 = 4 solder pins angled 40 A

31 = 5 solder pins straight 50 Ω

32 = 5 solder pins straight 50 Ω

33 = 5 solder pins straight 75 Ω

35 = 5 solder pins angled 50 Ω

36 = 5 solder pins angled 75 Ω

99 = without contacts

Mounting style

X9 = Mounting hole for screwed or rivet

Standard

OX = Standard

TECHNICAL INFORMATION

SKIN EFFECT

Alternating currents do not uniformly occupy the entire cross section of the conductor, rather inductance effect in the conductor deflects the current towards the surface of the conductor, whereby this deflection increases with the frequency. The resistive attenuation of a transmission line increases with the frequency as a result of this skin effect. The skin depth (equivalent thickness of the layer in which current flows) can be determined using

$$\delta = \frac{1}{\sqrt{f \pi \sigma \mu_0 \mu_r}}$$

f = frequency

σ = conductivity of the conductor material

$\sigma_{Ag} = 62 \times 10^6 \text{ S/m}$

$\sigma_{Cu} = 58 \times 10^6 \text{ S/m}$

$\mu_0 = 1,256 \times 10^{-6} \text{ Vs / Am}$

μ_r ... relative permeability constant for the employed material

VSWR-VALUE

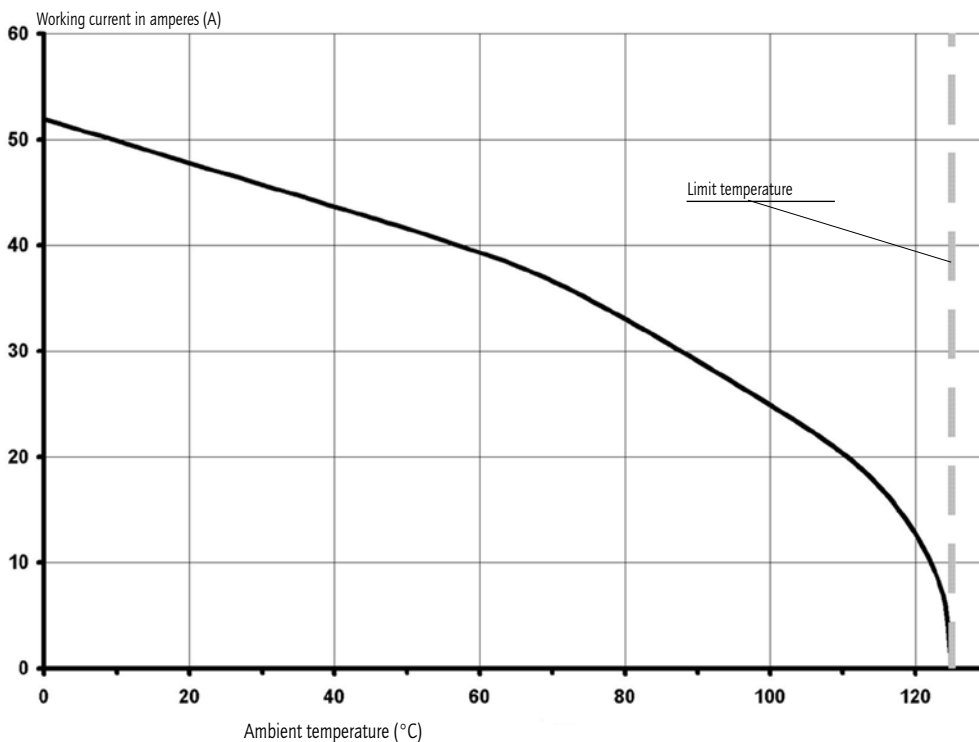
The ration between the value of the largest and the smallest voltages on a loss-free line is known as the ripple or voltage standing wave ratio s (with $1 \leq s < \infty$). The reciprocal value of the VSWR is known as the inverse voltage standing wave ratio m (with $0 < m \leq 1$). (VSWR = Voltage standing wave ratio). The value of s is linked with the \rightarrow reflection coefficient r on s transmissionline according to the equation.

$$s = \frac{(1 + |r|)}{(1 - |r|)}$$

CURRENT RATING / DERATING CURVE

Measurement is according to DIN 41640 part 3 whereas all power contacts are connected in series.

For test procedure - product-no. 9024M8FCR14X90X has been equipped with 124C10069X and 9024M8MCR14X90X with 123C10069X.

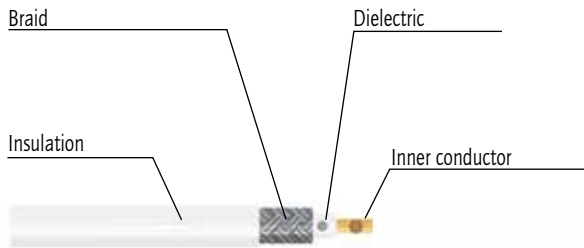


TECHNICAL DATA

Materials	Type M	Coaxial contacts	High power contacts	High voltage contacts
Insulator	PBT GF UL94V-0	PTFE/PBT/PI		PTFE
Contact plating	gold over nickel			
Contact material	copper alloy			
Retaining clip	copper alloy			
Current rating (DC)	2 A	2 A	10 to 40 A	2 A
Test voltage	1000 V, 50 Hz			
Resistance between mated contacts	≤ 2.7 mΩ			
Insulation resistance		10 ⁷ MΩ		≥2x10 ⁷ MΩ
Volume resistivity	10 ¹⁶ Ωcm			
Dielectric strength	50 KV/ mm			
Characteristic impedance		50/75 Ω		
Contact resistance	inner conductor outer conductor	≤ 2.7 mΩ ≤ 2.7 mΩ	≤ 2.7 mΩ ≤ 2.7 mΩ	≤ 1 mΩ ≤ 2.7 mΩ
VSWR-value according to MIL-C-39012	1.2 GHz 1.5 GHz 2.0 GHz	≤ 1.2 ≤ 1.3 ≤ 1.5		
Dielectric voltage		750 V 50 Hz		3.8 kV
Frequency range		0 to 2 GHz		
Working voltage	250 V	250 V		max. 2.8 kV
Temperature range	-55 °C to +125 °C	-55 °C to +135 °C	-55 °C to +155 °C	-55 °C to +125 °C
Mating force per signal contact	≤ 3.4 N	≤ 7 N	≤ 7 N	≤ 5 N
Withdrawal force per signal contact	≥ 0.2 N	≤ 7 N	ca. 5 N	ca. 2.5 N
Mating cycles	depending on plating			

Technical alterations are subjects to change without notice.

CRIMPING INSTRUCTIONS FOR COAXIAL CONTACTS



Strip the wire



Slide sleeve over coax cable



Crimp the inner contact on the inner conductor



Snap the inner contact into the outer contact



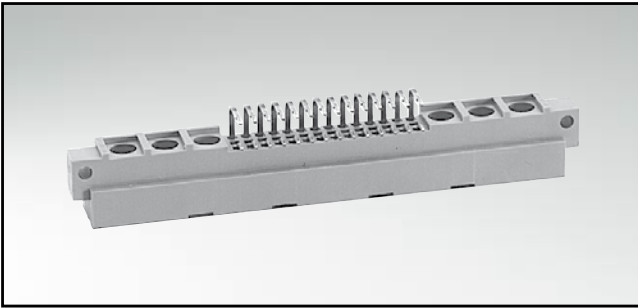
Slide braid over outer contact



Crimp the sleeve on to outer contact

TYPE M

Male connector – straight and angled

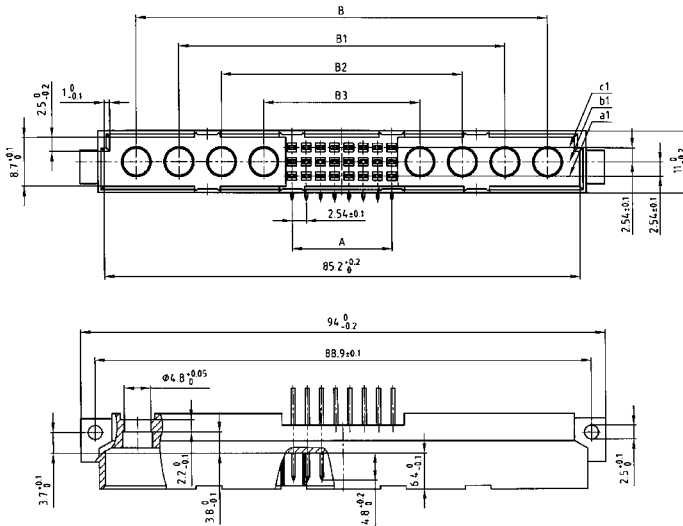


RoHS compliant

DESCRIPTION

- Solder pin
- No. of Pos. 16+8 - 24+8 - 28+6 - 40+4 - 42+6 - 52+2 - 60+4 - 78+2
- Quality class 3 (also available in quality class 2 or 1)
- Part number creator on page 5 | 2
- For assembly with PCB power and coaxial contacts please contact factory

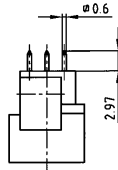
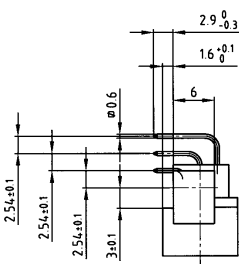
PRODUCT DRAWING



No. of Pos.	A ±0.1	B ±0.1	B ₁ ±0.1	B ₂ ±0.1	B ₃ ±0.1
78 + 2	25x2.54=63.50	29x2.54=73.66	-	-	-
52 + 2	25x2.54=63.50	29x2.54=73.66	-	-	-
60 + 4	19x2.54=48.26	29x2.54=73.66	23x2.54=58.42	-	-
40 + 4	19x2.54=48.26	29x2.54=73.66	23x2.54=58.42	-	-
42 + 6	13x2.54=33.02	29x2.54=73.66	23x2.54=58.42	17x2.54=43.18	-
28 + 6	13x2.54=33.02	29x2.54=73.66	23x2.54=58.42	17x2.54=43.18	-
24 + 8	7x2.54=17.78	29x2.54=73.66	23x2.54=58.42	17x2.54=43.18	11x2.54=27.94
16 + 8	7x2.54=17.78	29x2.54=73.66	23x2.54=58.42	17x2.54=43.18	11x2.54=27.94

Solder pin angled T

Solder pin straight R



= Ordering code

ORDER DATA

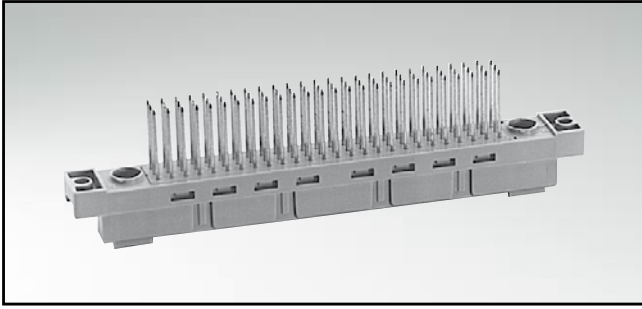
(Dim. = mm)

No. of Pos.	Version																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
78 + 2	a	⊕	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	⊕
	b	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	c	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
52 + 2	a	⊕	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
	b	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	c	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
60 + 4	a	⊕	⊕	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	b	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	c	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
40 + 4	a	⊕	⊕	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
	b	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	c	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	

No. of Pos.	Version																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
42 + 6	a	⊕	⊕	⊕	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	⊕	⊕	⊕		
	b	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	c	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
28 + 6	a	⊕	⊕	⊕	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
	b	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	c	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
24 + 8	a	⊕	⊕	⊕	⊕	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
	b	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
	c	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
16 + 8	a	⊕	⊕	⊕	⊕	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
	b	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
	c	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	

TYPE M

Female connector – straight

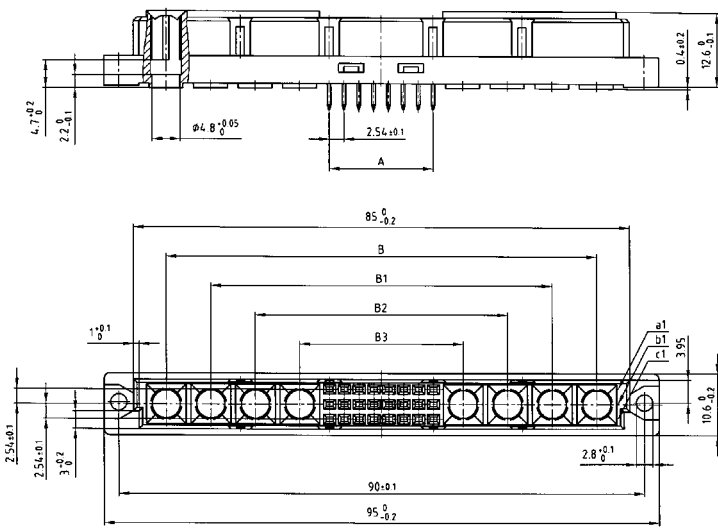


RoHS compliant

DESCRIPTION

- Solder pin and Wire Wrap
- No. of Pos. 16+8 - 24+8 - 28+6 - 40+4 - 42+6 - 52+2 - 60+4 - 78+2
- Quality class 3 (also available in quality class 2 or 1)
- Part number creator on page 5 | 2
- For assembly with PCB power and coaxial contacts please contact factory

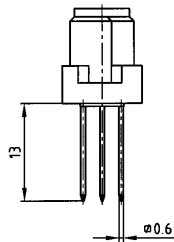
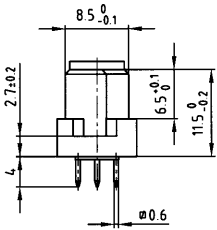
PRODUCT DRAWING



No. of Pos.	A ±0.1	B ±0.1	B1 ±0.1	B2 ±0.1	B3 ±0.1
78 + 2	25x2.54=63.50	29x2.54=73.66	-	-	-
52 + 2	25x2.54=63.50	29x2.54=73.66	-	-	-
60 + 4	19x2.54=48.26	29x2.54=73.66	23x2.54=58.42	-	-
40 + 4	19x2.54=48.26	29x2.54=73.66	23x2.54=58.42	-	-
42 + 6	13x2.54=33.02	29x2.54=73.66	23x2.54=58.42	17x2.54=43.18	-
28 + 6	13x2.54=33.02	29x2.54=73.66	23x2.54=58.42	17x2.54=43.18	-
24 + 8	7x2.54=17.78	29x2.54=73.66	23x2.54=58.42	17x2.54=43.18	11x2.54=27.94
16 + 8	7x2.54=17.78	29x2.54=73.66	23x2.54=58.42	17x2.54=43.18	11x2.54=27.94

Solder pin straight 4 mm **R**

Wire Wrap **N**



 = Ordering code

ORDER DATA

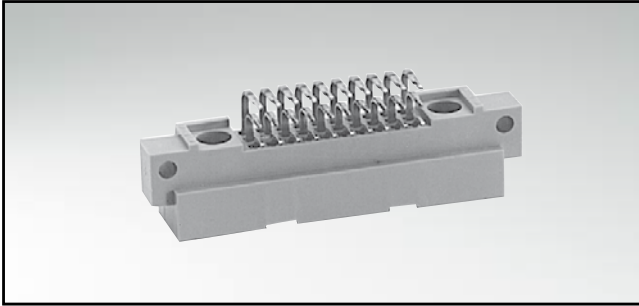
(Dim. = mm)

No. of Pos.	Version																																	
	• = contact, + = no contact																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32		
78 + 2	a (+)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	c (+)
52 + 2	a (+)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	c (+)	
60 + 4	a (+)	+	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	c (+)
40 + 4	a (+)	+	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	c (+)	

No. of Pos.	Version																																	
	• = contact, + = no contact																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32		
42 + 6	a (+)	+	+	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	c (+)
28 + 6	a (+)	+	+	+	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	c (+)
24 + 8	a (+)	+	+	+	+	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	c (+)
16 + 8	a (+)	+	+	+	+	+	+	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	c (+)

TYPE M/2

Male connector – straight and angled

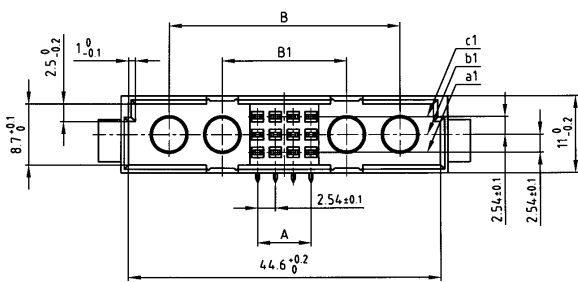


RoHS compliant

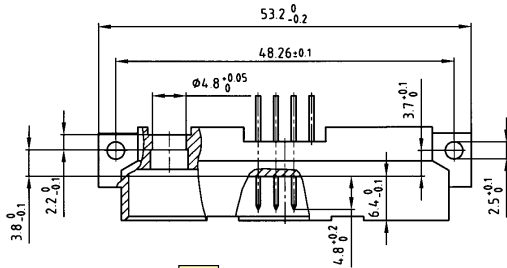
DESCRIPTION

- Solder pin
- No. of Pos. 8+4 - 12+4 - 20+2 - 30+2
- Quality class 3 (also available in quality class 2 or 1)
- Part number creator on page 5 | 2
- For assembly with PCB power and coaxial contacts please contact factory

PRODUCT DRAWING

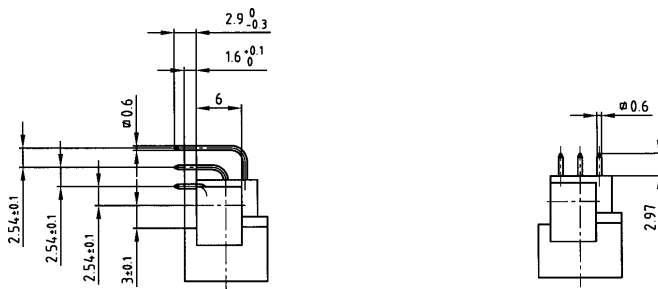


No. of Pos.	A ±0.1	B ±0.1	B ₁ ±0.1
30 + 2	9x2.54=22.86	13x2.54=33.02	-
20 + 2	9x2.54=22.86	13x2.54=33.02	-
12 + 4	3x2.54=7.62	13x2.54=33.02	7x2.54=17.78
8 + 4	3x2.54=7.62	13x2.54=33.02	7x2.54=17.78



Solder pin angled **T**

Solder pin straight **R**



= Ordering code

ORDER DATA

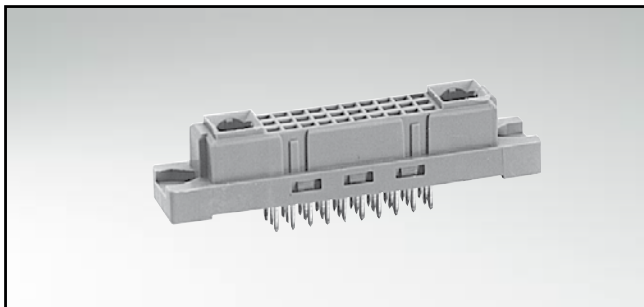
(Dim. = mm)

No. of Pos.	Version															
	* = contact, + = no contact															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
30+2	a	+	•	•	•	•	•	•	•	•	•	•	•	•	•	+
	b	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	c	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
20+2	a	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	b	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	c	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

No. of Pos.	Version															
	* = contact, + = no contact															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12+4	a	+	+	•	•	•	•	•	•	•	•	•	•	•	•	•
	b	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	c	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
8+4	a	+	+	+	+	•	•	•	•	•	•	•	•	•	•	•
	b	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	c	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

TYPE M/2

Female connector – straight

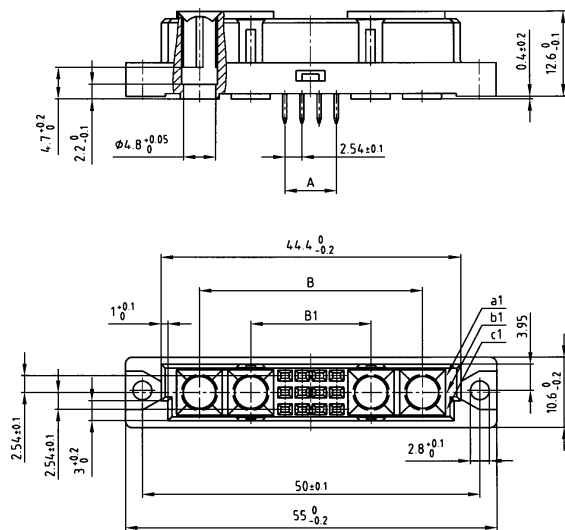


RoHS compliant

DESCRIPTION

- Solder pin and Wire Wrap
- No. of Pos. 8+4 - 12+4 - 20+2 - 30+2
- Quality class 3 (also available in quality class 2 or 1)
- Part number creator on page 5 | 2
- For assembly with PCB power and coaxial contacts please contact factory

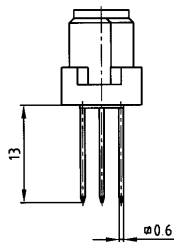
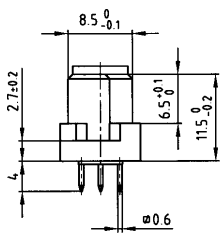
PRODUCT DRAWING



No. of Pos.	A ^{+0.1}	B ^{+0.1}	B ₁ ^{+0.1}
30 + 2	9x2.54=22.86	13x2.54=33.02	-
20 + 2	9x2.54=22.86	13x2.54=33.02	-
12 + 4	3x2.54=7.62	13x2.54=33.02	7x2.54=17.78
8 + 4	3x2.54=7.62	13x2.54=33.02	7x2.54=17.78

Solder pin straight 4 mm **R**

Wire Wrap **N**



= Ordering code

ORDER DATA

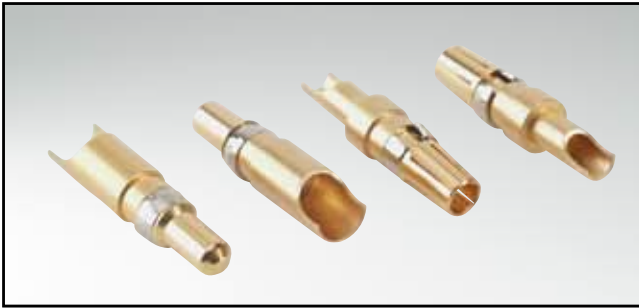
(Dim. = mm)

No. of Pos.	Version															
	* = contact, + = no contact															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
30+2	a	+	•	•	•	•	•	•	•	•	•	•	•	•	•	+
	b	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	c	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
20+2	a	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	b	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	c	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

No. of Pos.	Version															
	* = contact, + = no contact															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12+4	a	+	+	•	•	•	•	•	•	•	•	•	•	•	•	•
	b	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	c	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
8+4	a	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	b	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	c	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

TYPE M

High power contacts – solder cup – straight



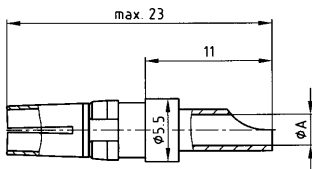
RoHS compliant

DESCRIPTION

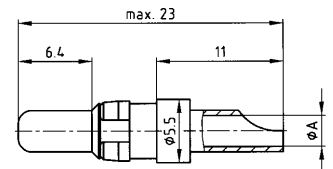
- Precision machined contacts
- Quality class 3: gold flash
- Quality class 1: 0.8µm gold on mating side
- Other quality classes on request
- Assembled contacts available on request

PRODUCT DRAWING

Socket contact

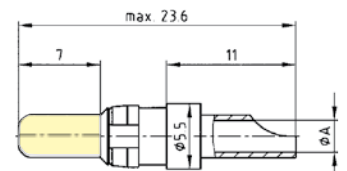


Plug contact



AWG	Current Rating	ØA ^{+0.15}
16 - 20	10 A	1,80
12 - 14	20 A	2,70
8 - 10	30 A	4,80

Premating contact



ORDER DATA

(Dim. = mm)

SOCKET CONTACT				
AWG	Current rating	Quality class	Termination	Part number
16 - 20	10 A	1	11	124 C 10039 X
16 - 20	10 A	3	27	124 A 10039 X
12 - 14	20 A	1	12	124 C 10049 X
12 - 14	20 A	3	28	124 A 10049 X
8 - 10	40 A	1	14	124 C 10069 X
8 - 10	40 A	3	29	124 A 10069 X

PLUG CONTACT				
AWG	Current rating	Quality class	Termination	Part number
16 - 20	10 A	1	11	123 C 10039 X
16 - 20	10 A	3	27	123 A 10039 X
12 - 14	20 A	1	12	123 C 10049 X
12 - 14	20 A	3	28	123 A 10049 X
8 - 10	40 A	1	14	123 C 10069 X
8 - 10	40 A	3	29	123 A 10069 X

PREMATING CONTACT			
AWG	Current rating	Quality class	Part number
16 - 20	10 A	1	123 C 10139 X
12 - 14	20 A	1	123 C 10149 X
8 - 10	40 A	1	123 C 10169 X

TYPE M

High power contacts – crimp – straight



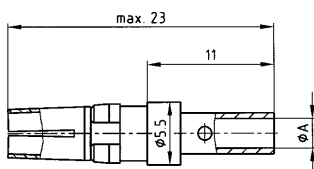
RoHS compliant

DESCRIPTION

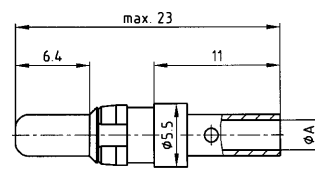
- Precision machined contacts
- Quality class 3: gold flash
- Quality class 1: 0.8µm gold on mating side
- Other quality classes on request

PRODUCT DRAWING

Socket contact

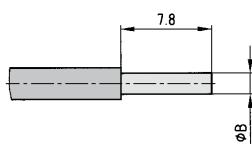


Plug contact

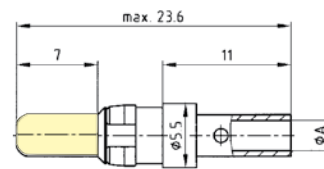


AWG	Current Rating	$\phi A^{+0.15}$	$\phi B_{max.}$
16 - 20	10 A	1,70	1,70
12 - 14	20 A	2,60	2,60
10 - 12	30 A	3,70	3,70
8 - 10	40 A	4,60	4,60

Wire stripping



Premating contact



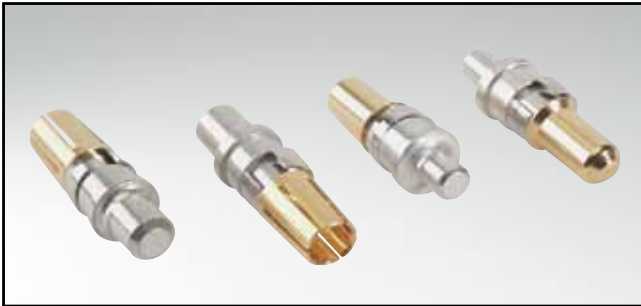
ORDER DATA

(Dim. = mm)

SOCKET CONTACT				PLUG CONTACT				PREMATING CONTACT			
AWG	Current rating	Quality class	Part number	AWG	Current rating	Quality class	Part number	AWG	Current rating	Quality class	Part number
16 - 20	10 A	1	124 C 11019 X	16 - 20	10 A	1	123 C 11019 X	16 - 20	10 A	1	123 C 11119 X
16 - 20	10 A	3	124 A 11019 X	16 - 20	10 A	3	123 A 11019 X	12 - 14	20 A	1	123 C 11129 X
12 - 14	20 A	1	124 C 11029 X	12 - 14	20 A	1	123 C 11029 X	10 - 12	30 A	1	123 C 11139 X
12 - 14	20 A	3	124 A 11029 X	12 - 14	20 A	3	123 A 11029 X	8 - 10	40 A	1	123 C 11149 X
10 - 12	30 A	1	124 C 11039 X	10 - 12	30 A	1	123 C 11039 X				
10 - 12	30 A	3	124 A 11039 X	10 - 12	30 A	3	123 A 11039 X				
8 - 10	40 A	1	124 C 11049 X	8 - 10	40 A	1	123 C 11049 X				
8 - 10	40 A	3	124 A 11049 X	8 - 10	40 A	3	123 A 11049 X				

TYPE M

High power contacts – solder pin – straight



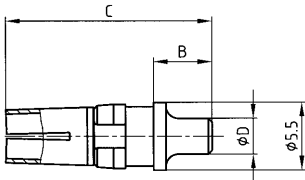
RoHS compliant

DESCRIPTION

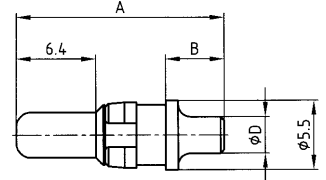
- Precision machined contacts
- Quality class 3: gold flash
- Quality class 1: 0.8µm gold on mating side
- Other quality classes on request
- Assembled contacts available on request

PRODUCT DRAWING

Socket contact

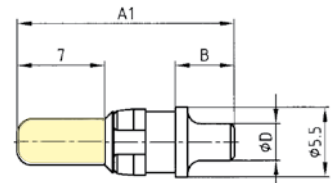


Plug contact



Current rating	A	A ₁	B	C	ØD
20 A	16.70	17.30	4.70	16.10	2.90
40 A	17.75	18.35	5.75	17.15	3.80

Premating contact



ORDER DATA

(Dim. = mm)

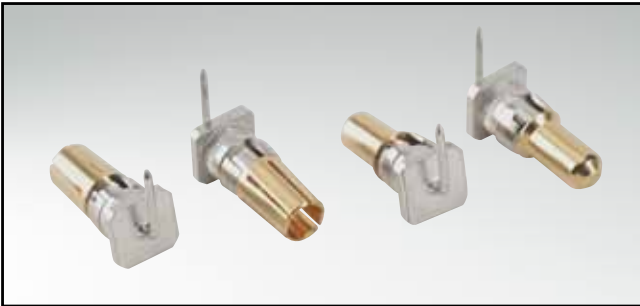
SOCKET CONTACT			
Current rating	Quality class	Termination	Part number
20 A	1	19	124 C 14029 X
20 A	3	39	124 A 14029 X
40 A	1	20	124 C 14049 X
40 A	3	40	124 A 14049 X

PLUG CONTACT			
Current rating	Quality class	Termination	Part number
20 A	1	19	123 C 14029 X
20 A	3	39	123 A 14029 X
40 A	1	20	123 C 14049 X
40 A	3	40	123 A 14049 X

PREMATING CONTACT			
Current rating	Quality class	Termination	Part number
20 A	1	19	123 C 14129 X
40 A	1	20	123 C 14149 X

TYPE M

High power contacts – solder pin – angled



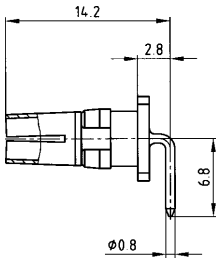
RoHS compliant

DESCRIPTION

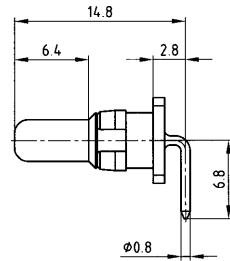
- Precision machined contacts
- Quality class 3: gold flash
- Quality class 1: 0.8µm gold on mating side
- Other quality classes on request
- Assembled contacts available on request

PRODUCT DRAWING

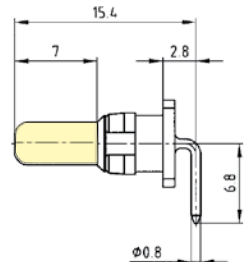
Socket contact



Plug contact



Premating contact



ORDER DATA

(Dim. = mm)

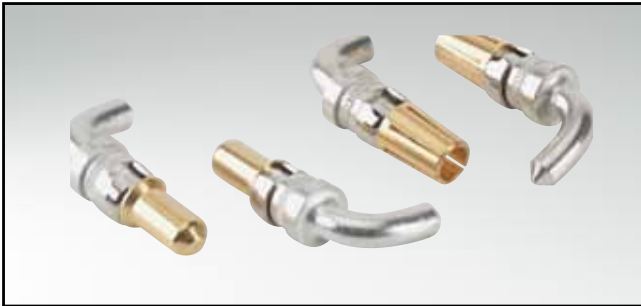
SOCKET CONTACT			
Current rating	Quality class	Termination	Part number
10 A	1	18	124 C 12019 X
10 A	3	17	124 A 12019 X

PLUG CONTACT			
Current rating	Quality class	Termination	Part number
10 A	1	18	123 C 12019 X
10 A	3	17	123 A 12019 X

PREMATING CONTACT		
Current rating	Quality class	Part number
10 A	1	123 C 12119 X

TYPE M

High power contacts – solder pin – angled



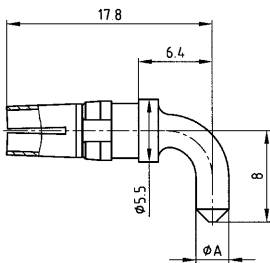
RoHS compliant

DESCRIPTION

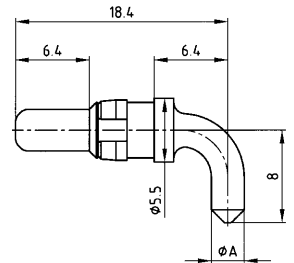
- Precision machined contacts
- Quality class 3: gold flash
- Quality class 1: 0.8µm gold on mating side
- Other quality classes on request
- Assembled contacts available on request

PRODUCT DRAWING

Socket contact

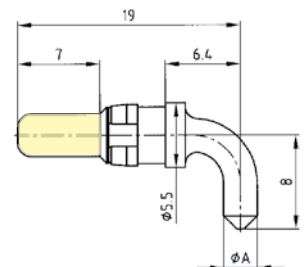


Plug contact



Current Rating	ØA
20 A	2.90
40 A	3.80

Premating contact



ORDER DATA

(Dim. = mm)

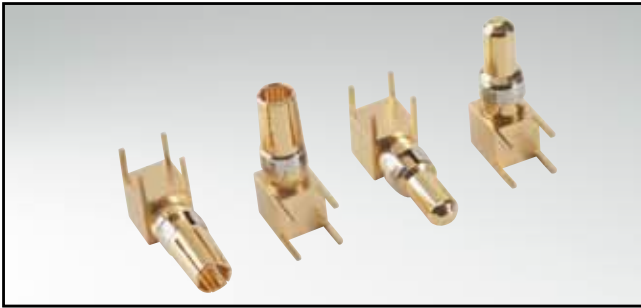
SOCKET CONTACT			
Current rating	Quality class	Termination	Part number
20 A	1	21	124 C 13019 X
20 A	3	16	124 A 13019 X
40 A	1	23	124 C 13039 X
40 A	3	15	124 A 13039 X

PLUG CONTACT			
Current rating	Quality class	Termination	Part number
20 A	1	21	123 C 13019 X
20 A	3	16	123 A 13019 X
40 A	1	23	123 C 13039 X
40 A	3	15	123 A 13039 X

PREMATING CONTACT		
Current rating	Quality class	Part number
20 A	1	123 C 13119 X
40 A	1	123 C 13139 X

TYPE M

High power contacts – solder pin – angled



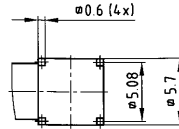
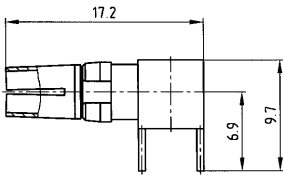
RoHS compliant

DESCRIPTION

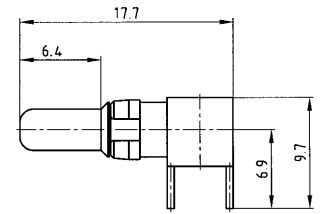
- Precision machined contacts
- Quality class 3: gold flash
- Quality class 1: 0.8µm gold on mating side
- Other quality classes on request
- Assembled contacts available on request

PRODUCT DRAWING

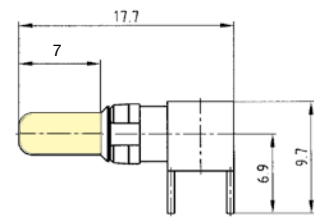
Socket contact



Plug contact



Premating contact



ORDER DATA

(Dim. = mm)

SOCKET CONTACT			
Current rating	Quality class	Termination	Part number
40 A	1	26	124 C 10019 X
40 A	3	13	124 A 10019 X

PLUG CONTACT			
Current rating	Quality class	Termination	Part number
40 A	1	26	123 C 10019 X
40 A	3	13	123 A 10019 X

PREMATING CONTACT		
Current rating	Quality class	Part number
40 A	1	123 C 10029 X

TYPE M

Coaxial contacts – straight – inner conductor solder – outer conductor crimp/solder termination



RoHS compliant

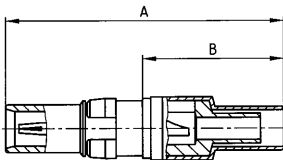
DESCRIPTION

- 50 and 75 Ω Version
- Socket contact suitable for male connectors
- Plug contact suitable for female connectors
- Contact platings:
 - 0.8µm gold mating side inner conductor
 - other platings on request
- Delivery includes: contacts and sleeve supplied loose

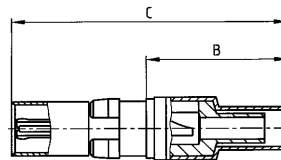
PRODUCT DRAWING

50 Ω Version

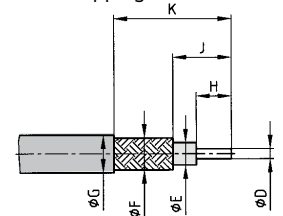
Socket contact



Plug contact



Wire stripping

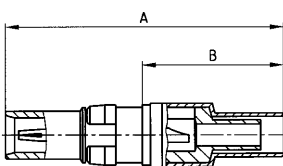


usable cable RG	A	B	C	ØD max.	ØE max.	ØF max.	ØG max.	H	J	K
178 B/U, 196 A/U, 404 U ⁺	24.2	12.3	23.9	0.90	1.2	1.4	2.3	2.5	5.0	10.0
174 U, 188 A/U, 316 U	24.2	12.3	23.9	0.80	1.9	2.3	3.2	2.5	5.0	10.0
316 U*	24.2	12.3	23.9	0.90	1.9	2.7	3.5	2.5	5.0	10.0
58 C/U, 141 A/U	25.4	13.5	25.2	0.90	3.0	4.1	5.2	3.0	5.0	9.5

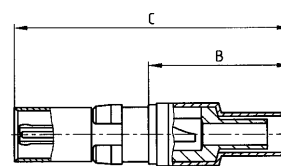
* = double braided - ⁺ = low noise

75 Ω Version

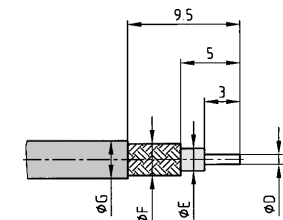
Socket contact



Plug contact



Wire stripping



usable cable RG	A	B	C	ØD max.	ØE max.	ØF max.	ØG max.
179 B/U, 187 A/U	24.2	12.3	23.9	0.50	1.9	2.3	3.2
180 B/U	23.1	11.2	22.8	0.90	2.8	3.1	4.5

ORDER DATA

(Dim. = mm)

SOCKET CONTACT			PLUG CONTACT		
Version	Usable cable RG	Part number	Version	Usable cable RG	Part number
50 Ω	178 B/U, 196 A/U, 404 U ⁺	124 C 20059 X	50 Ω	178 B/U, 196 A/U, 404 U ⁺	123 C 20059 X
50 Ω	174 U, 188 A/U, 316 U	124 C 20069 X	50 Ω	174 U, 188 A/U, 316 U	123 C 20069 X
50 Ω	316 U *	124 C 20079 X	50 Ω	316 U *	123 C 20079 X
50 Ω	58 C/U, 141 A/U	124 C 20089 X	50 Ω	58 C/U, 141 A/U	123 C 20089 X
75 Ω	179 B/U, 187 A/U	124 C 30039 X	75 Ω	179 B/U, 187 A/U	123 C 30039 X
75 Ω	180 B/U	124 C 30049 X	75 Ω	180 B/U	123 C 30049 X

TYPE M

Coaxial contacts – straight – inner and outer conductor crimp termination



RoHS compliant

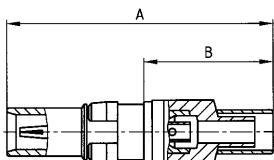
DESCRIPTION

- 50 Ω Version
- Socket contact suitable for male connectors
- Plug contact suitable for female connectors
- Contact platings:
 - 0.8µm gold mating side inner conductor
 - other platings on request
- Delivery includes: contacts and sleeve supplied loose

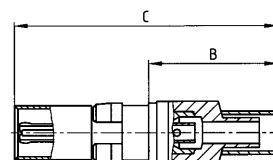
PRODUCT DRAWING

50 Ω Version

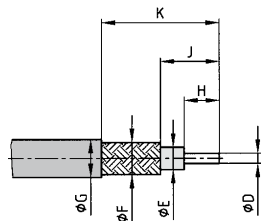
Socket contact



Plug contact



Wire stripping



usable cable RG	A	B	C	ØD max.	ØE max.	ØF max.	ØG max.	H	J	K
174 U, 188 A/U, 316 U	23.1	11.2	22.9	0.60	1.9	2.3	3.2	3.0	4.3	9.3
58 C/U, 141 A/U	22.8	10.9	22.6	1.30	3.7	4.4	5.2	3.8	5.3	9.0
316 U*	23.1	11.2	22.9	0.60	1.9	3.0	3.8	3.0	4.3	9.3

* = double braided

(Dim. = mm)

ORDER DATA

SOCKET CONTACT			PLUG CONTACT		
Version	Usable cable RG	Part number	Version	Usable cable RG	Part number
50 Ω	174 U, 188 A/U, 316 U	124 C 21049 X	50 Ω	174 U, 188 A/U, 316 U	123 C 21049 X
50 Ω	58 C/U, 141 A/U	124 C 21059 X	50 Ω	58 C/U, 141 A/U	123 C 21059 X
50 Ω	316 U *	124 C 21069 X	50 Ω	316 U *	123 C 21069 X

TYPE M

Coaxial contacts – angled – inner conductor solder – outer conductor crimp/solder termination



RoHS compliant

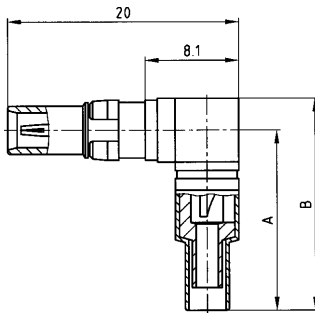
DESCRIPTION

- 50 and 75 Ω Version
- Socket contact suitable for male connectors
- Plug contact suitable for female connectors
- Contact platings:
 - 0.8µm gold mating side inner conductor
 - other platings on request
- Delivery includes: contacts and sleeve supplied loose

PRODUCT DRAWING

50 Ω Version

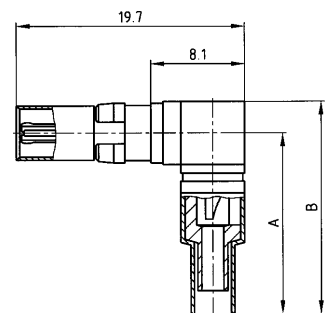
Socket contact



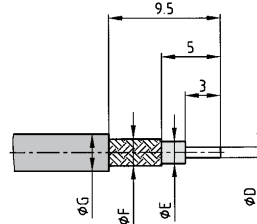
usable cable RG	A	B	ØD max.	ØE max.	ØF max.	ØG max.
178 B/U, 196 A/U, 404 U ⁺	15.7	18.5	0.90	1.2	1.4	2.3
174 U, 188 A/U, 316 U	15.7	18.5	0.90	1.9	2.3	3.2
122 U	15.7	18.5	0.90	2.8	3.1	4.5
316 U*	16.8	19.5	0.90	1.9	2.7	3.5
58 C/U, 141 A/U	18.0	20.8	0.90	3.0	4.1	5.2

* = double braided - ⁺ = low noise

Plug contact

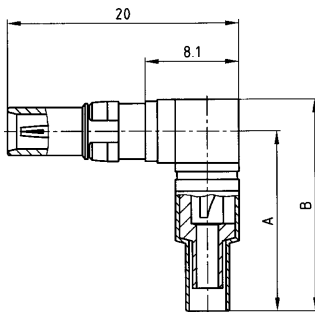


Wire stripping



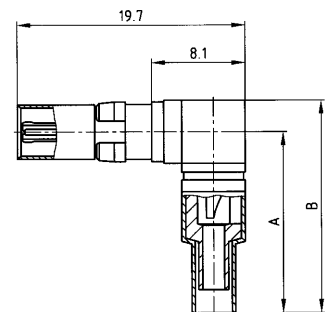
75 Ω Version

Socket contact



usable cable RG	A	B	ØD max.	ØE max.	ØF max.	ØG max.
196 A/U	15.7	18.5	0.90	1.2	1.4	2.3
179 B/U, 187 A/U	15.7	18.5	0.90	1.9	2.3	3.2
180 B/U	15.7	18.5	0.90	2.8	3.1	4.5

Plug contact



ORDER DATA

(Dim. = mm)

SOCKET CONTACT			PLUG CONTACT		
Version	Usable cable RG	Part number	Version	Usable cable RG	Part number
50 Ω	178 B/U, 196 A/U, 404 U ⁺	124 C 22069 X	50 Ω	178 B/U, 196 A/U, 404 U ⁺	123 C 22069 X
50 Ω	174 U, 188 A/U, 316 U	124 C 22079 X	50 Ω	174 U, 188 A/U, 316 U	123 C 22079 X
50 Ω	316 U *	124 C 22089 X	50 Ω	316 U *	123 C 22089 X
50 Ω	122 U	124 C 22099 X	50 Ω	122 U	123 C 22099 X
50 Ω	58 C/U, 141 A/U	124 C 22109 X	50 Ω	58 C/U, 141 A/U	123 C 22109 X
75 Ω	196 A/U	124 C 32049 X	75 Ω	196 A/U	123 C 32049 X
75 Ω	179 B/U, 187 A/U	124 C 32059 X	75 Ω	179 B/U, 187 A/U	123 C 32059 X
75 Ω	180 B/U	124 C 32069 X	75 Ω	180 B/U	123 C 32069 X

TYPE M

Coaxial contacts – angled – inner and outer conductor crimp termination



RoHS compliant

DESCRIPTION

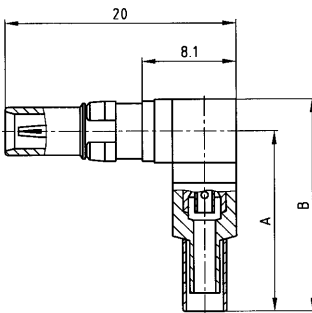
- 50 and 75 Ω Version
- Socket contact suitable for male connectors
- Plug contact suitable for female connectors
- Contact platings:
 - 0.8µm gold mating side inner conductor
 - other platings on request
- Delivery includes: contacts and sleeve supplied loose

PRODUCT DRAWING

50 Ω Version

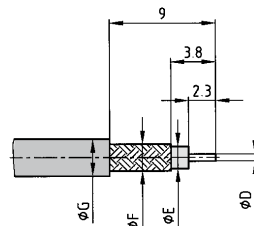
usable cable RG	A	B	ØD max.	ØE max.	ØF max.	ØG max.
174 U, 188 A/U, 316 U	15.7	18.5	0.60	1.9	2.3	2.3
316 U*	15.7	18.5	0.60	1.9	3.0	3.8
58 C/U, 141 A/U	15.4	18.2	1.00	3.7	4.4	5.2

Socket contact

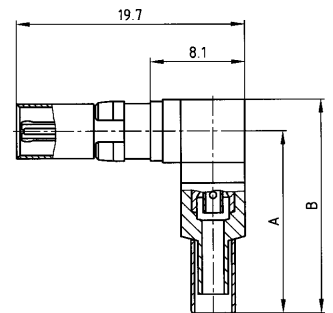


* = double braided

Wire stripping

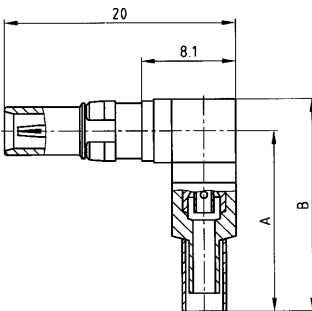


Plug contact



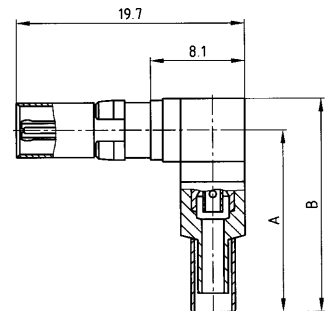
75 Ω Version

Socket contact



usable cable RG	A	B	ØD max.	ØE max.	ØF max.	ØG max.
179 B/U, 187 A/U	15.7	18.5	0.60	1.9	2.3	3.2
180 B/U	14.9	17.7	0.60	2.8	3.2	4.5

Plug contact



ORDER DATA

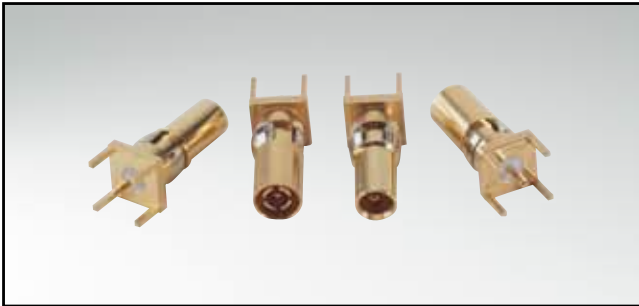
(Dim. = mm)

SOCKET CONTACT		
Version	Usable cable RG	Part number
50 Ω	174 U, 188 A/U, 316 U	124 C 23049 X
50 Ω	316 U *	124 C 23059 X
50 Ω	58 C/U, 141 A/U	124 C 23069 X
75 Ω	179 B/U, 187 A/U	124 C 33039 X
75 Ω	180 B/U	124 C 33049 X

PLUG CONTACT		
Version	Usable cable RG	Part number
50 Ω	174 U, 188 A/U, 316 U	123 C 23049 X
50 Ω	316 U *	123 C 23059 X
50 Ω	58 C/U, 141 A/U	123 C 23069 X
75 Ω	179 B/U, 187 A/U	123 C 33039 X
75 Ω	180 B/U	123 C 33049 X

TYPE M

Coaxial contacts – straight – PCB termination – 5 solder pins



RoHS compliant

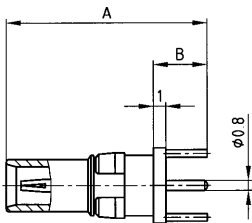
DESCRIPTION

- 50 and 75 Ω Version
- Socket contact suitable for male connectors
- Plug contact suitable for female connectors
- Contact platings:
 - 0.8µm gold mating side inner conductor
 - other platings on request

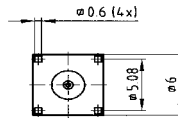
PRODUCT DRAWING

50 Ω Version

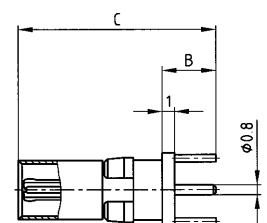
Socket contact



Termination type	A	B	C
31	16.2	4.3	16.0
32	17.7	5.8	17.5

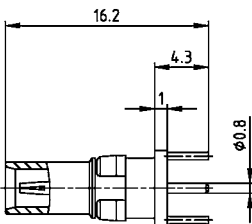


Plug contact

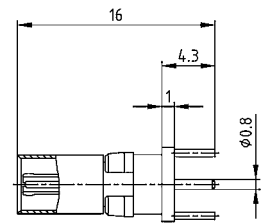


75 Ω Version

Socket contact



Plug contact



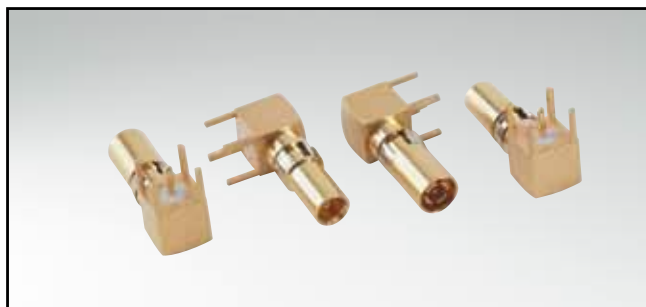
ORDER DATA

(Dim. = mm)

SOCKET CONTACT			PLUG CONTACT		
Version	Termination	Part number	Version	Termination	Part number
50 Ω	31	124 C 24039 X	50 Ω	31	123 C 24039 X
50 Ω	32	124 C 24049 X	50 Ω	32	123 C 24049 X
75 Ω	33	124 C 34029 X	75 Ω	33	123 C 34029 X

TYPE M

Coaxial contacts – angled – PCB termination – 5 solder pins



RoHS compliant

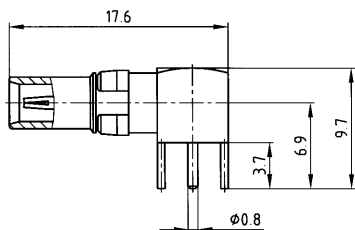
DESCRIPTION

- 50 Ω Version
- Socket contact suitable for male connectors
- Plug contact suitable for female connectors
- Contact platings:
 - 0.8µm gold mating side inner conductor
 - other platings on request

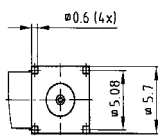
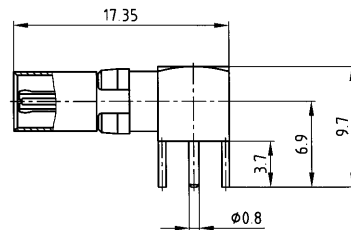
PRODUCT DRAWING

50 Ω Version

Socket contact

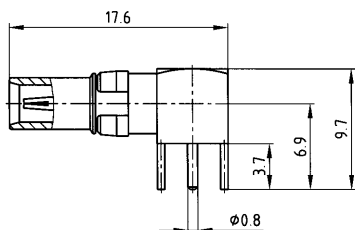


Plug contact

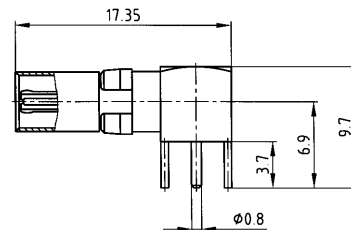


75 Ω Version

Socket contact



Plug contact



ORDER DATA

(Dim. = mm)

SOCKET CONTACT			PLUG CONTACT		
Version	Termination	Part number	Version	Termination	Part number
50 Ω	35	124 C 25029 X	50 Ω	35	123 C 25029 X
75 Ω	36	124 C 35029 X	75 Ω	36	123 C 35029 X