

Description

Modularity with a minimum space requirement is demanded for the existing and coming generation of systems (GSM 900 / 1800 / 1900, PCS, WCDMA, UMTS). To achieve this for all different systems, the smallest possible components must be used also for interconnections.

In order to reduce the variety of products and to achieve standardised systems (in other words: modularity), the new SUHNER Series **MMBX** (Micro Miniature Board Connector) contains a range of board and cable connectors which require a minimum of space. It offers all the necessary characteristics to obtain a unified design of the various systems.

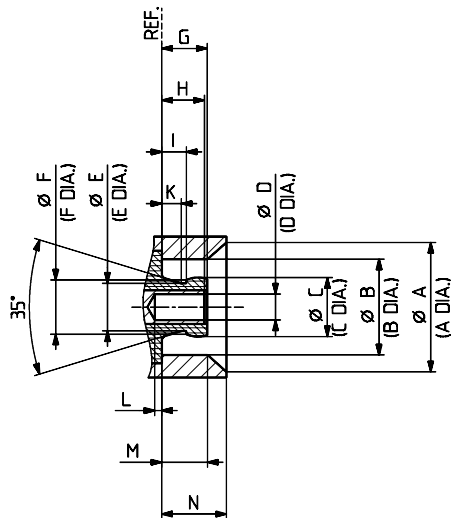
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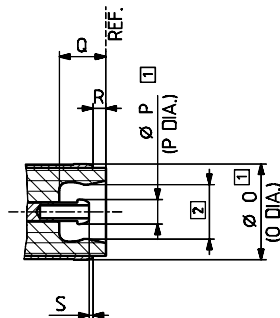
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Interface Dimensions

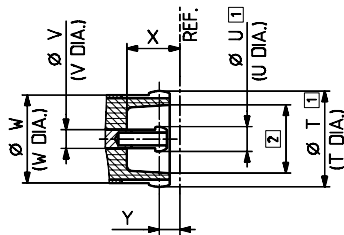
PCB Connector, Plug



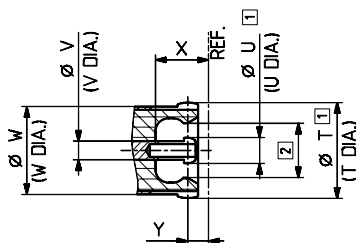
PCB Connector, Jack



Slide



Snap



Interface Dimensions in mm / inches

PCB Connectors:

	min. mm	min. inches	max. mm	max. inches
A	5.00 nom.	.197 nom.	5.00 nom.	.197 nom.
B	3.68	.145	3.71	.146
C	2.25	.089	2.30	.091
D	0.98	.039	1.01	.040
E	1.85 nom.	.073 nom.	1.85 nom.	.073 nom.
F	2.10 nom.	.083 nom.	2.10 nom.	.083 nom.
G	—	—	1.80	.071
H	1.55	.061	1.75	.069
I	0.90	.035	—	—
K	0.75 nom.	.030 nom.	0.75 nom.	.030 nom.
L	0	0	—	—
M	1.45	.057	—	—
N	2.50 nom.	.098 nom.	2.50 nom.	.098 nom.
O	3.70 nom.	.146 nom.	3.70 nom.	.146 nom.
P	0.95 nom.	.037 nom.	0.95 nom.	.037 nom.
Q	1.85 nom.	.073 nom.	1.85 nom.	.073 nom.
R	0.50 nom.	.020 nom.	0.50 nom.	.020 nom.
S	0.10 nom.	.004 nom.	0.10 nom.	.004 nom.

Adaptors Within-Series

	min. / max. mm	min. / max. inches
T	3.70 nom.	.146 nom.
U	0.95 nom.	.037 nom.
V	0.70 nom.	.028 nom.
W	3.65 nom.	.144 nom.
X	2.05 nom.	.081 nom.
Y	0.80 nom.	.032 nom.

Technical Data of Cable Connectors

ELECTRICAL DATA	CECC 22000	REQUIREMENTS	
for cable groups		U1 ¹⁾	U2, U4
Impedance		50 Ω	
Frequency range		DC ... 6 GHz ²⁾	
Return loss		see table below	
RF-leakage (measured at 2.5 GHz) MMBX-Interface only	4.4.8	– 100 dB	
Dielectric withstanding voltage (at sea level)	4.4.5	500 V rms, 50 Hz	750 V rms, 50 Hz
Working voltage (at sea level) - unmated	IEC 169-1 14.6.1	165 V rms, 50 Hz (calculated)	250 V rms, 50 Hz (calculated)
Working voltage (at 21'000 m / 70'000 ft.) - mated and unmated	Appendix C	28 VAC 50 Hz (calculated)	42 VAC 50 Hz (calculated)
Insulation resistance	4.4.4	≥ 1 GΩ	
Contact resistance - centre contact	4.4.2	≤ 5 mΩ	
- outer contact	4.4.3	≤ 1 mΩ	

TYPICAL RETURN LOSS	CABLE TYPE	FREQUENCY RANGE			CABLE GROUP
CONNECTOR TYPE		DC - 1 GHz	1 - 2.5 GHz	2.5 - 6 GHz	
Straight connectors	RG 178	– 33 dB	– 30 dB	– 26 dB	U1 ¹⁾
	RG 316	– 33 dB	– 30 dB	– 26 dB	U2
	K 02252 D	– 33 dB	– 30 dB	– 26 dB	U4
	EF 316 D	– 33 dB	– 30 dB	– 22 dB	U4
Right angle connectors	RG 178	– 33 dB	– 24 dB	– 20 dB	U1 ¹⁾
	RG 316	– 33 dB	– 30 dB	– 22 dB	U2
	K 02252 D	– 33 dB	– 30 dB	– 24 dB	U4
	EF 316 D	– 33 dB	– 28 dB	– 20 dB	U4

MECHANICAL DATA	CECC 22000	REQUIREMENTS
Engagement force	4.5.4	max. 30 N / max. 6.7 lbs
Disengagement force	4.5.4	8 - 30 N / 1.8 - 6.7 lbs
Contact captivation	4.5.2	≥ 10 N / 2.3 lbs
Cable retention force ³⁾	4.5.5	see General Connector Catalogue
Durability (matings)	4.7.1	100

1) Cable dielectricum < 0.88 mm / .035 in.

2) Cables are specified up to 5 GHz only

3) Value considers maximum load of the cables without irreversible variations of specifications.

Technical Data of Cable Connectors (cont.)

ENVIRONMENTAL DATA	CECC 22000 TEST CONDITIONS	EQUIVALENT MIL TEST CONDITIONS
Temperature range		$-55^{\circ}\text{C} \dots +155^{\circ}\text{C} / -67^{\circ}\text{F} \dots +311^{\circ}\text{F}$
Climatic category	$\rightarrow 55 / 155 / 21$	
Thermal shock	4.6.7 \rightarrow IEC 68-2-14 Na	MIL-STD-202, Method 107 G, Condition B1
Moisture resistance	4.6.6 \rightarrow IEC 68-2-3 Ca	MIL-STD-202, Method 106 F
Corrosion	4.6.10 \rightarrow IEC 68-2-11 Ka	MIL-STD-202, Method 101, Condition B
Vibration	4.6.3 \rightarrow IEC 68-2-6 Fc	MIL-STD-202, Method 204 D, Condition A

MATERIAL DATA			
CONNECTOR PART	STANDARDS	MATERIAL	PLATING
Centre contact	QQ-C-530	beryllium-copper, hardened	gold
Outer contact	QQ-C-530	beryllium-copper, hardened	SUCOPRO
Body	QQ-B-626	brass	SUCOPRO
Crimp ferrules	SUHNER specification	E-copper	gold
Insulators	ASTM-D-1457, BS 4271, Grade B	PTFE	

Some connectors may have a specification that differs from the above mentioned data.

Technical Data of PCB Connectors

ELECTRICAL DATA	CECC 22000	REQUIREMENTS Nominal PCB distance 6.7 mm / .264 in.		REQUIREMENTS Nominal PCB distance 11.7 mm / .461 in.	
Impedance		50 Ω		50 Ω	
Frequency range		DC ... 6 GHz		DC ... 6 GHz	
Typical return loss (mated pair) - up to 2 GHz - 2 up to 6 GHz	H+S	6.3 mm / .248 in. - 30 dB - 30 dB	7.0 mm / .276 in. - 35 dB - 23 dB	11.2 mm / .441 in. - 32 dB - 23 dB	12 mm / .472 in. - 26 dB - 20 dB
Dielectric withstanding voltage (at sea level)	4.4.5	1 kV rms, 50 Hz		1 kV rms, 50 Hz	
Working voltage (at sea level)	IEC 169-1 11.6.1	\leq 330 V rms, 50 Hz		\leq 330 V rms, 50 Hz	
Insulation resistance	4.4.4	\geq 1 G Ω		\geq 1 G Ω	
Contact resistance - centre contact - outer contact	4.4.2 4.4.3	\leq 5 m Ω \leq 1 m Ω		\leq 5 m Ω \leq 1 m Ω	

RF-LEAKAGE	REQUIREMENTS Nominal PCB distance 6.7 mm / .264 in.	REQUIREMENTS Nominal PCB distance 11.7 mm / .461 in.
MMBX-Interface only up to 2.5 GHz	- 100 dB	
PCB to PCB, up to 2.5 GHz	- 45 dB	- 50 dB

MECHANICAL DATA	CECC 22000	REQUIREMENTS	
Engagement force (Slideside)	4.5.4	< 15 N / 3.4 lbs	< 20 N / 4.5 lbs
Disengagement force (Slideside)	4.5.4	< 15 N / 3.4 lbs	< 20 N / 4.5 lbs
Contact captivation	4.5.2	10 N / 2.3 lbs	
Durability (matings)	4.7.1	100	

PROCESSING DATA	CECC 00802	TEST
Soldering method (excluding wave soldering)	6.2 class A	7.2.4 a) cat. 3
Adherent to the print - shearing - pulling (vertical to PCB)	7.3.3	150 N / 33.7 lbs 150 N / 33.7 lbs

Technical Data of PCB Connectors (cont.)

MATERIAL DATA

CONNECTOR PART	STANDARDS	MATERIAL	PLATING
Centre contact	QQ-C-530	beryllium-copper	gold
Outer contact	SUHNER specification	C97	SUCOPRO
Body	QQ-B-626	brass	SUCOPRO
Insulators	SUHNER specification	LCP / PFA	

ENVIRONMENTAL DATA	CECC 22000 TEST CONDITIONS	EQUIVALENT MIL TEST CONDITIONS
Temperature range		$-55^{\circ}\text{C} \dots +155^{\circ}\text{C} / -67^{\circ}\text{F} \dots +311^{\circ}\text{F}$
Climatic category	$\rightarrow 55 / 155 / 21$	
Thermal shock	4.6.7 \rightarrow IEC 68-2-14 Na	MIL-STD-202, Method 107 G, Condition B1
Moisture resistance	4.6.6 \rightarrow IEC 68-2-3 Ca	MIL-STD-202, Method 106 F
Corrosion	4.6.10 \rightarrow IEC 68-2-11 Ka	MIL-STD-202, Method 101, Condition B
Vibration	4.6.3 \rightarrow IEC 68-2-6 Fc	MIL-STD-202, Method 204 D, Condition A

Some connectors may have a specification that differs from the above mentioned data.

Technical Data of Adaptors Between Series

ELECTRICAL DATA	CECC 22000	REQUIREMENTS		
Impedance		50 Ω		
Frequency range		DC ... 6 GHz		
Typical return loss	H+S	DC - 1 GHz – 38 dB	1 - 2.5 GHz – 33 dB	2.5 - 6 GHz – 28 dB
Dielectric withstanding voltage (at sea level)	4.4.5	1 kV rms, 50 Hz		
Working voltage (at sea level)	IEC 169-1 11.6.1	\leq 330 V rms, 50 Hz		
Insulation resistance	4.4.4	\geq 1 G Ω		
Contact resistance				
- centre contact	4.4.2	\leq 5 m Ω		
- outer contact	4.4.3	\leq 1 m Ω		

RF-LEAKAGE	REQUIREMENTS
MMBX Interface only up to 2.5 GHz	– 100 dB
Adaptors up to 2.5 GHz	– 90 dB

MECHANICAL DATA	CECC 22000	REQUIREMENTS
Engagement force (MMBX)	4.5.4	max. 30 N / <i>max. 6.7 lbs</i>
Disengagement force (MMBX)	4.5.4	8 - 30 N / <i>1.8 - 6.7 lbs</i>
Durability (matings)	4.7.1	500

MATERIAL DATA			
CONNECTOR PART	STANDARDS	MATERIAL	PLATING
MMBX Centre contact	QQ-C-530	beryllium-copper	gold
MMBX Outer contact	QQ-B-626/QQ-C-530	brass/beryllium-copper	SUCOPRO
MMBX Body	QQ-B-626/QQ-C-530	brass/beryllium-copper	SUCOPRO
MMBX Insulators	SUHNER specification	PTFE, LCP / PTFE, PFA	

ENVIRONMENTAL DATA	CECC 22000 TEST CONDITIONS	EQUIVALENT MIL TEST CONDITIONS
Temperature range		– 55°C ... +155°C / – 67°F ... + 311°F
Climatic category	→ 55 / 155 / 21	
Thermal shock	4.6.7 → IEC 68-2-14 Na	MIL-STD-202, Method 107 G, Condition B1
Moisture resistance	4.6.6 → IEC 68-2-3 Ca	MIL-STD-202, Method 106 F
Corrosion	4.6.10 → IEC 68-2-11 Ka	MIL-STD-202, Method 101, Condition B
Vibration	4.6.3 → IEC 68-2-6 Fc	MIL-STD-202, Method 204 D, Condition A

Some connectors may have a specification that differs from the above mentioned data.

Straight Cable Plugs (male)

> for flexible cables

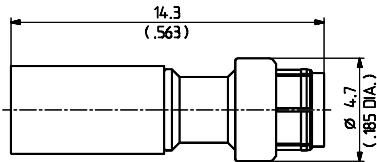


Fig. 1

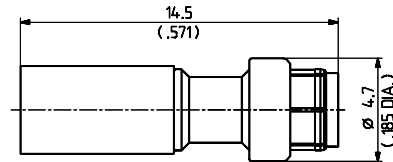
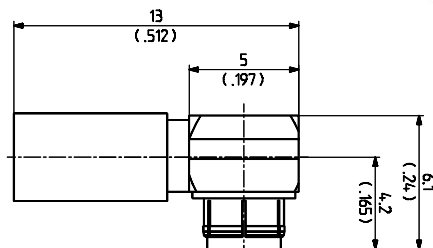
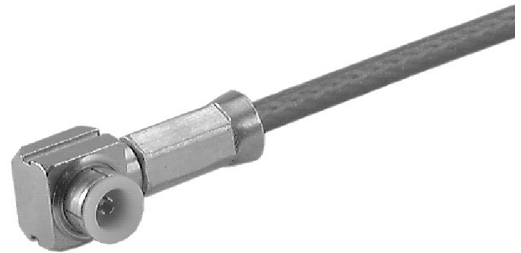


Fig. 2

SUHNER TYPE	Order No.	Plating Body	Packaging	Cable group (example)	Assembly Instruction	Fig.
11 MMBX-50-1-1 / 111 NE	23001743	SUCOPRO	single	U1 (RG 178 B/U)	27350	1
11 MMBX-50-2-1 / 111 NE	23001745	SUCOPRO	single	U2 (RG 316/U)	27351	2
11 MMBX-50-2-2 / 111 NE	23001744	SUCOPRO	single	U4 (K 02252 D) U4 (EF 316 D)	27351	2

Right Angle Cable Plugs (male)

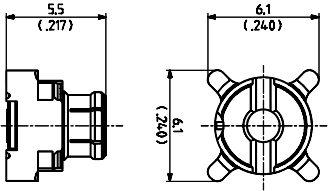
> for flexible cables



SUHNER TYPE	Order No.	Plating Body	Packaging	Cable group (example)	Assembly Instruction
16 MMBX-50-1-1 / 111 NE	23001748	SUCOPRO	single	U1 (RG 178 B/U)	27352
16 MMBX-50-2-1 / 111 NE	23001747	SUCOPRO	single	U2 (RG 316/U)	27352
16 MMBX-50-2-2 / 111 NE	23001746	SUCOPRO	single	U4 (K 02252 D) U4 (EF 316 D)	27352

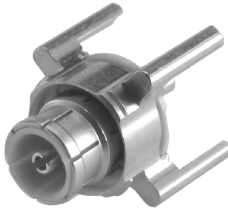
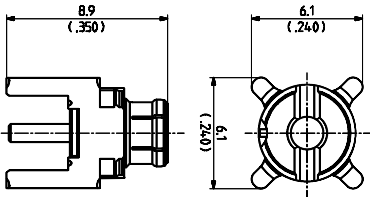
PCB Connectors

straight PCB plug (male)



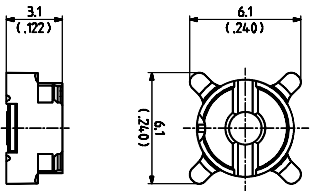
SUHNER TYPE	Order No.	Plating Body	Packaging	Soldering Pad
81 MMBX-S50-0-1 / 111 NM	23001780	SUCOPRO	Tape and Reel	ML122
81 MMBX-S50-0-1 / 111 NH	23001781	SUCOPRO	bulk 100 pcs.	ML122
81 MMBX-S50-0-1 / 111 NE	23001782	SUCOPRO	single	ML122

straight PCB plug (male)



SUHNER TYPE	Order No.	Plating Body	Packaging	Mounting Hole
81 MMBX-50-0-2 / 111 NM	23001776	SUCOPRO	Tape and Reel	ML15
81 MMBX-50-0-2 / 111 NH	23001778	SUCOPRO	bulk 100 pcs.	ML15
81 MMBX-50-0-2 / 111 NE	23001779	SUCOPRO	single	ML15

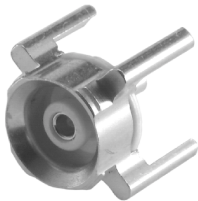
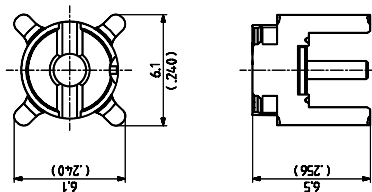
straight PCB jack (female)



SUHNER TYPE	Order No.	Plating Body	Packaging	Soldering Pad
82 MMBX-S50-0-1 / 111 NM	23001783	SUCOPRO	Tape and Reel	ML122
82 MMBX-S50-0-1 / 111 NH	23001784	SUCOPRO	bulk 100 pcs.	ML122
82 MMBX-S50-0-1 / 111 NE	23001785	SUCOPRO	single	ML122

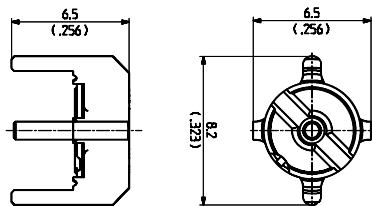
PCB Connectors (cont.)

straight PCB jack (female)



SUHNER TYPE	Order No.	Plating Body	Packaging	Mounting Hole
82 MMBX-50-0-2 / 111 NM	23001786	SUCOPRO	Tape and Reel	ML15
82 MMBX-50-0-2 / 111 NH	23001787	SUCOPRO	bulk 100 pcs.	ML15
82 MMBX-50-0-2 / 111 NE	23001788	SUCOPRO	single	ML15

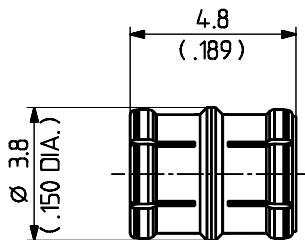
straight PCB jack (female), edge mount



SUHNER TYPE	Order No.	Plating Body	Packaging	Notes
92 MMBX-550-0-1 / 111 NE	23001775	SUCOPRO	single	

Adaptor Within-Series

plug/plug (male)

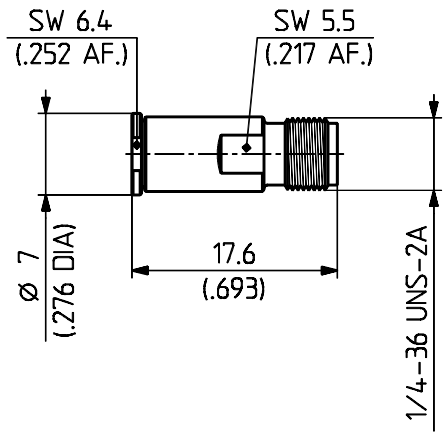


SUHNER TYPE	Order No.	Plating Body	Packaging	Assembly Instruction / Notes
32 MMBX-50-0-1 / 111 NE	23001749	SUCOPRO	single	27378 / Interface: snap-slide

Adaptors Between Series

jack/jack (female)

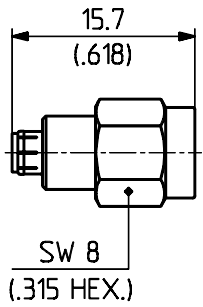
- > MMBX female
- > SMA female



SUHNER TYPE	Order No.	Plating Body	Packaging	Return Loss:		
				DC - 1 GHz	1 - 2.5 GHz	2.5 - 6 GHz
31 MMBX-SMA-50-1 / 111 NE	23004933	SUCOPRO	single	- 38 dB	- 33 dB	- 28 dB

plug/plug (male)

- > MMBX male
- > SMA male

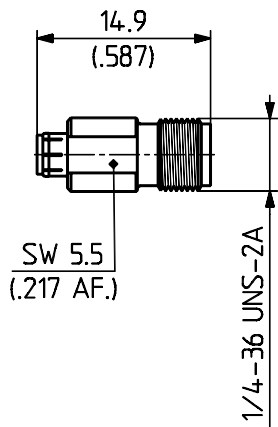


SUHNER TYPE	Order No.	Plating Body	Packaging	Return Loss:		
				DC - 1 GHz	1 - 2.5 GHz	2.5 - 6 GHz
32 MMBX-SMA-50-1 / 119 NE	23004934	SUCOPRO	single	- 38 dB	- 33 dB	- 28 dB

Adaptors Between Series (cont.)

plug/jack (male/female)

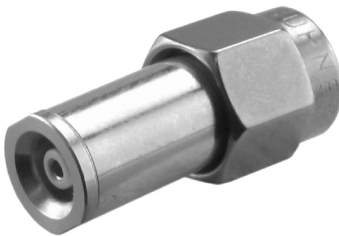
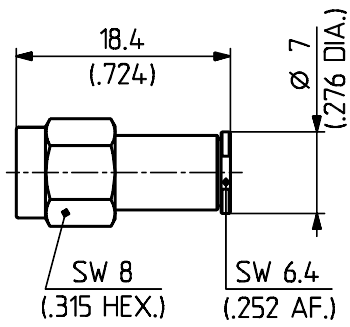
- > MMBX male
- > SMA female



SUHNER TYPE	Order No.	Plating Body	Packaging	Return Loss:		
				DC - 1 GHz	1 - 2.5 GHz	2.5 - 6 GHz
33 MMBX-SMA-50-1 / 111 NE	23004937	SUCOPRO	single	-38 dB	-33 dB	-28 dB

plug/jack (male/female)

- > SMA male
- > MMBX female



SUHNER TYPE	Order No.	Plating Body	Packaging	Return Loss		
				DC - 1 GHz	1 - 2.5 GHz	2.5 - 6 GHz
33 SMA-MMBX-50-1 / 119 NE	23004935	SUCOPRO	single	-38 dB	-33 dB	-28 dB

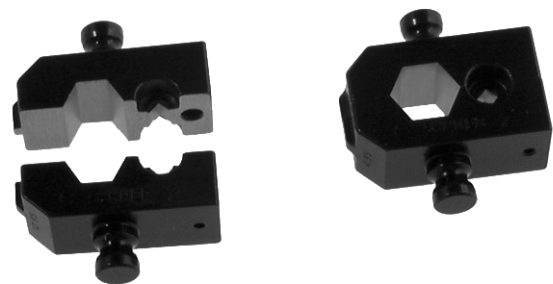
Tools

small crimp tool



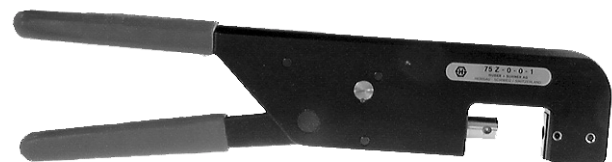
SUHNER TYPE	Order No.	Notes
75 Z-0-0-50	22544754	tool without inserts

interchangeable inserts for small crimp tool



SUHNER TYPE	Order No.	Size	Colour code for standard types	Square section	Hexagonal section
76 Z-0-1-1	23000884	0.54/A		0.54 mm (.021 in.)	3.3 mm (.130 in.)
76 Z-0-2-51	22544756	1/2A	red	0.7/1.6 mm (.028/.063 in.)	3.3 mm (.130 in.)

large crimp tool



SUHNER TYPE	Order No.	Notes
75 Z-0-0-1	22543157	tool without inserts

Tools (cont.)

table press



SUHNER TYPE	Order No.	Notes
75 Z-0-0-2	22543158	press without inserts

interchangeable inserts fitting large crimp tool and table press



SUHNER TYPE	Order No.	Size	Colour code for standard types	Square section	Hexagonal section
76 Z-0-1-2	23000885	0.54/A		0.54 mm (.021 in.)	3.3 mm (.130 in.)
76 Z-0-2-1	22543181	1/2A	red	0.7/1.6 mm (.028/.063 in.)	3.3 mm (.130 in.)

tool for MMBX right angle connectors



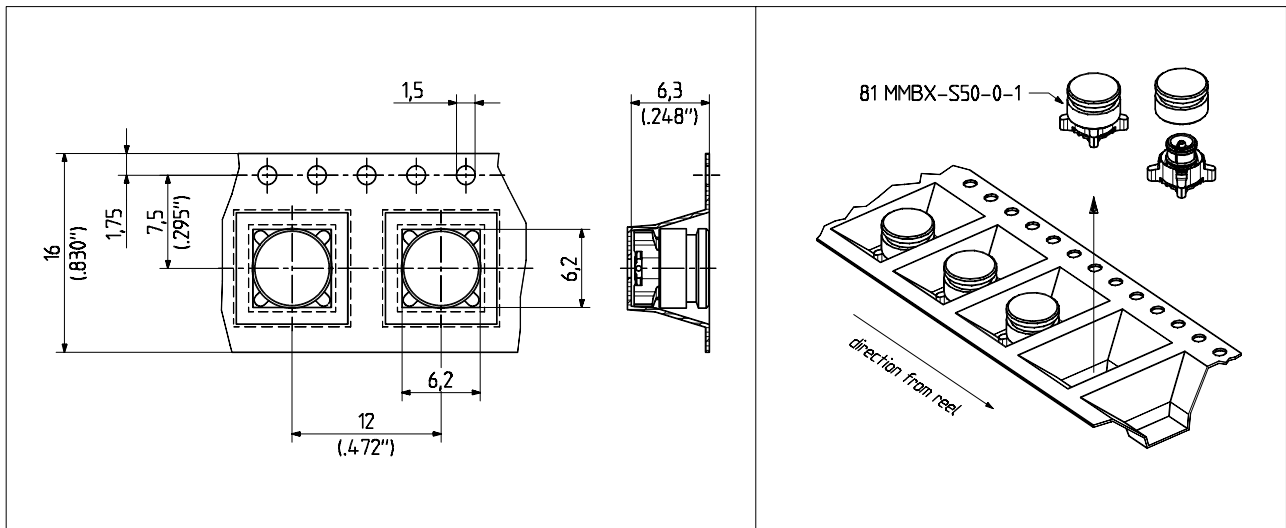
SUHNER TYPE	Order No.	Notes
74 Z-0-0-30	22543139	assembly tool for 16 MMBX right angle connectors

Packaging

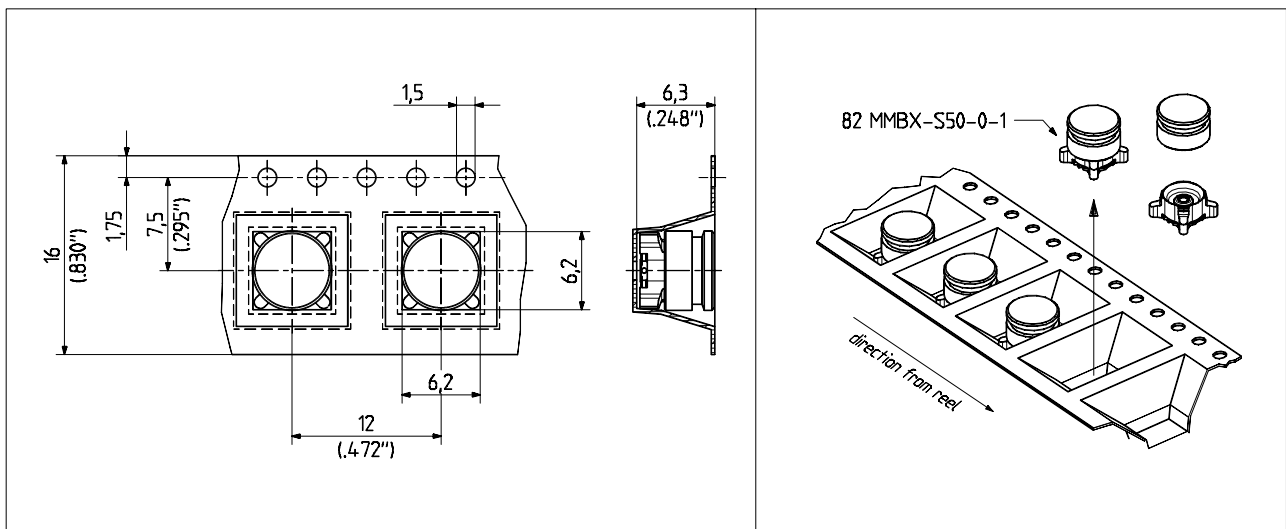
Blister tape supply in accordance with IEC 286-3 / EIA-481

For automated placement the connectors can be supplied on industry standard tape-and-reel.

81 MMBX-S50-0-1



82 MMBX-S50-0-1



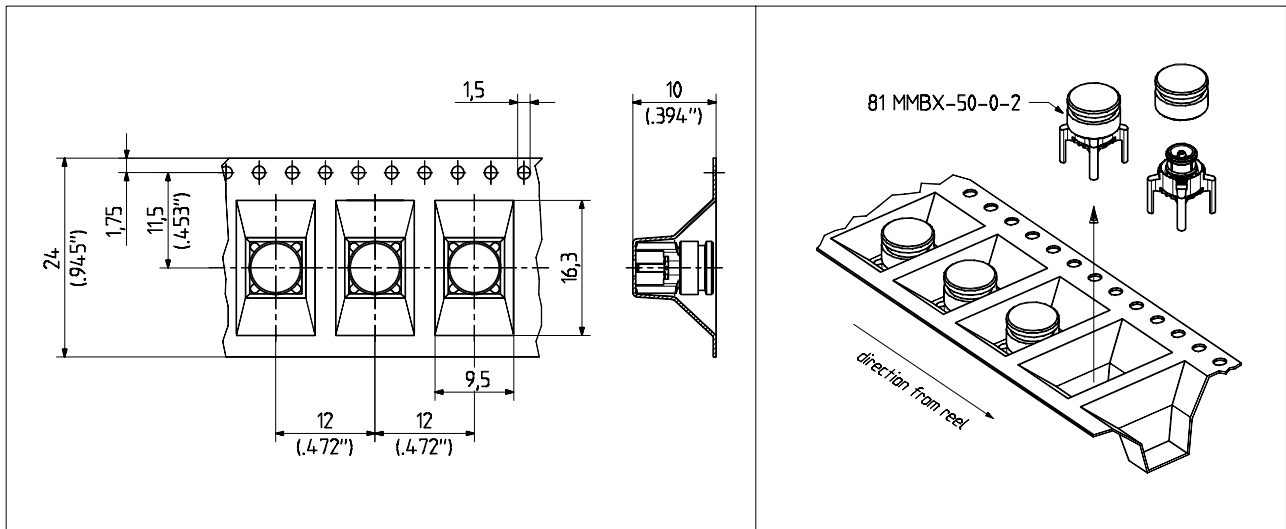
The 16 mm / .63 inches blister tape is delivered on reels of 330 mm / 13 inches diameter (including 750 connectors) and in tough cardboard boxes.

Packaging (cont.)

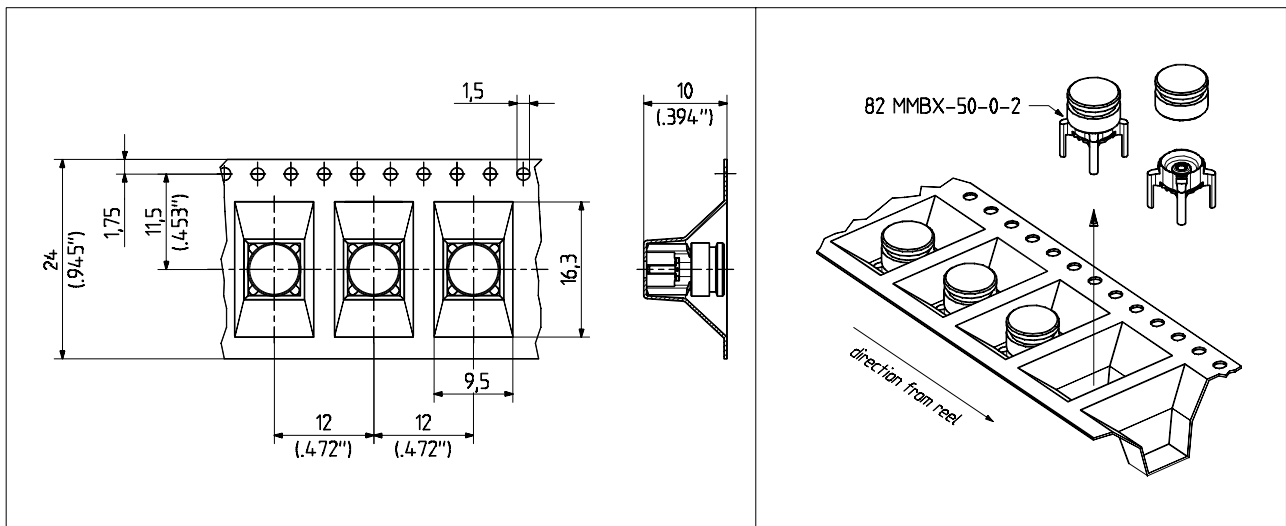
Blister tape supply in accordance with IEC 286-3 / EIA-481

For automated placement the connectors can be supplied on industry standard tape-and-reel.

81 MMBX-50-0-2



82 MMBX-50-0-2



The 24 mm / .94 inches blister tape is delivered on reels of 330 mm / 13 inches diameter (including 500 connectors) and in tough cardboard boxes.

Assembly Instructions

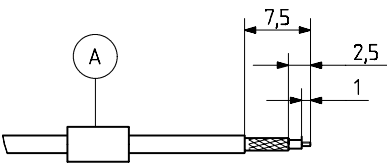
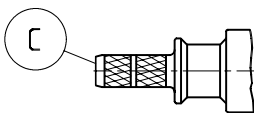
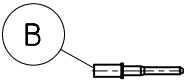
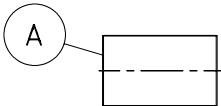
Assembly instruction

Series MMBX

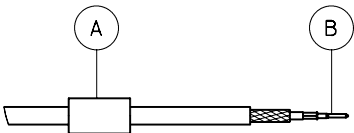
AA	29.09.99
4	101/MUK

No.27350

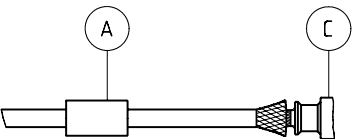
Tools and materials required: Stanley blade Scissors Crimp tool (see table below)		Straight connectors for flexible cable
		Cable entry: crimped
		Connector types: (e.g.) 11 MMBX-50-1-1
This connector is supplied in 3 parts	Suitable cables e.g.:	RG 178 B/U
	Centre contact:	cavity 0,54
	Braid:	cavity A
	Crimp tool:	76 Z-0-1-1 / 76 Z-0-1-2



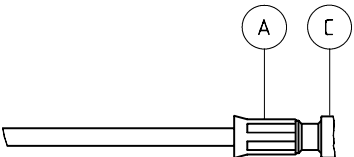
Slide ferrule A onto cable.
Prepare cable according to diagram.
CAUTION: Do not damage braid, dielectric and inner conductor of cable!



Push contact B over inner conductor of cable to about cable-dielectric and crimp with insert 0,54.



Splay out braid and insert cable in connector body C.
Ensure that braid lies above the crimp neck.



Slide ferrule A over braid and crimp as close to connector body C as possible.

SUHNER's skilled staff and specialised equipment are available to carry out complete R.F. lead-assembly on your behalf.
We mount your connectors on cables at economic prices! Please contact our representative for further details of this service.

Assembly Instructions (cont.)

Assembly instruction

Series MMBX

AB 01.12.99
4101/MUK

No.27351

Tools and materials required:

Stanley blade
Scissors
Crimp tool (see table below)

Straight connectors for flexible cable

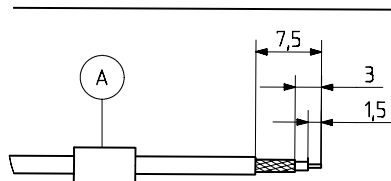
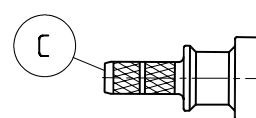
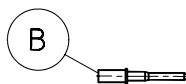
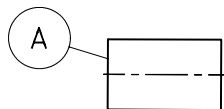
Cable entry: crimped

Connector types: (e.g.)

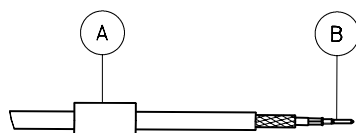
11 MMBX-50-2-1

11 MMBX-50-2-2

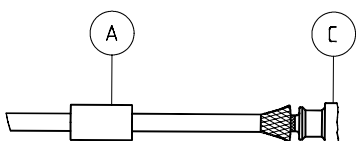
This connector is supplied in 3 parts	Suitable cables e.g.:	RG 316 B/U	K 02252 D EF 316 D
	Centre contact:	cavity 1	cavity 1
	Braid:	cavity A	cavity A
	Crimp tool:	1, 2, A (red)	1, 2, A (red)



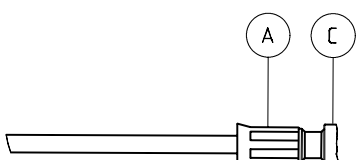
Slide ferrule A onto cable.
Prepare cable according to diagram.
CAUTION: Do not damage braid, dielectric and inner conductor of cable!



Push contact B over inner conductor of cable to about cable-dielectric and crimp with insert 1.



Splay out braid and insert cable in connector body C.
Ensure that braid lies above the crimp neck.



Slide ferrule A over braid and crimp as close to connector body C as possible.

SUHNER's skilled staff and specialised equipment are available to carry out complete R.F. lead-assembly on your behalf.
We mount your connectors on cables at economic prices! Please contact our representative for further details of this service.

Assembly Instructions (cont.)

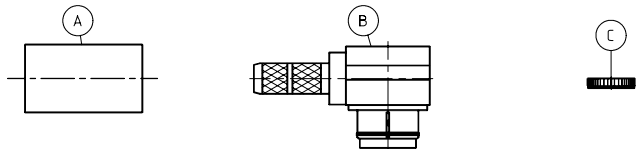
Assembly instruction

Series MMBX

AB 01.12.99
4.101/MUK

No.27352

Tools and materials required : Stanley blade Scissors Crimp tool (see table below) Small soldering iron 40 Watts Solder Sn/Pb 60/40 activated rosin flux Assembly-Tool : 74 Z-0-0-30		Angle plug for flexible cable		
		Cable entry : crimped		
		Connector types : (e.g.)		
This connector is supplied in 3 parts	Suitable cable e.g. :	16 MMBX-50-1-1	16 MMBX-50-2-1	16 MMBX-50-2-2
	Centre contact :	RG 178 B/U	RG 316 B/U	K 02252 D EF 316 D
	Braid :	soldered	soldered	soldered
	Crimp tool :	cavity A	cavity A	cavity A
		1/2 A (red)	1/2 A (red)	1/2 A (red)

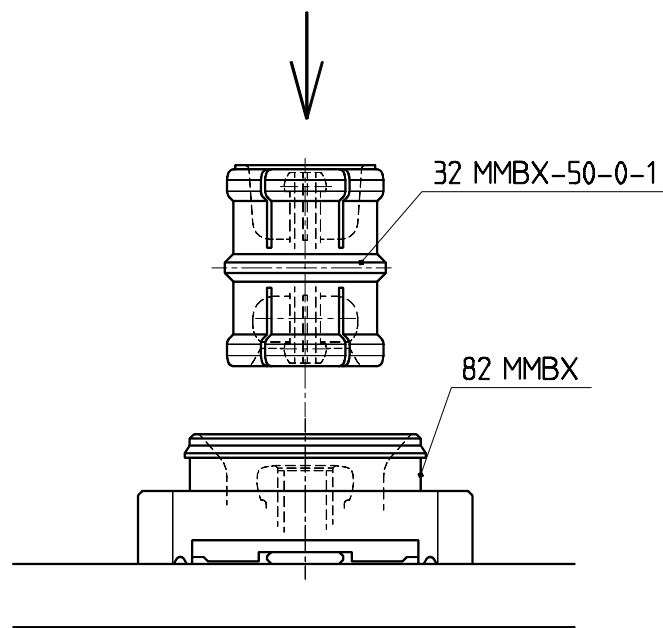


	16 MMBX-50-1-1	16 MMBX-50-2-1	16 MMBX-50-2-2	
	x	1,5	2	2
	y	4,5	5	5
	z	9	9,5	9,5
	Slide ferrule A onto cable. Prepare cable according to diagram. Recommendation : to tin cable centre contact before assembling. CAUTION : Do not damage braid and inner conductor of cable!			
	Splay out braid and insert cable in connector body B. Ensure that braid lies above the crimp neck.			
	Slide ferrule A over braid and crimp as close to connector body B as possible. Solder inner conductor and place cover C on rear opening body B.			
	Slide assembly-tool 74 Z-0-0-30 in groove Z. Drive cover C into rear opening of body B by rotating the handle of the assembly-tool.			

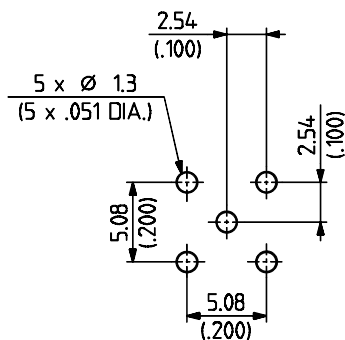
SUHNER's skilled staff and specialised equipment are available to carry out complete R.F. lead-assembly on your behalf. We mount your connectors on cables at economic prices! Please contact our representative for further details of this service.

Caution:

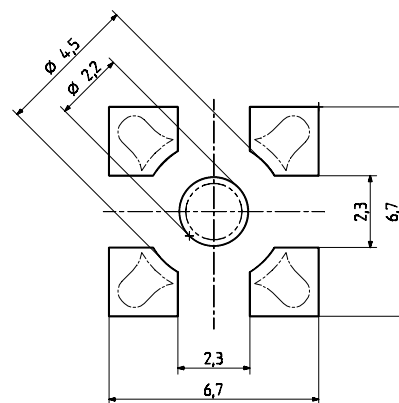
Pull Adapter MMBX rectangular to PCB into MMBX PCB connector.



Mounting Hole / Soldering Pad



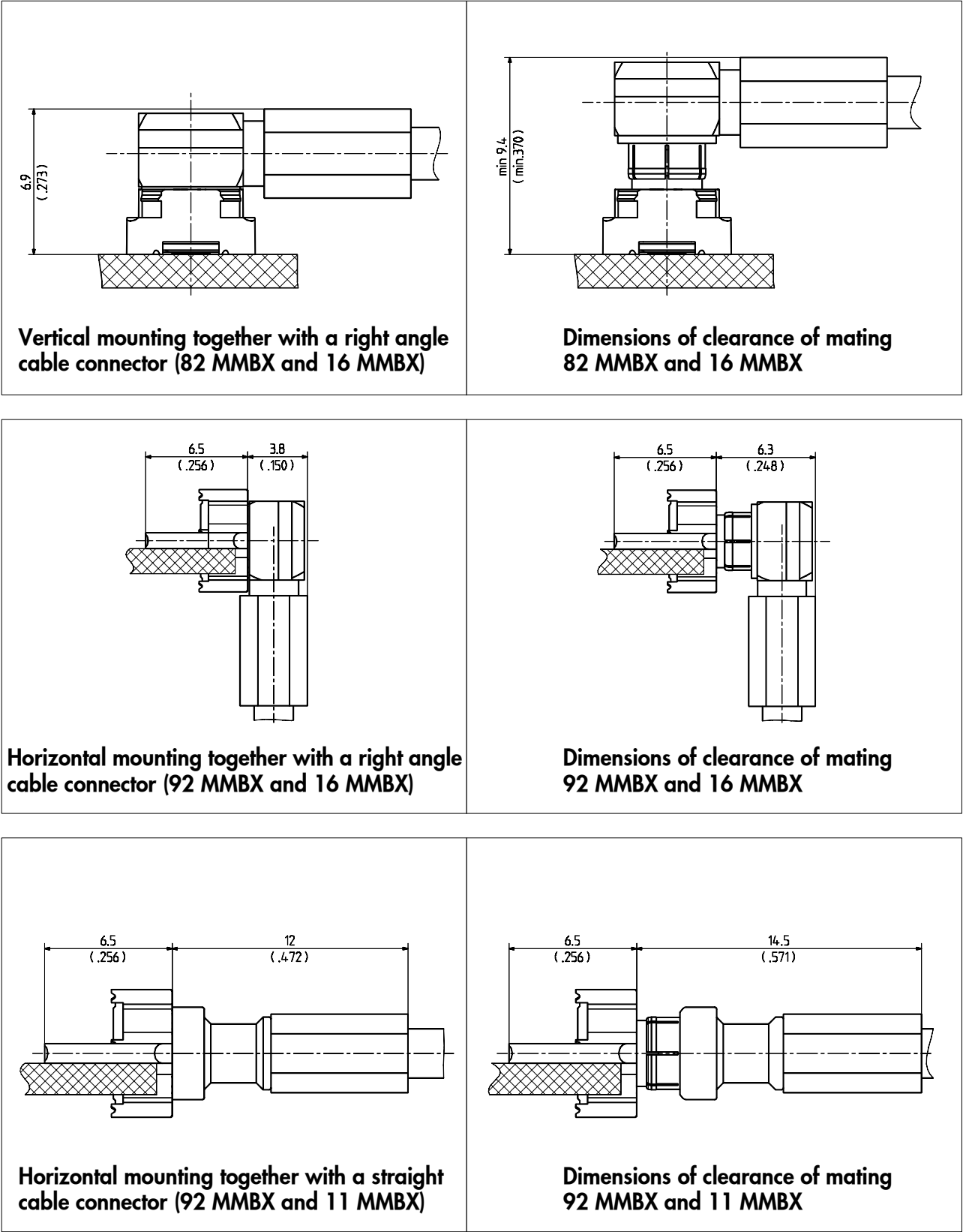
Mounting hole ML 15



Soldering pad ML 122

Application Notes

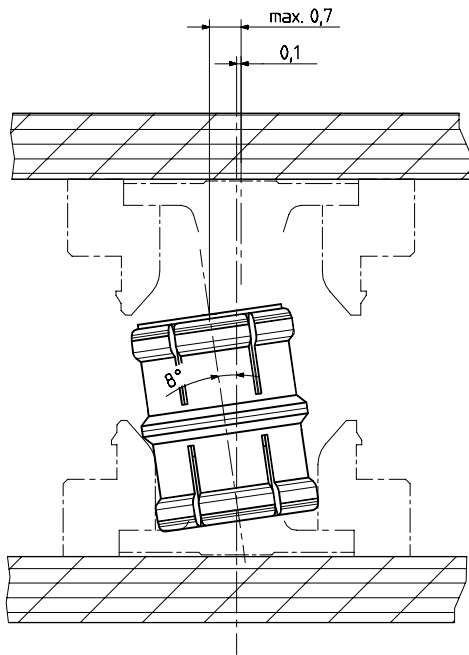
Dimensions of mated pair and clearance of mating



Application Notes (cont.)

Misalignment of Connectors/PCB's

(Example for 81 MMBX-S50-0-1 and 82 MMBX-S50-0-1)



Allowed misalignment

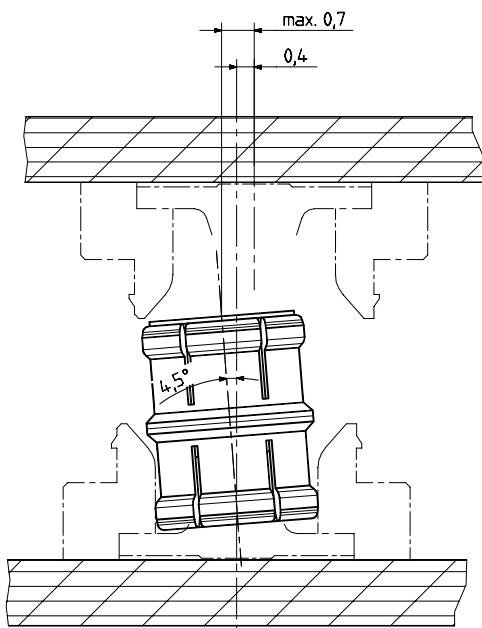
Tilt = 8 degrees

Pull-in range = max. 0.7 mm / .027 in.

The maximum tilt of the adaptor is 8 degrees.

Trouble-free operation

By using the whole range of the tilt (8 degrees) the allowed misalignment of a connector pair (distance between the two centre lines of the connectors) is 0.1 mm / .004 in.



Allowed tilt

Misalignment = max. 0.4 mm / .157 in.

Pull-in range = max. 0.7 mm / .027 in.

The maximum misalignment (distance between the two centre lines of the connectors) of a connector pair is 0.4 mm / .157 in.

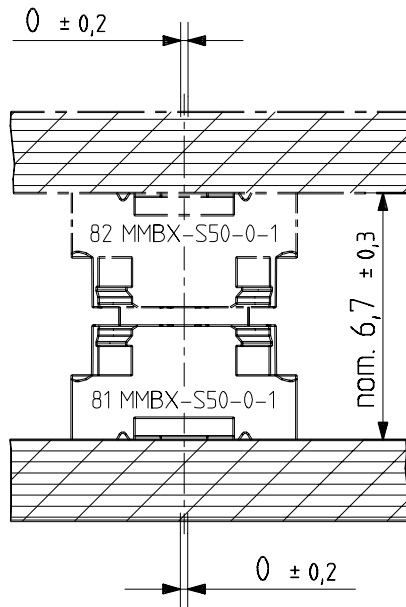
Trouble-free operation

By using the whole range of the misalignment (0.4 mm / .157 in) the allowed tilt is ≤ 4.5 degrees.

Application Notes (cont.)

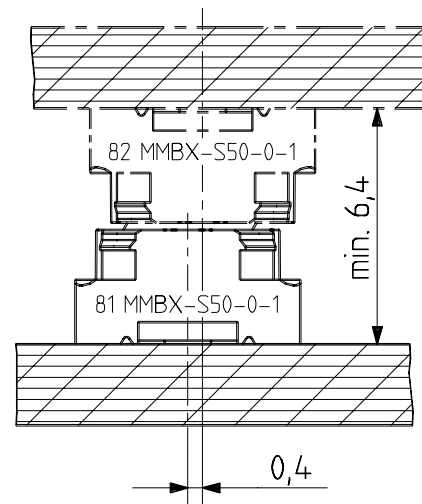
(Example for 81 MMBX-S50-0-1 and 82 MMBX-S50-0-1)

Working range by mated pair



Axial misalignment

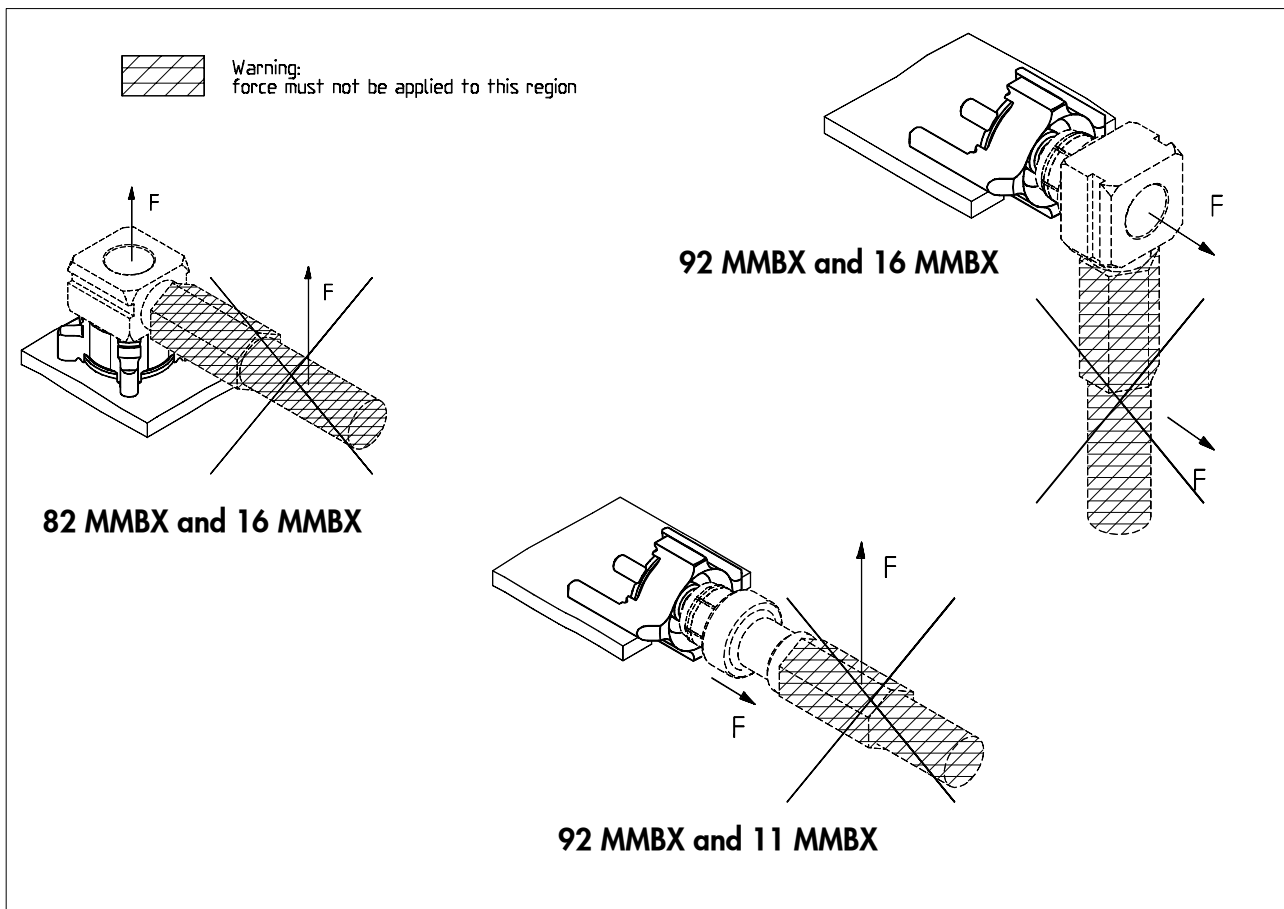
The nominal distance between the boards is 6.7 mm / .264 in. and the standard axial misalignment is 0.6 mm / .024 in.



Radial misalignment

The standard radial misalignment is 0.4 mm / .016 in.

Appropriate Operation



For appropriate operation the following has to be considered:

Surface-mounted electronic components exhibit a lower adherence force to the PCB than through-hole components.

The solder joints act as a mechanical fixation to the board and also function as the electrical contact. Therefore the following has to be considered:

- Avoid forces from the cable of the mating connector to the surface/edge mount connector. Fix the cable sufficiently and in several places.
- Apply only axial forces during the mating and demating of the connector parts.

Non-axial forces – such as improper pulling at the cable entry or the cable portion of a right angle mating connector – may cause excessive torque forces, which could result in damage to the solder joints or to the connector interface

Recommendation:

Application of the assembly tool 74 Z-0-0-30 when disengaging right angle cable connector.