

## Series F, IP68 FP locking Half shell coding



## Description of Series F

SN	Description
1	Type: Straight plug =T3, T4, TX Panel mounted plug =MD Floating receptacle =F3, F4 Receptacle = Z1, ZX, Z8
2	
3	Size: 0, 1, 2, 3, A (1.5)
4	Series: F
5	Coding
6	Housing material and plating
8	Insulator material
9	Number of pins
10	
11	Terminal and surface processing
12	Pin/socket diameter (M: mixed)
13	Terminal cross-section area Special terminals are represented as 9
14	
16	Cable clamp size (PCB right angled number:A0)
17	
18	0
19	Back nut

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
T	3	0	F	1	S	—	P	0	9	M	F	D	0	—	2	5	0	0

### Note:

The 18th and 19th bits are 00, representing the standard back nut; OS can be installed with silicone bend relief back nuts

When the second style is X as other figures, it indicates the version number. For different version numbers, certain accessories adopted vary

### Example: Plug

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
T	3	0	F	1	S	—	P	0	9	M	C	C	0	—	2	5	0	0

Plug - Style 3- Housing size 0 - Series F -Coding 1 - Copper alloy housing, surface black chrome plating - PEEK insulator - 9-pin - Gold-plated soldering pin - Pin diameter Φ0.5 - For 28AWG, gauge cross-section area - Applicable to the cable of 2.0~2.5mm - Standard Back nut


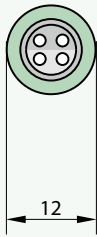
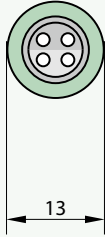
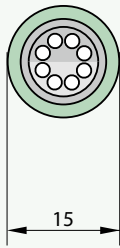
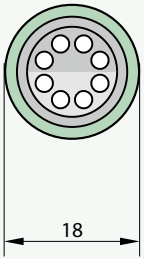
### Example: Receptacle

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Z	1	0	F	1	S	—	P	0	9	L	C	C	0	—	0	0	0	0

Receptacle - Style 3- Housing size 0 - Series F - Coding 1 - Copper alloy housing, surface black chrome plating - PEEK insulator - 9-pin - Gold-plated soldering socket - Socket diameter Φ0.5

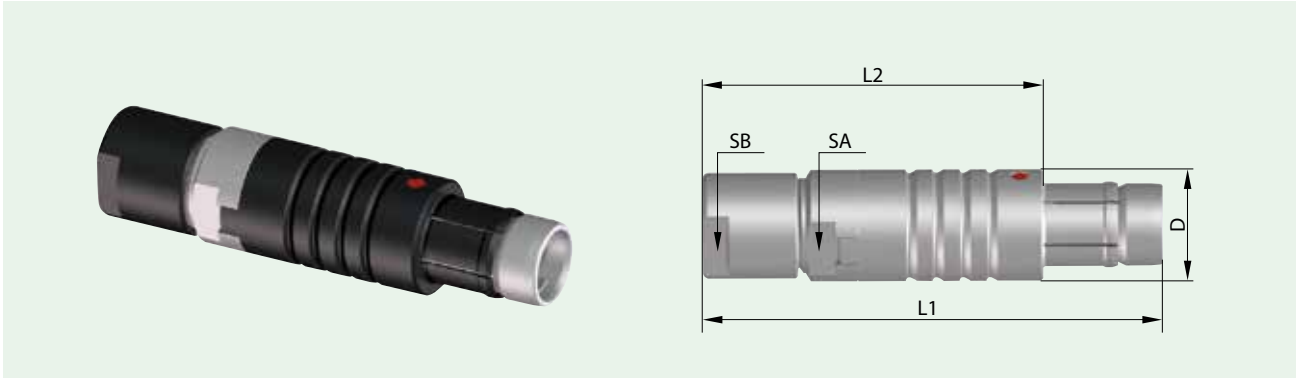
## Housing size (scale 1:1)

OD = Outer diameter of the plug (unit: mm)  
S = Size

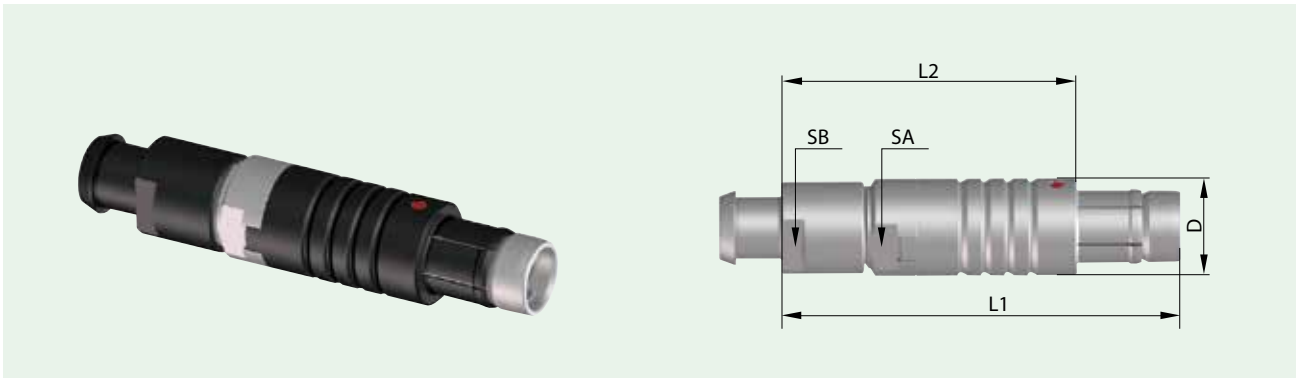
OD					
S	0	1	1.5	2	3
Corresponding number	0	1	A	2	3

## Straight plug (T3, T4)

T 3 IP68, standard back nut



T 4 IP68, for cable bend relief or overmoulding



Size	Unit: mm				
	L1	L2	D	SA	SB
0	~40	~30	9.4	8	7
1	~49	~38	12	10	10
1.5	~50	~40	13	11	12
2	~53	~40	15	13	13
3	~62	~47	18	16	15

## Panel mounted plug (MD)

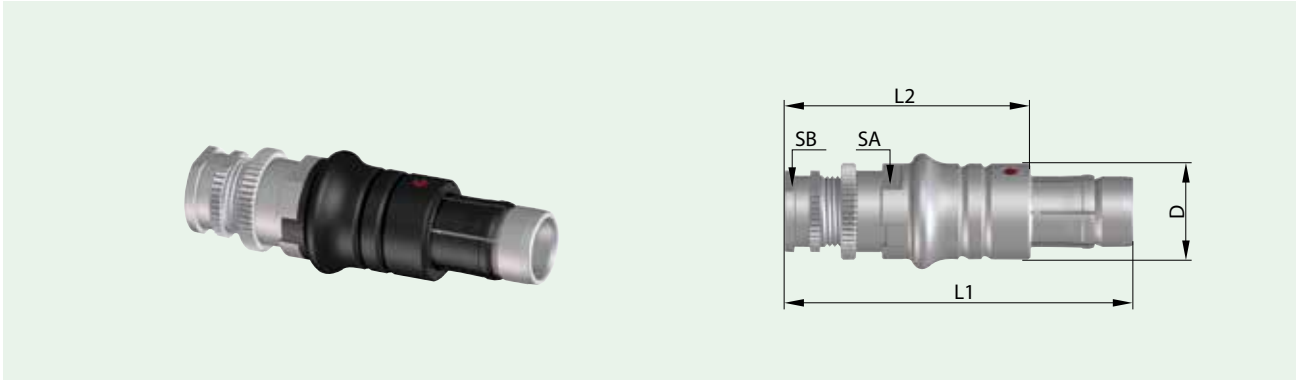
**M D** IP68, hexagon nut, install from rear of panel (without the locking)



Size	Unit: mm							 * $\varnothing$ ** $\varnothing$ SW Panel Cut-out
	L1	L2	L3	C	D	SA	SB	
0	~14.5	~4.5	10	3	13	9	11	~ $\varnothing$ 9.1*
1	~18.5	~6.5	10.8	2.5	17	11	14	SW11.2/ $\varnothing$ 12.1**
2	~19.7	~7	12.1	3	22	15.2	19	SW 15.3/ $\varnothing$ 16.1**

## Plug (TX)

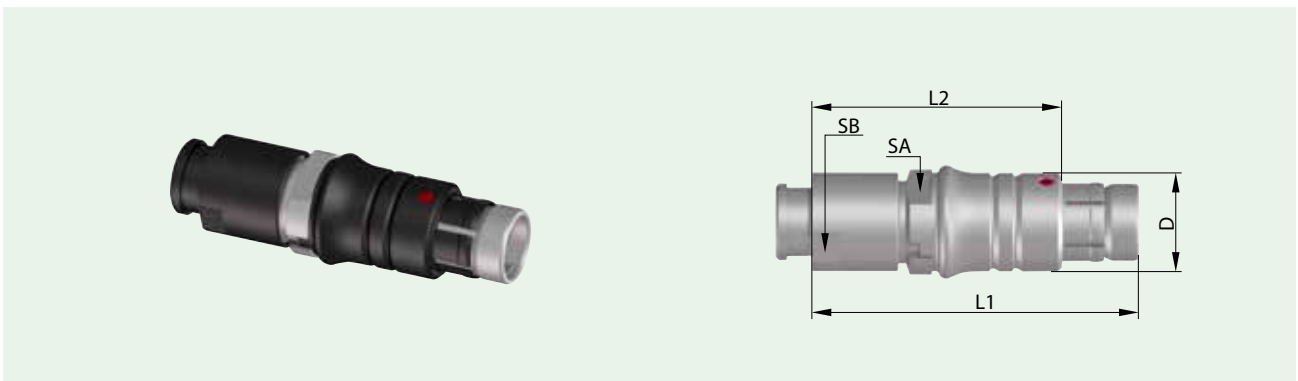
**T X** IP68, 0F changed to the short plug



Note: TX 0F plugs are used with ZX receptacles.

Size	Unit: mm				
	L1	L2	D	SA	SB
0	33	23	9.4	8	7

**T X** IP68, AF short version

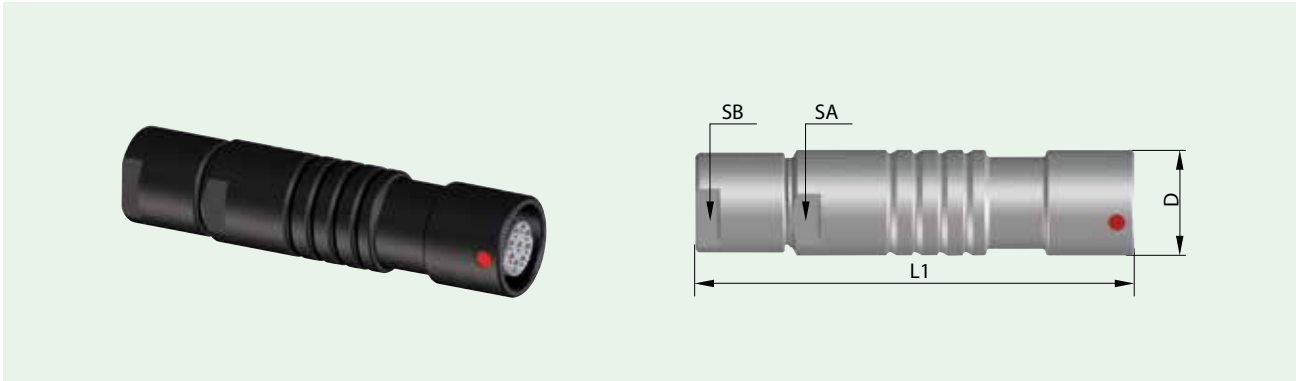


Note: TX AF plugs are used with other receptacles except ZX

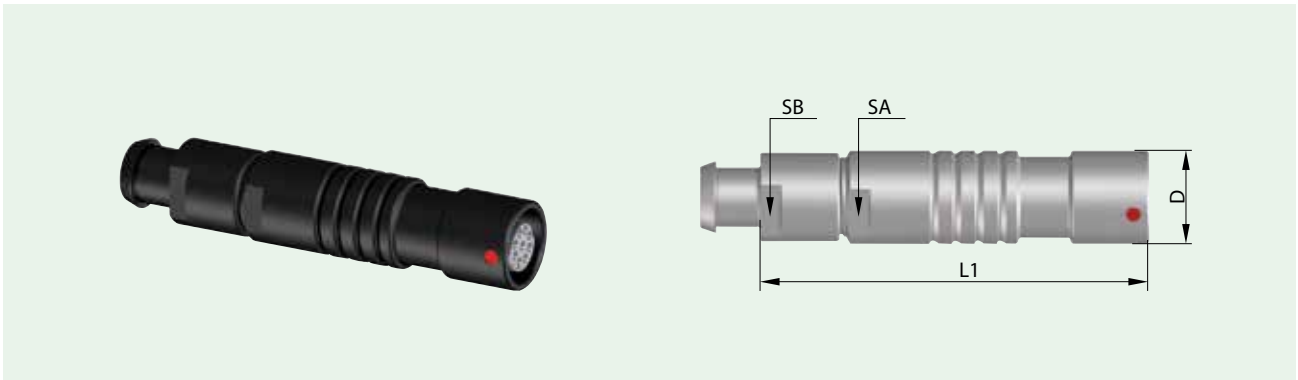
Size	Unit: mm				
	L1	L2	D	SA	SB
AF	44	33	13	11	12

## Floating receptacle (F3, F4)

F 3 IP68, standard back nut



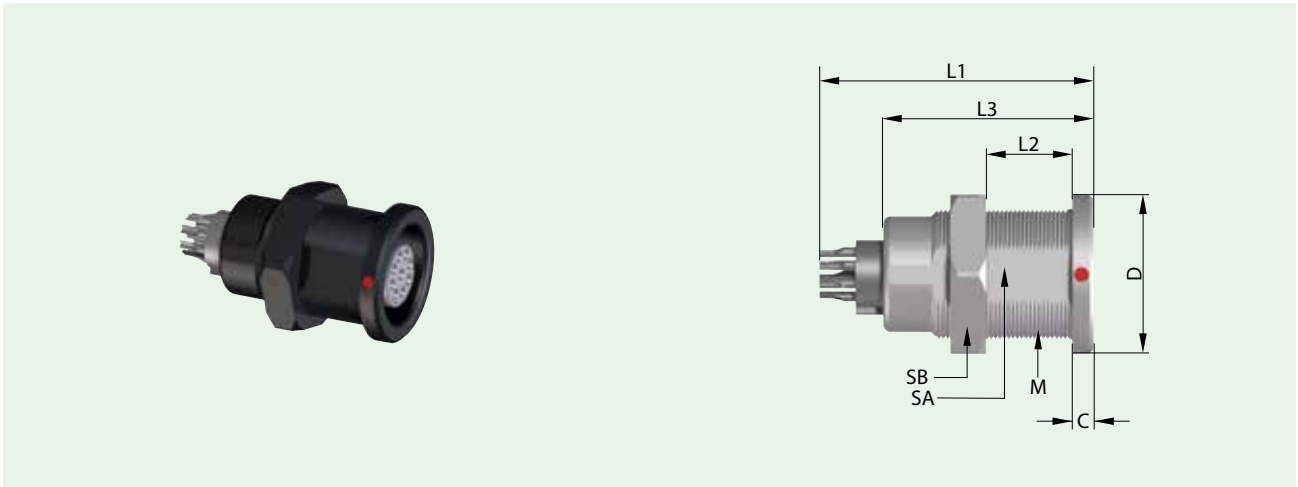
F 4 IP68, for cable bend relief or overmoulding



Size	Unit: mm			
	L1	D	SA	SB
0	~39	10	8	7
1	~47	13	10	10
2	~50	16	13	12

## Receptacle (Z1)

**Z 1** IP50, install from rear of panel

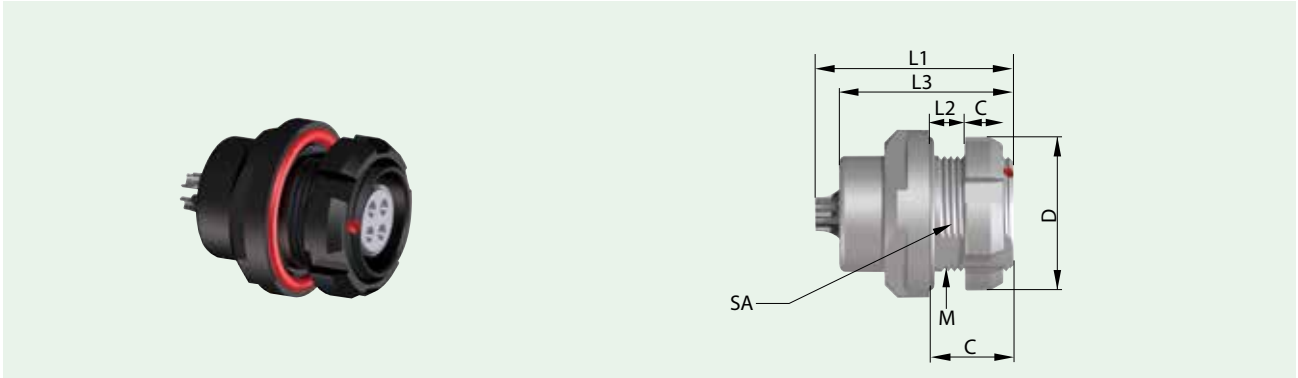


Size	Unit: mm								Panel cut-out
	L1	L2	L3	M	D	SA	SB	C	
0	~20.0	~9.0	14.5	9×0.5	10.0	8.2	11.0	1.5	SW 8.3/Φ9.1
1	~24.0	~8.0	16.5	12×1	14.0	10.0	14.0	1.5	SW 10.1/Φ12.1
1.5	~25.0	~8.0	15.5	14×1	16.0	12.0	17.0	2.0	SW 12.1/Φ14.1
2	~27.0	~10.0	18.5	15×1	18.0	14.1	17.0	2.0	SW 14.2/Φ15.1
3	~30.5	~13.0	22.5	18×1	22.0	16.5	22.0	2.0	SW 16.6/Φ18.1



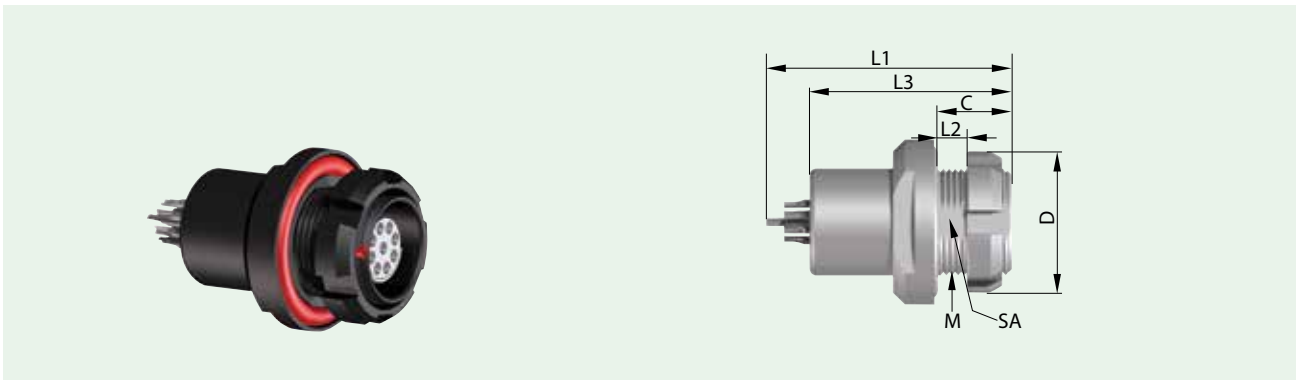
## Receptacle (ZX, Z8)

**Z X** IP68, install from both side of panel



Size	Unit: mm							Panel cut-out
	L1	L2	L3	M	D	SA	C	
0	~15.5	~3	13.5	9×0.5	11.9	8.2	6.5	SW 8.3/Φ9.1

**Z 8** IP68, slotted nut, install from front of panel, water-tight



Size	Unit: mm							Panel cut-out
	L1	L2	L3	M	D	SA	C	
0	~22.0	~3.5	17.0	9X0.5	14.0	8.2	6.5	SW 8.3/Φ9.1**
1	~27.5	~4.0	21.0	14×1	18.0	12.0	8.0	SW 12.1/Φ14.1*
1.5	~24.0	~3.0	19.5	14×1	19.0	12.0	7.0	SW 12.1/Φ14.1**
2	~29.0	~3.0	23.0	16×1	21.0	14.3	8.0	SW 14.4/Φ16.1*
3	~33.0	~6.0	26.5	20×1	26.0	18.0	11.0	SW 18.1/Φ20.1*

## Coding, housing material and surface plating

### Coding

No.	Front view of the receptacle	Size				
		0	1	1.5	2	3
1		●	●	●	●	●
2		●	●	●	●	●
3				●	●	●

### Housing material and surface plating

No.	Housing material and surface plating
C	Standard type Copper alloy/surface chrome plating
S	Copper alloy/surface black black chrome plating
R	aluminum alloy/surface chrome plating *only for receptacles

## Insulator material

PEEK material, turned pin

No.	Termination method	PEEK
P	Soldering	●
	PCB	●

## Number of contacts Size 0

Size	Insulator material	Number of pins	Pin diameter mm	Single-pin load current	Test voltage (KV) VDE0627: 1986-06	Test voltage (KV) SAE S13441:1998 method3001.1	Operating voltage (KV) SAE S13441:1998 method 3001.1	Termination method		View on the termination side	
								Soldering	PCB	Pin	Socket
0	P	02	0.9	10	1.000	1.500	0.500	●	●		
0	P	03	0.9	10	0.875	1.200	0.400	●	●		
0	P	04	0.7	7	0.875	0.900	0.300	●	●		
0	P	05	0.7	7	0.750	1.100	0.366	●	●		
0	P	07	0.5	5	1.000	0.900	0.300	●	●		
0	P	09	0.5	5	1.000	0.900	0.300	●	●		

# PCB layout Size 0

Number of pins	PCB straight	PCB right angled
2-pin		
3-pin		
4-pin		
5-pin		
7-pin		

Number of pins	PCB straight	PCB right angled
9-pin		

## Number of contacts Size 1

Size	Insulator material	Number of pins	Pin diameter mm	Single-pin load current	Test voltage (KV) VIDE0627:1986-06	Test voltage (KV) SAE S13441:1998 method3001.1	Operating voltage (KV) SAE S13441:1998 method 3001.1	Termination method		View on the termination side	
								Soldering	PCB	Pin	Socket
1	P	02	1.3	14	1.250	1.650	0.550	●	●		
1	P	03	1.3	14	1.000	1.500	0.500	●	●		
1	P	04	0.9	10	1.000	1.500	0.500	●	●		
1	P	05	0.9	10	0.875	1.350	0.450	●	●		
1	P	06	0.7	7	0.875	1.200	0.400	●	●		
1	P	07	0.7	7	0.875	1.200	0.400	●	●		
1	P	12	0.5	5	0.750	1.100	0.366	●	●		

# PCB layout Size 1

Number of pins	PCB straight	PCB layout
2-pin		
3-pin		
4-pin		
5-pin		

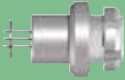
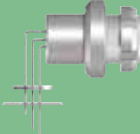
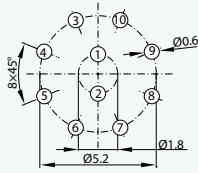
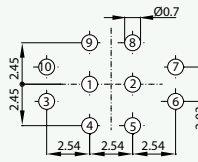

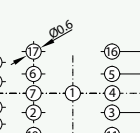
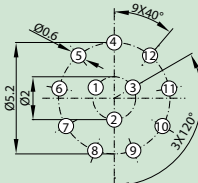
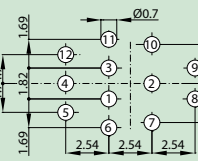


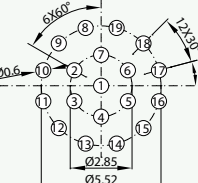
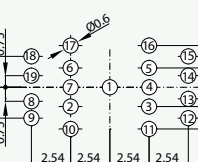
Number of pins	PCB straight	PCB layout
6-pin		
7-pin		
12-pin		

## Number of contacts Size 1.5

Size	Insulator material	Number of pins	Pin diameter mm	Single-pin load current	Test voltage (KV) VDE0627: 1986-06	Test voltage (KV) SAE S13441:1998 method3001.1	Operating voltage (KV) SAE S13441:1998 method 3001.1	Termination method		View on the termination side	
								Soldering	PCB	Pin	Socket
A	P	10	0.7	7	0.875	1.200	0.400	●	●		
A	P	12	0.7	7	0.875	1.200	0.400	●	●		
A	P	19	0.5	5	0.750	1.000	0.333	●	●		



# PCB layout Size 1.5

Number of pins	PCB straight	PCB layout
10-pin		
		
12-pin		
		
19-pin		
		

## Number of contacts Size 2

Size	Insulator material	Number of pins	Pin diameter mm	Single-pin load current	Test voltage (KV) VDE0627:1986-06	Test voltage (KV) SAE S13441:1998 method3001.1	Operating voltage (KV) SAE S13441:1998 method 3001.1	Termination method		View on the termination side	
								Soldering	PCB	Pin	Socket
2	P	05	1.3	14	1.000	1.500	0.500	●	●		
2	P	06	0.9	10	1.250	1.800	0.600	●	●		
2	P	11	0.9	10	0.875	1.350	0.450	●	●		
2	P	16	0.7	7	0.875	1.350	0.450	●	●		
2	P	19	0.7	7	0.750	1.200	0.400	●	●		

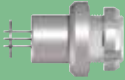
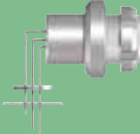
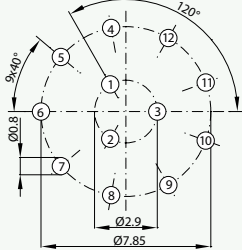

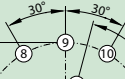
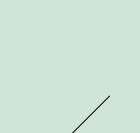
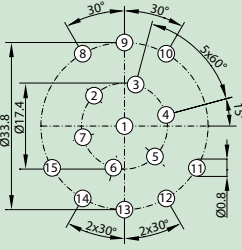

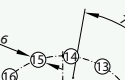

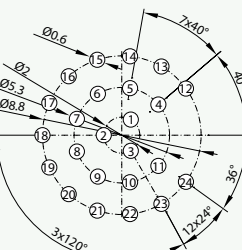



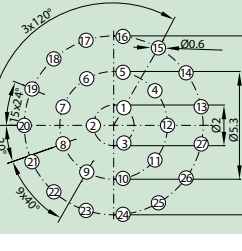

# PCB layout Size 2

Number of pins	PCB straight	PCB layout
5-pin		
5-pin		
6-pin		
11-pin		
16-pin		
19-pin		

## Number of contacts Size 3

Size	Insulator material	Number of pins	Pin diameter mm	Single-pin load current	Test voltage (KV) VDE0627: 1986-06	Test voltage (KV) SAE S13441:1998 method3001.1	Operating voltage (KV) SAE S13441:1998 method 3001.1	Termination method		View on the termination side	
								Soldering	PCB	Pin	Socket
3	P	12	1.3	14	0.875	1.350	0.450	●	●		
3	P	15	0.9	10	0.875	1.350	0.450	●	●		
3	P	24	0.7	7	0.750	1.000	0.333	●	●		
3	P	27	0.7	7	0.750	1.000	0.333	●	●		

# PCB layout Size 3

Number of pins	PCB straight	PCB layout
12-pin		
		
15-pin		
		
24-pin		
		
27-pin		
		

## Pin/socket type, surface plating and pin/socket diameter

### Pin/socket type, surface plating

Type	No.	Surface plating
Socket	L	L-1 $\mu\text{m Au}$ (min.)
Pin	M	L-1 $\mu\text{m Au}$ (min.)
Socket	Q	P-1 $\mu\text{m Au}$ (min.)
Pin	R	P-1 $\mu\text{m Au}$ (min.)

L=Soldering

P=PCB

### Pin/socket diameter

Pin/socket diameter	No.
0.50	C
0.70	F
0.90	J
Mixed	M
1.30	P

## Pin/socket diameter and termination cross section

### Soldering

No.	Pin/socket diameter	Termination diameter	Termination cross section	
			AWG	mm <sup>2</sup>
C 0	0.5	0.4	28	0.08
D 0	0.7	0.6	26	0.15
G 0	0.7	0.85	22	0.38
G 0	0.9	0.85	22	0.38
H 0	1.3	1.1	20	0.50

### PCB

No.	Pin/socket diameter	Termination diameter
0 0	0.5	0.5
0 0	0.7	0.5
0 0	0.9	0.7
0 0	1.3	0.7

## Cable clamp

No.		Cable outer diameter mm	Housing size				
			0	1	1.5	2	3
1	5	> 1.0-1.5	●	●			
2	0	> 1.5-2.0	●	●			
2	5	> 2.0-2.5	●	●		●	
3	0	> 2.5-3.0	●	●	●	●	
3	5	> 3.0-3.5	●	●	●	●	●
4	0	> 3.5-4.0	●	●	●	●	●
4	5	> 4.0-4.5	●	●	●	●	●
5	0	> 4.5-5.0	●	●	●	●	●
5	5	> 5.0-5.5		●	●	●	●
6	0	> 5.5-6.0		●	●	●	●
6	5	> 6.0-6.5		●	●	●	●
7	0	> 6.5-7.0		●	●	●	●
7	5	> 7.0-7.5		●	●	●	●
8	0	> 7.5-8.0				●	●
8	5	> 8.0-8.5				●	●
9	0	> 8.5-9.0				●	●
9	5	> 9.0-9.5				●	●
0	1	> 9.5-10.0					●
0	2	> 10.0-10.5					●
0	3	> 10.5-11.5					●
0	0	Without a cable clamp					

Applicable to all plugs and floating receptacles

Schematic diagram of cable clamp

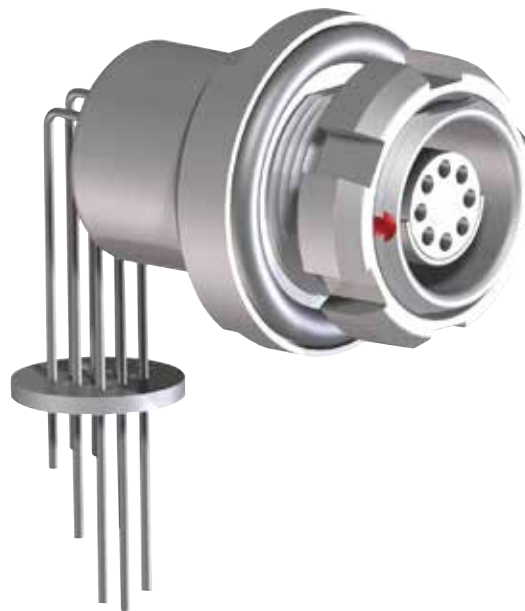




## PCB right angled receptacle

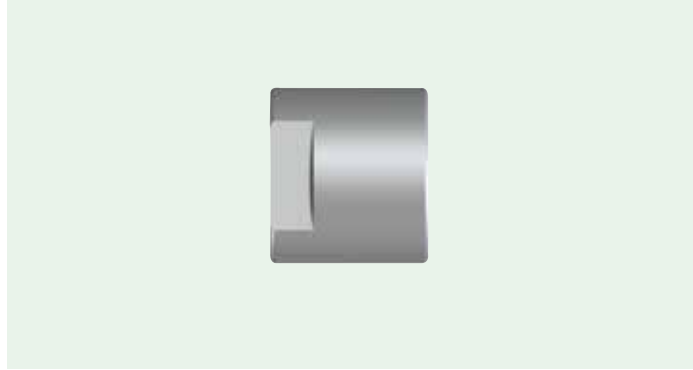
Series F receptacles can off PCB right angled receptacles, regardless of the water-proof level, number of pins and Housing size.

PCB right angled



## Back nut

Standard back nut



For cable bend relief or overmoulding



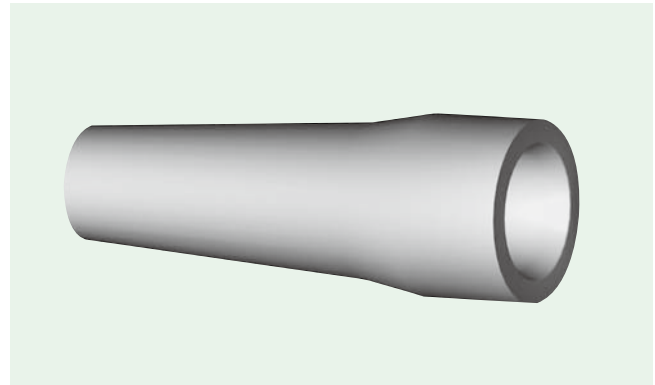
## Cable bend relief

### Color

No.	Color/RAL-No. (Similar)
A	Red RAL 3020
B	White RAL 9010
C	Yellow RAL 1016
D	Green RAL 6029
E	Blue RAL 5002
F	Grey RAL 7005
G	Black RAL 9005
0	Without a bend relief

### Material

No.	Material
S	Silicon rubber
0	Without a bend relief



Silicon rubber

Operating temperature: -50°C ~ +200°C

Up to +230°C within a short time

High temperature disinfection