

MIL-DTL-38999 II Series Electrical Connectors

Description:

- Comply with MIL-DTL-38999K II series
- Quick bayonet coupling
- Smallest size, shortest shell length and lightest weight in 599 series
- EMI/RFI shielding
- Removable crimp contacts, without scoop-proof
- Light weight electrical connectors, applicable for environments not withstanding high vibration or severe sand and moisture.
- Applicable enterprise standard : 21E0.204.102JT



Main technical characteristics

Mechanical

- Shell: Aluminum alloy, stainless steel
- Plating:
B class: Olive green cadmium plating
C class: Anodize
E class: Stainless steel passive
F class: Electroless nickel plating
- Insulator: Thermo-set plastic
- Grommet and seal: Silicon rubber

- Contact: gold plating copper alloy, crimp, soldering and PCB
- Endurance: 500 cycles
- Vibration: random vibration: at frequency 100~1000Hz, density of power chart: $1g^2/Hz$
- Shock: At 3ms half sinusoid, peak value of acceleration: 300g 45dB

Electrical

—Contact resistance and current rating

Contact size	Operating dia. (mm)	Contact resistance (mΩ)	Rated current (A)
22D [#]	Φ0.76	≤12	5
20 [#]	Φ1.00	≤5	7.5
16 [#]	Φ1.60	≤2.5	13
12 [#]	Φ2.40	≤1.5	23

- EMI shielding
100MHz ~ 1GHz, minimum attenuation

Environmental

- Operating temperature:
B class: -65°C ~ +175°C

—Withstanding voltage: V

Service rating*	M	I	II
Sea level	1300	1800	2300
21000m	800	1000	1000

*Different contact layouts have different service rating. Please see the contact layout.

- Insulating resistance:
Normal ≥ 5000MΩ Damp heat ≥ 100MΩ
- Electrical continuity between shells:
B class ≤ 2.5mΩ F class ≤ 1.0mΩ
E class ≤ 5mΩ

E, F class: -65°C ~ +200°C

—Salt spray: According to method 1001 GJB1217

B class 500 h

E class 1000h

F class 48 h

—Relative humidity: 98% at 40°C

—operating height: ≤30480m

Ordering information

Basic series *	RF	27472	T	14	F	35	P		-H
Type									
27473- plug (Only for type T)									
27484- shielding plug (Only for type T)									
27472- wall-through front mounting receptacle (Only for type T)									
27497- wall-through rear mounting receptacle (Only for type T)									
27513- box front mounting receptacle (Only for type E)									
27508- box rear mounting receptacle (Only for type E)									
27474- jam nut mounting receptacle (Only for type T)									
Shell type									
T-with thread, stop teeth and rear mounting accessory									
E-without thread, stop teeth or rear mounting accessory									
Shell size									
08-10-12-14-16-18-20-22-24									
Plating									
B –aluminum alloy shell with olive green cadmium plating									
F –aluminum alloy shell with electroless nickel plating									
E –stainless steel shell, passive									
Layout									
See “Layout table” for more details.									
Contact									
Crimp and solder contacts: P-pin, S-socket									
PCB contact: PL-long PCB pin									
SL-long PCB socket									
PC-short PCB pin									
SC-short PCB socket									
Polarization									
N- normal									
A, B, C, D-alternative (when select crimp contacts,									
N can be omitted; when choose other contacts, N must be marked; there are only N, A and D									
keys for 08# shell)									
Solder contact identification (only applicable for solder connectors)									
H- Solder contact									

Note: 1) Part number designation for GJB599A series and MIL-DTL-38999K are all the same, except that basic series are different. Basic series for GJB599A is “**RF**”, while MIL-DTL-38999K is “**MS**”. They are interchangeable.
 2) Applicable sealing cap, backshell and square flange rubber washer for this series see P32-P33.
 3) When high oil resistance is required, connector sealing material is fluorine silicon rubber, put C1 behind the original part number (Example: RF27467T17F35PNC1) .

[Part number identification example]

RF27472T14F35PN-H

RF series wall-through square flange front mounting receptacle, with thread at shell end, stop teeth and rear mounting accessory, 14# shell size, aluminum alloy shell with electroless nickel plating, 35# insert arrangement, pin contact, polarization N. Solder contacts are only applicable for solder connectors.

Crimp contacts

Contact size	Dia. mm	Pin color ring	Socket color ring	Inner dia. of crimp boot mm	Outer dia. of crimp boot mm	Section of cable mm ²	AWG	Insulator outer dia. of wire	Withdraw tool code	Crimp tool code

22D#	0.76	Orange-blue-black	Orange-green-yellow	0.85	1.20	0.08 0.125 0.2 0.3	28 26 24 22	0.76~1.3 7	M81969/ 14-01	YJQ-02
20#	1.00	Orange-blue-orange	Orange-green-purple	1.17	1.78	0.2 0.3 0.5	24 22 20	1.02~2.1 1	M81969/ 14-10	YJQ-02
16#	1.60	Orange-blue-yellow	Orange-green-gray	1.68	2.62	0.5 0.8 1.0 1.2	20 18 16	1.65~2.7 7	M81969/ 14-03	XCXY-0 1
12#	2.40	Orange-blue-green	Orange-green-white	2.49	3.84	2.0 3.0	14 12	2.46~3.6 1	M81969/ 14-04	XCXY-0 1

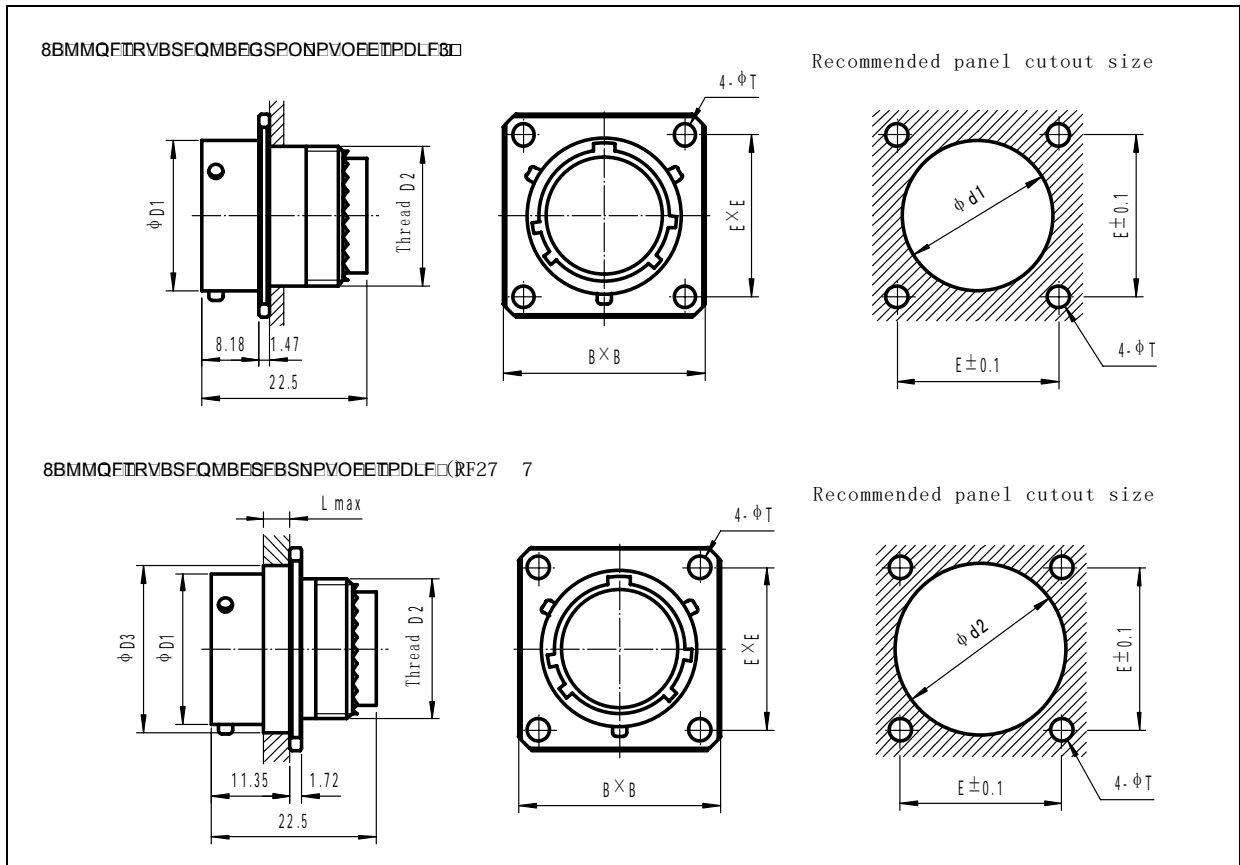
Note: For crimping tool and operation explain, please see "GJB599 series product matching crimp tool operation instruction".

Solder contacts

Solder contact size	Inner dia. of solder cup	The Max. applicable wire gauge (AWG)
22D#	φ0.9	22
20#	φ1.1	20
16#	φ1.9	16
12#	φ2.9	12

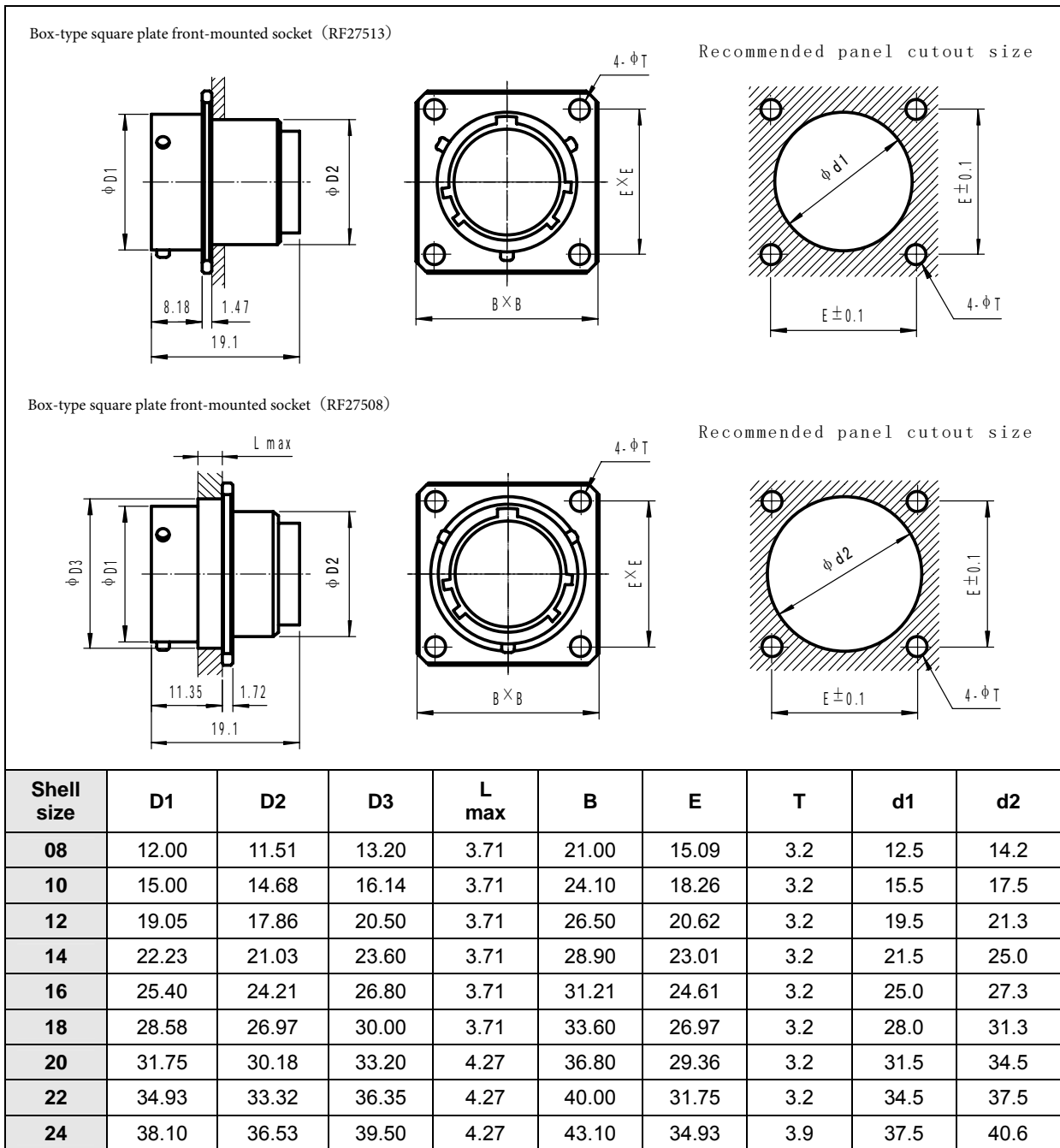
Note: there is no solder type for coaxial contacts.

[Wall-through square flange receptacle RF27472/RF27497]



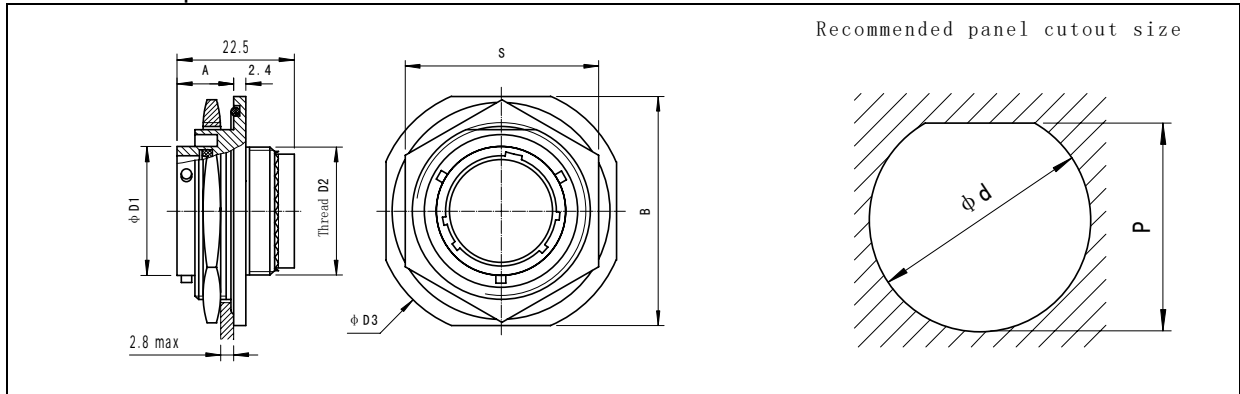
Shell size	D1	Thread D2 UNEF-2A	D3	L max	B	E	T	d1	d2
08	12.00	0.4375-28	13.20	3.71	21.00	15.09	3.2	12.5	14.2
10	15.00	0.5625-24	16.14	3.71	24.10	18.26	3.2	15.5	17.5
12	19.05	0.6875-24	20.50	3.71	26.50	20.62	3.2	19.5	21.3
14	22.23	0.8125-20	23.60	3.71	28.90	23.01	3.2	21.5	25.0
16	25.40	0.9375-20	26.80	3.71	31.21	24.61	3.2	25.0	27.3
18	28.58	1.0625-18	30.00	3.71	33.60	26.97	3.2	28.0	31.3
20	31.75	1.1875-18	33.20	4.27	36.80	29.36	3.2	31.5	34.5
22	34.93	1.3125-18	36.35	4.27	40.00	31.75	3.2	34.5	37.5
24	38.10	1.4375-18	39.50	4.27	43.10	34.93	3.9	37.5	40.6

[Box square flange receptacle RF27513/RF27508]



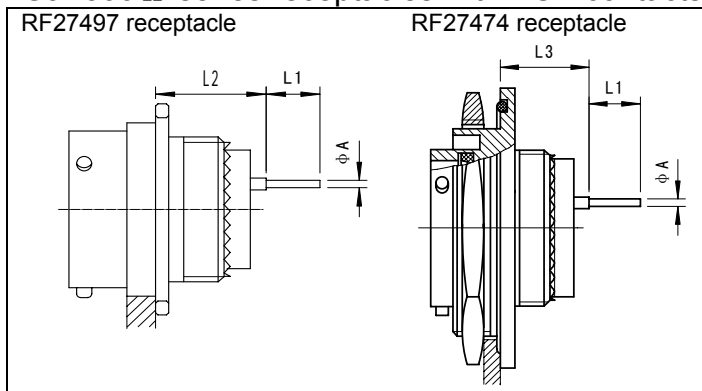
Note: aviation standard screws are recommended for square flange receptacle mounting.

Jam nut receptacle RF27474

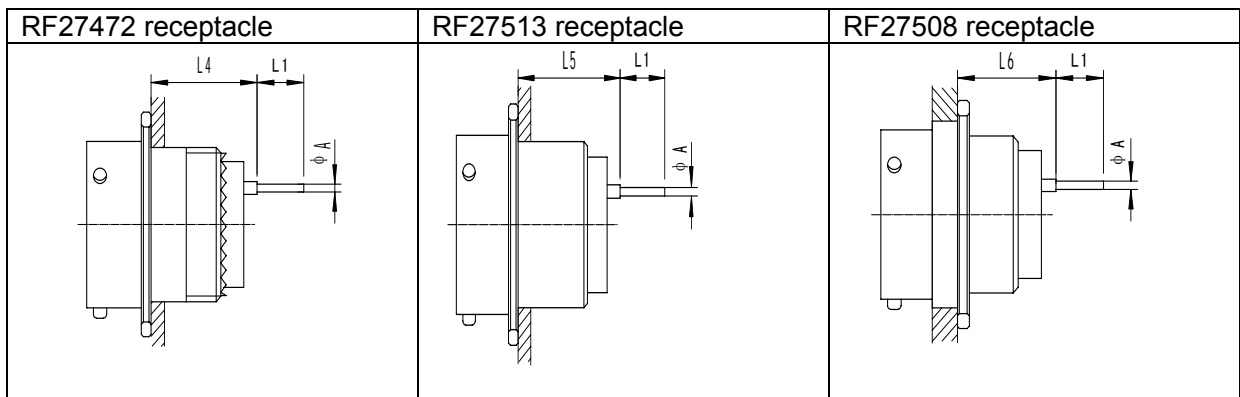


Shell size	D1	Thread D2 UNEF-2A	D3	A	B	S	d	p
08	12.00	0.4375-28	34.95	11.1	31.75	27.40	22.46	21.08
10	15.00	0.5625-24	38.10	11.1	34.95	30.61	25.58	24.26
12	19.05	0.6875-24	41.28	11.1	38.10	33.75	28.80	27.53
14	22.23	0.8125-20	44.45	11.1	41.28	36.96	31.98	30.68
16	25.40	0.9375-20	49.23	11.1	45.24	40.10	35.15	33.86
18	28.58	1.0625-18	51.21	11.1	48.00	43.31	38.28	37.06
20	31.75	1.1875-18	54.38	11.8	51.21	46.45	41.50	40.03
22	34.93	1.3125-18	57.53	11.8	54.36	51.23	44.68	43.21
24	38.10	1.4375-18	60.71	11.8	57.53	54.41	47.85	46.38

GJB599 II series receptacles with PCB contacts

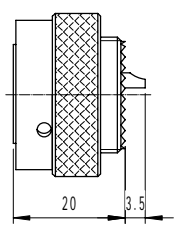
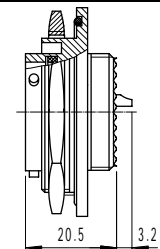
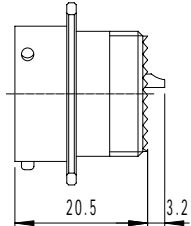
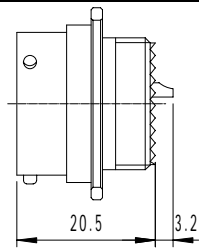
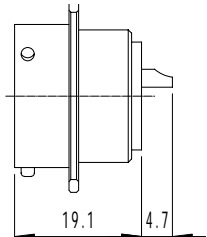
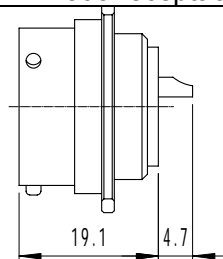


PCB contact size		L1	A
22D#	Long PCB contact	8.5	0.7
	Short PCB contact	4.0	
20#	Long PCB contact	8.5	0.7
	Short PCB contact	5.1	
16#	Long PCB contact	8.5	1.15
	Short PCB contact	5.1	



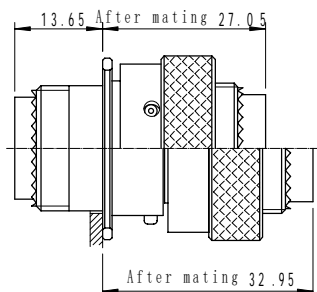
Dimensions with different contacts		Shell size 08-10-12-14-16-18	Shell size 20-22-24
L2	With 22D# pin/socket	13.40	13.40
	With 20# or 16# pin/ socket	13.57	13.57
L3	With 22D# pin/ socket	13.61	12.95
	With 20# or 16# pin/ socket	13.78	13.12
L4	With 22D# pin/ socket	15.1	15.1
	With 20# or 16# pin/ socket	15.27	15.27
L5	With 22D# pin/ socket	11.1	11.1
	With 20# or 16# pin/ socket	11.27	11.27
L6	With 22D# pin/ socket	9.4	9.4
	With 20# or 16# pin/ socket	9.57	9.57

[GJB599 II series solder connectors]

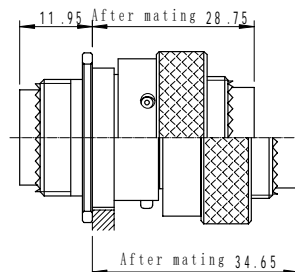
<p>RF27473 plug</p> 	<p>RF27474 receptacle</p> 
<p>RF27472 receptacle</p> 	<p>RF27497 receptacle</p> 
<p>RF27513 receptacle</p> 	<p>RF27508 receptacle</p> 

Plug and receptacle mated dimension

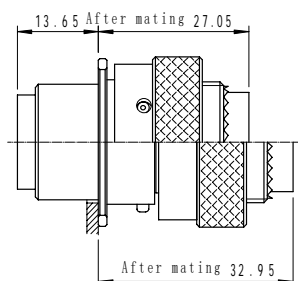
Wall-through square flange front mounting receptacle (RF27472)/ plug (RF27473)



Through-wall square flange rear mounting receptacle (RF27497)/ plug (RF27473)



Box mounting square flange front mounting receptacle (RF27513)/ plug (RF27473)



Plug and receptacle sealing caps

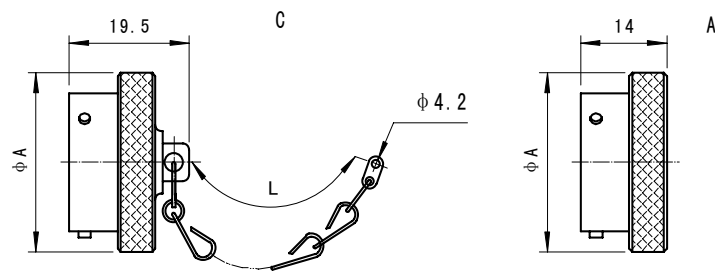
[Part number designation]

Basic series	RF27510	F	10	C	L
RF27510—sealing cap of plug (MS27510) RF27511—sealing cap of receptacle (MS27511)					
Shell plating B - olive green cadmium plating F - eletroless nickel plating E - stainless steel passivation					
Shell size 08-10-12-14-16-18-20-22-24					
Chain type C—stainless steel twisted chain with connecting lug N—stainless steel twisted chain with ring S—stainless steel wire rope R—brocaded silk rope with connecting lug A—without chain E—brocaded silk rope with ring					
Length mark Omitted – standard length L- 127mm of chain length M- 152.4mm of chain length(only applicable for RF27510) N- 177.8mm of chain length(only applicable for RF27510)					

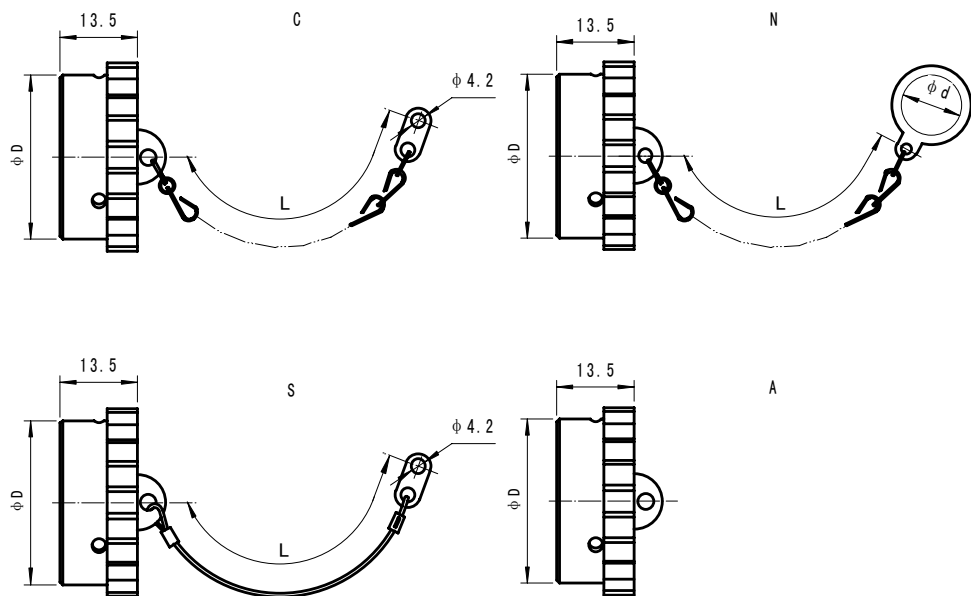
Note: Sealing cap is separately supplied, not supplied with connector.

[Outline dimensions]

Plug sealing cover
RF27510 (MS27510)

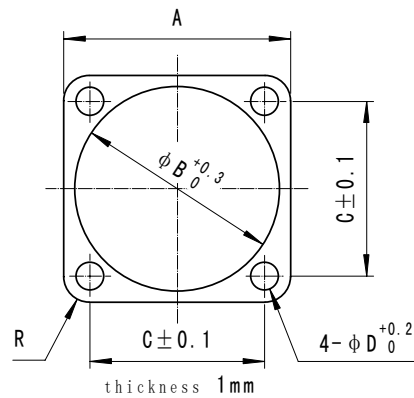


Socket sealing cover
RF27511 (MS27511)



Shell size		08	10	12	14	16	18	20	22	24
A	max	18.2	21.5	25.4	28.7	31.7	35.0	38.1	41.4	44.4
D	max	18.5	21.7	25.3	29.0	31.6	34.8	38.0	41.1	44.2
d	min	22.6	26.0	29.0	32.4	35.5	38.6	42.0	44.7	48.5
L	max	76.2	76.2	88.9	88.9	88.9	88.9	101.6	101.6	101.6

[Square flange rubber washer]



Applicable shell size	Square flange rubber washer code	Conductive square flange rubber washer code	A	B	C	D	R
08	21E8-701-867-A1	21E8-701-868-A2	21.1	13.4	15.09	3.3	3.2
10	21E8-701-869-A1	21E8-701-870-A2	24.2	16.3	18.26	3.3	3.2
12	21E8-701-871-A1	21E8-701-872-A2	26.6	21.5	20.62	3.3	3.2
14	21E8-701-873-A1	21E8-701-874-A2	29.0	24.7	23.01	3.3	3.2
16	21E8-701-875-A1	21E8-701-876-A2	31.3	27.0	24.61	3.3	3.2
18	21E8-701-877-A1	21E8-701-878-A2	33.7	31.0	26.97	3.3	3.2
20	21E8-701-879-A1	21E8-701-880-A2	36.9	34.2	29.36	3.3	3.2
22	21E8-701-881-A1	21E8-701-882-A2	40.1	37.4	31.75	3.3	3.2
24	21E8-701-883-A1	21E8-701-884-A2	43.2	40.5	34.93	4.1	4.0