F99 Series Circular Electrical Connector

Description

- In accordance with GJB 101A-97 Specification for Environment Resistant Quick Coupling Miniature Circular Electrical Connector
- Bayonet quick coupling, small size and light weight
- Soldered contact
- Shielding and non-shielding shell
- Potting and sintered glass sealing receptacles
- Square flange, jam nut and thru-bulkhead mounting
- Apply to electrical signal connection in military and civil market
- Enterprise standard: Q/21EJ224

Main technical characteristic

[Mechanical]]

——Sine vibration: 10Hz-2000Hz, acceleration 196 m/s^2

——Random vibration: power spectral density: 4 G^2/ Hz, rms: 239.1 m/s^2

——Shock: acceleration 980 m/s^2

——Endurance: 500 cycles

[Environmental]

——Operating temperature: -55℃~＋125℃

——Relative humidity: 90%~95% at 40℃±2℃

——Rain proof: rainfall 5mm/min

——Salt spray: In accordance with GJB101A－97, 3.6.13

——Operating pressure: 101.33kPa－4.39kPa

——Hermetic: glue sealing receptacle 0.2MPa，air leakage rate ≤60Pa·cm^3/s

Sintered glass receptacle, air leakage rate≤1×10^{-2}Pa·cm^3/s

[Electrical]

——Contact characteristics:

Pin dia.（mm）	Φ0.8	Φ1.0		Φ1.5	
Operating current（A）	3	5		10	
Material	Copper alloy	Copper alloy	Ferroalloy	Copper alloy	Ferroalloy
Contact resistance（mΩ）	≤6	≤5	≤15	≤3	≤10

——Insulation resistance:

Standard atmosphere	High temperature
≥3000 MΩ	≥500 MΩ

——Withstanding voltage：

Standard atmosphere	AC 1500 Vrms
Altitude	AC 375 Vrms

——Rated operating voltage（DC or 50Hz AC rms）: Normal temperature 600V, damp heat 600V, altitude 300V

——Electrical continuity between shells: ≤0.2 Ω

——Continuity between shielding shells: ≤0.005 Ω

——EMI: the minimum attenuation 45dB at 800MHz

Ordering information

Basic series	**F99**	**X**	**Ⅱ**	**-12**	**10**	**T**	**J**	**2**

Type

X—Common solder, aluminum base, anodized, black paint

P—Soldered shielding and glue sealing, aluminum base, satin nickel plating

D—Shielding and glue sealing，stainless steel passive

BW-Soldered shielding and glue sealing，aluminum base, olive-drab cadmium plating

P_2- Soldered shielding and glue sealing，aluminum base, olive-green cadmium plating

P_{15}-Soldered shielding and glue sealing，aluminum base, black chromium plating,

P_{18}- Soldered shielding and glue sealing，tin brass, satin nickel plating

S—Soldered shielding and glue sealing，copper base, satin nickel plating

Polarization

Ⅰ, Ⅱ, Ⅲ, Ⅳ, Ⅴ （Ⅰ-blank）

Shell size 08, 10, 12, 14, 16, 18, 20, 22, 24

Contact number

See the insert arrangement

Plug

T-Plug

Contact type J-pin K-socket

Back shell 2—cable clamp, 5—heat shrinkage tube type I, 5a—heat shrinkage tube type II, 6—shielding

[Receptacle]

Basic series	F99	X	Ⅱ	-12	10	Z	K	10	-2

Type

X—Common solder, aluminum base, anodized, black paint
P—Soldered shielding and glue sealing, aluminum base, satin nickel plating
D—Shielding and glue sealing, stainless steel passive
BW- Soldered shielding and glue sealing, aluminum base, olive-drab cadmium plating
P_2- Soldered shielding and glue sealing, aluminum base, olive-green cadmium plating
P_{15}- Soldered shielding and glue sealing, aluminum base, black chromium plating
P_{18}- Soldered shielding and glue sealing, tin brass, satin nickel plating
S—Soldered shielding and glue sealing, copper base, satin nickel plating
H- Sintered glass sealing

Polarization
Ⅰ, Ⅱ, Ⅲ, Ⅳ, Ⅴ（Ⅰ-blank）

Shell size 08, 10, 12, 14, 16, 18, 20, 22, 24

Contact number
See the insert arrangement

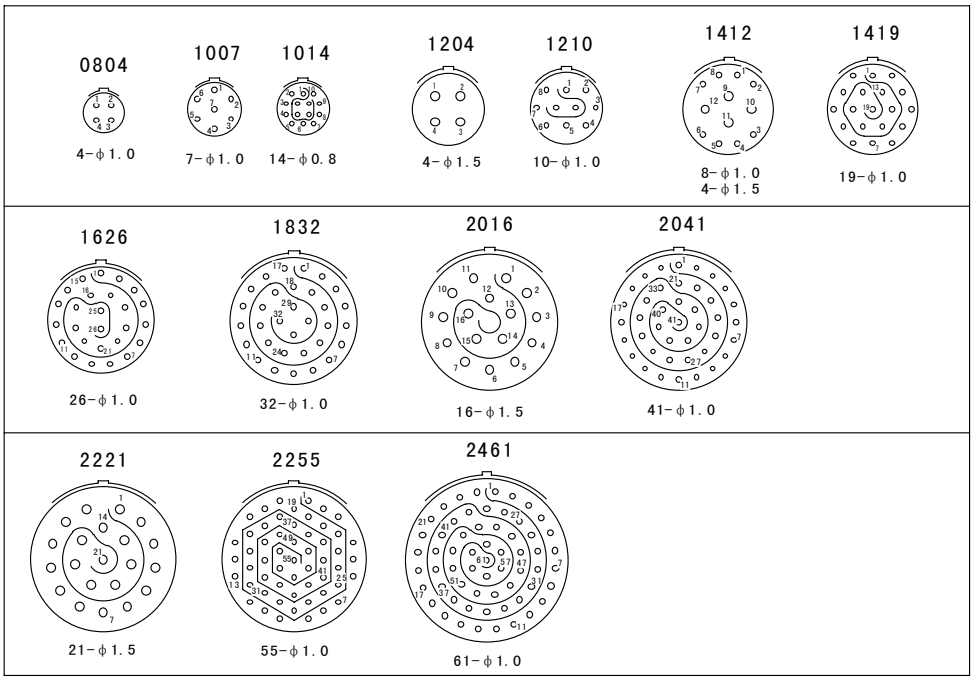
Receptacle
Z-Receptacle

Contact type J-pin K-socket S- thru-bulkhead pin and socket

Mounting type 10—Square flange 10F—Square flange（with conductive cushion）
14—Jam nut

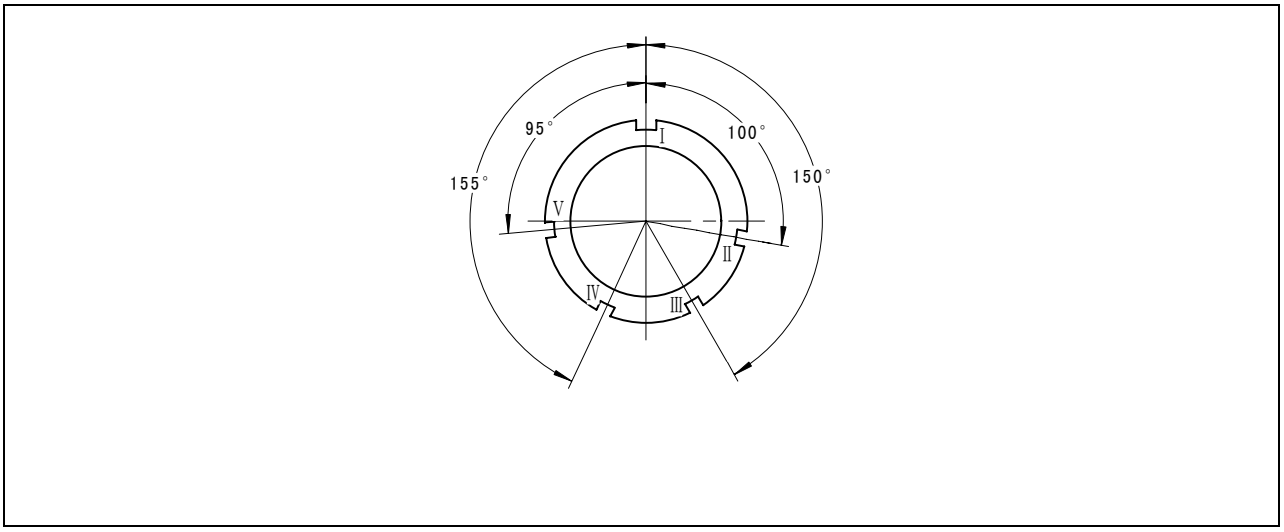
Back shell 2—cable clamp, 5—heat shrinkage tube type I,
5a—heat shrinkage tube type II, 6—shielding

Insert Arrangement（Front face of pin inserts）


0804
4−φ1.0
1007
7−φ1.0
1014
14−φ0.8
1204
4−φ1.5
1210
10−φ1.0
1412
8−φ1.0
4−φ1.5
1419
19−φ1.0
1626
26−φ1.0
1832
32−φ1.0
2016
16−φ1.5
2041
41−φ1.0
2221
21−φ1.5
2255
55−φ1.0
2461
61−φ1.0

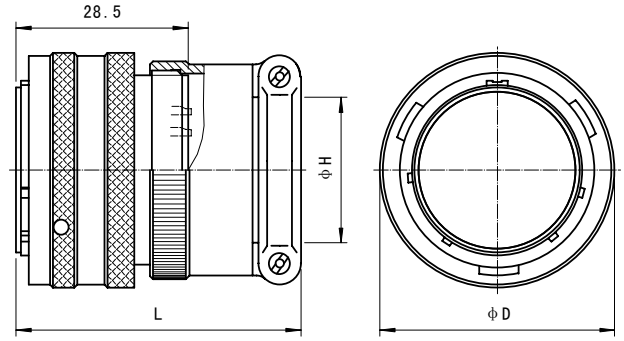
Mis-mating proof keys（The insulator rotates in the metal shell）

To prevent mis-mating of the plug and the receptacle which has the same insert arrangement and transmits the different kinds of signal, different angles of keys are on the circumference on the insulator and are assembled according to the customer's requirements. They are as follows:



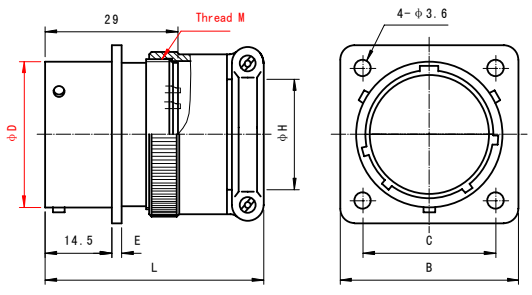
Outline dimensions

[Plug F99 X－X X X X T J(K)－2]



Shell size	D	H	L
08	20	6~8	44.5
10	23	9~13	44.5
12	26	9~13	44.5
14	30	11~18	47.5
16	33	11~18	47.5
18	36	15~23	52.5
20	39	15~23	52.5
22	42	21~28	52.5
24	45	20~32	55

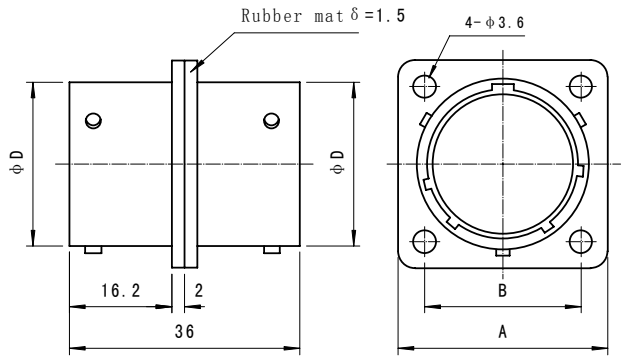
[Square flange receptacle F99 X－X X X X Z J(K) 10－2]



Shell size	H	E	L	B	C	M	ΦD
08	6~8	1.3	45	21	15	M14x1	13
10	9~13	1.5	45	24	18	M18x1	16
12	9~13	1.5	45	27	21	M20x1	20
14	11~18	1.5	48	30	23	M24x1	23
16	11~18	1.5	48	33	25	M27x1	26
18	15~23	1.5	53	36	27	M30x1	29
20	15~23	2.2	53	39	29	M33x1.5	32

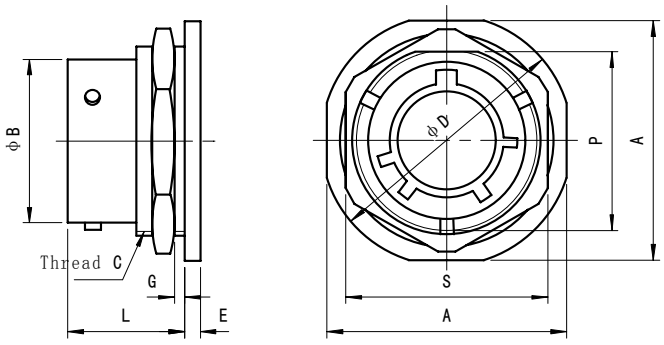
	22	21~28	2.2	53	42	32	M35x1.5	35
	24	20~32	2.2	55	45	35	M39x1.5	38

[Square flange thru-bulkhead receptacle F99 X－X X X X Z S 10]



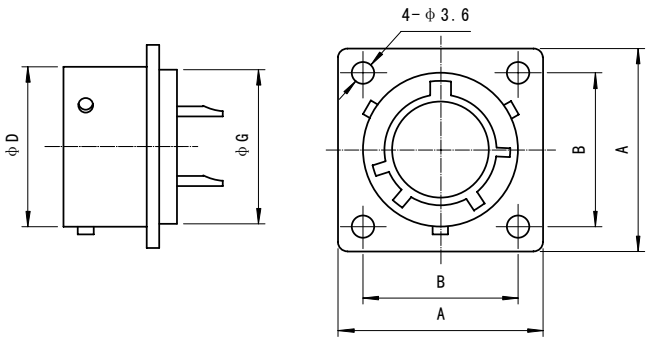
Shell size	D	A	B
08	13	21	15
10	16	24	18
12	20	27	21
14	23	30	23
16	26	33	25
18	29	36	27
20	32	39	29
22	35	42	32
24	38	45	35

[Jam nut receptacle F99 H－X X X X Z J 14]



Shell size	G Min	G Max	E	L	B	Thread C	A	D	P	S
08	1.6	3.2	2.5	18.5	13	M16×1	24	27	15	22
10	1.6	3.2	2.5	18.5	16	M20×1	27	30	19	24
12	1.6	3.2	2.5	18.5	20	M24×1	32	35	23	27
14	1.6	3.2	2.5	18.5	23	M27×1	36	38	26	30
16	1.6	3.2	2.5	18.5	26	M30×1	38	42	29	32
18	1.6	3.2	2.5	18.5	29	M33×1.5	41	45	32	36
20	1.6	6.4	3.0	22.5	32	M36×1.5	46	49	35	41
22	1.6	6.4	3.0	22.5	35	M39×1.5	50	53	38	43
24	1.6	6.4	3.0	22.5	38	M42×1.5	53	56	41	46

[Square flange sintered glass receptacle F99 H—X X X X Z J 10]



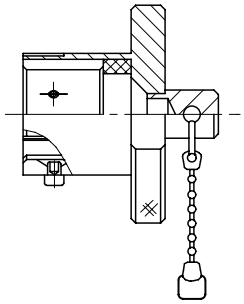
Shell size	A	B	D	G
08	21	15	13	12
10	24	18	16	16
12	27	21	20	19
14	30	23	23	22
16	33	25	26	25
18	36	27	29	28
20	39	29	32	31
22	42	32	35	34
24	45	35	38	37

Accessories

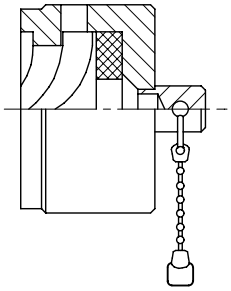
Basic series	**F 9 9**	**X**	**-14**	**00**	**-80**
Shell plating	X—Aluminum base, anodized, black paint P—Aluminum base, satin nickel plating D—Stainless steel passive（P_{40} for Y50） BW- Aluminum base, olive-drab cadmium plating P_2- Aluminum base, olive-green cadmium plating P_{15}- Aluminum base, black chromium plating P_{18}- Tin brass, satin nickel plating S—Copper base, satin nickel plating				
Shell size	08, 10, 12, 14, 16, 18, 20, 22, 24				
Common code	00				
Type	80- Dust cover for plug 81- Dust cover for receptacle 83- Dummy receptacle（only for F99） 84- Heat shrinkage tube type I cable boot（only for F99） 86- Shielding cable boot（only for F99） 88- Long cable boot（only for F99） 89- Heat shrinkage tube type II cable boot（only for F99）				

Note: The plating of the accessory should be same as that of the plug and receptacle. For example, #14 shell size, metal dust cover for plug, aluminum base, satin nickel plating, P/N should be A33P-1400-80; #20 shell size, shielding cable boot, stainless steel passive, P/N should be F99D-2000-86

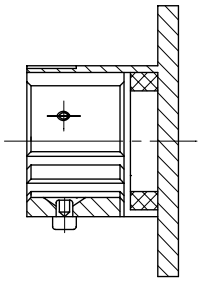
Dust cover for plug F99XX00－80 A72X-XX00-80



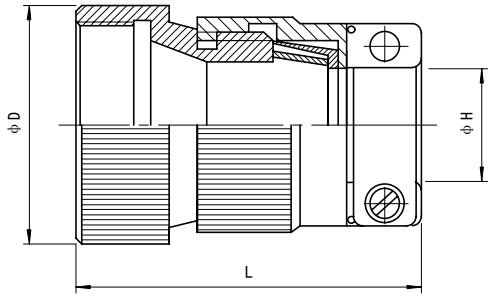
Dust cover for receptacle F99XX00－81 A72X-XX00-81



Dummy receptacle F99XX00－83

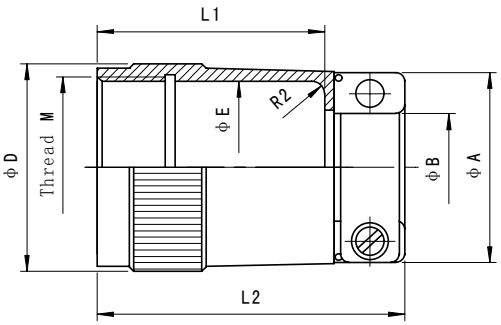


[Shielding cable boot F99XX00－86]



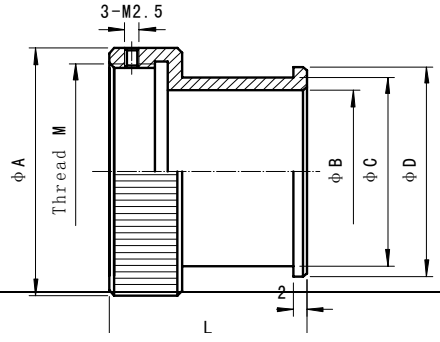
Shell size	L	D	H
08	35	18	10.0
10	35	21	10.0
12	37	25.5	14.5
14	40	31	16.5
16	40	31	16.5
18	50	34	20.2
20	50	34	22.5
22	50	38.5	22.5
24	50	41.5	24.0

[Long cable boot F99XX00－88]



Shell size	A	B	E	M	D	L1	L2
08	17	6	13	M14×1	17	29	35
10	20	8	16	M18×1	20	29	35
12	20	10	19	M20×1	22.5	30	37
14	24	12	23	M24×1	26.5	34	43
16	26	14	25	M27×1	29.5	34	43
18	30	17	29	M30×1	32.5	34	43
20	33	20	31	M33×1.5	35.5	36	45
22	36	24	34	M36×1.5	38.5	36	45
24	39	27	37	M39×1.5	41.5	41	50

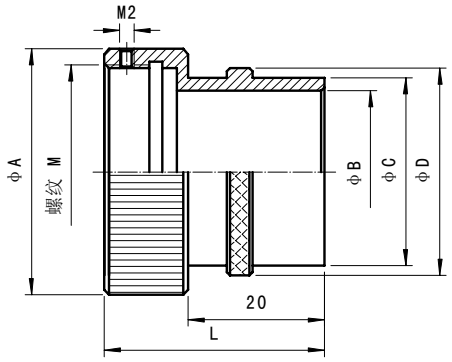
[Heat shrinkage tube type I cable boot F99XX00－84]



Shell size	A	B	C	D	M	L
08	20	10.5	13.5	16.5	M14×1	18
10	24	14.5	17.5	20.5	M18×1	18
12	26	16.5	19.5	22.5	M20×1	18
14	30	20.5	23.5	26.5	M24×1	20
16	33	23.5	26.5	29.5	M27×1	20
18	36	26.5	29.5	32.5	M30×1	23

	20	39	29.5	32.5	35.5	M33×1.5	23
	22	42	32.5	35.5	38.5	M36×1.5	26
	24	45	35.5	38.5	41.5	M39×1.5	26

[Heat shrinkage tube type II cable boot F99XX00－89]



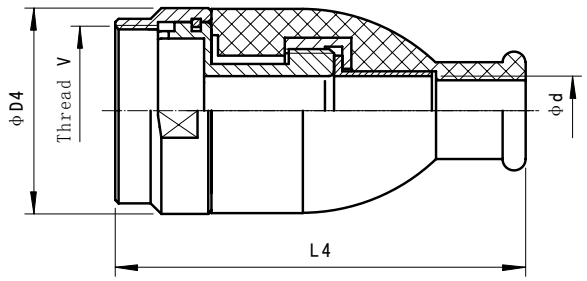
Shell size	A	B	C	D	M	L
08	20	8.7	12.8	14.8	M14×1	33
10	24	10	14.4	16.4	M18×1	33
12	26.5	15	19.1	21.1	M20×1	33
14	30.5	18.2	22.3	24.3	M24×1	33
16	33	18.2	22.3	25.3	M27×1	33
18	36	24.5	28.7	30.7	M30×1	33
20	39.8	24.5	28.7	30.7	M33×1.5	35
22	42	27.7	31.8	33.8	M36×1.5	35
24	45	30	31.8	34	M39×1.5	35

Shielding tensile strength rain proof accessory

Ordering information

Shell size	**08**	**FF**	1	D	-d
08-10-12-14-16-18-20-22-24					
Basic component number					
Shell plating					
1 - Electroless nickel plating 8 –Olive-green cadmium plating					
13 - Satin nickel electroless plating F –Black anodized					
8a- Olive-drab cadmium plating 8d- Olive-green cadmium plating					
Counterpart					
D- mates with F99					
Entry diameter					
5.7, 6.9, 7.1…					

Outline dimension



Shell size	Thread V	D4	L4	Entry diameter d
08	M14X1	18	38.6	4, 6.4, 8.1
10	M18X1	21.7	42	5.7, 6.9, 8.1, 8.9, 10

12	M20X1	25	50.5	5.7, 7.1, 8.1, 9.6, 11.1
14	M24X1	29	58	8.5, 9.6, 11, 12.7
16	M27X1	31	58.5	8.5, 12.7
18	M30X1	35	65	10.9, 11.3
20	M33X1.5	38	63	11, 15.7
22	M36X1.5	41	63	11.8, 13.4, 15.7
24	M39X1.5	45	63	13.5