

D38999 III Series Electrical Connector



Introduction:

- In accordance with the MIL-DTL-38999M series III standards
- Three-head thread quick connection with anti-loosening mechanism
- Small volume, light weight, and high contact couple density
- With the electromagnetic shielding function
- The crimp contact is removable and the pin is scoop proof
- With high strength vibration characteristics at high temperature, it can be
- suitable for use in harsh sand and wet occasions
- The hole of 12 # and 16 # contact specifications can be assembled with optical fiber contacts
- The hole of 12 #, 10 # and 8 # contact can be assembled with coaxial and shielded contact
- With stainless steel shell, aluminum alloy shell and a variety of platings

Usage: The products are used for circuit signal connection

Using environment:

The products are used for strong vibration, rain, wind sand and wet complex environment

Technical features:

Shell: Aluminum , stainless steel and titanium

Insulator: thermoplastic or thermosetting plastic

Grommet and interfacial seal: silicone elastomer

Shell material & plating:

Aluminum: Cadmium olive drab (W)

Nickel (F)

Satin-cadmium over aluminum(FT)

Stainless steel: Passivated (K)

Titanium:Without plating(TA)

Contact: Gold over cooper alloy ,including three types:solder,crimp and PCB.

Endurance: ≥ 500 mating cycles

Vibration: Sine vibration: frequency:from 10 Hz to 2000 Hz

acceleration: 294m/s^2

Random vibration: frequency:from 10 Hz to 2000 Hz

power spectral density: $1\text{g}^2/\text{Hz}$

Shock:300g,3ms

Electrical:

Voltage rating

Service rating*	M	N	I	II
Sea level	1300	1000	1800	2300
21000m	800	600	1000	1000

Contact resistance and rated current

Contact size	Working diameter(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
10#	Φ3.15	≤1.0	40

Insulation resistance: ≥5000MΩ (500VDC)

Shell conductivity: W: 2.5mΩ F 、 FT 1.0mΩ K、 TA 10mΩ

Electromagnetic interference shielding:

From 100 MHz to 1 GHz, the minimum attenuation is 85dB (class F, class W)

From 1 GHz to 10 GHz, the minimum decay is 65dB (Class F), 50dB (Class W)

8 # Twin coaxial contacts:

Band width: 0 ~ 20 MHz

Rated voltage: a maximum of 500VAC, and 125VAC at 21,000 m

inner contacts and middle contacts are under 1A: ≤55mV

outer contacts are under 12A ≤75mV

Environmental:

Temperature range:

Aluminum shell

W: -65 °C ~+175 °C

F、K、FT、TA: -65 °C ~+200 °C

Salt spray:

B: 500h

K、TA: 1000h

F: 48h/96h

FT: 96h

Seal: Compliance with MIL-DTL-38999M pressure dip

Damp heat: Compliance with MIL-DTL-38999M: 24 hours for 10 cycles

Resistance to fluid: Resistance to multiple fuels, coolants, solvents

How to order

Basic series **D38999/** **20** **W** **B** **35** **P** **N** **—H** **M1**

Shell style:

20-square flange receptacle
24-Jam nut receptacle
26-plug with RFI shelding

Finsh:

W:Olive green cadmium	FT- Aluminum Satin Cadmium
F:Nickel TA-Titanium	T - Aluminum nickel bronze shell
S:Stainless steel C-Anodic Coating	Z- Zinc-Nickel Plated

Shell size:

09 11 13 15 17 19 21 23 25
A B C D E F G H J

Contact layout: See page 8-11

Contact type:

P-Pin	S-socket
PL-long PCB tail pin	SL-long PCB tail socket
PC-short PCB tail pin	PC-short PCB tail socket
A-specifical pin	B- specifical socket

Alternation key position:

N、A、 B、 C、 D、 E

H-Solder contact (only for solder connectors)

Specific contact:

M1-16#Coaxial contact	M2-12#Coaxial contact
M3-12#Shield contact	M4-8#Power contact
M5-8# Single coaxial contact	M6-8#Twin coaxial contact
M7-8#Twinax contact	M8-8#Quadrax contact

Crimp contact

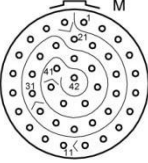
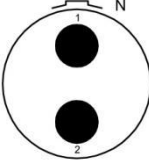
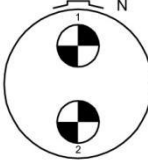
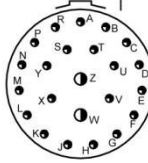
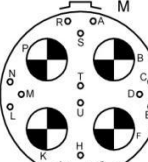
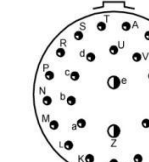
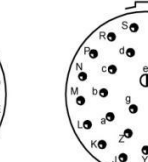
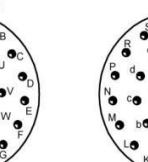
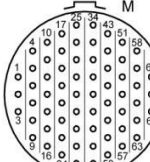
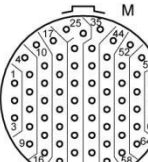
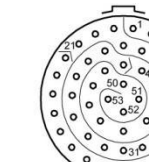
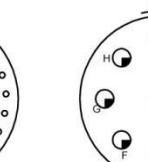
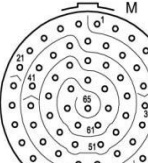
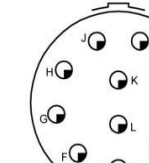
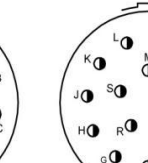
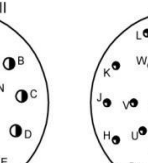
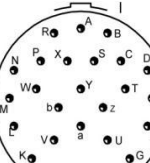
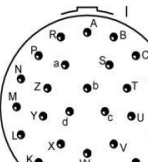
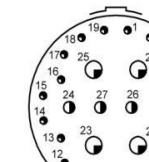
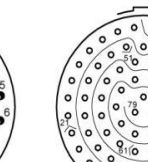
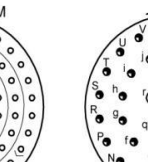
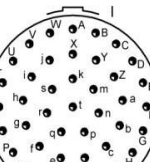
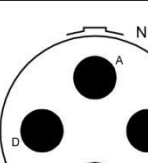
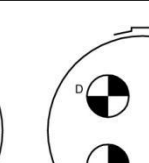
Contact Size	Work diameter	Pin Color	Socket Color	Crimp barrel Inner diameter (mm)	Crimp barrel outer diameter (mm)	Wire Section mm²	AWG	Wire insulation outer diameter (mm)	Insertion & extraction tools	Crimp tool
22D	Φ0.76	orange	orange	0.85	1.20	0.08	28	0.76~1.37	M81969/14-01	YJQ-02
		blue	yellow			0.125	26			
		black	grey			0.2	24			
						0.3	22			
20#	Φ1.00	orange	orange	1.17	1.78	0.2	24	1.02~2.11	M81969/14-10	YJQ-02 XCXY-01
		blue	green			0.3	22			
		orange	brown			0.5	20			
16#	Φ1.60	orange	orange	1.68	2.62	0.5	20	1.65~2.77	M81969/14-03	XCXY-01
		blue	green			0.8				
		yellow	brown			1.0	18			
						1.2	16			
12#	Φ2.40	orange	orange	2.49	3.84	2.0	14	2.46~3.61	M81969/14-04	XCXY-01
		blue	green			3.0	12			
10#	Φ3.15	green	green	3.40	4.65	4.8	10	3.42~4.12	M81969/14-05	XCXY-01 YTQ
		red	orange							
8#	Φ3.60	grey	purple	4.55	6.4	8.37	8	6.4~6.9	M81969/14-12	YTQ

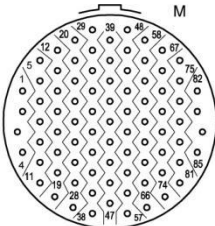
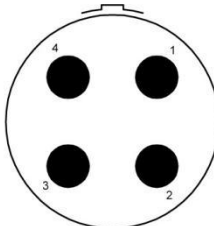
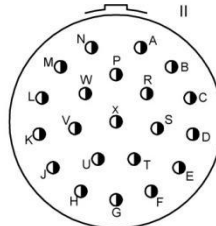
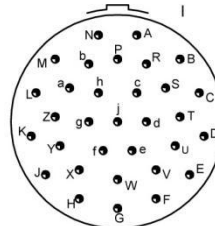
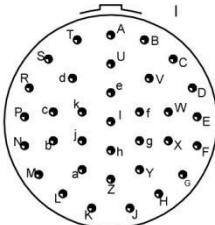
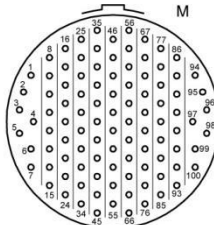
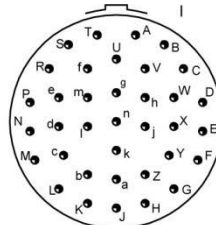
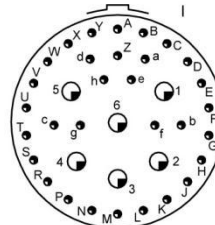
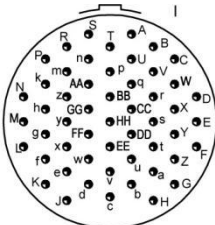
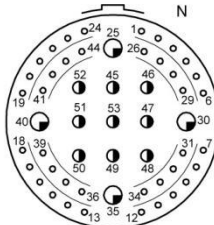
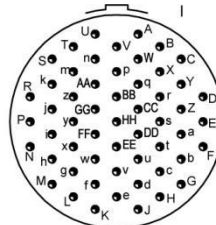
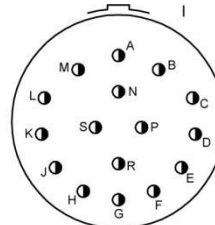
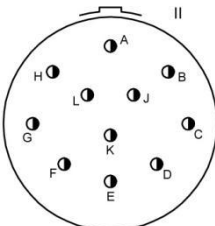
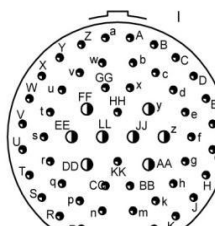
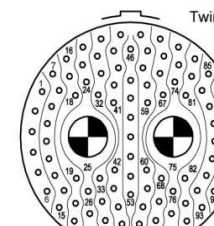
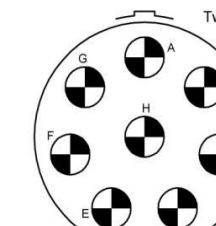
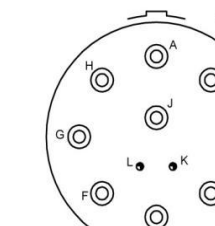
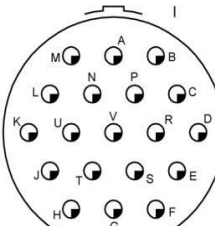
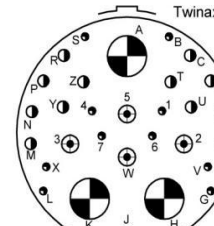
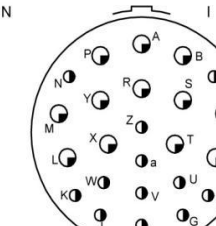
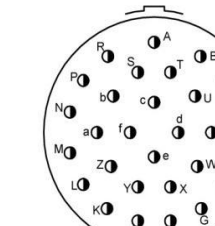
Solder contact

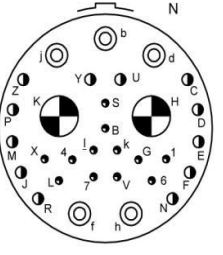
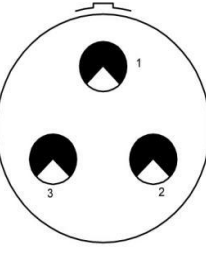
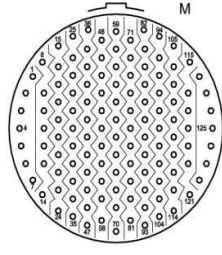
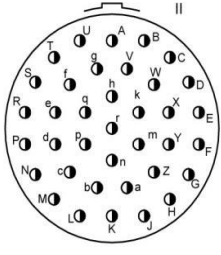
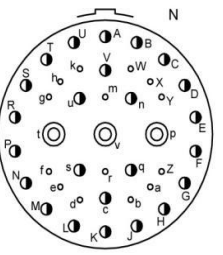
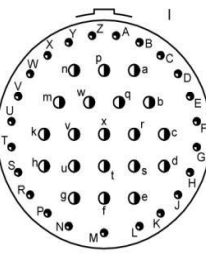
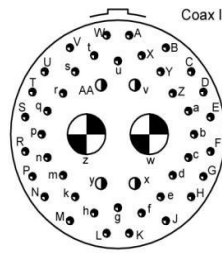
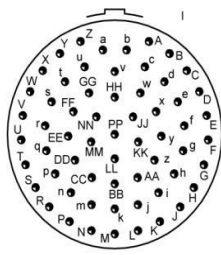
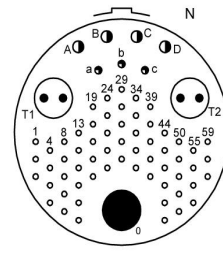
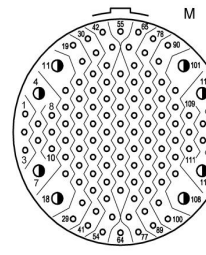
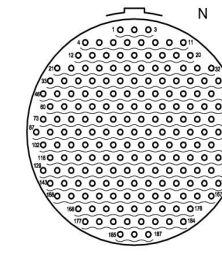
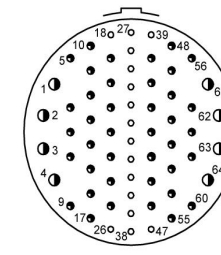
Solder contact size	Solder cup inner diameter	AWG
22D	Φ0.9	22
20#	Φ1.1	20
16#	Φ1.9	16
12#	Φ2.9	12
10#	Φ3.6	10
8#	Φ4.8	8

Contact layout

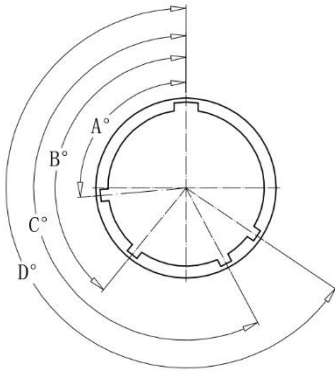
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11 (B)	         11-01 1-12# 11-02 2-16# 11-04 4-20# 11-05 5-20# 11-19 19-23# 22D 11-23 19-23# 22D 11-35 13-22D 11-98 6-20# 11-99 7-20#
13 (C)	        13-02 2-12# 13-03 3-16# 13-04 4-16# 13-05 2-16# 3-20# 13-08 8-20# 13-12 1-12# 同轴 11-22D 13-23 32-23# 22D 13-26 2-12# 6-22D   13-35 22-22D 13-98 10-20#
15 (D)	      15-03 2-12# 1-16# 15-04 4-12# 15-05 5-16# 15-15 1-16# 14-20# 15-18 18-20# 15-19 19-20#       15-21 1-12# 同轴 3-20# 17-22D 15-23 55-23# 15-31 1-12# 30-22D 15-35 37-22D 15-38 4-12# 15-97 4-16# 8-20#
17 (E)	      17-02 1-8# 双同轴 38-22D 17-03 2-10# 1-16# 17-05 5-12# 17-06 6-12# 17-08 8-16# 17-11 3-12# 8-20#       17-20a 2-8# 2-20# 16-22D 17-23 73-23# 17-26 26-20# 17-30 3-10# 3-20# 17-32 2-8# 差分 22-22D 17-35 55-22D

	 17-42 42-22D  17-62 2-8#  17-75 2-8#同轴  17-99 2-16# 21-20#
19 (F)	 19-18 4-8#双同轴 14-22D  19-28 2-16# 26-20#  19-30 1-16# 29-20#  19-32 32-20#  19-35 66-22D  19-45 67-22D  19-53 53-22D  19-96 9-12#
21 (G)	 21-02 65-22D  21-11 11-12#  21-16 16-16#  21-24 24-20#  21-25 25-20#  21-27 27-20#  21-29 4-12# 4-16# 19-20#  21-35 79-22D  21-39 2-16# 37-20#  21-41 41-20#  21-48 4-8#  21-75 4-8#双同轴

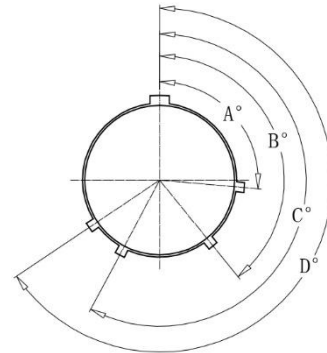
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	 23-34 34-20#	 23-35 100-22D	 23-36 36-20#	 23-37 6-12# 31-20#
	 23-53 53-20#	 23-54 4-12# 9-16# 40-22D	 23-55 55-20#	 23-97 16-16#
	 23-99 11-16#			
25 (J)	 25-04 8-16# 48-20#	 25-07 2-8# 双同轴 97-22D	 25-08 / 25-10 8-8# 双同轴	 25-11 9-10# 2-20#
	 25-19 19-12#	 25-20 3-8# 双同轴 4-12# 同轴 13-16# 10-20#	 25-24 12-12# 12-16#	 25-29 29-16#

 25-31 2-8#双同轴 5-10# 12-16# 12-20#	 25-33 3-4#	 25-35 128-22D	 25-37 37-16#
 25-41 14-22D 24-16# 3-10#	 25-43 20-16# 23-20#	 25-46 2-8#双同轴 4-16# 40-20#	 25-61 61-20#
 25-70 61-22D 3-20# 4-16# 2-8#双差分, 1-8#	 25-93 8-16# 110-22D	 25-187 187-23#	 25-64 16-22D 40-20# 8-16#

Alternation key position



Receptacle (front face shown)

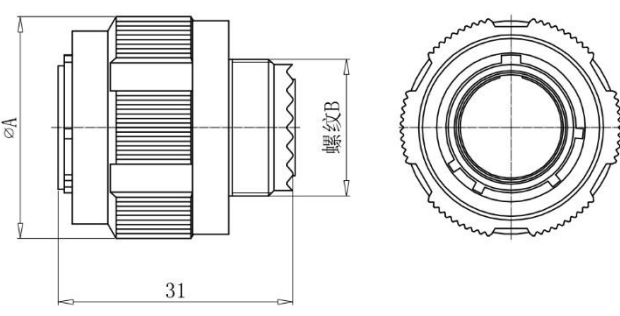


Plug(front face shown)

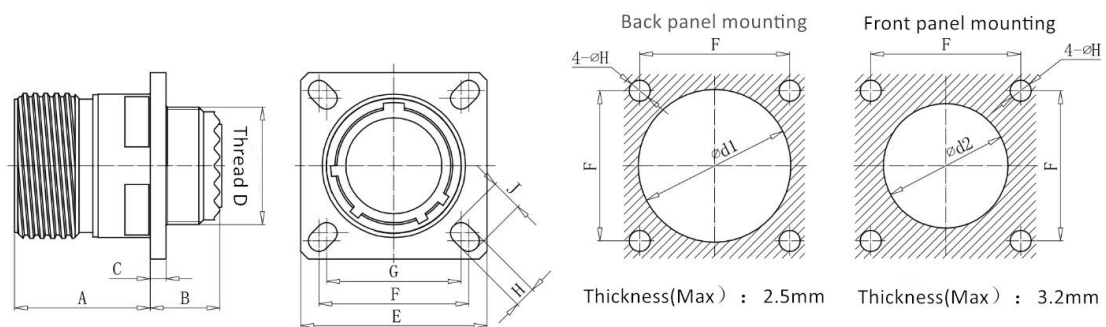
Shell size	MS shell size	Angel	N	A	B	C	D	E
9	A	A°	105	102	80	35	64	91
		B°	140	132	118	140	155	131
		C°	215	248	230	205	234	197
		D°	265	320	312	275	304	240
11 13 15	B C D	A°	95	113	90	53	119	51
		B°	141	156	145	156	146	141
		C°	208	182	195	220	176	184
		D°	236	292	252	255	298	242
17 19 21 23 25	E F G H J	A°	80	135	49	66	62	79
		B°	142	170	169	140	145	153
		C°	196	200	200	200	180	197
		D°	293	310	244	257	280	272

Dimension

D38999/26 Plug

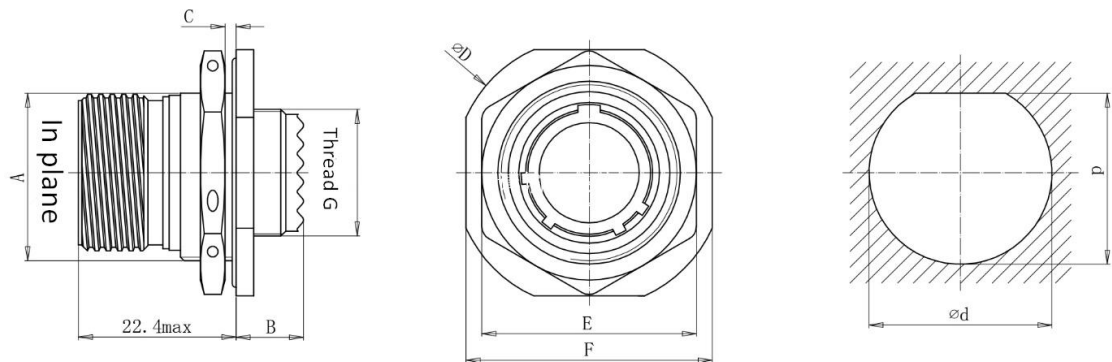
	Shell size	MS shell size	A	Thread B
	09	A	21.5	M12×1.0-6g
	11	B	25.0	M15×1.0-6g
	13	C	29.2	M18×1.0-6g
	15	D	32.4	M22×1.0-6g
	17	E	35.6	M25×1.0-6g
	19	F	38.5	M28×1.0-6g
	21	G	41.7	M31×1.0-6g
	23	H	44.9	M34×1.0-6g
	25	J	48.0	M37×1.0-6g

D38999/20 Square receptacle



MS shell size	A max	B max	C max	D Thread	E	F	G	H	J	d1 min	d2 min
A	20.9	10.8	2.5	M12×1.0-6g	23.8	18.26	15.09	3.25	5.49	16.66	13.11
B	20.9	10.8	2.5	M15×1.0-6g	26.2	20.62	18.26	3.25	4.93	20.22	15.88
C	20.9	10.8	2.5	M18×1.0-6g	28.6	23.01	20.62	3.25	4.93	23.42	19.05
D	20.9	10.8	2.5	M22×1.0-6g	31.0	24.61	23.01	3.25	4.39	26.59	23.01
E	20.9	10.8	2.5	M25×1.0-6g	33.3	26.97	24.61	3.25	4.93	30.96	25.81
F	20.9	10.8	2.5	M28×1.0-6g	36.5	29.36	26.97	3.25	4.93	32.94	28.98
G	20.1	11.5	3.2	M31×1.0-6g	39.7	31.75	29.36	3.25	4.93	36.12	32.16
H	20.1	11.5	3.2	M34×1.0-6g	42.9	34.93	31.75	3.91	6.15	39.29	34.93
J	20.1	11.5	3.2	M37×1.0-6g	46.0	38.10	34.93	3.91	6.15	42.47	37.69

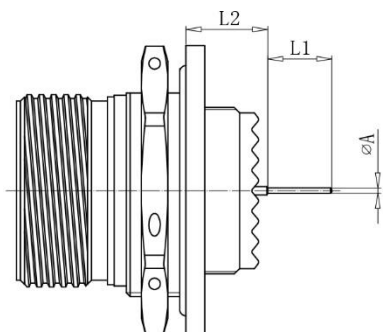
D38999/24 Jam nut receptacle



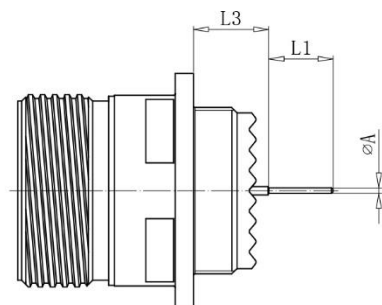
Shell size	MS Shell size	A	B max	C max	D max	E	F	G Thread	d	P
9	A	16.5	9.9	3.2	30.5	22.5	27.1	M12×1.0-6g	17.70	17.00
11	B	19.2	9.9	3.2	35.2	25.7	32.1	M15×1.0-6g	20.88	19.53
13	C	23.8	9.9	3.2	38.4	30.5	35.0	M18×1.0-6g	25.58	24.26
15	D	26.9	9.9	3.2	41.6	33.6	38.3	M22×1.0-6g	28.80	27.53
17	E	30.3	9.9	3.2	44.8	36.8	41.8	M25×1.0-6g	32.01	30.73
19	F	33.4	9.9	3.2	49.3	40.0	46.4	M28×1.0-6g	35.15	33.86
21	G	36.5	9.9	3.2	52.7	43.2	49.6	M31×1.0-6g	38.28	37.06
23	H	39.7	9.9	3.2	55.9	46.3	52.8	M34×1.0-6g	41.53	40.26
25	J	42.8	9.9	3.2	59.0	51.0	55.8	M37×1.0-6g	44.68	43.41

D38999 III series receptacle with PCB contacts

D38999/24 receptacle



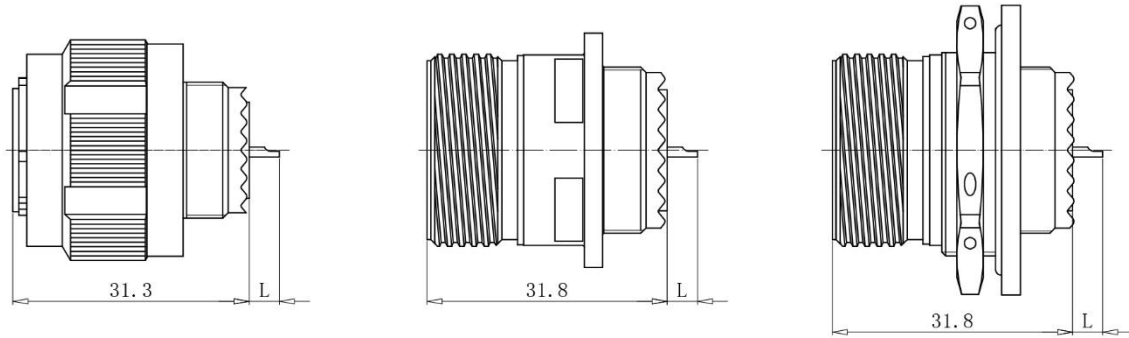
D38999/20 receptacle



PCB contact specification		L1	A
22D	Long PCB tail contact	8.5	0.7
	Short PCB tail contact	4.0	
20#	Long PCB tail contact	8.5	0.7
	Short PCB tail contact	5.0	
16#	Long PCB tail contact	8.5	1.15
	Short PCB tail contact	5.0	

Size for assembling different contacts		Shell size 09-11	Shell size 13 15 17 19 21 23 25
L2	22D pin	10.52~11.46	10.34~11.28
	22D socket	10.19~11.46	10.01~11.28
	16# or 20# pin and socket	10.69~11.63	10.51~11.45
L3	22D pin	9.48~10.58	9.48~10.58
	22D socket	9.15~10.58	9.15~10.58
	16# or 20# pin and socket	9.65~10.75	9.65~10.75

D38999 III series solder connector



Solder contact specification	22D	20#	16#	12#	10#	8#
L	4	4	4	4	6	6

Plug and receptacle caps

Basic series	D38999/	32	F	15	N
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Cap style:

32-Plug cap

33-Receptacle cap

Finsh:

W:Olive drab cadmium

F: Nickel

S:Stainless steel

Shell size: 09-11-13-15-17-19-21-23-25

Accessories:

R-With stainless steel rope and eyelet

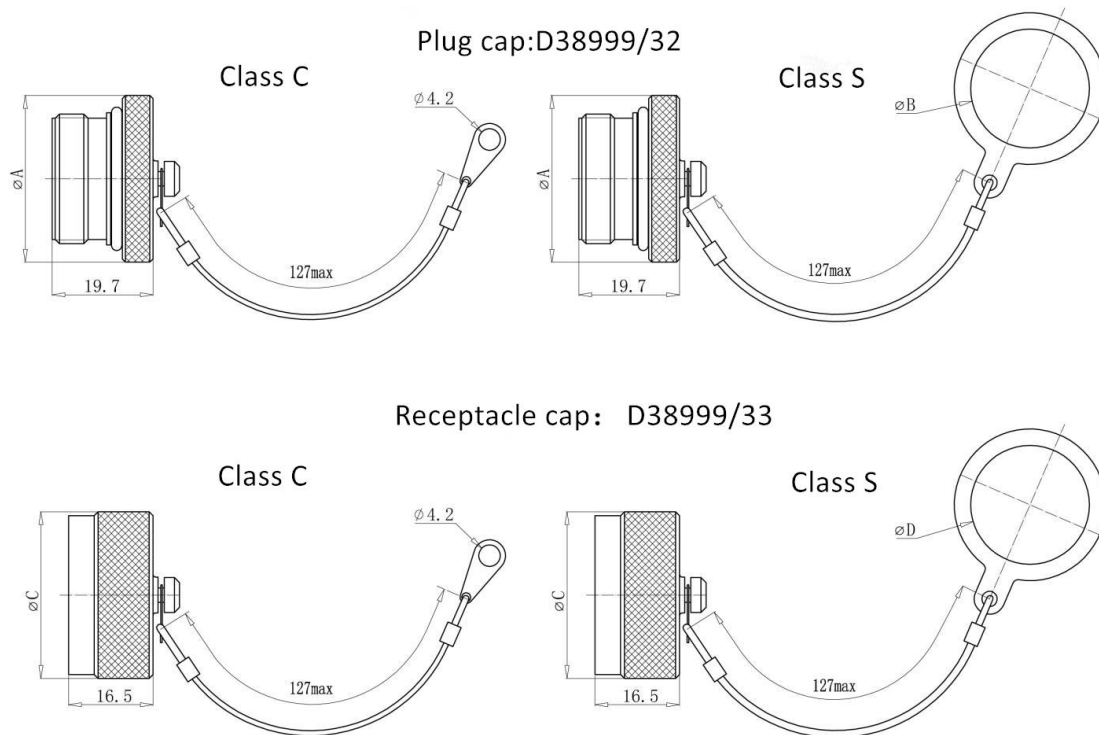
N-With stainless steel rope and ring

C-With nylon rope and eyelet

S-With nylon rope and ring

Note:the cap should be ordered separately

Cap dimension



Shell size	09	11	13	15	17	19	21	23	25
A	22.5	26.5	29.5	32.5	36.0	38.4	41.7	44.4	48.3
B	13.0	16.0	19.5	22.8	26.0	29.0	32.5	35.5	38.6
C	22.5	26.5	29.5	32.5	36.0	38.4	41.7	44.4	48.3
D	18.0	21.5	26.0	29.0	32.5	35.5	38.6	42.0	45.0