



INNOVATE / COOPERATION / WIN-WIN

MIL-DTL-38999 Series II

Military Style Connectors & Backshells

PRODUCT INTRODUCTION

MIL-DTL-38999 Series III Style Connectors

The 38999 Series II style is based on the MIL-C-38999 / MIL-DTL-38999 spec and is fully compatible with all commercial and military derivatives. The series features bayonet coupling for simple and secure mating in a compact, lightweight, space-saving shell design. All connectors provide environmental sealing rated to IP67. Plugs with optional grounding fingers and a full array of backshells offer EMI/RFI protection for mission-critical applications. In addition, the series provides a number of modern upgrades to the mil-spec, including alternate contact options, mating hermetic connectors, and a variety of protective connector accessories.

Comply with GJB599B (MIL-DTL-38999M) II series standard ✓

Bayonet quick connection ✓

Lower profile design: Lightweight, space saving ✓

High reliability: EMI shielding, excellent shock vibration ✓

Performance Specifications

Shell material: Aluminum alloy, stainless steel

Plating layer: Class B: Cadmium plating military green Class E: stainless steel passivation Class F: electroless nickel plating

Contact: copper alloy surface gold-plated, pressed, welded, printed board type

Mechanical life: ≥500 insertion and removal cycles

Vibration: random vibration frequency 100-1000Hz Power spectral density 1g²/Hz

Impact: 3ms half sine wave acceleration peak 300g



Electrical

Contact resistance and current rating

Contact specification	Working diameter mm	Contact Resistance mΩ	Current rating 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 45dB

Withstanding voltage

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

Insulation resistance: Normal conditions ≥ 5000MΩ Humid conditions ≥ 100 MΩ

Electrical continuity between shells: B ≤ 2.5mΩ F ≤ 1.0mΩ E ≤ 50mΩ

Environmental performance:

Temperature range: B: -65 °C ~ +175 °C E、F: -65 °C ~ +200 °C

Salt spray: B: 500h E、TA: 1000h F: 48h/96h FT: 96h Relative

humidity: 98 at 40°C

Operating height: ≤ 30480m

How to Build Your Connector Part Number

MS

27472

T

14

F

35

P

N

1

2

3

4

5

6

7

8

1

Basic series

2

Type of connector

27473 = Plug

27484 = Shielded plug

27472 = Wall mounting square receptacle, front

27497 = Wall mounting square receptacle, rear

27513 = Box square receptacle, front

27508 = Box square receptacle, rear

27474 = Jam nut receptacle

3

Shell

T = With thread and accessory E = Without thread or accessory

4

Shell size

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

5

Finish

B = Olive green cadmium plating

F1 = Spray desertification nickel

C = Black anodized

C3 = Black zinc nickel alloy (black chromium)

E = Passivated stainless steel

C1 = Oxide olive green

F = Electroless nickel plating C2 = Oxide black

6

Shell Size & Insert Arrangement: See Insert Arrangement Selection table

7

Type of contact

P=Crimp pin

PC=Short PCB pin

H= Crimp pin

HC=Short PCB pin

S= Crimp socket

SC=Short PCB socket

J= Crimp socket

JC=Short PCB socket

PH=Solder pin

PL=Long PCB pin

HH= Solder pin

PL=Long PCB pin

SH= Solder socket

SL= Long PCB socket

JH= Solder socket

SL= Long PCB socket

8

Orientation: N = Normal

A, B, C, D = Alternative

Crimp contacts

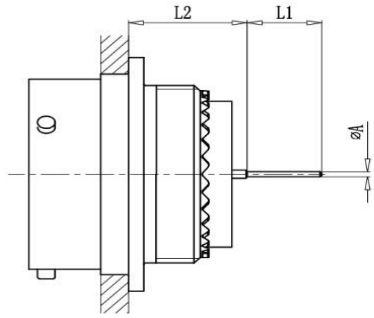
Contacts specification	Diameter	Pin color	Socket color	Inside diameter of crimp barrelmm	Outer diameter of crimp barrel mm	Conductor sectionmm2	Adapter USA standard cable AWG	Adapt insulator outer diameter of conductor mm	Unloading tool code	Crimp tool
22D	Φ0.76	orange-blue-black	Orange-green-yellow	0.85	1.20	0.080.1250.20.3	28262422	0.76~1.37	M81969/14-01	YJQ-02
20#	Φ1.00	orange-blue-orange	Orange-yellow-purple	1.17	1.78	0.20.30.5	242220	1.02~2.11	M81969/14-10	YJQ-02 XCXY-01
16#	Φ1.60	orange-blue-yellow	orange-green-gray	1.68	2.62	0.50.81.01.2	201816	1.65~2.77	M81969/14-03	XCXY-01
12#	Φ2.4	orange-blue-green	orange-yellow-white	2.49	3.84	2.03.0	1412	2.46~3.61	M81969/14-04	XCXY-01

Solder contacts

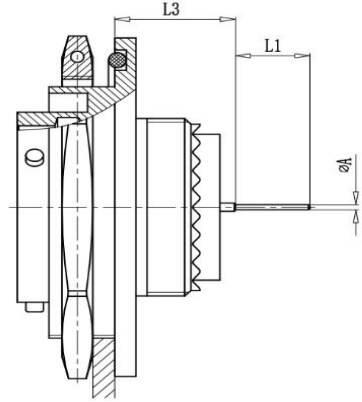
Solder contacts specification	Solder cup inner diameter	(AWG)
22D	Φ0.9	22
20#	Φ1.1	20
16#	Φ1.9	16
12#	Φ2.9	12

D38999 II series receptacle with PCB contacts

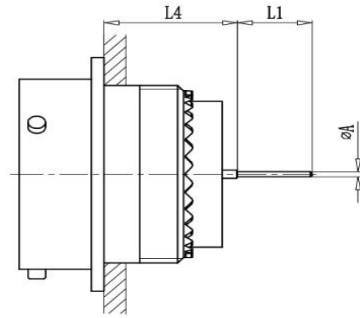
MS27497 receptacle



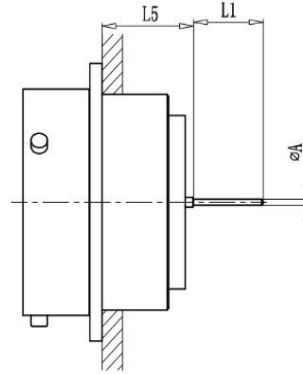
MS27474 receptacle



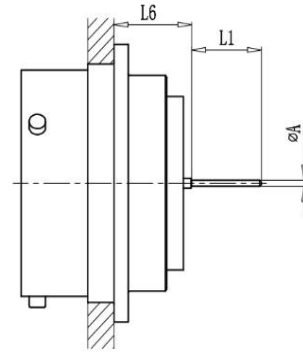
MS27472 receptacle



MS27513 Receptacle



MS27508 Receptacle

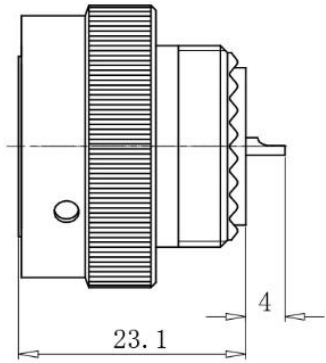


PCB contacts specification		L1	A
22D	Long PCB contacts	8.5	0.7
	Short PCB contacts	4.0	
20#	Long PCB contacts	8.5	0.7
	Short PCB contacts	5.1	
16#	Long PCB contacts	8.5	1.15
	Short PCB contacts	5.1	

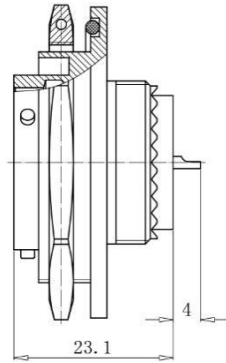
Size when insert different specification contacts		Shell size 08 10 12 14 16 18	Shell size 20 22 24
L2	with 16# or 20# or 22D pin, socket	13.40~13.60	13.40~13.60
L3	with 16# or 20# or 22D pin, socket	13.65~13.85	12.95~13.15
L4	with 16# or 20# or 22D pin, socket	15.10~15.30	15.10~15.30
L5	with 16# or 20# or 22D pin, socket	11.10~11.30	11.10~11.30
L6	With 16# or 20# or 22D pin, socket	9.40~9.60	9.40~9.60

D38999 II series solder connector overall dimension

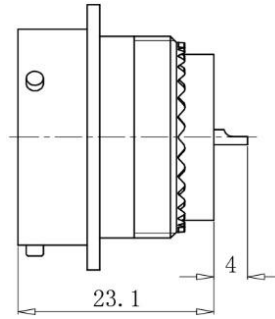
MS27473 plug



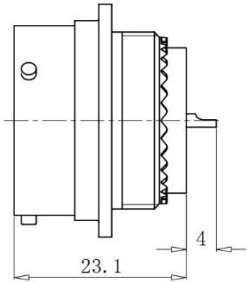
MS27474 receptacle



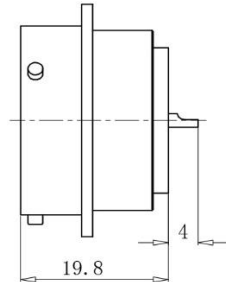
MS27472 receptacle



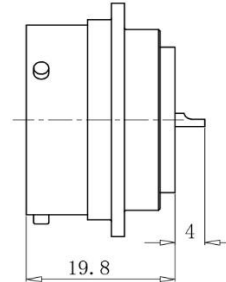
MS27497 receptacle














































MS27513 receptacle

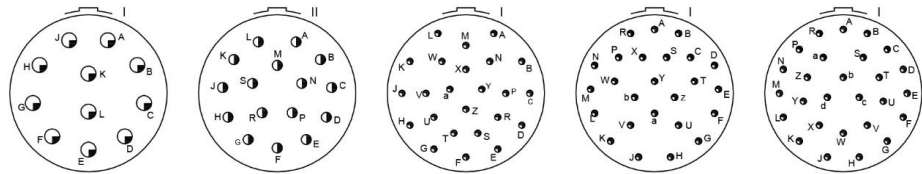
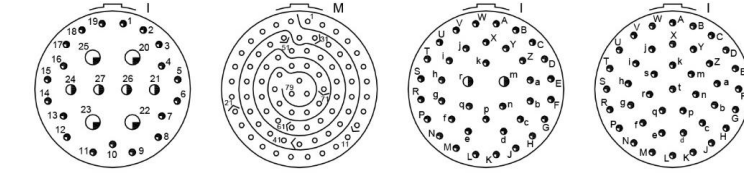
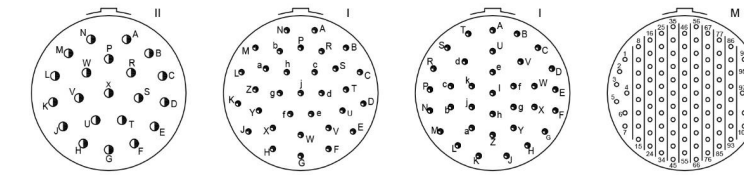
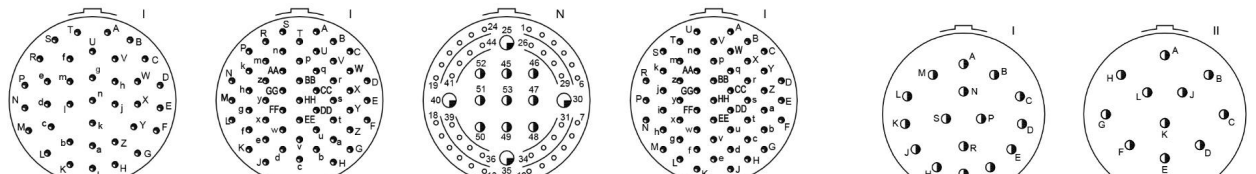
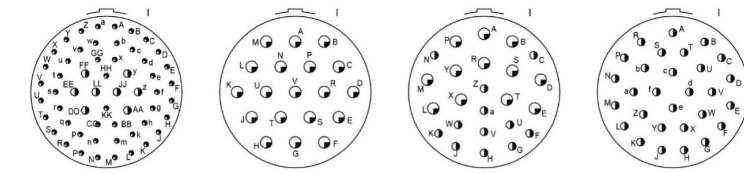
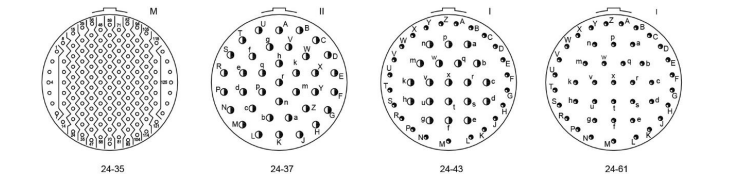


MS27508 receptacle



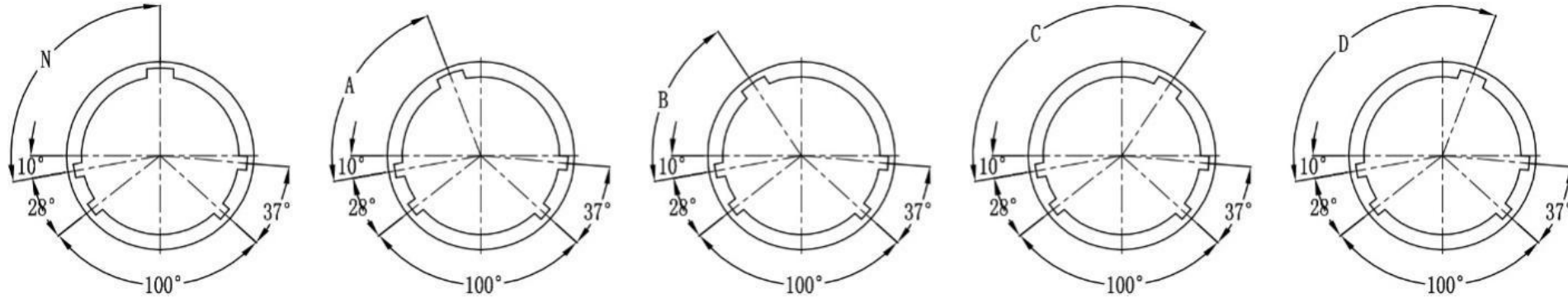
Insert arrangements

08	      <p>08-03 3-20# 08-02 2-20# 08-07 7-22D 08-35 6-22D 08-44 4-22M 08-98 3-20#</p>
10	       <p>10-02 2-16# 10-04 4-20# 10-05 5-20# 10-13 13-22M 10-35 13-22D 10-98 6-20# 10-99 7-20#</p>
12	       <p>12-02 2-12# 12-03 3-16# 12-04 4-16# 12-05 2-16# 3-20# 12-08 8-20# 12-35 22-22D 12-98 10-20#</p>
14	       <p>14-05 5-16# 14-15 1-16# 14-20# 14-18 18-20# 14-19 19-20# 14-35 37-22D 14-38 4-12# 14-97 4-16# 8-20#</p>
16	       <p>16-06 6-12# 16-08 8-16# 16-26 26-20# 16-30 3-10# 3-20# 16-35 55-22D 16-42 42-22D 16-99 2-16# 21-20#</p>
18	     <p>18-08 8-12# 18-11 11-16# 18-28 2-16# 26-20# 18-30 1-16# 29-20# 18-32 32-20#</p>
	    <p>18-35 66-22D 18-45 67-22D 18-53 53-22D 18-96 9-12#</p>

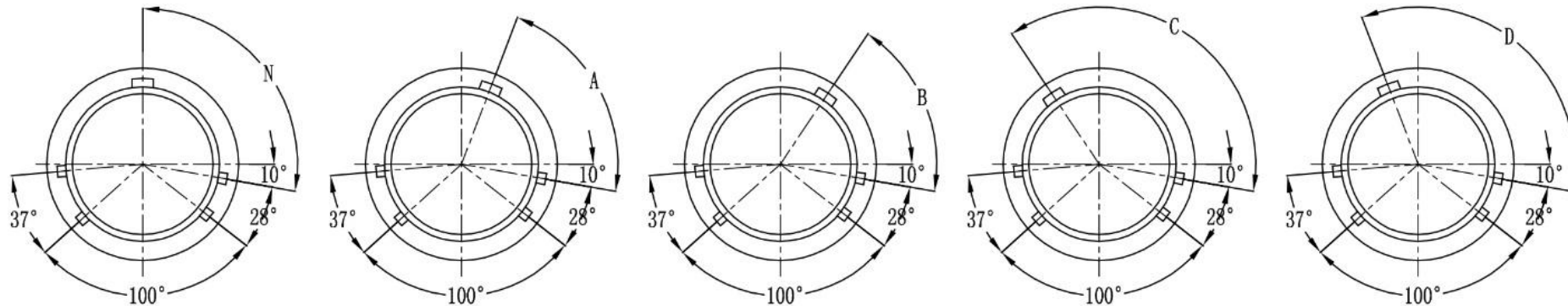
20	 <p>20-11 11-12# 20-16 16-16# 20-24 24-20# 20-25 25-20# 20-27 27-20#</p>
	 <p>20-29 4-12# 4-16# 19-20# 20-35 79-22D 20-39 2-16# 37-20# 20-41 41-20#</p>
22	 <p>22-21 21-16# 22-32 32-20# 22-34 34-20# 22-35 100-22D</p>
	 <p>22-36 36-20# 22-53 53-20# 22-54 4-12# 9-16# 40-22D 22-55 55-20# 22-97 16-16# 22-99 11-16#</p>
24	 <p>24-04 8-16# 48-20# 24-19 19-12# 24-24 12-12# 12-16# 24-29 29-16#</p>
	 <p>24-35 128-22D 24-37 37-16# 24-43 20-16# 23-20# 24-01 61-20#</p>

Alternate keying position

Receptacle keying position



Plug keying position



Code	08	10	12	14	16	18	20	22	24
N	100°	100°	100°	100°	100°	100°	100°	100°	100°
A	82°	86°	80°	79°	82°	82°	82°	85°	85°
B	None	72°	68°	66°	70°	70°	70°	74°	74°
C	None	128°	132°	134°	130°	130°	130°	126°	126°
D	118°	114°	120°	121°	118°	118°	118°	115°	115°

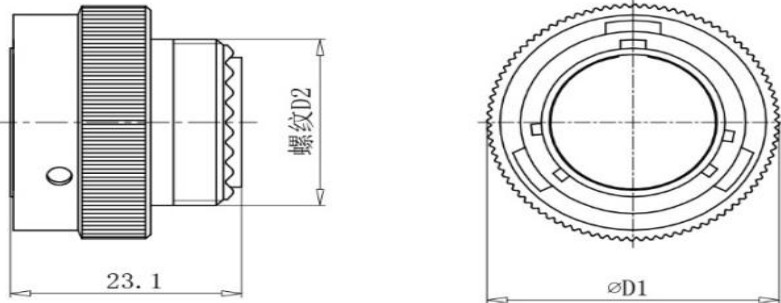
MS27473/MS27484 plug

Cross-Reference & Compatibility



Compatible Brands	Equivalen ts	Mates
MIL-DTL-38999 Series II	MS27473, MS27484	MS27472, MS27474, MS27497, MS27499, MS27508, MS27513
Aero / Conesys	AE273, AE284	AE208, AE213, AE272, AE274, AE297, AE299
Amphenol	JT06, JTG06	JT00, JTPQ00, JT01, JT02, JTP02, JT07
ITT Cannon	KJ6, KJG6	KJ0, KJ2, KJ3, KJ5, KJ7
Souriau	8T6	8T1, 8T2, 8L3, 8T7

Plug Dimensions

	Shell size	D1	Screw thread D2UNEF-2A
		08	18.8
	10	21.5	0.5625-24
	12	25.8	0.6875-24
	14	29.2	0.8125-20
	16	32.3	0.9375-20
	18	35.4	1.0625-18
	20	38.5	1.1875-18
	22	41.7	1.3125-18
	24	44.7	1.4375-18

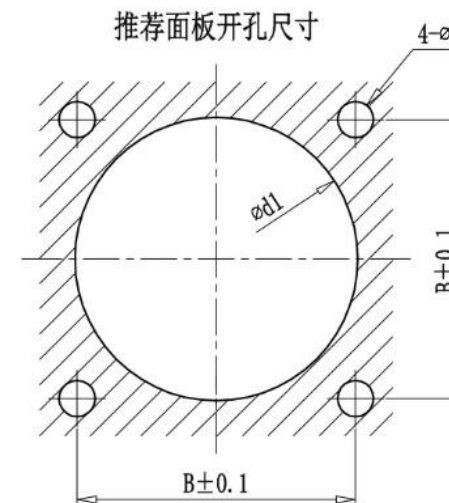
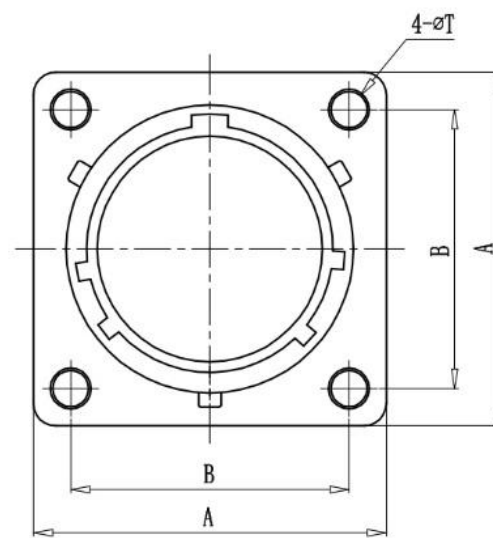
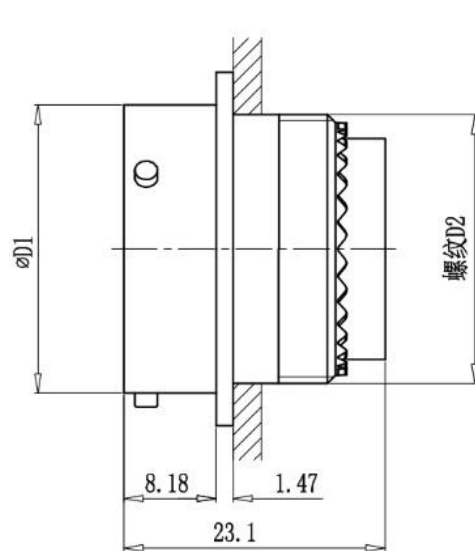
MS27472 wall flange receptacle, front

Cross-Reference & Compatibility



Compatible Brands	Equivalen ts	Mates
MIL-DTL-38999 Series II	MS27472	MS27473,MS27484
Aero / Conesys	AE273, AE284	AE208, AE213, AE272, AE274, AE297, AE299
Amphenol	JT06, JTG06	JT00, JTPQ00, JT01, JT02, JTP02, JT07
ITT Cannon	KJ6, KJG6	KJ0, KJ2, KJ3, KJ5, KJ7
Souriau	8T6	8T1, 8T2, 8L3, 8T7

Plug Dimensions



Shellsiz e	D1	Screw thread D2 UNEF-2A	D3	L max	A	B	T	d1	d2
08	12.00	0.4375-28	13.20	2.0	21.00	15.09	3.2	12.5	14.2
10	15.00	0.5625-24	16.14	2.0	24.10	18.26	3.2	15.5	17.5
12	19.05	0.6875-24	20.50	2.0	26.50	20.62	3.2	19.5	21.3
14	22.23	0.8125-20	23.60	2.0	28.90	23.01	3.2	21.5	25.0
16	25.40	0.9375-20	26.80	2.0	31.21	24.61	3.2	25.0	27.3
18	28.58	1.0625-18	30.00	2.0	33.60	26.97	3.2	28.0	31.3
20	31.75	1.1875-18	33.20	2.5	36.80	29.36	3.2	31.5	34.5
22	34.93	1.3125-18	36.35	2.5	40.00	31.75	3.2	34.5	37.5
24	38.10	1.4375-18	39.50	2.5	43.10	34.93	3.9	37.5	40.6

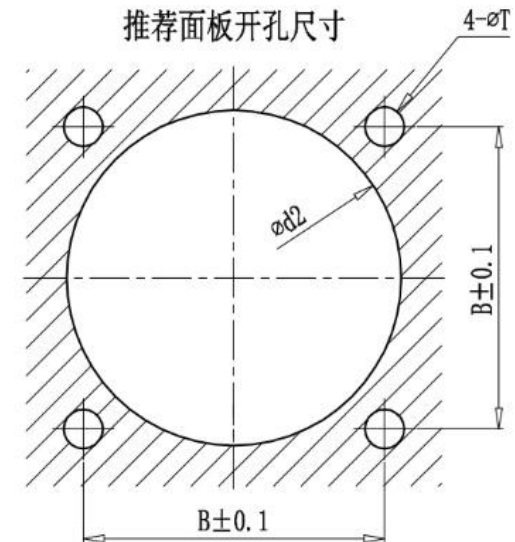
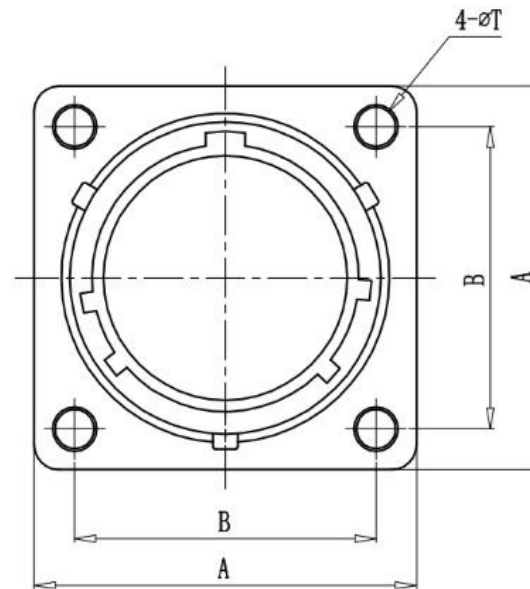
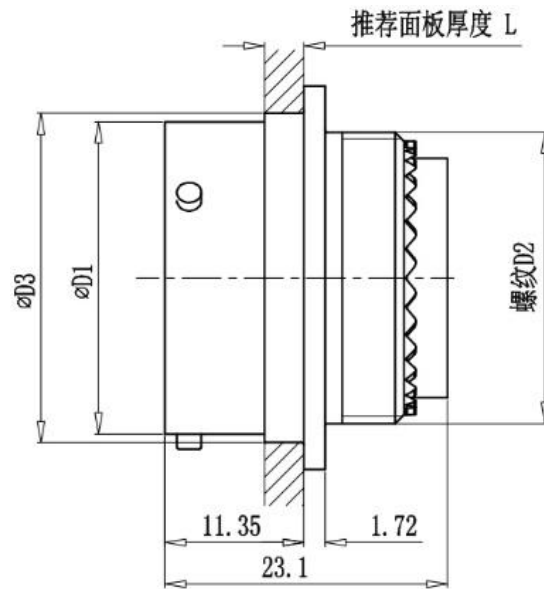
MS27497 wall flange receptacle, rear

Cross-Reference & Compatibility



Compatible Brands	Equivalen ts	Mates
MIL-DTL-38999 Series II	MS27497	MS27473,MS27484
Aero / Conesys	AE297	AE273, AE284
Amphenol	JTPQ00	JT06, JTG06
ITT Cannon	KJ3	KJ6,KJG6,
Souriau	8T3	8T6

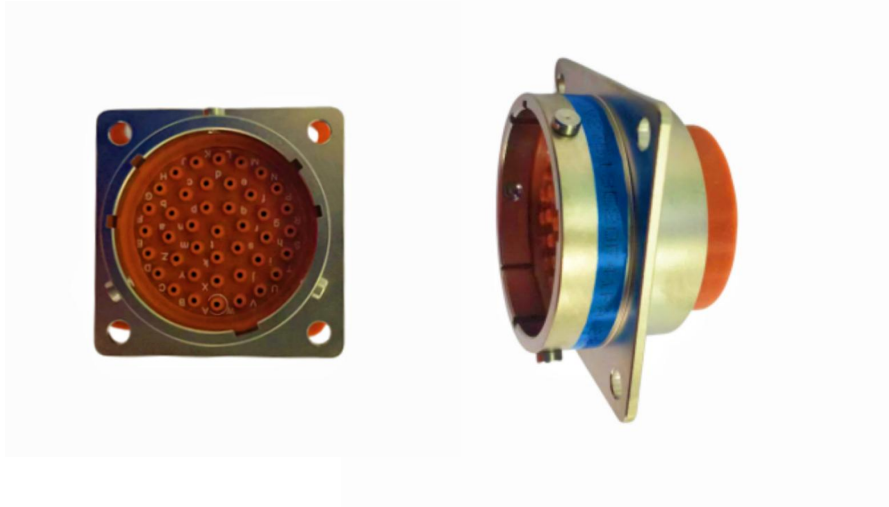
Plug Dimensions



Shellsiz e	D1	Screw thread D2 UNEF-2A	D3	L max	A	B	T	d1	d2
08	12.00	0.4375-28	13.20	2.0	21.00	15.09	3.2	12.5	14.2
10	15.00	0.5625-24	16.14	2.0	24.10	18.26	3.2	15.5	17.5
12	19.05	0.6875-24	20.50	2.0	26.50	20.62	3.2	19.5	21.3
14	22.23	0.8125-20	23.60	2.0	28.90	23.01	3.2	21.5	25.0
16	25.40	0.9375-20	26.80	2.0	31.21	24.61	3.2	25.0	27.3
18	28.58	1.0625-18	30.00	2.0	33.60	26.97	3.2	28.0	31.3
20	31.75	1.1875-18	33.20	2.5	36.80	29.36	3.2	31.5	34.5
22	34.93	1.3125-18	36.35	2.5	40.00	31.75	3.2	34.5	37.5
24	38.10	1.4375-18	39.50	2.5	43.10	34.93	3.9	37.5	40.6

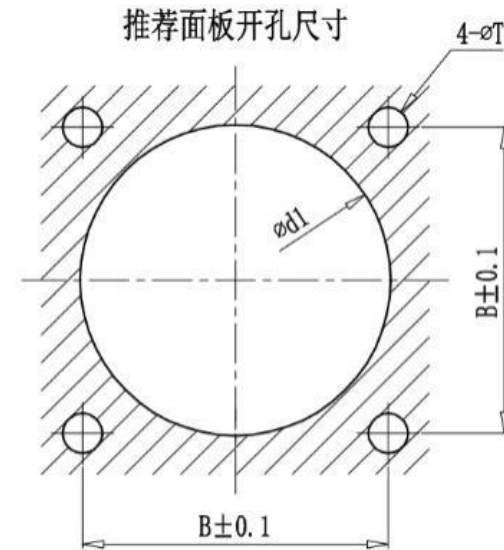
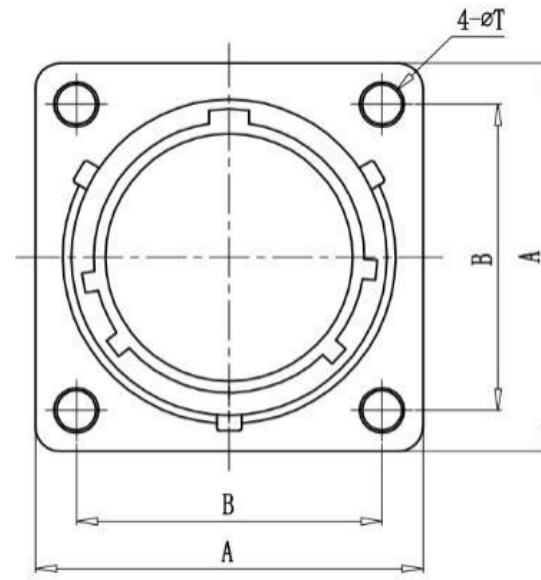
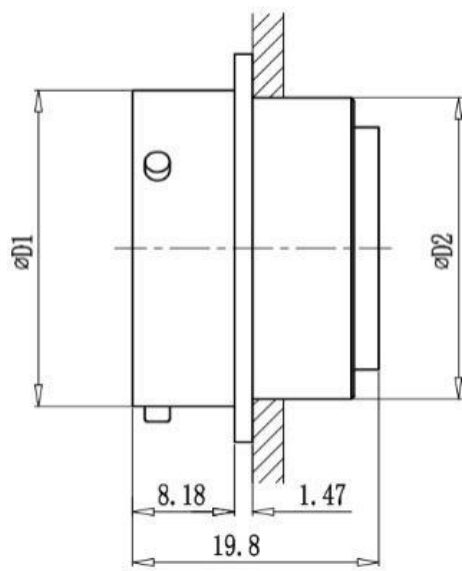
MS27513 Box flange receptacle front

Cross-Reference & Compatibility



Compatible Brands	Equivalen ts	Mates
MIL-DTL-38999 Series II	MS27513	MS27473,MS27484
Aero / Conesys	AE299	AE273, AE284
Amphenol	JT02	JT06, JTG06
ITT Cannon	KJ2	KJ6,KJG6,
Souriau	8T2	8T6

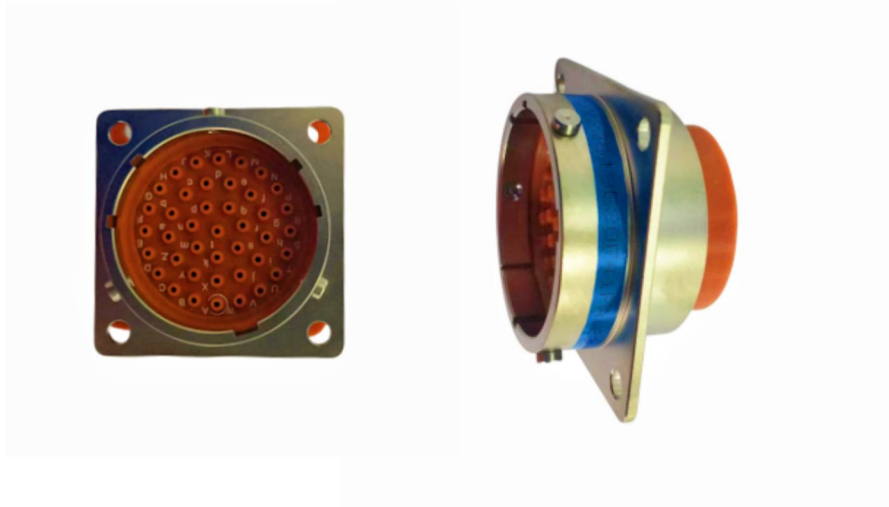
Plug Dimensions



Shellsize	D1	D2	D3	L max	A	B	T	d1	d2
08	12.00	11.51	13.20	2.0	21.00	15.09	3.2	12.5	14.2
10	15.00	14.68	16.14	2.0	24.10	18.26	3.2	15.5	17.5
12	19.05	17.86	20.50	2.0	26.50	20.62	3.2	19.5	21.3
14	22.23	21.03	23.60	2.0	28.90	23.01	3.2	21.5	25.0
16	25.40	24.21	26.80	2.0	31.21	24.61	3.2	25.0	27.3
18	28.58	26.97	30.00	2.0	33.60	26.97	3.2	28.0	31.3
20	31.75	30.18	33.20	2.5	36.80	29.36	3.2	31.5	34.5
22	34.93	33.32	36.35	2.5	40.00	31.75	3.2	34.5	37.5
24	38.10	36.53	39.50	2.5	43.10	34.93	3.9	37.5	40.6

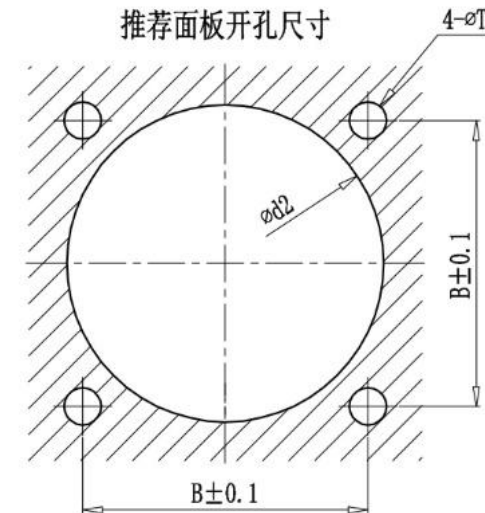
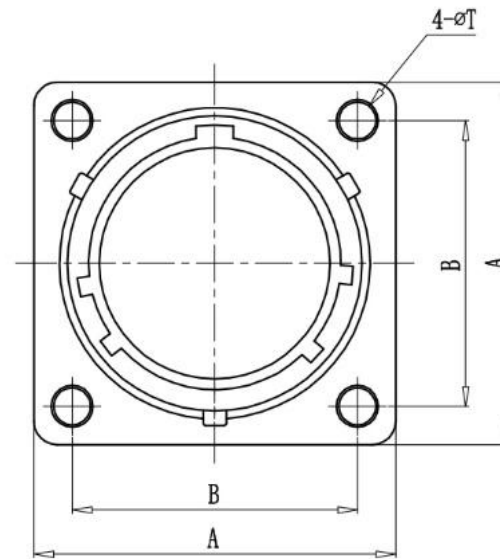
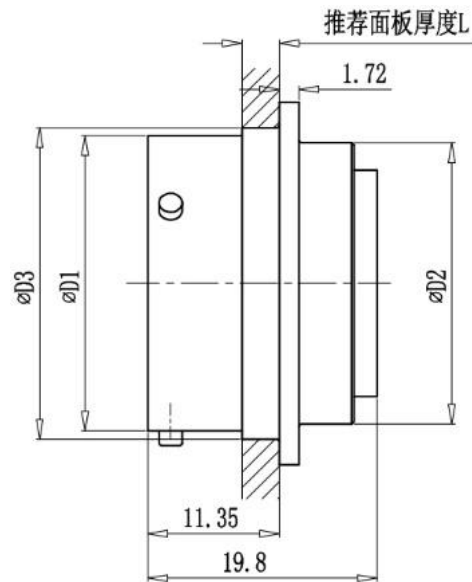
MS27508 Box flange receptacle, rear

Cross-Reference & Compatibility



Compatible Brands	Equivalen ts	Mates
MIL-DTL-38999 Series II	MS27508	MS27473,MS27484
Aero / Conesys	AE208	AE273, AE284
Amphenol	JTP02	JT06, JTG06
ITT Cannon	KJ5	KJ6,KJG6,
Souriau	-	8T6

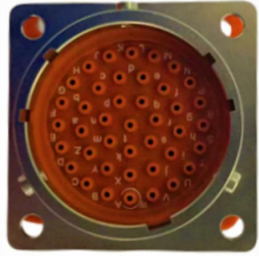
Plug Dimensions



Shellsize	D1	D2	D3	L max	A	B	T	d1	d2
08	12.00	11.51	13.20	2.0	21.00	15.09	3.2	12.5	14.2
10	15.00	14.68	16.14	2.0	24.10	18.26	3.2	15.5	17.5
12	19.05	17.86	20.50	2.0	26.50	20.62	3.2	19.5	21.3
14	22.23	21.03	23.60	2.0	28.90	23.01	3.2	21.5	25.0
16	25.40	24.21	26.80	2.0	31.21	24.61	3.2	25.0	27.3
18	28.58	26.97	30.00	2.0	33.60	26.97	3.2	28.0	31.3
20	31.75	30.18	33.20	2.5	36.80	29.36	3.2	31.5	34.5
22	34.93	33.32	36.35	2.5	40.00	31.75	3.2	34.5	37.5
24	38.10	36.53	39.50	2.5	43.10	34.93	3.9	37.5	40.6

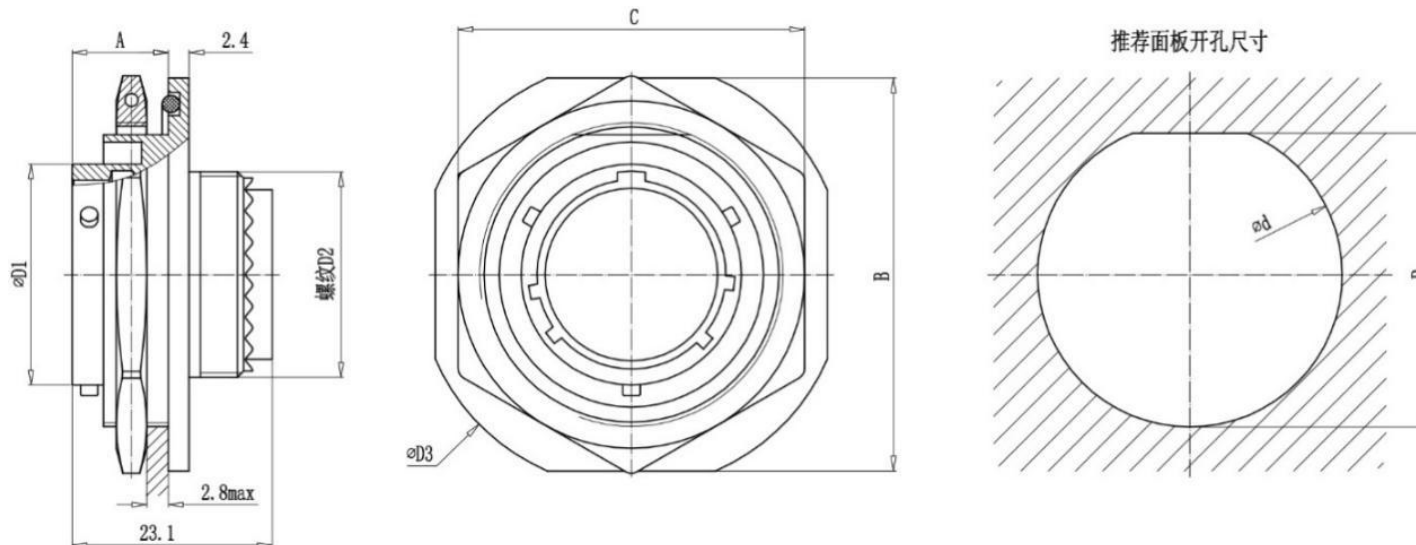
MS27474 Jam nut receptacle

Cross-Reference & Compatibility



Compatible Brands	Equivalen ts	Mates
MIL-DTL-38999 Series II	MS27474	MS27473,MS27484
Aero / Conesys	AE274	AE273, AE284
Amphenol	JT07	JT06, JTG06
ITT Cannon	KJ7	KJ6,KJG6,
Souriau	8T7	8T6

Plug Dimensions



Shellsize	D1	Screw thread D2 UNEF-2A	D3	B	A	C	d	P
08	12.00	0.4375-28	34.95	31.75	11.1	27.9	22.46	21.08
10	15.00	0.5625-24	38.10	34.95	11.1	30.5	25.58	24.26
12	19.05	0.6875-24	41.28	38.10	11.1	33.6	28.80	27.53
14	22.23	0.8125-20	44.45	41.28	11.1	36.8	32.01	30.73
16	25.40	0.9375-20	49.23	45.24	11.1	40.0	35.15	33.86
18	28.58	1.0625-18	51.21	48.00	11.1	43.2	38.28	37.06
20	31.75	1.1875-18	54.38	51.21	11.8	46.3	41.50	40.03
22	34.93	1.3125-18	57.53	54.36	11.8	51.0	44.68	43.21
24	38.10	1.4375-18	60.71	57.53	11.8	54.4	47.85	46.38