

MIL-DTL-38999 Series III Electric Circular Connector

1. Introduction

- Compliant with MIL-DTL-38999 Series III standard;
- Screw coupling with anti-vibration lock mechanism;
- Compact size, lightweight design, and high contact density;
- Superior EMI/RFI protection;
- Crimp-removable contacts: Allows for easy contact replacement and prevents mismatching;
- Variety of shell materials and finishes: Including flame-resistant, composite, and aluminum alloys with multiple plating options;
- High-strength vibration resistance at elevated temperatures: Suitable for harsh environments with sand, dust, and moisture.

2. Key technical characteristics

2.1 Mechanical Characteristics

Shell Materials:	W, F- Aluminum; K-Stainless Steel;
Shell Finishes:	W- Olive Drab Cadmium, F- Electroless Nickel, K- Passivated Stainless Steel
Insulator Material:	Thermosetting Plastic
Grommets and Seals Material:	Silicone rubber
Contacts:	Gold-plated copper alloy
Mechanical Life:	≥500 mating cycles
Shock:	3ms half-sine wave, peak acceleration of 300g
Vibration testing:	Sinusoidal vibration test: 60g peak acceleration, with temperature cycling and simulated accessory test for 36 hours. Random vibration test: 44.1grms RMS acceleration at high temperature, 49.5grms RMS acceleration at ambient temperature.
Contact retention force:	22D#:45N; 20#:67N; 16#:111N; 12#:111N; 10#:111N; 8#:111N

2.2 Environmental Characteristics

Operating Temperature:	Class W: -65°C to +175°C; Class F, K: -65°C to +200°C
Damp heat:	Per MIL-DTL-38999: 24 hours, 10 cycles.
Fluid resistance:	Resistant to various fuels, coolants, and solvents.
Salt Spray Resistance:	Tested according to GJB1217 method 1001: Class W - 500 hours, Class F - 48 hours, Class K - 1000 hours.

2.3 Electrical Characteristics

2.3.1 Contact Resistance and Current Rating:

Contact Size	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
10#	Φ3.15	≤1.0	40
8#	Φ3.6	≤0.57	46
6#	Φ4.52	≤0.5	60
4#	Φ5.72	≤0.35	80
0#	Φ9.07	≤0.17	150
2/0#	Φ10.31	≤0.124	185

2.3.2 Electromagnetic Interference Shielding:

- For frequencies between 100 MHz and 1 GHz, the minimum attenuation is 85 dB for both F and W classes.
- For frequencies between 1 GHz and 10 GHz, the minimum attenuation is 65 dB for Class F and 50 dB for Class W.

2.3.3 Withstanding Voltage (V):

Ratings*	sea level	21000 Meters
M	1300	800
N	1000	600
I	1800	1000
II	2300	1000

* Working voltage varies depending on the contact arrangement. Please refer to the contact arrangement for details.

2.3.4 Insulation Resistance:

- ≥ 5000 MΩ under normal conditions

2.3.5 Shell Continuity:

- ≤ 2.5 mΩ for Class W, ≤ 1.0 mΩ for Class F, and ≤ 5 mΩ for Class K.

3. How to Order

	D38999/	20	W	B	35	P	N
Series:	D38999/ : MIL-DTL-38999 III						
Shell Style:	20 - Wall Mount Flange Receptacle; 24 - Jam Nut Receptacle; 26 - Straight Plug						
Service Class:	W - Olive Drab Cadmium; F - Electroless Nickel; K - Passivated Stainless Steel						
Shell Sizes: A-J	A - 09 B - 11 C - 13 D - 15 E - 17 F - 19 G - 21 H - 23 J - 25						
Insert Arrangement:	See "Insert Arrangement" Table (Page 49-55)						
Contact Type:	P - Crimp pin; PH - Solder pin; PL - Long printed circuit pin; PC - Short printed circuit pin; S - Crimp socket; SH - Solder socket; SL - Long printed circuit socket; SC - Short printed circuit socket						
Alternate Keying Position:	N - Normal keying position; A, B, C, D - Variant keying positions.						

Note :

1. Identifying codes A and B indicate that the electrical connector utilizes non-standard contact configurations (such as shielded, coaxial, or fiber optic contacts). These special contacts must be ordered separately. Specific models and specifications can be found in the "Special Contacts for MIL-DTL-38999 Series III."
2. When high oil resistance is required, the sealing material will be fluorosilicone rubber. Add "C1" to the end of the original part number (e.g., D38999/20FE35PNC1).
3. If a conductive square gasket is required, add "C2" to the end of the part number.
4. If a conductive O-ring is required, add "C5" to the end of the part number.

4. Crimp Contacts

Contact Size	Diameter (Mm)	Pin Color Code	Socket Color Code	Ferrule Inner Diameter (mm)	Ferrule Outer Diameter (mm)	Suitable Wire Cross-section (mm ²)	Suitable Wire AWG	Suitable Wire Insulation Outer Diameter (mm)	Removal Tool Code
22D#	0.76	Orange - Blue - Black	Orange - Yellow - Grey	0.85	1.20	0.08 0.125 0.2 0.3	28 26 24 22	0.76 ~ 1.37	M81969/ 14-01
20#	1.00	Orange - Blue - Orange	Orange - Green - Brown	1.17	1.78	0.2 0.3 0.5	24 22 20	1.02 ~ 2.11	M81969/ 14-10
16#	1.60	Orange - Blue - Yellow	Orange - Green - Red	1.68	2.62	0.5 0.8 1.0 1.2	20 18 16	1.65 ~ 2.77	M81969/ 14-03
12#	2.40	Orange - Blue - Green	Orange - Green - Orange	2.49	3.84	2.0 3.0	14 12	2.46 ~ 3.61	M81969/ 14-04
10#	3.15	Green - Red - Grey	Green - Orange - Purple	3.40	4.65	4.8 8.6	10 8	3.42 ~ 4.12	M81969/ 14-05

5. Insert Arrangement for MIL-DTL-38999 III

Shell Size 09 (A)	35 M 6-22D	98 I 3-20#	02 I 2-20#	03 I 3-20#	10 I 1-12#	11 I 1-16#	44 M 4-22D	
11 (B)	35 M 13-22D	98 I 6-20#	05 I 5-20#	04 I 4-20#	01 I 1-12#	99 I 7-20#	02 I 2-16#	
	15 N 4-22D 1-12#	43 M 3-16#	81 I 1-8#Dual Coax					
13 (C)	35 M 22-22D	98 I 10-20#	08 I 8-20#	04 I 4-16#	12 N 1-12# 11-22D	16 N 3-16# 13-22D	60 I 4-16# 2-20#	
	03 I 3-16#	02 I 2-12#	05 I 1-16# 2-12#	24 I 1-12#	45 I 5-16#	13 N 3-16# 10-22D	26 M 2-12# 6-22D	
	99 I 3-16# 4-20#	01 I 1-8#Dual Coax	06 M 3-12# 3-22D	04a I 2-22D# 2-12#				
15 (D)	35 M 37-22D	19 I 19-20#	18 I 18-20#	05 I 5-16#	97 I 8-20# 4-16#	15 I 14-20# 1-16#		
	02 I 2-12#	14 N 8-22D 6-16#	31 M 30-22D 1-12#	38 I 4-12#	48 I 8-16#	12 M 2-12# 2-20# 8-22D		
	23 M 3-16# 2-20# 18-22D	03 I 2-12# 1-16#	21 I 1-12# Coax 3-20# 17-22D	07a I 7-16#	16a M 1-12# 16-22D	39 M 13-22D# 2-TDB4#		



17 (E)	<p>35 M</p> <p>55-22D</p>	<p>26 I</p> <p>26-20#</p>	<p>06 I</p> <p>6-12#</p>	<p>08 II</p> <p>8-16#</p>	<p>99 I</p> <p>21-20# 2-16#</p>
	<p>16 I</p> <p>3-20# 1-16# 2-10#</p>	<p>27 I</p> <p>7-12#</p>	<p>42 M</p> <p>42-22D</p>	<p>12 N</p> <p>9-22D 3-12# Shielded</p>	<p>03 N</p> <p>2-10# 1-16#</p>
	<p>05 I</p> <p>5-12#</p>	<p>21 N</p> <p>17-22D 4-12#</p>	<p>30 N</p> <p>3-10# 3-20#</p>	<p>09 I</p> <p>1-12# 3-20# 5-16#</p>	<p>15 M</p> <p>8-16# 3-20# 4-22D</p>
	<p>19 M</p> <p>11-20# 4-16# 4-22D</p>	<p>20 I</p> <p>2-20# 16-22D</p>	<p>51 M</p> <p>10-16# 1-8# Dual Coax</p>	<p>99a N</p> <p>4-16# 19-20#</p>	<p>22</p> <p>2-8# Dual Coax</p>
	<p>02 M</p> <p>38-22D 1-8# Dual Coax</p>	<p>07a I</p> <p>4-12# 3-16#</p>	<p>11 N</p> <p>3-12# 8-20#</p>	<p>14 I</p> <p>6-12# 8-22D</p>	<p>24 N</p> <p>2-8# 22-22D</p>
	<p>32 M</p> <p>2-8# 20-22D</p>	<p>36a N</p> <p>35-22D 1-12# Coax</p>	<p>53 I</p> <p>13-16#</p>	<p>23</p> <p>1-8# Dual Coax 2-12#</p>	<p>39</p> <p>3-TDB4</p>
	<p>52</p> <p>1-12# 1-8# Dual Coax</p>	<p>62</p> <p>Power 2-8#</p>	<p>64</p> <p>2-12# 2-8# Dual Coax</p>	<p>75</p> <p>2-8# Dual Coax</p>	<p>57</p> <p>1-16# 2-8#</p>

Contact Legend

Can be replaced with 10# contact pin													

19 (F)	<p>35 M 66-22D</p>	<p>32 I 32-20#</p>	<p>11 II 11-16#</p>	<p>28 I 26-20# 2-16#</p>	<p>30 I 29-20# 1-16#</p>
	<p>45 M 67-22D</p>	<p>18 M 14-22D 4-8# Dual Coax</p>	<p>05 N 1-20# 4-10#</p>	<p>22 I 22-20#</p>	<p>08 M 8-12#</p>
	<p>10 I 7-16# 1-12#, 2-10#</p>	<p>12 I 7-20# 1-16#, 2-10#</p>	<p>96 I 9-12#</p>	<p>18a M 4-8# 14-22D</p>	<p>10a I 5-12# 5-16#</p>
	<p>14 I 6-12# 8-20#</p>	<p>16 M 2-12# 14-16#</p>	<p>19 M 19-16#</p>	<p>22a M 2-12# 6-16#, 14-22D</p>	<p>24 I 8-16# 4-20#, 8-22D</p>
	<p>28a I 12-16# 16-22D</p>	<p>92 M 30-22D 2-8# Dual Coax</p>	<p>93 I 6-20#, 2-10# 24-22D</p>	<p>11a II 7-16# 4-20#</p>	<p>20 M 8-16# 4-20#, 8-22D</p>
	<p>39 5-TDB4</p>	<p>03 3-8# Power</p>	<p>13 3-10# Power</p>	<p>01 1-2/0# Power</p>	<p>02 2-8# Power</p>
	<p>04 4-8# Differential</p>	<p>05a 2-16#, 3-8# Differential</p>	<p>19a 3-8#, 1-16#, 15-22D Differential</p>	<p>19b 2-8#, 4-16#, 8-20#, 5-22D Differential</p>	<p>38 7-12#, 1-8# Differential</p>

Contact Legend

22D 20# 16# 12# 12#Shield 12#Coax 10# TDB4 Contact 8#Dual Coax 8# 6# 4# 0# 1-2/0#
 Can be replaced with 10# contact pin

21 (G)	35 M 79-22D	41 I 41-20#	16 II 16-16#	39 I 37-20# 2-16#	11 II 11-12#
	27 I 27-20#	25 I 25-20#	24 I 24-20#	29 M 26-20# 3-12# Shielded	70 M 20-16#
	80 M 12-16# 3-12# Coax	15 I 13-20# 2-8# Dual Coax	02 M 65-22D	39a M 8-16# 31-22D	61 N 6-16# 55-22D
	75 4-8# Dual Coax	09b N 4-16# 4-12#, 1-8#	28 I 3-10# 25-22D	34a M 1-10# 33-20#	41a N 4-12#, 2-16# 1-20#, 34-22D
	55 N 3-12# 52-22D	63 M 2-12# 61-22D	78 6-16# 2-8# Dual Coax	03 Power 3-8#	04 Power 4-10#
	48 Power 4-8#	31 Power 1-0#	05 Power 5-10#	05a Differential 2-20#, 3-8#	24a Differential 20-22#, 4-8#
	44 Differential 42-22D, 2-8#				

Contact Legend



23 (H)	<p>35 M</p> <p>100-22D</p>	<p>55 I</p> <p>55-20#</p>	<p>53 I</p> <p>53-20#</p>	<p>36 I</p> <p>36-20#</p>	<p>34 I</p> <p>34-20#</p>
	<p>32 I</p> <p>32-20#</p>	<p>21 II</p> <p>21-16#</p>	<p>09a M</p> <p>2-22D 2-12# 5-10#</p>	<p>99 II</p> <p>11-16#</p>	<p>2 M</p> <p>85-22D</p>
	<p>09a M</p> <p>2-22D 2-12# 5-10#</p>	<p>37 I</p> <p>31-20# 6-12#</p>	<p>14 M</p> <p>14-12#</p>	<p>15 N</p> <p>16-16# 3-8# Dual Coax</p>	<p>29 M</p> <p>29-16#</p>
	<p>04 I</p> <p>4-8#</p>	<p>05 N</p> <p>5-8# Dual Coax</p>	<p>09 M</p> <p>6-12# 3-8# Dual Coax</p>	<p>19 M</p> <p>4-12# 15-16#</p>	<p>97 I</p> <p>16-16#</p>
	<p>03 I</p> <p>Power 3-6#</p>	<p>01 I</p> <p>Power 1-2/0#</p>	<p>24 M</p> <p>Power 2-4# 2-20#</p>	<p>12 I</p> <p>Power 2-6#</p>	<p>44 I</p> <p>Power 4-6#</p>
	<p>06 I</p> <p>Differential 6-8#, Non-standard coordinates Power</p>	<p>06a I</p> <p>Differential 6-8#, Standard coordinates Power</p>	<p>19a M</p> <p>Differential 10-22D, 4-16#, 1-12#, 4-8# Power</p>	<p>27 M</p> <p>Differential 14-22D, 12-16#, 1-8# Power</p>	<p>54a M</p> <p>Differential 36-22D, 4-20#, 4-8# Power</p>
	<p>68 I</p> <p>Differential 66-22D, 2-8# Power</p>				

Contact Legend

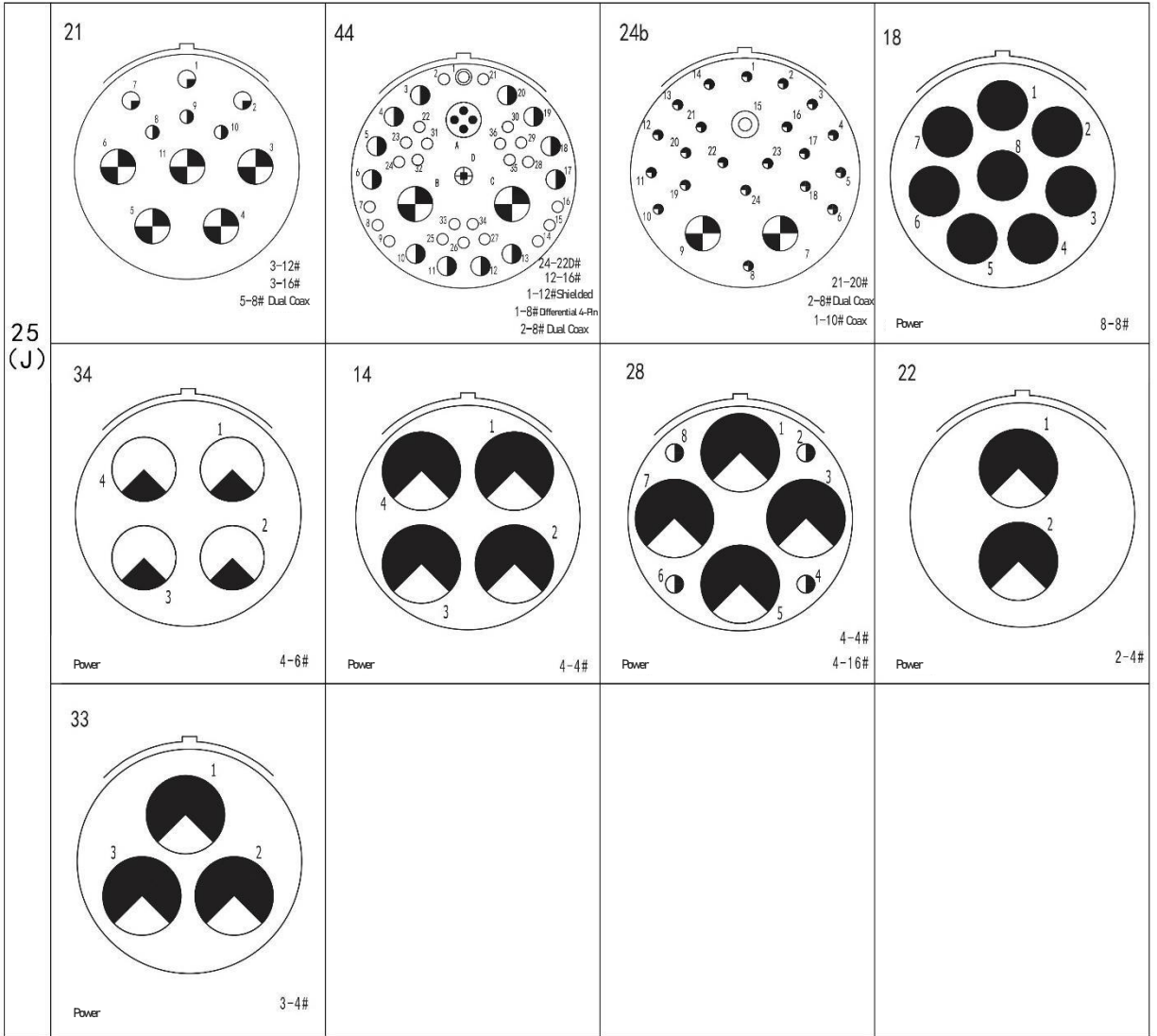
22D	20#	16#	12#	12#Shield	12#Coax	10#	TDB4 Contact	8# Dual Coax	8#	6#	4#	0#	1-2/0#

Can be replaced with 10# contact pin

25 (J)	<p>35 M</p> <p>128-22D</p>	<p>61 I</p> <p>61-20#</p>	<p>46 I</p> <p>40-20# 4-16# 2-8# Dual Coax</p>	<p>29 I</p> <p>29-16#</p>	<p>24 I</p> <p>12-16# 12-12#</p>
	<p>43 I</p> <p>23-20# 20-16#</p>	<p>19 I</p> <p>19-12#</p>	<p>04 I</p> <p>48-20# 8-16#</p>	<p>11 N</p> <p>2-20# 9-10#</p>	<p>20 N</p> <p>10-20# 13-16# 1-12# 同轴, 3-12# Shielded 3-8# Dual Coax</p>
	<p>31 N</p> <p>12-20# 12-16# 5-10# 2-8# Dual Coax</p>	<p>93 M</p> <p>110-22D 8-16#</p>	<p>2 M</p> <p>100-22D</p>	<p>37 I</p> <p>37-16#</p>	<p>30 N</p> <p>16-22D 14-12#</p>
	<p>32 N</p> <p>16-20# 10-16# 6-10#</p>	<p>69 M</p> <p>10-16# 15-20# 44-22D</p>	<p>99 N</p> <p>20-22D 9-12# Shielded</p>	<p>25 I</p> <p>8-22D 4-12# 4-20# 8-10# 1-16#</p>	<p>41 I</p> <p>14-22D 24-16# 3-16#</p>
	<p>07 M</p> <p>97-22D 2-8# Dual Coax</p>	<p>12 N</p> <p>12-10#</p>	<p>25a N</p> <p>8-20# 8-16# 9-10#</p>	<p>51 N</p> <p>4-16# 7-8# Dual Coax</p>	<p>62 N</p> <p>48-22D 4-20# 6-16# 4-12# Coax</p>
	<p>65 M</p> <p>61-22D 1-12# Coax 3-8# Dual Coax</p>	<p>68 M</p> <p>4-12# 64-22D</p>	<p>08</p> <p>8-8# Coax</p>	<p>42</p> <p>38-22D# 4-8#</p>	<p>32 N</p> <p>16-20# 10-16# 6-16#</p>
	<p>17</p> <p>Differential 36-22D, 6-8#</p>	<p>31a</p> <p>Differential 30-20#, 7-12#, 1-8#</p>	<p>48</p> <p>Differential 30-22D, 15-20#, 2-12#, 1-8#</p>	<p>51</p> <p>Differential 4-16#, 7-8#</p>	<p>55</p> <p>Differential 50-22D, 5-8#</p>

Contact Legend

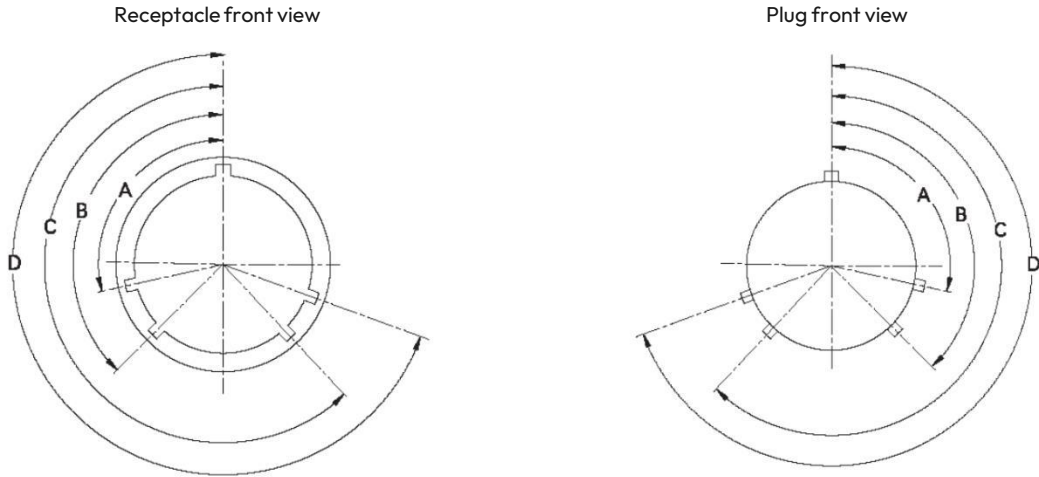




Contact Legend



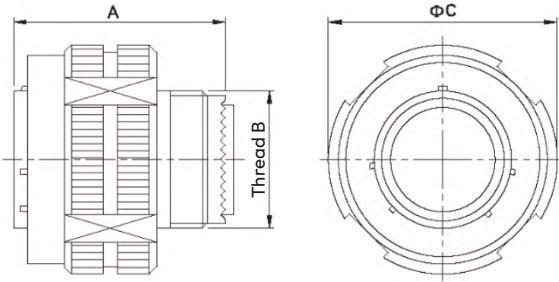
6. Keying Position



Shell Sizes	Shell Numbers	Angle	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	B	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
13	C	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
15	C	A°	95	113	90	53	119	79
		B°	141	156	145	156	146	153
		C°	208	182	195	220	176	197
		D°	236	292	252	255	298	272
17	E	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
19	F	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
21	C	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
23	H	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
25	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

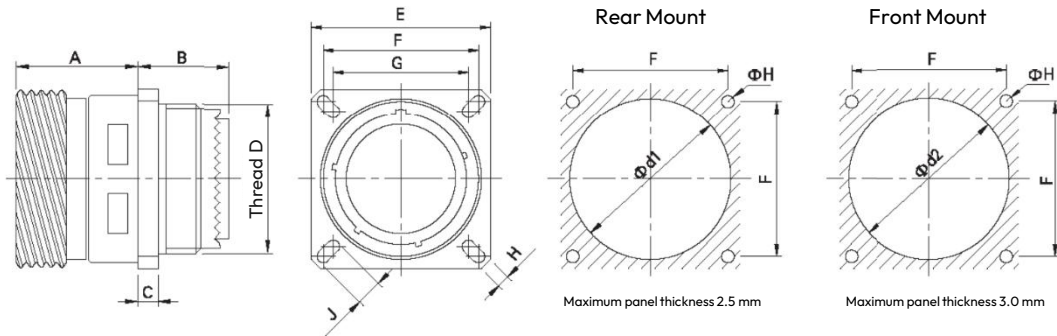
7. Sizes

7.1 Plug



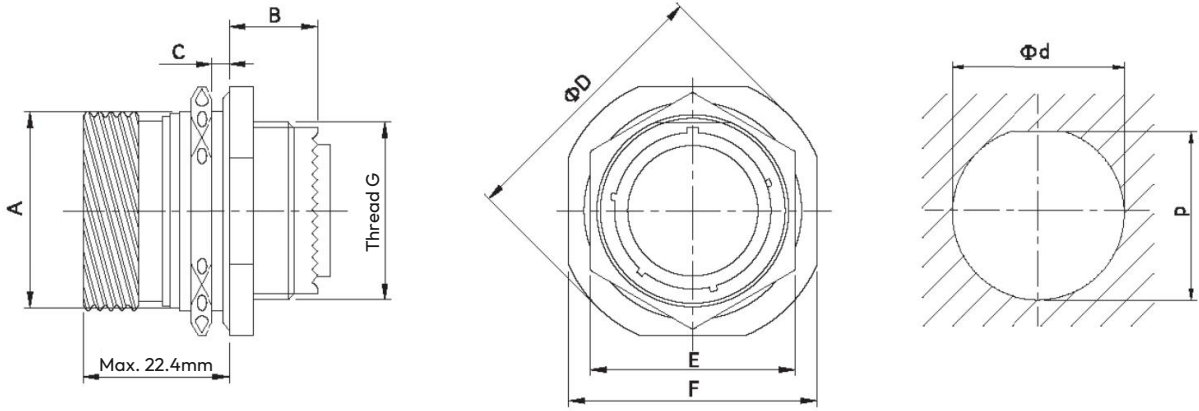
Shell Size	Shell Number	A Max. (mm)	Thread B	C Max. (mm)
9	A	31.00	M 12×1-6g	21.6
11	B	31.00	M 15×1-6g	24.85
13	C	31.00	M 18×1-6g	29.25
15	D	31.00	M 22×1-6g	32.30
17	E	31.00	M 25×1-6g	35.50
19	F	31.00	M 28×1-6g	38.30
21	G	31.00	M 31×1-6g	41.44
23	H	31.00	M 34×1-6g	44.88
25	J	31.00	M 37×1-6g	47.82

7.2 Flange Mount Receptacles



Shell Sizes	Shell Number	A Max. (mm)	B Max. (mm)	C Max. (mm)	Thread D	E (mm)	F (mm)	G (mm)	H (mm)	J (mm)	d1 Min. (mm)	d2 Min. (mm)
9	A	20.83	10.60	2.5	M 12×1-6g	23.80	18.26	15.09	3.25	5.49	16.66	13.11
11	B	20.83	10.60	2.5	M 15×1-6g	26.20	20.62	18.26	3.25	4.93	20.22	15.88
13	C	20.83	10.60	2.5	M 18×1-6g	28.60	23.01	20.62	3.25	4.93	23.42	19.05
15	D	20.83	10.60	2.5	M 22×1-6g	31.00	24.61	23.01	3.25	4.39	26.59	23.01
17	E	20.83	10.60	2.5	M 25×1-6g	33.30	26.97	24.61	3.25	4.93	30.96	25.81
19	F	20.83	10.60	2.5	M 28×1-6g	36.50	29.36	26.97	3.25	4.93	32.94	28.98
21	G	20.07	11.40	3.2	M 31×1-6g	39.70	31.75	29.36	3.25	4.93	36.12	32.16
23	H	20.07	11.40	3.2	M 34×1-6g	42.90	34.93	31.75	3.91	6.15	39.29	34.93
25	J	20.07	11.40	3.2	M 37×1-6g	46.00	38.10	34.93	3.91	6.15	42.47	37.69

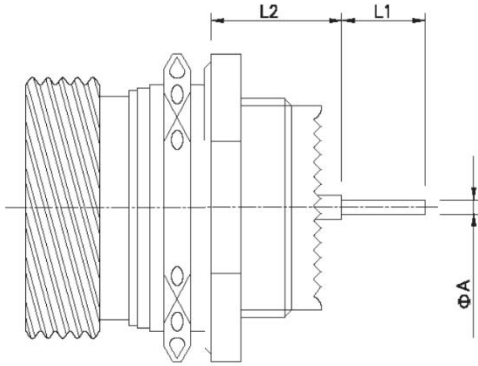
7.3 Jam Nut Receptacle



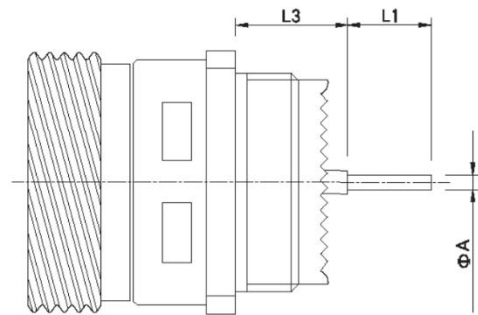
Shell Sizes	MS Shell Number	A (mm)	B Max. (mm)	C Max. (mm)	D Max. (mm)	E Max. (mm)	F (mm)	Thread G	d (mm)	p (mm)
9	A	0.6250	9.90	3.2	30.20	22.50	27.00	M 12×1-6g	17.70	16.99
11	B	0.7500	9.90	3.2	34.90	25.00	31.80	M 15×1-6g	20.88	19.53
13	C	0.8750	9.90	3.2	38.10	30.00	34.90	M 18×1-6g	25.58	24.26
15	D	1.0000	9.90	3.2	41.30	33.30	38.10	M 22×1-6g	28.80	27.53
17	E	1.1875	9.90	3.2	44.50	36.50	41.30	M 25×1-6g	31.98	30.68
19	F	1.2500	9.90	3.2	4,920	39.70	46.00	M 28×1-6g	35.15	33.86
21	G	1.3750	9.90	3.2	52.40	43.00	49.20	M 31×1-6g	38.28	37.06
23	H	1.5000	9.90	3.2	55.60	46.00	52.40	M 34×1-6g	41.50	40.24
25	J	1.5250	9.90	3.2	58.70	50.70	55.60	M 37×1-6g	44.68	43.41

7.4 MIL-DTL-38999 Series III Receptacles with PCB Contacts:

D38999/24 Receptacle



D38999/20 Receptacle

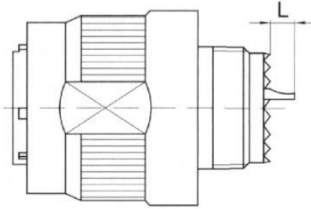


PCB Contact Types		L1 (mm)	A (mm)
22D#	Long PCB Contact	8.5	0.7
	Short PCB Contact	4.0	
20#	Long PCB Contact	8.5	0.7
	Short PCB Contact	5.1	
16#	Long PCB Contact	8.5	1.15
	Short PCB Contact	5.1	

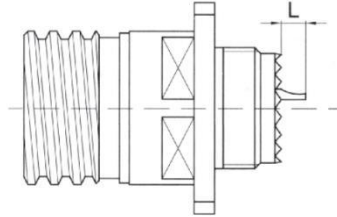
Dimensional Requirements for Various Contact Sizes			Shell Sizes 09-11 (mm)	Shell Sizes 13-15-17-19-21-23-25 (mm)
L2	For 22D# pin installation	Max	10.52	10.34
		Min	11.46	11.28
	For 22D# socket installation	Max	10.19	10.01
		Min	11.46	11.28
	For 20# or 16# pin/socket installation	Max	10.69	10.51
		Min	11.63	11.45
L3	For 22D# pin installation	Max	9.48	9.48
		Min	10.58	10.58
	For 22D# socket installation	Max	9.15	9.15
		Min	10.58	10.58
	For 20# or 16# pin/socket installation	Max	9.65	9.65
		Min	10.75	10.75

7.5 Solder-Type Product Dimensions:

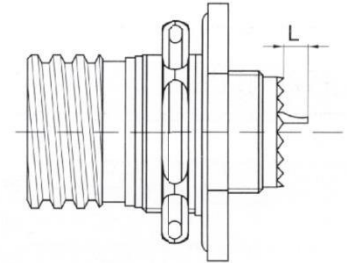
D38999/26 Receptacle



D38999/26 Receptacle



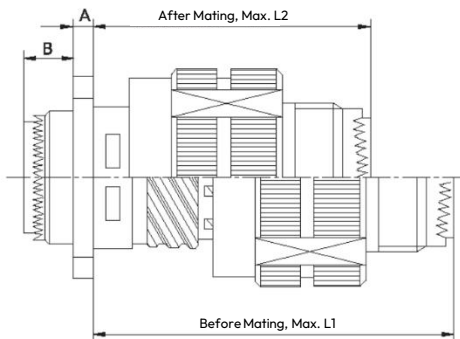
D38999/26 Receptacle



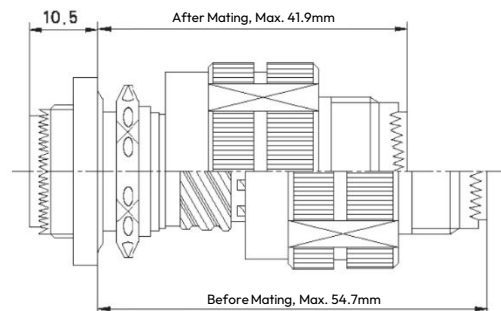
Solder Contact Sizes	L(mm)	Solder Cup Inner Diameter(mm)	Maximum Compatible Wire Gauge (AWG)
22D#	4	Φ0.9	22
20#	4	Φ1.1	20
16#	4	Φ1.9	16
12#	4	Φ2.9	12
10#	6	Φ3.6	8
8#	6	Φ4.8	6

7.6 Mated Dimensions of Plug and Receptacle

D38999/20 Receptacle & D38999/26 Plug



D38999/24 Receptacle & D38999/26 Plug



Shell Sizes	09	11	13	15	17	19	21	23	25	
L1	MAX	53.2	53.2	53.2	53.2	53.2	53.2	52.4	52.4	52.4
L2	MAX	40.3	40.3	40.3	40.3	40.3	40.3	39.6	39.6	39.6
A	MAX	2.5	2.5	2.5	2.5	2.5	2.5	3.2	3.2	3.2
B	MAX	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6

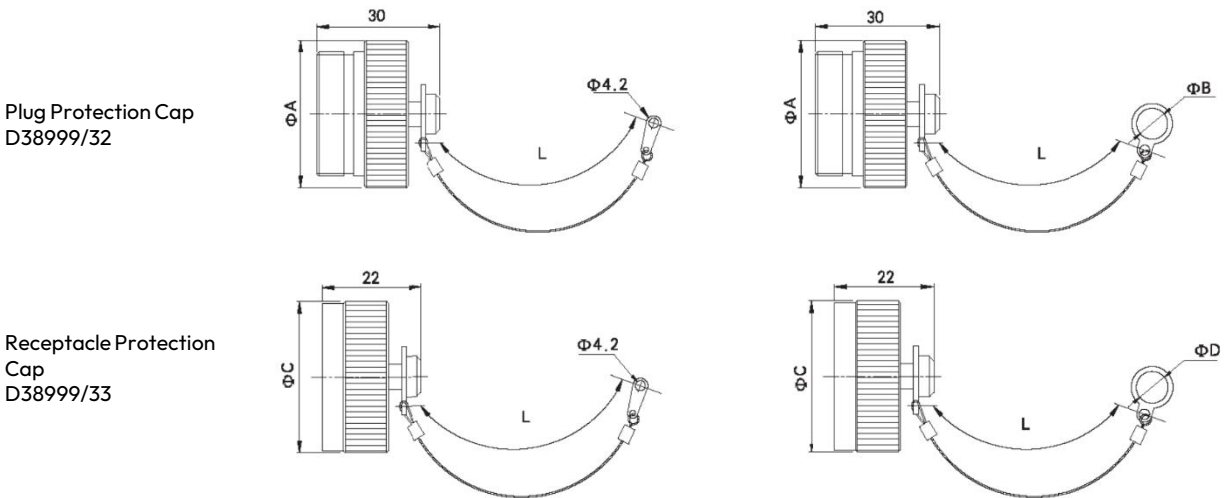
8. Protection Caps for Plugs and Receptacles

8.1 How to Order:

		D38999/32	F	15	N
Series Number:	D38999/32 – Plug Protection Cap D38999/33 – Receptacle Protection Cap				
Finishes:	W - Olive Drab Cadmium; F - Electroless Nickel; K - Passivated Stainless Steel J - Olive Drab Cadmium, Composite M - Electroless Nickel, Composite				
Shell Sizes	09, 11, 13, 15, 17, 19, 21, 23, 25				
Chain Types:	R - Stainless steel wire rope (for flange mount receptacles) C - Nylon wire rope (for flange mount receptacles) N - Stainless steel wire with ring (for jam nut receptacles) S - Nylon wire with ring (for jam nut receptacles)				

Note : Protection caps should be ordered separately and are not included with the connector.

8.2 外形尺寸:



Shell Sizes		09	11	13	15	17	19	21	23	25
A (mm)	MAX	22.86	25.40	30.48	33.02	36.83	39.37	43.18	44.45	48.26
B (mm)	MIN	12.92	17.78	19.27	22.60	25.62	28.95	31.97	34.03	38.32
C (mm)	MAX	22.86	27.86	30.48	31.75	36.83	38.10	41.91	44.45	48.26
D (mm)	MIN	17.78	21.33	25.62	28.95	31.97	35.30	38.32	41.65	44.45
L (mm)	MAX	127.00	127.00	127.00	127.00	127.00	127.00	127.00	127.00	127.00

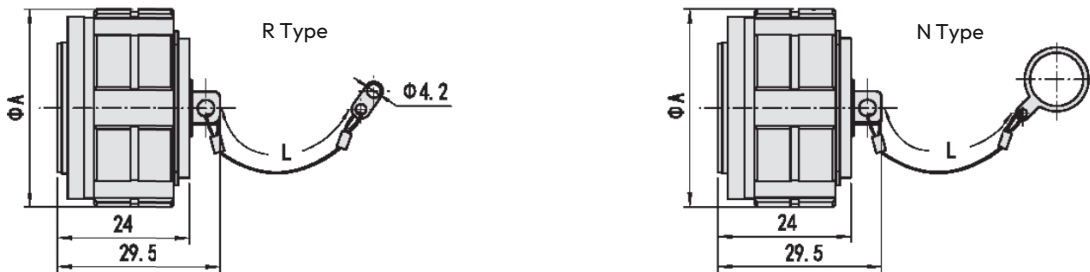
9. Anti-loosening Receptacle Protection Cap

9.1 How to Order:

		D38999/33A	F	10	N
Series Number:	D38999/33A - Anti-loosening Receptacle Protection Cap				
Finishes:	W - Cadmium-plated military green aluminum alloy shell F - Electroless nickel-plated aluminum alloy shell K - Passivated stainless steel FT - Hard chrome-plated aluminum alloy shell J - Cadmium-plated military green composite material shell M - Electroless nickel-plated composite material shell				
Shell Sizes:	09, 11, 13, 15, 17, 19, 21, 23, 25				
Chain Types:	R - Stainless steel wire rope (for flange mount receptacles) N - Stainless steel wire with ring (for jam nut receptacles)				

Note : Protection caps should be ordered separately and are not included with the connector.

9.2 Sizes



Shell Sizes		09	11	13	15	17	19	21	23	25
A (mm)	max	21.8	25.0	29.4	32.5	35.6	38.6	41.7	44.9	48.0
L (mm)	max	127.0	127.0	127.0	127.0	127.0	127.0	127.0	127.0	127.0

10. Standard Accessories

Suitable for MIL-DTL-38999 Series III Connectors.

Note:

(1) To prevent loosening, at least one of the following methods should be used when installing the accessories:

- ① Secure the accessory with a safety wire through the safety hole.
- ② Apply threadlocker to the rear thread of the product and tighten the connecting nut to prevent loosening.
- ③ Use heat shrink tubing to shrink the entire accessory for added security.

(2) For accessories with a set screw, apply threadlocker to the set screw before tightening.

(4) If the product to be mated with the cable accessory is equipped with size 8 contacts, please select a longer cable accessory, such as M85049/38H or M85049/18, to avoid interference between the contact locator and the cable accessory.

(5) The table below lists the corresponding table of MIL-DTL-38999 series welded and crimped products and compatible cable accessories, as well as the functional classification of the cable accessories. Due to the large number of modified products and accessories in our company, a comprehensive list cannot be provided. The content of this table is for reference only. Please contact us for detailed information.

Connector Type:	Compatible Cable Accessory Function Type:	Compatible Accessories:
MIL-DTL-38999 Series III Crimp-type connector	Non-clamping, non-shielded	M85049/14
	Clamping, non-shielded	M85049/38
		M85049/39
		M85049/16
		M85049/91-x×J (Composite)
		M85049/92-××J (Composite)
	Shielded, non-clamping	M85049/20
		M85049/20-××J (Composite)
		M85049/69
		M85049/88
		M85049/90
	Clamping and shielded	M85049/38-××NB
		M85049/18

Connector Type:	Compatible Cable Accessory Function Type:	Compatible Accessories:
MIL-DTL-38999 Series III Solder-type connector	Non-clamping, non-shielded	M85049/14
	Clamping, non-shielded	M85049/38H
		M85049/16H
		M85049/91H-××J (Composite)
	Shielded, non-clamping	M85049/20
		M85049/69
		M85049/88
		M85049/90
	Clamping and shielded	M85049/18

10.1 How to Order:

M85049/

38-

15

N

Series: **M85049/**

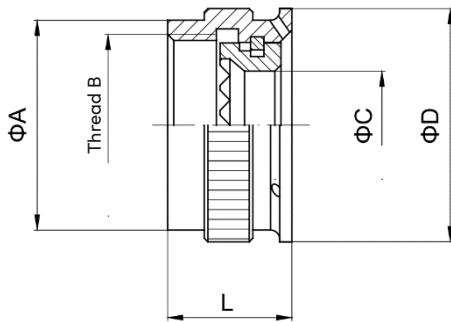
Types: **14** - Tail nut
16 - Angled cable clamp
20 - Shielded backshell
38 - Straight cable clamp
39 - Angled cable clamp
69 - Heat shrink sleeve backshell

Shell Sizes: **09, 11, 13, 15, 17, 19, 21, 23, 25**

Finishes: **W** - Olive drab cadmium
N - Electroless nickel
S - Passivated stainless steel
FT - Hard chrome-plated aluminum alloy
TA - Titanium alloy

10.2 Sizes

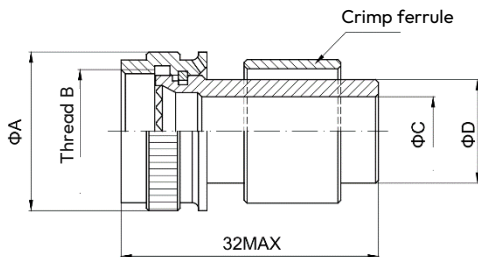
M85049/14 - Tail nut (Non-clamping, non-shielded)



Anti-rotation accessory designed to securely clamp the cable assembly, ensuring the connector's environmental performance. It does not clamp the cable and is suitable for general-purpose applications.

Shell Sizes	A (mm)	Thread B	C (mm)	D (mm)
09	15.2	M12×1	7.9	19
11	18.2	M15×1	10.8	22
13	21.2	M18×1	13.6	25.1
15	25.1	M22×1	16.9	29
17	28.1	M25×1	20.1	32.1
19	31.1	M28×1	22.1	35.1
21	34.0	M31×1	25.2	38.1
23	37.0	M34×1	28.3	41.1
25	40.0	M37×1	31.6	44.1

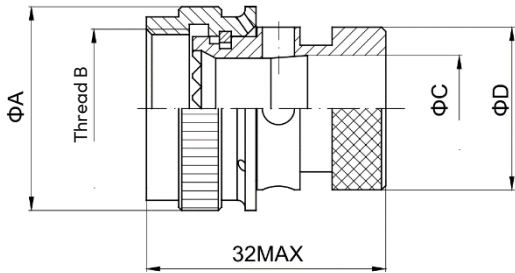
M85049/20 - Shielded Backshell (Shielded, non-clamping)



Anti-rotation, shielded mesh clamp. This accessory securely clamps the cable gland and provides a connection between the shielded mesh and the rear accessory, ensuring the connector's environmental resistance and electromagnetic shielding performance. It is not designed to clamp cables and is suitable for applications with low cable tension.

Shell Sizes	A (mm)	Thread B	C (mm)	D (mm)	Appropriate press block code
09	19	M12×1	6.55	8.81	08
11	22	M15×1	8.63	12.65	10
13	25.1	M18×1	10.90	12.95	12
15	29	M22×1	14.10	16.00	14
17	32.1	M25×1	17.25	19.30	16
19	35.1	M28×1	20.40	22.61	18
21	38.1	M31×1	23.60	25.65	20
23	41.1	M34×1	26.40	28.70	22
25	44.1	M37×1	28.40	30.53	24

M85049/69 - Heat Shrink Sleeve Backshell (Shielded, non-clamping)

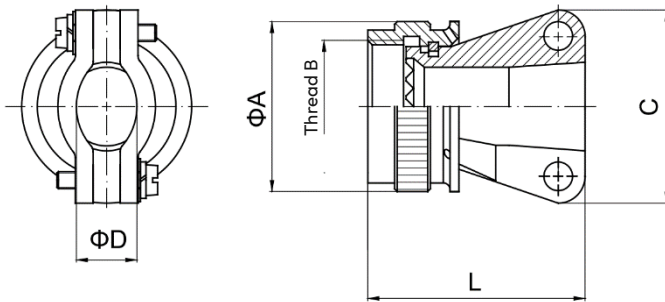


Anti-rotation, clamping, and shielded backshell. This accessory provides a tight seal around the cable, connects the shield to the backshell, and ensures the connector's environmental and electromagnetic shielding performance. It is not designed to clamp the cable and is suitable for applications with low cable tension.
 Note: Heat shrink boot is sold separately.

Shell Sizes	A	Thread B	C	D
09	19.0	M12×1	6.7	13.5
11	22.0	M15×1	9.9	15.3
13	25.1	M18×1	12.8	19.6
15	29.0	M22×1	16.0	21.2
17	32.1	M25×1	19.2	24.4
19	35.1	M28×1	21.4	26.4
21	38.1	M31×1	24.6	30.9
23	41.1	M34×1	27.7	34.4
25	44.1	M37×1	30.9	36.6

M85049/38 - Straight cable clamp

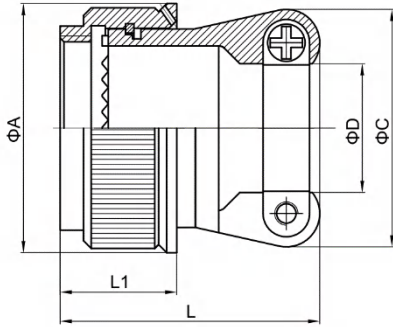
The cable exit diameter "D" varies when "S" or "M" is appended to the model number. The designations "S" and "M" are indicated on the product label. For instance, the cable exit diameter of model M85049/38-13W(M) ranges from 4.85mm to 6.58mm.



Anti-rotation, cable clamping accessory. Provides a secure grip on the cable gland and clamps the cable, ensuring the connector's environmental performance, especially in applications where the cable is subjected to tensile forces.

Shell Sizes	A Max. (mm)	Thread B	C Max. (mm)	Add "S" After the Part Number		Add "M" After the Part Number		Standard		L Max. (mm)
				D (mm)	Screw length	D	Screw length	D	Screw length	
09	19	M12×1	20.0	-	-	-	-	2.49 ~ 5.94	M3.5*12	27.0
11	22	M15×1	21.0	-	-	-	-	3.87 ~ 5.94	M3.5*12	28.5
13	25.1	M18×1	23.4	4.83	M3.5*12	4.83 ~ 6.58	M3.5*14	4.83 ~ 8.33	M3.5*16	30.0
15	29	M22×1	26.6	6.60	M3.5*12	6.60~9.11	M3.5*14	6.60 ~ 11.61	M3.5*16	31.5
17	32.1	M25×1	30.6	7.19	M3.5*12	7.19 ~ 11.40	M3.5*16	7.19 ~ 15.60	M3.5*20	33.5
19	35.1	M28×1	34.0	8.26	M4*14	8.26 ~ 13.16	M4*18	8.26 ~ 16.10	M4*22	36.6
21	38.1	M31×1	35.8	8.71	M4*14	8.71 ~ 13.61	M4*18	8.71 ~ 17.73	M4*24	39.8
23	41.1	M34×1	39.0	9.68	M4*14	9.68 ~ 16.58	M4*20	9.68 ~ 20.90	M4*26	42.9
25	44.1	M37×1	40.6	10.62	M4*14	10.62 ~ 17.42	M4*20	10.62 ~ 21.66	M4*26	45.0

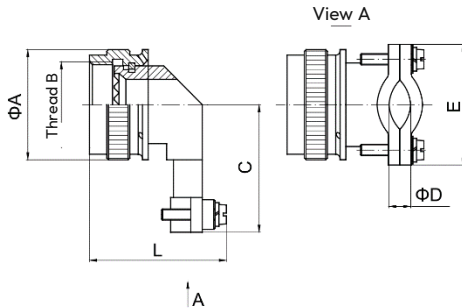
M85049/38H - Solder-type Straight cable clamp (Clamping, non-shielded)



Functions identically to M85049/38, compatible with soldered products, and suitable for MIL-DTL-38999 Series III power products.

Shell Sizes	A Max. (mm)	Thread B	C Max. (mm)	D Min. (mm)	D Max. (mm)	L Max. (mm)
09	19.0	M12×1	20.0	2.49	5.94	27.0
11	22.0	M15×1	21.0	3.87	5.94	28.5
13	25.1	M18×1	23.4	4.83	8.33	30.0
15	29.0	M22×1	26.6	6.60	11.61	31.5
17	32.1	M25×1	30.6	7.19	15.60	33.5
19	35.1	M28×1	34.0	8.26	16.10	36.6
21	38.1	M31×1	35.8	8.71	17.73	39.8
23	41.1	M34×1	39.0	9.68	20.90	42.9
25	44.1	M37×1	40.6	10.62	21.66	45.0

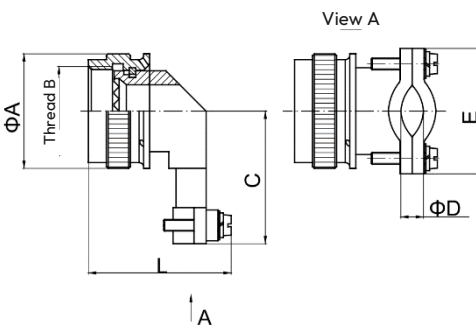
M85049/39 - Angled cable clamp (Clamping, non-shielded)



Anti-rotation, 90° cable clamping cable accessory. It can tightly clamp the cable body and clamp the cable at a 90° angle, ensuring the environmental performance of the connector and is used in applications where the cable is under tension.

Shell Sizes	A Max. (mm)	Thread B	C Max. (mm)	D (mm)		E Max. (mm)	L Max. (mm)
				Min.	Max.		
09	19.0	M12×1	20.60	2.49	5.94	21.6	29.5
11	22.0	M15×1	22.00	3.87	5.94	22.8	29.5
13	25.1	M18×1	23.60	4.83	8.33	26.0	31.9
15	29.0	M22×1	25.20	6.60	11.61	29.0	35.1
17	32.1	M25×1	26.80	7.19	15.60	30.6	39.1
19	35.1	M28×1	31.30	8.26	16.10	37.0	41.5
21	38.1	M31×1	32.90	8.71	17.73	39.0	43.3
23	41.1	M34×1	34.50	9.68	20.90	41.0	46.5
25	44.1	M37×1	36.10	10.62	21.66	42.0	47.1

M85049/16 - Angled cable clamp (Clamping, non-shielded)

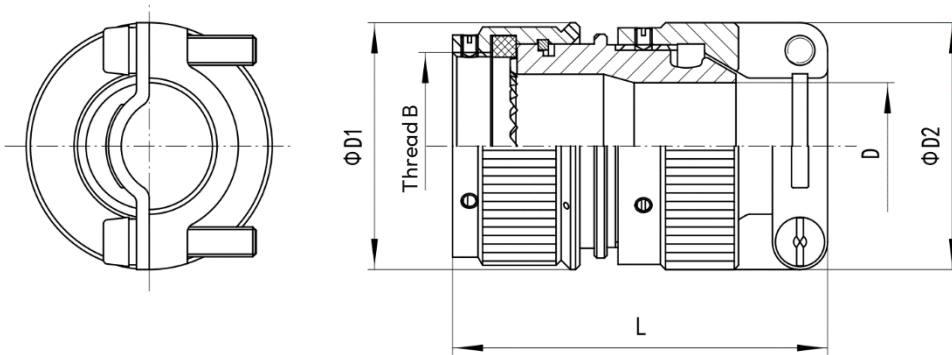


This anti-rotation, 90-degree cable clamp accessory functions similarly to the M85049/39 rear accessory, but with a larger cable exit diameter (D) compared to the M85049/39 accessory.

Shell Sizes	A Max. (mm)	Thread B	C Max. (mm)	D (mm)		E Max. (mm)	L Max. (mm)
				Min.	Max.		
09	19.0	M12×1	20.0	2.85	6.71	21	25.9
11	22.0	M15×1	21.5	6	9.96	26.5	29.2
13	25.1	M18×1	23.0	8.45	12.85	31.5	32
15	29.0	M22×1	25.0	12	16.03	36.5	35.2
17	32.1	M25×1	27.0	11.1	19.2	31	36.4
19	35.1	M28×1	28.5	13.75	21.46	37	40.7
21	38.1	M31×1	29.5	19.3	24.64	35	43.8
23	41.1	M34×1	31.0	21.4	27.81	35	43
25	44.1	M37×1	33.0	23.5	30.99	37	44.2

M85049/69-xxB Backshell (Clamping and shielded)

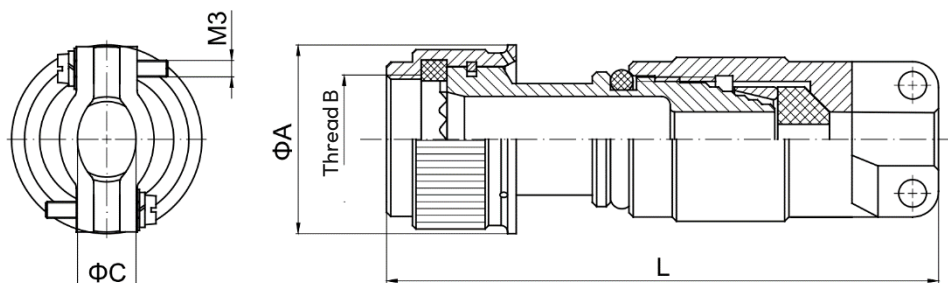
	M85049/	69-	15	N	B
Series:	M85049/				
Types:	69 - Straight Shielded Backshell (Clamping and shielded)				
Shell Sizes:	09, 11, 13, 15, 17, 19, 21, 23, 25				
Finishes:	W - Olive drab cadmium N - Electroless nickel S - Passivated stainless steel FT - Hard chrome-plated aluminum alloy TA - Titanium alloy				
Type Code:	B				



Shell Sizes	Thread A	D1 (mm)	D2 (mm)	D (mm)	L (mm)
09	M12×1	19.0	20.0	7.0	40.0
11	M15×1	22.0	22.5	9.7	41.0
13	M18×1	25.1	25.9	12.8	41.0
15	M22×1	29.0	29.0	14.9	46.0
17	M25×1	32.0	32.5	18.0	46.0
19	M28×1	35.0	36.6	20.0	47.5
21	M31×1	38.0	39.5	23.2	52.5
23	M34×1	41.1	42.0	26.3	57.5
25	M37×1	44.1	45.0	28.9	58.5

M85049/18- \times N Cable Clamp (Clamping and shielded)

	M85049/	18-	25	N	09	A
Series:	M85049/					
Types:	18 - Straight Shielded Cable Clamp					
Shell Sizes:	See table 01					
Finishes:	W - Olive drab cadmium N - Electroless nickel S - Passivated stainless steel FT - Hard chrome-plated aluminum alloy TA - Titanium alloy					
Outlet diameter code:	See table 01 and table 02					
Length Code:	See table 03					



Rotation-proof, shield-clamping, and cable-clamping accessory. This accessory provides a tight seal around the cable, connecting the shield to the rear accessory, ensuring high environmental durability and electromagnetic shielding performance for connectors used in harsh environments. The cable accessory is available in various lengths to accommodate applications such as high-low frequency mixed installations that require longer accessories. Finished cable is recommended for use with this accessory.

Table 01

Shell Sizes	Outlet Diameter Code	A	Thread B
09	01 ~ 02	19	M12×1
11	01 ~ 03	22	M15×1
13	02 ~ 04	25.1	M18×1
15	02 ~ 05	29	M22×1
17	02 ~ 06	32	M25×1
19	03 ~ 07	35	M28×1
21	03 ~ 08	38	M31×1
23	03 ~ 09	41.1	M34×1
25	04 ~ 10	44.1	M37×1

Table 02

Outlet diameter code	Outlet diameter C (mm)
01	1.57 ~ 3.18
02	3.18 ~ 6.35
03	6.35 ~ 9.53
04	9.53 ~ 12.7
05	12.7 ~ 15.88
06	15.88 ~ 19.05
07	19.05 ~ 22.23
08	22.23 ~ 25.4
09	25.4 ~ 28.58
10	28.58 ~ 31.75

Table 03

Shell Number	Length Code	L (mm)
09 ~ 25	标准(省略不标出)	64.4
09 ~ 25	A	89.8
15 ~ 25	B	115.2
21 ~ 25	C	140.6

11. Special Backshells

This type of backshell is specifically designed for clamping shielded cables with braided shields. It comes in both straight and angled styles. Optionally, the accessory can be equipped with a shape memory Ti-Ni alloy ring. When heated, this ring contracts to tightly clamp the braided shield to the rear of the accessory, achieving 360-degree electromagnetic shielding.

****Note:**** To activate the shape memory Ti-Ni alloy ring, heat it with a heat gun for approximately 45 seconds to 1 minute. The color indicator on the ring will change from green to black when the ring has fully contracted, indicating a temperature of approximately 165°C. At this point, stop heating. Ensure that the ring is heated evenly.

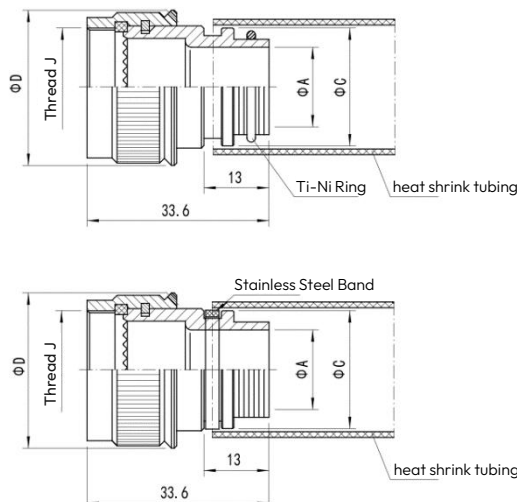
11.1 How to Order:

M85049/88, M85049/90 Backshells (Shielded, non-clamping)

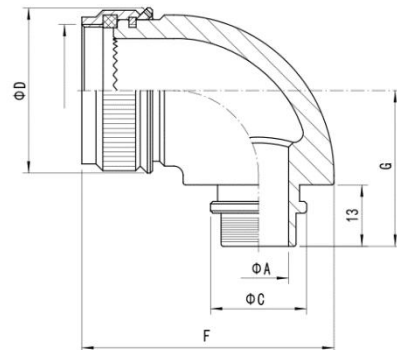
		M85049/	88-	11	N	A	-05
Series:	M85049/						
Types:	88 - Straight Backshell 90 - Angled Backshell						
Shell Sizes:	09, 11, 13, 15, 17, 19, 21, 23, 25 For series III: A(09), B(11), C(13), D(15), E(17), F(19), G(21), H(23), J(25)						
Finishes:	W - Olive drab cadmium N - Electroless nickel S - Passivated stainless steel FT - Hard chrome-plated aluminum alloy TA - Titanium alloy (only for type 88)						
Ti-Ni Alloy Ring:	None - without Ti-Ni alloy ring A - with Ti-Ni alloy ring						
Cable outlet hole diameter or Ti-Ni ring specification:	Specify the cable exit hole diameter when no Ti-Ni ring is selected. Specify the Ti-Ni ring size when a Ti-Ni ring is selected.						

11.2 Sizes:

M85049/88 Straight



M85049/90 Right Angle



No.	Shell Sizes	Ti-Ni Ring Part Number	Shielding Mesh Gauge (tinned copper wire diameter)	A (mm) Cable Outlet Diameter		C (mm)		F (mm)	D (mm)	G (mm)	Thread J
				Straight	Angled	Straight	Angled				
1	09	TR-04	6×10(0.15 ~ 0.20)	6.3	6.3	14	14	38.2	19	26	M12×1-6H
		TR-05	10×16(0.15~0.20)	7.9	7.9	15.5	15				
		TR-06	10×16(0.15 ~ 0.20)	9.5	-	17.1	-				
2	11	TR-04	6×10(0.15 ~ 0.20)	6.3	6.3	14	14	39.7	22	26	M15×1-6H
		TR-05	10×16(0.15 ~ 0.20)	7.9	7.9	15.5	15.5				
		TR-06	10×16 (0.15 ~ 0.20)	9.5	9.5	17.1	17.1				
		TR-07	10×16 0.12 0.20)	11.1	11.1	18.7	18				
3	13	TR-04	6×10(0.15 ~ 0.20)	6.3	6.3	14	14	45.2	25.1	29	M18×1-6H
		TR-05	10×16 (0.15 ~ 0.20)	7.9	7.9	15.5	15.5				
		TR-06	10×16(0.15 ~ 0.20)	9.5	9.5	17.1	17.1				
		TR-07	10×16 (0.12 ~ 0.20)	11.1	11.1	18.7	18.7				
		TR-08	16×24 12 0.25	12.7	12.7	20.3	20.3				
4	15	TR-05	10×16 (0.15 ~ 0.20)	7.9	-	15.5	-	47.0	29	29	M22×1-6H
		TR-06	10×16(0.15 ~ 0.20)	9.5	9.5	17.1	17.1				
		TR-07	10×16(0.12 ~ 0.20)	11.1	11.1	18.7	18.7				
		TR-08	16×24 (0.12 ~ 0.25)	12.7	12.7	20.3	20.3				
		TR-10	16×24 10 0.30)	16	16	23.5	23.5				
		TR-12	16×24 (0.10 ~ 0.30)	19	19	26.7	25.5				
5	17	TR-05	10×16 (0.15 ~ 0.20)	7.9	-	15.5	-	50.7	32.1	33	M25×1-6H
		TR-06	10×16 (0.15 ~ 0.20)	9.5	-	17.1	-				
		TR-07	10×16(0.12 ~ 0.20)	11.1	11.1	18.7	18.7				
		TR-08	16×24 (0.12 ~ 0.25)	12.7	12.7	20.3	20.3				
		TR-10	16× 0 0.30)	16	16	23.5	23.5				
		TR-12	16×24 10~0.30)	19	19	26.7	26.7				
6	19	TR-08	16×24 (0.12 ~ 0.25)	12.7	12.7	20.3	20.3	53.5	35.1	33	M28×1-6H
		TR-10	16×24(0.10 ~ 0.30)	16	16	23.5	23.5				
		TR-12	16×24 (0.10 ~ 0.30)	19	19	26.7	26.7				
		TR-14	24×30 10 0.30)	22.2	22.2	30	30				
		TR-16	24×30 0 10 ~ 0.30)	25.4	25.4	33	32				
7	21	TR-08	16×24 (0.12 ~ 0.25)	12.7	12.7	20.3	20.3	55.7	38.1	39	M31×1-6H
		TR-10	16×24 (0.10 ~ 0.30)	16	16	23.5	23.5				
		TR-12	16×24 (0.10 ~ 0.30)	19	19	26.7	26.7				
		TR-14	24×30 (0.10 ~ 0.30)	22.2	22.2	30	30				
		TR-16	24×30 0.10 ~ 0.30)	25.4	25.4	33	33				
		TR-18	30×40 10 0.30)	28.5	-	36.2	-				
8	23	TR-10	16×24 (0.10 ~ 0.30)	16	16	23.5	23.5	58.2	41.1	39	M34×1-6H
		TR-12	16×24 (0.10 ~ 0.30)	19	19	26.7	26.7				
		TR-14	24×30 (0.10 ~ 0.30)	22.2	22.2	30	30				
		TR-16	24×30(0.10 ~ 0.30)	25.4	25.4	33	33				
		TR-18	30×40 (0.10 ~ 0.30)	28.5	28.5	36.2	36.2				
		TR-20	30×40 10 ~ 0.30)	31.8	-	39.4	-				
9	25	TR-10	16×24 (0.10 ~ 0.30)	16	-	23.5	-	63.7	44.1	44	M37×1-6H
		TR-12	16×24 (0.10 ~ 0.30)	19	19	26.7	26.7				
		TR-14	24×30 (0.10 ~ 0.30)	22.2	22.2	30	30				
		TR-16	24×30 (0.10 ~ 0.30)	25.4	25.4	33	33				
		TR-18	30×40 (0.10 ~ 0.30)	28.5	28.5	36.2	36.2				
		TR-20	30X 0 0.30)	31.8	31.8	39.4	39.4				
		TR-22	30×40(0.10 ~ 0.30)	35	35	42.5	42				

12. MIL-DTL-38999 Series III Special Contacts

Types	Part Numbers	Notes
12# Pin	M39029/58-365	
12# Socket	M39029/56-353	
12# Pin	M39029/107-623	≥1500 mating cycles
12# Socket	M39029/106-617	≥1500 mating cycles
12# Shielded Pin	M39029/28-211	
12# Shielded Socket	M39029/75-416	
12# Coaxial Pin	M39029/102-558	
12# Coaxial Socket	M39029/103-559	
8# Dual-coax Pin	M39029/90-529	
8# Dual-coax Socket	M39029/91-530	
8# Sealing Cap	MS27488-8(红色)	
10# Sealing Cap	MS27488-8(白色)	
12# Sealing Cap	MS27488-8(黄色)	

MIL-DTL-38999 Series III Composite Connectors

1. Key technical characteristics

1.1 Mechanical Characteristics

Shell Materials:	Composite (30% lighter than an aluminum alloy shell)
Shell Finishes:	J- Olive Drab Cadmium; M- Electroless Nickel
Insulator Material:	Thermoplastic or thermosetting material
Grommets and Seals Material:	Silicone rubber
Contacts:	Gold-plated copper alloy
Mechanical Life:	≥500 mating cycles
Shock:	3ms half-sine wave, peak acceleration of 300g
Vibration testing:	Sinusoidal vibration: 60g, with temperature cycling and simulated attachments (36 hours) Random vibration: <ul style="list-style-type: none"> High temperature: Frequency 100-1000Hz, power spectral density 1g²/Hz, corresponding to an RMS value of 41.7g Ambient temperature: Frequency 100-1000Hz, power spectral density 5g²/Hz, corresponding to an RMS value of 49.5g
Contact retention force:	22D#:45N; 20#:67N; 16#:111N; 12#:111N; 10#:111N; 8#:111N

1.2 Electrical Characteristics

1.2.1 Contact Resistance and Current Rating:

Contact Size	Diameter (mm)	Contact Resistance (mΩ)	Current Rating (A)
22D#	Φ076	≤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

1.2.2 Electromagnetic Interference Shielding:

- Minimum attenuation is 85dB (J, M) from 100MHz to 1GHz;
- Minimum attenuation is 50dB (J) and 65dB (M) from 1GHz to 10GHz.

1.2.3 Withstanding Voltage (V):

Ratings*	sea level	21000 Meters
M	1300	800
N	1000	600
I	1800	1000
II	2300	1000

* Working voltage varies depending on the contact arrangement. Please refer to the contact arrangement for details.

1.2.4 Insulation Resistance:

- $\geq 5000 \text{ M}\Omega$ under normal conditions

1.2.5 Shell Continuity:

- $\leq 3 \text{ m}\Omega$ for Class J, $\leq 3 \text{ m}\Omega$ for Class M

1.2.6 8# Dual-coax Contacts:

- Frequency range: 0-20MHz
- Rated voltage: Maximum 500V AC, 125V AC at 21000 meters
- Voltage drop: Inner and middle contacts $\leq 55\text{mV}$ at 1A, outer contact $\leq 75\text{mV}$ at 12A

1.3 Environmental Characteristics

Operating Temperature:	Class J: -65°C to $+175^{\circ}\text{C}$; Class M: -65°C to $+200^{\circ}\text{C}$
Damp heat:	Per MIL-DTL-38999: 24 hours, 10 cycles.
Fluid resistance:	Resistant to various fuels, coolants, and solvents.
Salt Spray Resistance:	2000h

2. How to Order:

	D38999/	20	J	B	35	P	N	-H	-S
Series:	D38999/ : MIL-DTL-38999 Series III								
Shell Style:	20 - Wall Mount Receptacle; 24 - Jam Nut Receptacle; 26 - Straight Plug								
Service Class:	J - Olive Drab Cadmium, composite M - Electroless Nickel, composite								
Shell Sizes: A-J	A (09), B (11), C (13), D (15), E (17), F (19), G (21), H (23), J (25)								
Insert Arrangement:	See "Insert Arrangement" Table (Page 49-55)								
Contact Type:	P - Crimp-type pin H - Crimp-type pin, 1500 cycles PL - Long printed circuit board pin PC - Short printed circuit board pin A - Special purpose pin contact S - Crimp-type socket J - Crimp-type socket, 1500 cycles SL - Long printed circuit board socket SC - Short printed circuit board socket B - Special purpose socket contact								
Alternate Keying Position:	N - Normal keying position; A, B, C, D - Variant keying positions.								
Solder Contact Code:	H - Solder-type contact (for solder-type connectors only)								
Safety Hole Code:	S - for plugs and receptacles, flange mount receptacles with M3*12 pan head screw S10 - for flange mount receptacles with M3*10 pan head screw S14 - for flange mount receptacles with M3*14 pan head screw S16 - for flange mount receptacles with M3*16 pan head screw SC - for flange mount receptacles with M3*12 countersunk pan head screw, for recessed panel mounting S10C - for flange mount receptacles with M3*10 countersunk pan head screw, for recessed panel mounting								

Note:

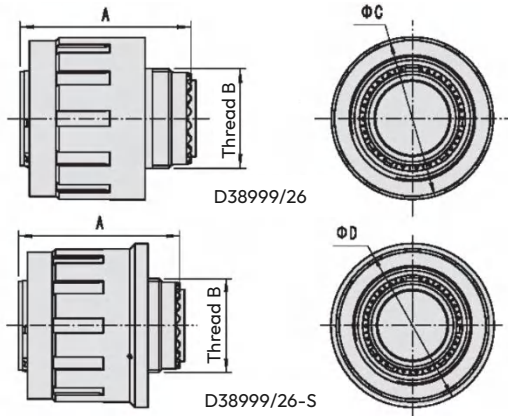
1. Identification codes A and B indicate non-standard contact configurations (e.g., shielded, coaxial, fiber optic) used in electrical connectors. These contacts must be ordered separately. For specific models and specifications, refer to "MIL-DTL-38999 Series III Special Contacts".
2. When a product requires high oil resistance, the seal material is fluorosilicone rubber. Add "C1" to the end of the original model number (e.g., D38999/20FE35PNC1).
3. When a product requires a conductive square flange gasket, add "C2" or (C2) to the end of the model number. When a product requires a conductive O-ring, add "C5" or (C5) to the end of the model number. For example, D38999/20JE35PNC2, D38999/24JE35PNC5. Note that (C2) and (C5) are not printed on the product model marking, while C2 and C5 without parentheses are printed.
4. When a fuse is installed in a plug or receptacle, a $\Phi 0.5$ soft stainless steel wire is used.

[Part number example] D38999/20JB35PN-H

D38999 series flange mount receptacle, cadmium-plated olive drab finish, B shell, 35 contacts, pin type, N keying code. Soldered contacts are only suitable for soldered connectors.

3. Sizes

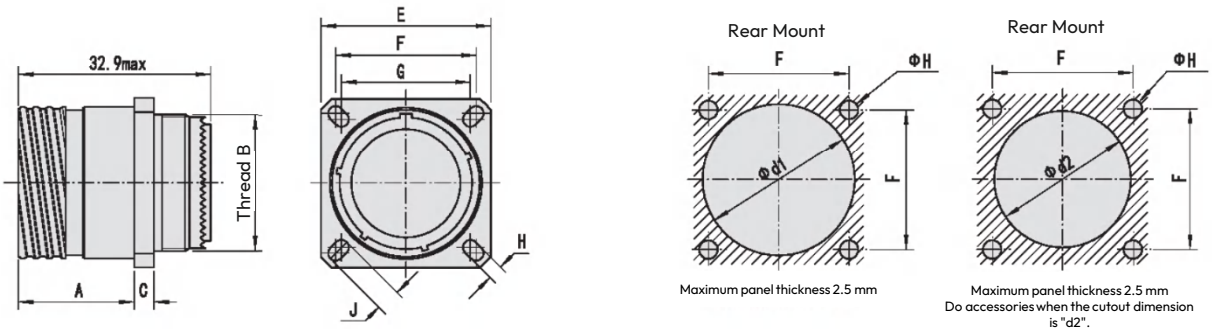
3.1 Plug



Shell Sizes	Shell Code	A Max. (mm)	Thread B	C Max. (mm)	D Max. (mm)
9	A	31.00	M12×1-6g	21.80	23.80
11	B	31.00	M15×1-6g	25.00	27.00
13	C	31.00	M18×1-6g	29.40	31.40
15	D	31.00	M22×1-6g	32.40	34.40
17	E	31.00	M25×1-6g	35.60	37.60
19	F	31.00	M28×1-6g	38.50	40.50
21	G	31.00	M31×1-6g	41.70	43.70
23	H	31.00	M34×1-6g	44.90	46.90
25	J	31.00	M37×1-6g	48.00	50.00

3.2 Flange Mount Receptacle

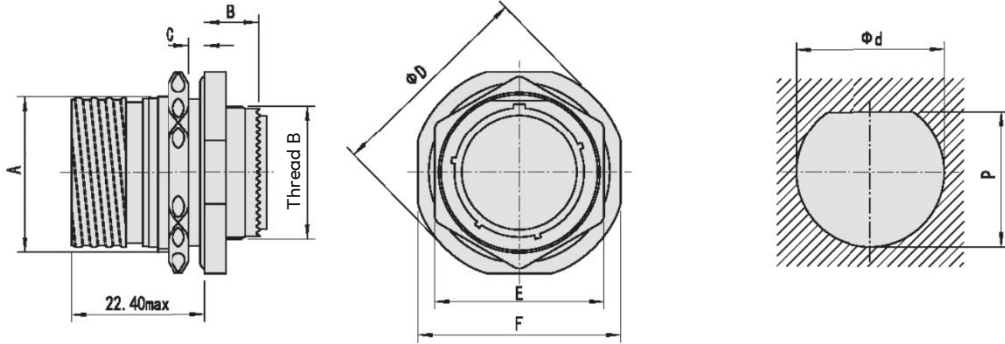
If the part number has "-S" at the end, each socket includes 5 pan head screws with safety holes, as well as flat washers and spring washers.



Shell Sizes	Shell Code	A Max. (mm)	C Max. (mm)	Thread D	E (mm)	F (mm)	G (mm)	H (mm)	J (mm)	d1 Min. (mm)	d2 Min. (mm)
9	A	19.80	3.65	M12×1-6g	23.80	18.26	15.09	3.25	5.49	16.66	13.11
11	B	19.80	3.65	M15×1-6g	26.20	20.62	18.26	3.25	4.93	20.22	15.88
13	C	19.80	3.65	M18×1-6g	28.60	23.01	20.62	3.25	4.93	23.42	19.05
15	D	19.80	3.65	M22×1-6g	31.00	24.61	23.01	3.25	4.39	26.59	23.01
17	E	19.80	3.65	M25×1-6g	33.30	26.97	24.61	3.25	4.93	30.96	25.81
19	F	19.80	3.65	M28×1-6g	36.50	29.36	26.97	3.25	4.93	32.94	28.98
21	G	19.00	4.35	M31×1-6g	39.70	31.75	29.36	3.25	4.93	36.12	32.16
23	H	19.00	4.35	M34×1-6g	42.90	34.93	31.75	3.91	6.15	39.29	34.93
25	J	19.00	4.35	M37×1-6g	46.00	38.10	34.93	3.91	6.15	42.47	37.69

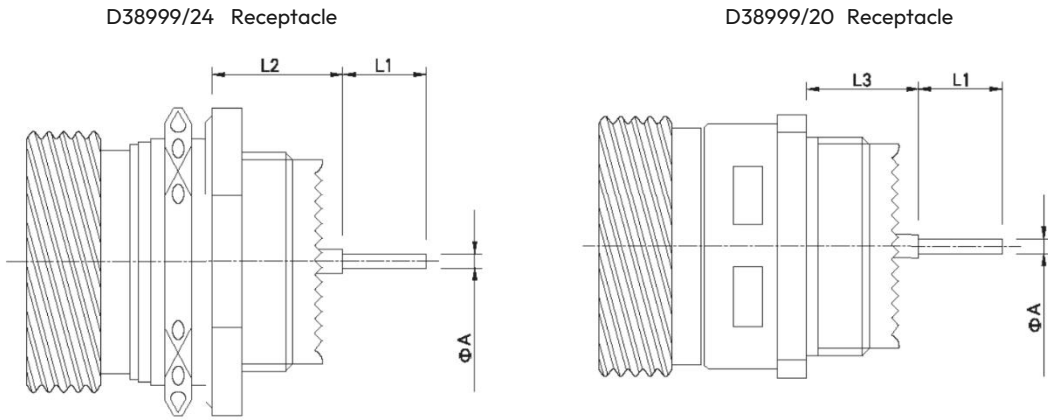
3.3 Jam Nut Receptacle

If the part number ends in "-S", the nut used to tighten the part has a reverse thread and six safety holes around it.



Shell Sizes	Shell Code	A (mm)	B Max. (mm)	C Max. (mm)	D Max. (mm)	E Max. (mm)	F (mm)	Thread G	d (mm)	p (mm)
9	A	16.50	9.90	3.20	30.50	24.00	27.00	M12×1-6g	17.70	16.99
11	B	19.30	9.90	3.20	35.20	27.00	31.80	M15×1-6g	20.88	19.53
13	C	24.00	9.90	3.20	38.40	32.00	34.90	M18×1-6g	25.58	24.26
15	D	27.20	9.90	3.20	41.60	36.00	38.10	M22×1-6g	28.80	27.53
17	E	30.40	9.90	3.20	44.80	37.00	41.30	M25×1-6g	31.98	30.68
19	F	33.40	9.90	3.20	49.30	41.00	46.00	M28×1-6g	35.15	33.86
21	G	36.50	9.90	3.20	52.70	46.00	49.20	M31×1-6g	38.28	37.06
23	H	39.70	9.90	3.20	55.90	50.00	52.40	M34×1-6g	41.50	40.24
25	J	42.80	9.90	3.20	59.00	51.23	55.60	M37×1-6g	44.68	43.41

3.4 MIL-DTL-38999 Series III Receptacles with PCB Contacts:



PCB Contact Types		L1 (mm)	A (mm)
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	

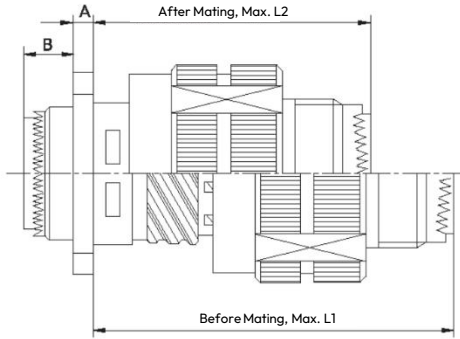
Dimensional Requirements for Various Contact Sizes			Shell Sizes 09-11 (mm)	Shell Sizes 13-15-17-19-21-23-25 (mm)
L2	For 22D# pin installation	Max	10.52	10.34
		Min	11.46	11.28
	For 22D# socket installation	Max	10.19	10.01
		Min	11.46	11.28
	For 20# or 16# pin/socket installation	Max	10.69	10.51
		Min	11.63	11.45
L3	For 22D# pin installation	Max	9.48	9.48
		Min	10.58	10.58
	For 22D# socket installation	Max	9.15	9.15
		Min	10.58	10.58
	For 20# or 16# pin/socket installation	Max	9.65	9.65
		Min	10.75	10.75

4. MIL-DTL-38999 Series III Insert Arrangement

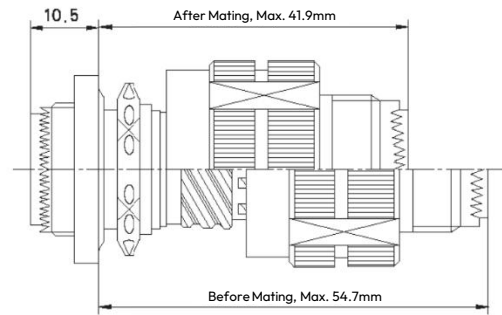
See the "MIL-DTL-38999 Series III Insert Arrangement Table" on Page 49-55.

5. Mated Dimensions of Plug and Receptacle

D38999/20 Receptacle & D38999/26 Plug



D38999/24 Receptacle & D38999/26 Plug



Shell Sizes		09	11	13	15	17	19	21	23	25
L1	MAX	53.2	53.2	53.2	53.2	53.2	53.2	52.4	52.4	52.4
L2	MAX	40.3	40.3	40.3	40.3	40.3	40.3	39.6	39.6	39.6
A	MAX	2.5	2.5	2.5	2.5	2.5	2.5	3.2	3.2	3.2
B	MAX	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6

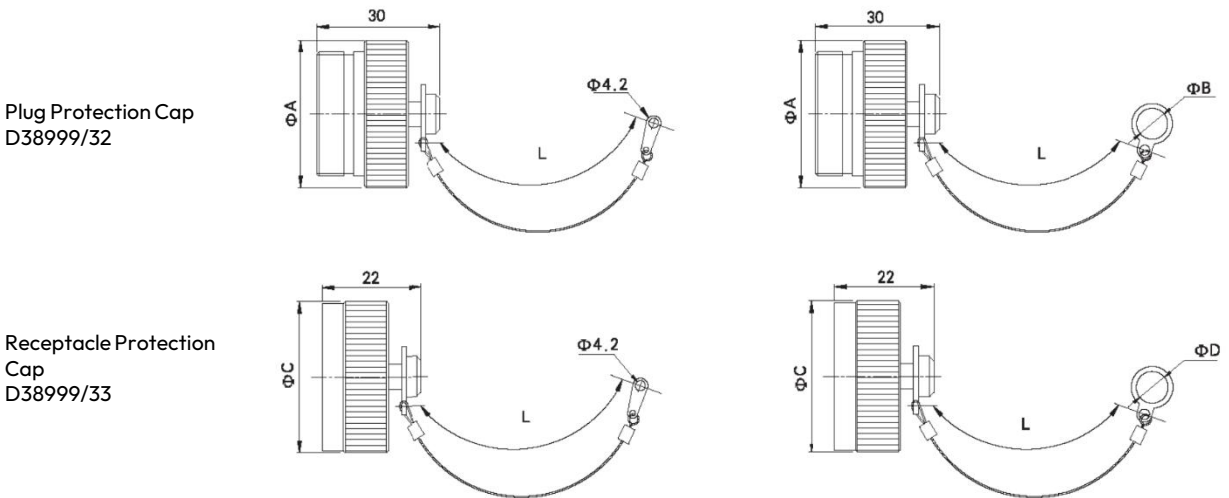
6. Protection Caps for Plugs and Receptacles

6.1 How to Order:

	D38999/32	F	15	N
Series Number:	D38999/32 – Plug Protection Cap D38999/33 – Receptacle Protection Cap			
Finishes:	W - Olive Drab Cadmium; F - Electroless Nickel; K - Passivated Stainless Steel J - Olive Drab Cadmium, Composite M - Electroless Nickel, Composite			
Shell Sizes	09, 11, 13, 15, 17, 19, 21, 23, 25			
Chain Types:	R - Stainless steel wire rope (for flange mount receptacles) C - Nylon wire rope (for flange mount receptacles) N - Stainless steel wire with ring (for jam nut receptacles) S - Nylon wire with ring (for jam nut receptacles)			

Note : Protection caps should be ordered separately and are not included with the connector.

6.2 Sizes:



Shell Sizes		09	11	13	15	17	19	21	23	25
A (mm)	MAX	22.86	25.40	30.48	33.02	36.83	39.37	43.18	44.45	48.26
B (mm)	MIN	12.92	17.78	19.27	22.60	25.62	28.95	31.97	34.03	38.32
C (mm)	MAX	22.86	27.86	30.48	31.75	36.83	38.10	41.91	44.45	48.26
D (mm)	MIN	17.78	21.33	25.62	28.95	31.97	35.30	38.32	41.65	44.45
L (mm)	MAX	127.00	127.00	127.00	127.00	127.00	127.00	127.00	127.00	127.00

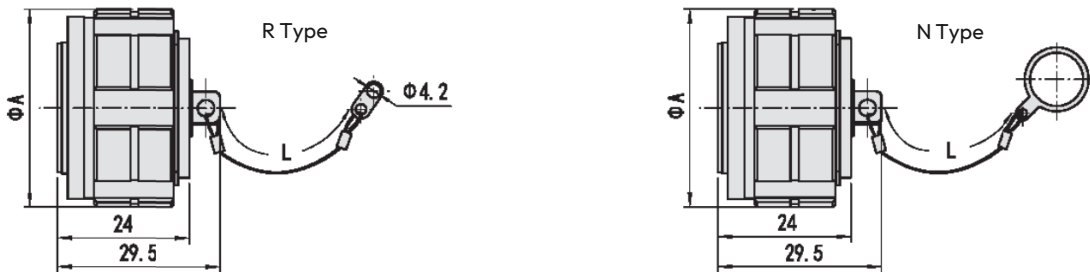
7. Anti-loosening Receptacle Protection Cap

7.1 How to Order:

	D38999/33A	F	10	N
Series Number:	D38999/33A - Anti-loosening Receptacle Protection Cap			
Finishes:	W - Cadmium-plated military green aluminum alloy shell F - Electroless nickel-plated aluminum alloy shell K - Passivated stainless steel FT - Hard chrome-plated aluminum alloy shell J - Cadmium-plated military green composite material shell M - Electroless nickel-plated composite material shell			
Shell Sizes:	09, 11, 13, 15, 17, 19, 21, 23, 25			
Chain Types:	R - Stainless steel wire rope (for flange mount receptacles) N - Stainless steel wire with ring (for jam nut receptacles)			

Note : Protection caps should be ordered separately and are not included with the connector.

7.2 Sizes



Shell Sizes		09	11	13	15	17	19	21	23	25
A (mm)	max	21.8	25.0	29.4	32.5	35.6	38.6	41.7	44.9	48.0
L (mm)	max	127.0	127.0	127.0	127.0	127.0	127.0	127.0	127.0	127.0

8. Standard Accessories

Suitable for MIL-DTL-38999 Series III Connectors.

Note:

(1) To prevent loosening, at least one of the following methods should be used when installing the accessories:

- ① Secure the accessory with a safety wire through the safety hole.
- ② Apply threadlocker to the rear thread of the product and tighten the connecting nut to prevent loosening.
- ③ Use heat shrink tubing to shrink the entire accessory for added security.

(2) For accessories with a set screw, apply threadlocker to the set screw before tightening.

(4) If the product to be mated with the cable accessory is equipped with size 8 contacts, please select a longer cable accessory, such as M85049/38H or M85049/18, to avoid interference between the contact locator and the cable accessory.

(5) The table below lists the corresponding table of MIL-DTL-38999 series welded and crimped products and compatible cable accessories, as well as the functional classification of the cable accessories. Due to the large number of modified products and accessories in our company, a comprehensive list cannot be provided. The content of this table is for reference only. Please contact us for detailed information.

Connector Type:	Compatible Cable Accessory Function Type:	Compatible Accessories:
MIL-DTL-38999 Series III Crimp-type connector	Non-clamping, non-shielded	M85049/14
	Clamping, non-shielded	M85049/38
		M85049/39
		M85049/16
		M85049/91-x×J (Composite)
		M85049/92-××J (Composite)
	Shielded, non-clamping	M85049/20
		M85049/20-××J (Composite)
		M85049/69
		M85049/88
		M85049/90
	Clamping and shielded	M85049/38-××NB
		M85049/18

Connector Type:	Compatible Cable Accessory Function Type:	Compatible Accessories:
MIL-DTL-38999 Series III Solder-type connector	Non-clamping, non-shielded	M85049/14
	Clamping, non-shielded	M85049/38H
		M85049/16H
		M85049/91H-××J (Composite)
	Shielded, non-clamping	M85049/20
		M85049/69
		M85049/88
		M85049/90
	Clamping and shielded	M85049/18

8.1 How to Order:

M85049/

38-

15

N

Series: **M85049/**

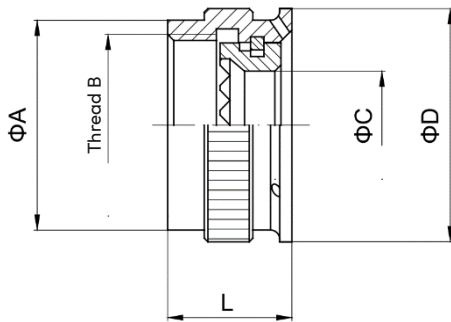
Types: **14** - Tail nut
16 - Angled cable clamp
20 - Shielded backshell
38 - Straight cable clamp
39 - Angled cable clamp
69 - Heat shrink sleeve backshell

Shell Sizes: **09, 11, 13, 15, 17, 19, 21, 23, 25**

Finishes: **W** - Olive drab cadmium
N - Electroless nickel
S - Passivated stainless steel
FT - Hard chrome-plated aluminum alloy
TA - Titanium alloy

8.2 Sizes

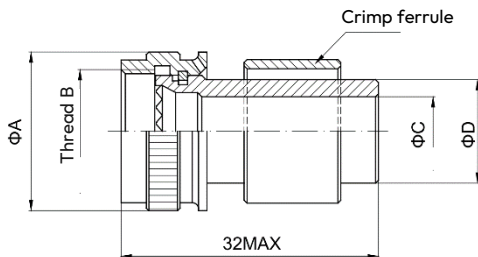
M85049/14 - Tail nut (Non-clamping, non-shielded)



Anti-rotation accessory designed to securely clamp the cable assembly, ensuring the connector's environmental performance. It does not clamp the cable and is suitable for general-purpose applications.

Shell Sizes	A (mm)	Thread B	C (mm)	D (mm)
09	15.2	M12×1	7.9	19
11	18.2	M15×1	10.8	22
13	21.2	M18×1	13.6	25.1
15	25.1	M22×1	16.9	29
17	28.1	M25×1	20.1	32.1
19	31.1	M28×1	22.1	35.1
21	34.0	M31×1	25.2	38.1
23	37.0	M34×1	28.3	41.1
25	40.0	M37×1	31.6	44.1

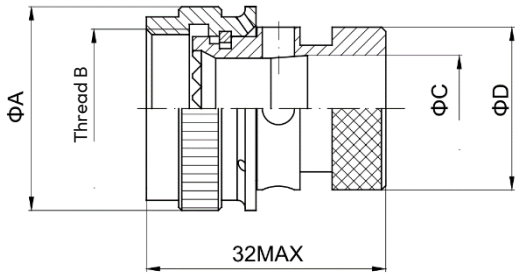
M85049/20 - Shielded Backshell (Shielded, non-clamping)



Anti-rotation, shielded mesh clamp. This accessory securely clamps the cable gland and provides a connection between the shielded mesh and the rear accessory, ensuring the connector's environmental resistance and electromagnetic shielding performance. It is not designed to clamp cables and is suitable for applications with low cable tension.

Shell Sizes	A (mm)	Thread B	C (mm)	D (mm)	Appropriate press block code
09	19	M12×1	6.55	8.81	08
11	22	M15×1	8.63	12.65	10
13	25.1	M18×1	10.90	12.95	12
15	29	M22×1	14.10	16.00	14
17	32.1	M25×1	17.25	19.30	16
19	35.1	M28×1	20.40	22.61	18
21	38.1	M31×1	23.60	25.65	20
23	41.1	M34×1	26.40	28.70	22
25	44.1	M37×1	28.40	30.53	24

M85049/69 - Heat Shrink Sleeve Backshell (Shielded, non-clamping)

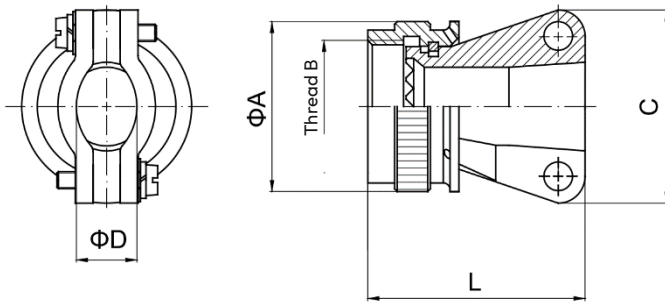


Anti-rotation, clamping, and shielded backshell. This accessory provides a tight seal around the cable, connects the shield to the backshell, and ensures the connector's environmental and electromagnetic shielding performance. It is not designed to clamp the cable and is suitable for applications with low cable tension.
 Note: Heat shrink boot is sold separately.

Shell Sizes	A	Thread B	C	D
09	19.0	M12×1	6.7	13.5
11	22.0	M15×1	9.9	15.3
13	25.1	M18×1	12.8	19.6
15	29.0	M22×1	16.0	21.2
17	32.1	M25×1	19.2	24.4
19	35.1	M28×1	21.4	26.4
21	38.1	M31×1	24.6	30.9
23	41.1	M34×1	27.7	34.4
25	44.1	M37×1	30.9	36.6

M85049/38 - Straight cable clamp

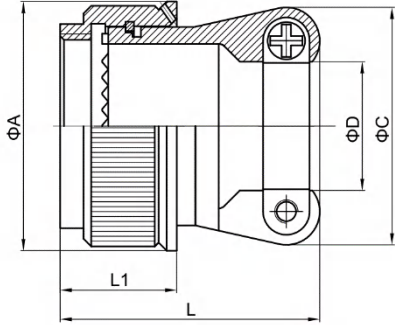
The cable exit diameter "D" varies when "S" or "M" is appended to the model number. The designations "S" and "M" are indicated on the product label. For instance, the cable exit diameter of model M85049/38-13W(M) ranges from 4.85mm to 6.58mm.



Anti-rotation, cable clamping accessory. Provides a secure grip on the cable gland and clamps the cable, ensuring the connector's environmental performance, especially in applications where the cable is subjected to tensile forces.

Shell Sizes	A Max. (mm)	Thread B	C Max. (mm)	Add "S" After the Part Number		Add "M" After the Part Number		Standard		L Max. (mm)
				D (mm)	Screw length	D	Screw length	D	Screw length	
09	19	M12×1	20.0	-	-	-	-	2.49 ~ 5.94	M3.5*12	27.0
11	22	M15×1	21.0	-	-	-	-	3.87 ~ 5.94	M3.5*12	28.5
13	25.1	M18×1	23.4	4.83	M3.5*12	4.83 ~ 6.58	M3.5*14	4.83 ~ 8.33	M3.5*16	30.0
15	29	M22×1	26.6	6.60	M3.5*12	6.60~9.11	M3.5*14	6.60 ~ 11.61	M3.5*16	31.5
17	32.1	M25×1	30.6	7.19	M3.5*12	7.19 ~ 11.40	M3.5*16	7.19 ~ 15.60	M3.5*20	33.5
19	35.1	M28×1	34.0	8.26	M4*14	8.26 ~ 13.16	M4*18	8.26 ~ 16.10	M4*22	36.6
21	38.1	M31×1	35.8	8.71	M4*14	8.71 ~ 13.61	M4*18	8.71 ~ 17.73	M4*24	39.8
23	41.1	M34×1	39.0	9.68	M4*14	9.68 ~ 16.58	M4*20	9.68 ~ 20.90	M4*26	42.9
25	44.1	M37×1	40.6	10.62	M4*14	10.62 ~ 17.42	M4*20	10.62 ~ 21.66	M4*26	45.0

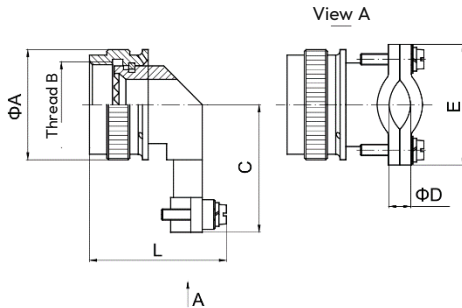
M85049/38H - Solder-type Straight cable clamp (Clamping, non-shielded)



Functions identically to M85049/38, compatible with soldered products, and suitable for MIL-DTL-38999 Series III power products.

Shell Sizes	A Max. (mm)	Thread B	C Max. (mm)	D Min. (mm)	D Max. (mm)	L Max. (mm)
09	19.0	M12×1	20.0	2.49	5.94	27.0
11	22.0	M15×1	21.0	3.87	5.94	28.5
13	25.1	M18×1	23.4	4.83	8.33	30.0
15	29.0	M22×1	26.6	6.60	11.61	31.5
17	32.1	M25×1	30.6	7.19	15.60	33.5
19	35.1	M28×1	34.0	8.26	16.10	36.6
21	38.1	M31×1	35.8	8.71	17.73	39.8
23	41.1	M34×1	39.0	9.68	20.90	42.9
25	44.1	M37×1	40.6	10.62	21.66	45.0

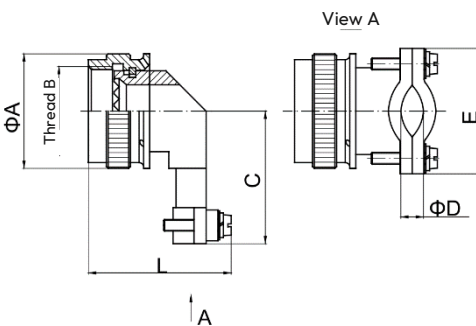
M85049/39 - Angled cable clamp (Clamping, non-shielded)



Anti-rotation, 90° cable clamping cable accessory. It can tightly clamp the cable body and clamp the cable at a 90° angle, ensuring the environmental performance of the connector and is used in applications where the cable is under tension.

Shell Sizes	A Max. (mm)	Thread B	C Max. (mm)	D (mm)		E Max. (mm)	L Max. (mm)
				Min.	Max.		
09	19.0	M12×1	20.60	2.49	5.94	21.6	29.5
11	22.0	M15×1	22.00	3.87	5.94	22.8	29.5
13	25.1	M18×1	23.60	4.83	8.33	26.0	31.9
15	29.0	M22×1	25.20	6.60	11.61	29.0	35.1
17	32.1	M25×1	26.80	7.19	15.60	30.6	39.1
19	35.1	M28×1	31.30	8.26	16.10	37.0	41.5
21	38.1	M31×1	32.90	8.71	17.73	39.0	43.3
23	41.1	M34×1	34.50	9.68	20.90	41.0	46.5
25	44.1	M37×1	36.10	10.62	21.66	42.0	47.1

M85049/16 - Angled cable clamp (Clamping, non-shielded)

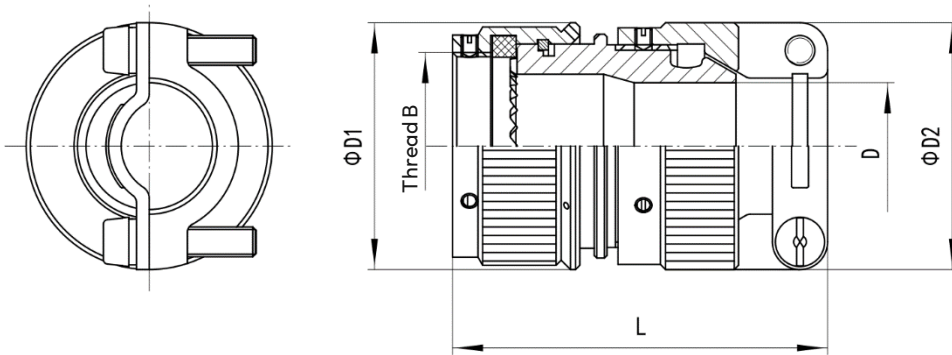


This anti-rotation, 90-degree cable clamp accessory functions similarly to the M85049/39 rear accessory, but with a larger cable exit diameter (D) compared to the M85049/39 accessory.

Shell Sizes	A Max. (mm)	Thread B	C Max. (mm)	D (mm)		E Max. (mm)	L Max. (mm)
				Min.	Max.		
09	19.0	M12×1	20.0	2.85	6.71	21	25.9
11	22.0	M15×1	21.5	6	9.96	26.5	29.2
13	25.1	M18×1	23.0	8.45	12.85	31.5	32
15	29.0	M22×1	25.0	12	16.03	36.5	35.2
17	32.1	M25×1	27.0	11.1	19.2	31	36.4
19	35.1	M28×1	28.5	13.75	21.46	37	40.7
21	38.1	M31×1	29.5	19.3	24.64	35	43.8
23	41.1	M34×1	31.0	21.4	27.81	35	43
25	44.1	M37×1	33.0	23.5	30.99	37	44.2

M85049/69-xxB Backshell (Clamping and shielded)

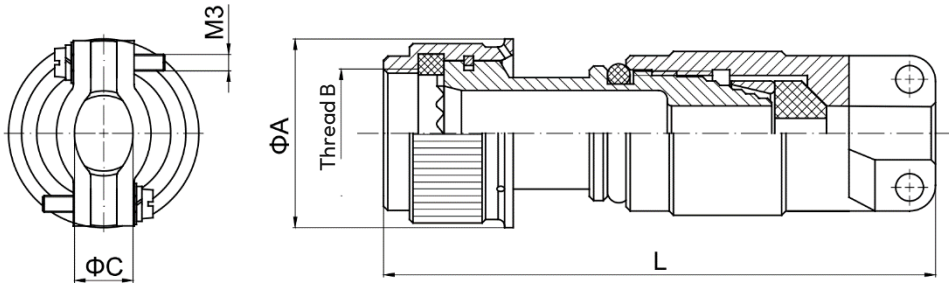
	M85049/	69-	15	N	B
Series:	M85049/				
Types:	69 - Straight Shielded Backshell (Clamping and shielded)				
Shell Sizes:	09, 11, 13, 15, 17, 19, 21, 23, 25				
Finishes:	W - Olive drab cadmium N - Electroless nickel S - Passivated stainless steel FT - Hard chrome-plated aluminum alloy TA - Titanium alloy				
Type Code:	B				



Shell Sizes	Thread A	D1 (mm)	D2 (mm)	D (mm)	L (mm)
09	M12×1	19.0	20.0	7.0	40.0
11	M15×1	22.0	22.5	9.7	41.0
13	M18×1	25.1	25.9	12.8	41.0
15	M22×1	29.0	29.0	14.9	46.0
17	M25×1	32.0	32.5	18.0	46.0
19	M28×1	35.0	36.6	20.0	47.5
21	M31×1	38.0	39.5	23.2	52.5
23	M34×1	41.1	42.0	26.3	57.5
25	M37×1	44.1	45.0	28.9	58.5

M85049/18- \times N Cable Clamp (Clamping and shielded)

	M85049/	18-	25	N	09	A
Series:	M85049/					
Types:	18 - Straight Shielded Cable Clamp					
Shell Sizes:	See table 01					
Finishes:	W - Olive drab cadmium N - Electroless nickel S - Passivated stainless steel FT - Hard chrome-plated aluminum alloy TA - Titanium alloy					
Outlet diameter code:	See table 01 and table 02					
Length Code:	See table 03					



Rotation-proof, shield-clamping, and cable-clamping accessory. This accessory provides a tight seal around the cable, connecting the shield to the rear accessory, ensuring high environmental durability and electromagnetic shielding performance for connectors used in harsh environments. The cable accessory is available in various lengths to accommodate applications such as high-low frequency mixed installations that require longer accessories. Finished cable is recommended for use with this accessory.

Table 01

Shell Sizes	Outlet Diameter Code	A	Thread B
09	01 ~ 02	19	M12×1
11	01 ~ 03	22	M15×1
13	02 ~ 04	25.1	M18×1
15	02 ~ 05	29	M22×1
17	02 ~ 06	32	M25×1
19	03 ~ 07	35	M28×1
21	03 ~ 08	38	M31×1
23	03 ~ 09	41.1	M34×1
25	04 ~ 10	44.1	M37×1

Table 02

Outlet diameter code	Outlet diameter C (mm)
01	1.57 ~ 3.18
02	3.18 ~ 6.35
03	6.35 ~ 9.53
04	9.53 ~ 12.7
05	12.7 ~ 15.88
06	15.88 ~ 19.05
07	19.05 ~ 22.23
08	22.23 ~ 25.4
09	25.4 ~ 28.58
10	28.58 ~ 31.75

Table 03

Shell Number	Length Code	L (mm)
09 ~ 25	标准(省略不标出)	64.4
09 ~ 25	A	89.8
15 ~ 25	B	115.2
21 ~ 25	C	140.6

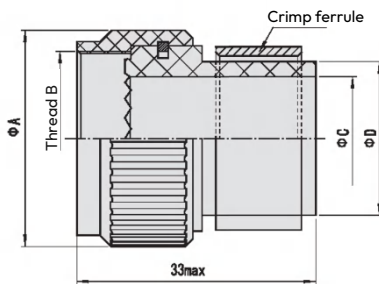
9. Composite Accessories

9.1 How to Order:

Series:	M85049/	M85049/	91-	15	J	-S
Types:	20 - Shielded backshell 91 - Straight cable clamp (for crimp-type products only) 91H - Straight cable clamp (for both solder-type and crimp-type products) 92 - Angled cable clamp					
Shell Sizes:	09, 11, 13, 15, 17, 19, 21, 23, 25					
Finishes:	J - Olive drab cadmium, composite M - Electroless nickel, composite					
Safety Hole Code:	S - Connecting nut has 3 safety holes					

9.2 Sizes:

M85049/20-xxJ Composite Backshell (Shielded, non-clamping)

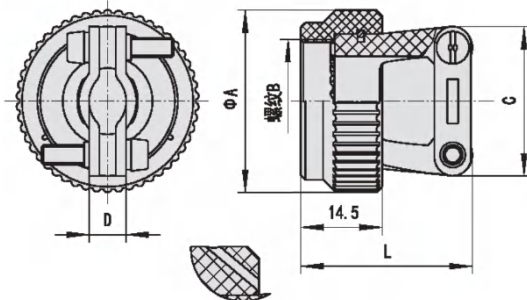


Not suitable for solder-type connectors. For crimp-type connectors only.

Shell Sizes	A (mm)	Thread B	C (mm)	D (mm)
09	21.8	M12×1	6.73	12.65
11	25	M15×1	8.71	12.95
13	29.5	M18×1	11.1	16
15	32.5	M22×1	14.27	19.3
17	35.5	M25×1	17.45	22.61
19	38.5	M28×1	20.62	25.65
21	41.5	M31×1	23.8	28.7
23	45	M34×1	26.57	30.53
25	48	M37×1	28.58	34.52

M85049/91-xxJ Straight Composite Cable Clamp (Clamping, non-shielded)

Not suitable for solder-type connectors. For crimp-type connectors only.

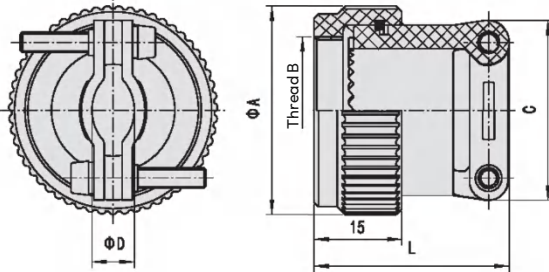


Safety hole diagram (for reference, when part number ends with -S)

Shell Sizes	A Max. (mm)	Thread B	C Max. (mm)	D Min. (mm)	D Max. (mm)	L Max. (mm)
09	21.8	M12×1	20.0	4.00	5.94	27.0
11	25	M15×1	20.0	4.00	5.94	28.5
13	29.5	M18×1	23.4	4.83	8.33	30.0
15	32.5	M22×1	26.6	6.60	11.61	31.5
17	35.5	M25×1	30.6	7.19	15.60	33.5
19	38.5	M28×1	34.0	8.26	16.10	36.6
21	41.5	M31×1	35.8	8.71	17.73	39.8
23	45	M34×1	39.0	9.68	20.90	42.9
25	48	M37×1	40.6	10.62	21.66	45.0

M85049/91H-xxJ Straight Composite Cable Clamp, Solder Type (Clamping, non-shielded)

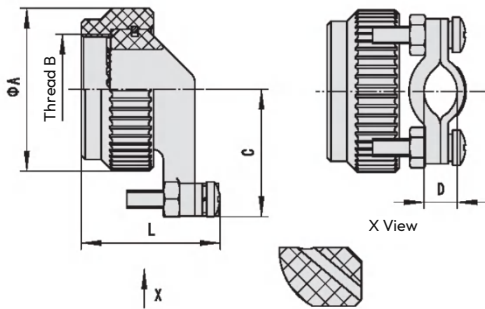
Suitable for both solder-type and crimp-type connectors.



Shell Sizes	A Max. (mm)	Thread B	C Max. (mm)	D Min. (mm)	D Max. (mm)	L Max. (mm)
09	21.8	M12×1	20.0	4.00	5.94	27.0
11	25	M15×1	20.0	4.00	5.94	28.5
13	29.5	M18×1	23.4	4.83	8.33	30.0
15	32.5	M22×1	26.6	6.60	11.61	31.5
17	35.5	M25×1	30.6	7.19	15.60	33.5
19	38.5	M28×1	34.0	8.40	16.10	36.6
21	41.5	M31×1	35.8	8.80	17.73	39.8
23	45	M34×1	39.0	9.80	20.90	42.9
25	48	M37×1	40.6	10.60	21.66	45.0

M85049/92-xxJ Angled Composite Cable Clamp (Clamping, non-shielded)

Not suitable for solder-type connectors. For crimp-type connectors only.



Safety hole diagram (for reference, when part number ends with -S)

Shell Sizes	A Max. (mm)	Thread B	C Max. (mm)	D Min. (mm)	D Max. (mm)	L Max. (mm)
09	21.8	M12×1	20.6	2.49	5.94	29.5
11	25	M15×1	22.0	3.87	5.94	29.5
13	29.5	M18×1	23.6	4.83	8.33	31.9
15	32.5	M22×1	25.2	6.60	11.61	35.1
17	35.5	M25×1	26.8	7.19	15.60	39.1
19	38.5	M28×1	31.3	8.26	16.10	41.5
21	41.5	M31×1	32.9	8.71	17.73	43.3
23	45	M34×1	34.5	9.68	20.90	46.5
25	48	M37×1	36.1	10.62	21.66	47.1

10. Special Backshells

This type of backshell is specifically designed for clamping shielded cables with braided shields. It comes in both straight and angled styles. Optionally, the accessory can be equipped with a shape memory Ti-Ni alloy ring. When heated, this ring contracts to tightly clamp the braided shield to the rear of the accessory, achieving 360-degree electromagnetic shielding.

Note: To activate the shape memory Ti-Ni alloy ring, heat it with a heat gun for approximately 45 seconds to 1 minute. The color indicator on the ring will change from green to black when the ring has fully contracted, indicating a temperature of approximately 165°C. At this point, stop heating. Ensure that the ring is heated evenly.

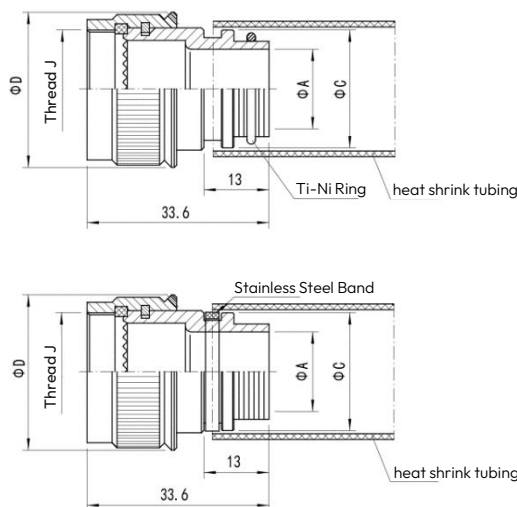
10.1 How to Order:

M85049/88, M85049/90 Backshells (Shielded, non-clamping)

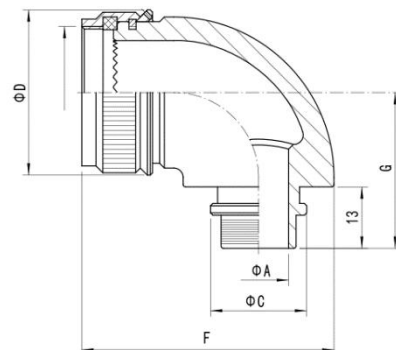
		M85049/	88-	11	N	A	-05
Series:	M85049/						
Types:	88 - Straight Backshell 90 - Angled Backshell						
Shell Sizes:	09, 11, 13, 15, 17, 19, 21, 23, 25 For series III: A (09), B (11), C (13), D (15), E (17), F (19), G (21), H (23), J (25)						
Finishes:	W - Olive drab cadmium N - Electroless nickel S - Passivated stainless steel FT - Hard chrome-plated aluminum alloy TA - Titanium alloy (only for type 88)						
Ti-Ni Alloy Ring:	None - without Ti-Ni alloy ring A - with Ti-Ni alloy ring						
Cable exit hole diameter or Ti-Ni ring specification:	Specify the cable exit hole diameter when no Ti-Ni ring is selected. Specify the Ti-Ni ring size when a Ti-Ni ring is selected.						

10.2 Sizes:

M85049/88 Straight



M85049/90 Right Angle



No.	Shell Sizes	Ti-Ni Ring Part Number	Shielding Mesh Gauge (tinned copper wire diameter)	A (mm) Cable Outlet Diameter		C (mm)		F (mm)	D (mm)	G (mm)	Thread J
				Straight	Angled	Straight	Angled				
1	09	TR-04	6×10(0.15 ~ 0.20)	6.3	6.3	14	14	38.2	19	26	M12×1-6H
		TR-05	10×16(0.15~0.20)	7.9	7.9	15.5	15				
		TR-06	10×16(0.15 ~ 0.20)	9.5	-	17.1	-				
2	11	TR-04	6×10(0.15 ~ 0.20)	6.3	6.3	14	14	39.7	22	26	M15×1-6H
		TR-05	10×16(0.15 ~ 0.20)	7.9	7.9	15.5	15.5				
		TR-06	10×16 (0.15 ~ 0.20)	9.5	9.5	17.1	17.1				
		TR-07	10×16 0.12 0.20)	11.1	11.1	18.7	18				
3	13	TR-04	6×10(0.15 ~ 0.20)	6.3	6.3	14	14	45.2	25.1	29	M18×1-6H
		TR-05	10×16 (0.15 ~ 0.20)	7.9	7.9	15.5	15.5				
		TR-06	10×16(0.15 ~ 0.20)	9.5	9.5	17.1	17.1				
		TR-07	10×16 (0.12 ~ 0.20)	11.1	11.1	18.7	18.7				
		TR-08	16×24 12 0.25	12.7	12.7	20.3	20.3				
4	15	TR-05	10×16 (0.15 ~ 0.20)	7.9	-	15.5	-	47.0	29	29	M22×1-6H
		TR-06	10×16(0.15 ~ 0.20)	9.5	9.5	17.1	17.1				
		TR-07	10×16(0.12 ~ 0.20)	11.1	11.1	18.7	18.7				
		TR-08	16×24 (0.12 ~ 0.25)	12.7	12.7	20.3	20.3				
		TR-10	16×24 10 0.30)	16	16	23.5	23.5				
		TR-12	16×24 (0.10 ~ 0.30)	19	19	26.7	25.5				
5	17	TR-05	10×16 (0.15 ~ 0.20)	7.9	-	15.5	-	50.7	32.1	33	M25×1-6H
		TR-06	10×16 (0.15 ~ 0.20)	9.5	-	17.1	-				
		TR-07	10×16(0.12 ~ 0.20)	11.1	11.1	18.7	18.7				
		TR-08	16×24 (0.12 ~ 0.25)	12.7	12.7	20.3	20.3				
		TR-10	16× 0 0.30)	16	16	23.5	23.5				
		TR-12	16×24 10~0.30)	19	19	26.7	26.7				
6	19	TR-08	16×24 (0.12 ~ 0.25)	12.7	12.7	20.3	20.3	53.5	35.1	33	M28×1-6H
		TR-10	16×24(0.10 ~ 0.30)	16	16	23.5	23.5				
		TR-12	16×24 (0.10 ~ 0.30)	19	19	26.7	26.7				
		TR-14	24×30 10 0.30)	22.2	22.2	30	30				
		TR-16	24×30 0 10 ~ 0.30)	25.4	25.4	33	32				
7	21	TR-08	16×24 (0.12 ~ 0.25)	12.7	12.7	20.3	20.3	55.7	38.1	39	M31×1-6H
		TR-10	16×24 (0.10 ~ 0.30)	16	16	23.5	23.5				
		TR-12	16×24 (0.10 ~ 0.30)	19	19	26.7	26.7				
		TR-14	24×30 (0.10 ~ 0.30)	22.2	22.2	30	30				
		TR-16	24×30 0.10 ~ 0.30)	25.4	25.4	33	33				
		TR-18	30×40 10 0.30)	28.5	-	36.2	-				
8	23	TR-10	16×24 (0.10 ~ 0.30)	16	16	23.5	23.5	58.2	41.1	39	M34×1-6H
		TR-12	16×24 (0.10 ~ 0.30)	19	19	26.7	26.7				
		TR-14	24×30 (0.10 ~ 0.30)	22.2	22.2	30	30				
		TR-16	24×30(0.10 ~ 0.30)	25.4	25.4	33	33				
		TR-18	30×40 (0.10 ~ 0.30)	28.5	28.5	36.2	36.2				
		TR-20	30×40 10 ~ 0.30)	31.8	-	39.4	-				
9	25	TR-10	16×24 (0.10 ~ 0.30)	16	-	23.5	-	63.7	44.1	44	M37×1-6H
		TR-12	16×24 (0.10 ~ 0.30)	19	19	26.7	26.7				
		TR-14	24×30 (0.10 ~ 0.30)	22.2	22.2	30	30				
		TR-16	24×30 (0.10 ~ 0.30)	25.4	25.4	33	33				
		TR-18	30×40 (0.10 ~ 0.30)	28.5	28.5	36.2	36.2				
		TR-20	30X 0 0.30)	31.8	31.8	39.4	39.4				
		TR-22	30×40(0.10 ~ 0.30)	35	35	42.5	42				

11. MIL-DTL-38999 Series III Special Contacts

Types	Part Numbers	Notes
12# Pin	M39029/58-365	
12# Socket	M39029/56-353	
12# Pin	M39029/107-623	≥1500 mating cycles
12# Socket	M39029/106-617	≥1500 mating cycles
12# Shielded Pin	M39029/28-211	
12# Shielded Socket	M39029/75-416	
12# Coaxial Pin	M39029/102-558	
12# Coaxial Socket	M39029/103-559	
8# Dual-coax Pin	M39029/90-529	
8# Dual-coax Socket	M39029/91-530	
8# Sealing Cap	MS27488-8(红色)	
10# Sealing Cap	MS27488-8(白色)	
12# Sealing Cap	MS27488-8(黄色)	

MIL-DTL-38999 Series III Receptacles, Dual Flange for EP PCB mounting

1. Introduction

- The connector interface adheres to the dimensions specified in MIL-DTL-38999 series standards.
- It features a quick-connect mechanism secured by three screws.
- The contacts are designed for soldering to a printed circuit board and include an anti-skew feature for the pins.
- The receptacle has a dual-flange design, with the front flange designed for mounting to a panel and the rear flange providing threaded holes for PCB attachment. The overall design is compact and robust.

2. Key Technical Characteristics

2.1 Mechanical Characteristics

Shell Materials:	Aluminum, Stainless Steel, Titanium alloy
Shell Finishes:	W- Olive Drab Cadmium ; F- Electroless Nickel; FT- Nickel-plated forged aluminum alloy; K- Passivated Stainless Steel; TA- Titanium alloy
Insulator Material:	Thermoplastic or thermosetting material
Grommets and Seals Material:	Silicone rubber
Contacts:	Gold-plated copper alloy
Mechanical Life:	≥500 mating cycles

2.2 Environmental Characteristics

Operating Temperature:	Class W: -65°C to +175°C; Class F, FT, K, TA: -65°C to +200°C
Salt Spray Resistance:	Class W: 500h; Class K, TA: 1000h; Class F: 48h; Class FT: 96h

2.3 Electrical Characteristics

Contact Resistance and Current Rating:

Withstanding Voltage (V):

Contact Size	Contact Resistance (mΩ)	Current Rating (A)	Ratings	sea level	21000 Meters
22D#	≤12	5	M	1300	800
20#	≤5	7.5	N	1000	600
16#	≤2.5	13	I	1800	1000
12#	≤1.5	23	II	2300	1000

Insulation Resistance: ≥5000 MΩ (500V DC)

Shell Continuity: Class W: 2.5 mΩ; Class F, FT: 1 mΩ; Class K, TA: 10 mΩ;

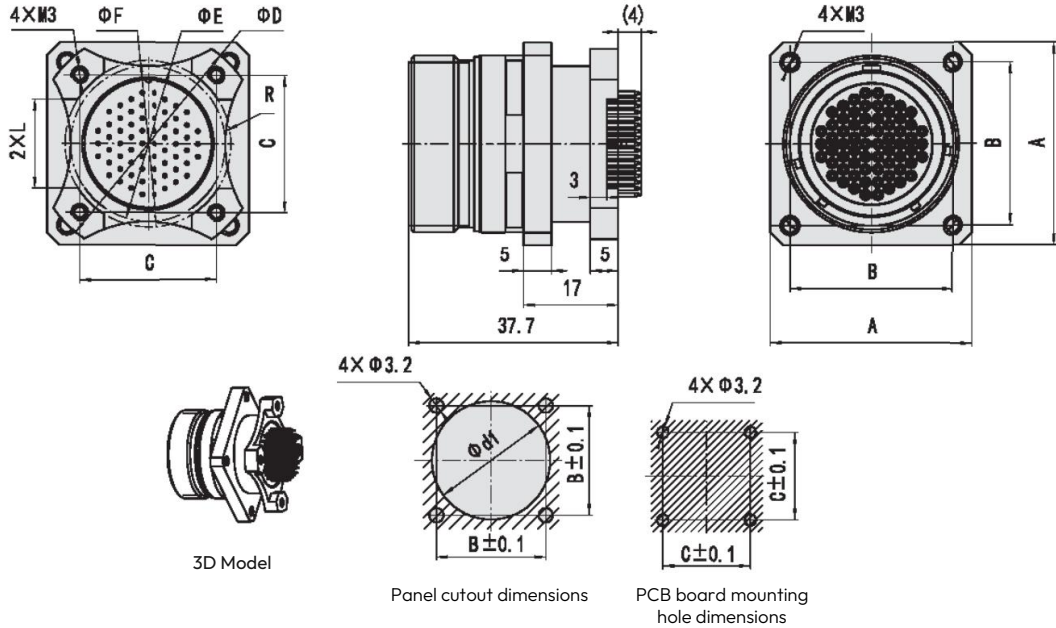
3. How to Order:

	D38999/	20	W	B	98	PL1	N	14
Series:	D38999/ : MIL-DTL-38999 Series III							
Shell Style:	20 - Flange Mount Receptacle							
Service Class:	W - Olive Drab Cadmium F - Electroless Nickel K - Passivated Stainless Steel FT - Nickel-plated forged aluminum alloy TA - Titanium alloy							
Shell Sizes: A-J	A - 09 B - 11 C - 13 D - 15 E - 17 F - 19 G - 21 H - 23 J - 25							
Insert Arrangement:	See "Insert Arrangement" Table (Page 49-55)							
Contact Type:	PL1 - printed circuit board pin SL1 - printed circuit board socket							
Alternate Keying Position:	N - Normal keying position; A, B, C, D - Variant keying positions.							
Type Code:	14 - Dual flange receptacle							

[Part Number Example] D38999/20WB98PL1N-14

D38999 series square flange receptacle, with olive drab cadmium-plated aluminum alloy shell, B shell size, 98 contacts, printed circuit board solder type pin contacts, N keyway, and dual flange mounting.

4. Sizes



Shell Code	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	L (mm)	R (mm)	d1 Min. (mm)
A(09)	23.8	18.26	13.5	24.5	12	14	8	6	16.66
B(11)	26.2	20.62	15.26	27	15	15.5	8	8	20.22
C(13)	28.6	23.01	17.85	31.8	18	19	10	11	23.42
D(15)	31.0	24.61	20.09	35	22	22.5	12	16	26.59
E(17)	33.3	26.97	22.21	38.1	25	24.5	14	24	30.96
F(19)	36.5	29.36	24.76	41.3	28	28.5	16	30	32.94
G(21)	39.7	31.75	26.74	44.5	31	32	18	42	36.12
H(23)	42.9	34.93	29.07	47.7	34	35	20	58	39.29
J(25)	46.0	38.10	31.32	50.8	37	37.5	23	75	42.47