Description

- High contact density layouts available
- Screw coupling, Shell size from 9 to 25
- Contact protection: 100% Scoop proof
- Protected by cadmium, nickel, green zinc cobalt or black zinc nickel plating
- RFI - EMI shielding and shell to shell continuity
- Accessories (protective caps, backshells, etc…)
- Hermetic versions
- High power up to 850A
- Optical layouts
- 230V layouts available (ABS22-19, ABS22-20, ABS22-21 & ABS22-22 qualified)
- Standards:
  . MIL-DTL-38999 Series III
  . EN3645
  . BACC63CT/CU; BACC63DB/DC

Technical features

Mechanical

- **Shell:**
  Aluminum, composite, stainless steel, bronze

- **Shell plating:**
  . Aluminum shell:
  Cadmium olive drab (W)
  Nickel (F)
  Black zinc nickel (Z)
  Green zinc cobalt (ZC)
  . Composite shell:
  Cadmium olive drab (J)
  Nickel (M)
  Without plating (X)
  . Stainless steel shell:
  Passivated (K)
  Nickel (S)
  . Titanium shell:
  Without plating (TT)
  Nickel (TF)
  . Bronze shell:
  Without plating

- **Insulator:** Thermoplastic

- **Grommet and interfacial seal:**
  Silicone elastomer

- **Contacts:** Copper alloy

- **Contacts plating:** Gold over nickel plated

- **Endurance:**
  . 500 mating cycles all materials
  . 1500 mating cycles for composite connectors with specifics contacts

- **Shock:**
  300 g, 3 ms according EN2591-D2 method A

- **Vibration:**
  . Sinus:
  . 10 à 2000 Hz, 3x12 hrs
  (60 g, 140 - 2000 Hz) with T° cycling
  . Random:
  . 50 to 2000 Hz, 2x8 Hrs
  (1 g2/ Hz, 100 - 2000 Hz) at T° max.
  . 25 to 2000 Hz, 2x8 Hrs
  (5 g2/ Hz, 100 - 300 Hz) at ambiant T°
  Test with accessories in acc with EN2591-D3

- **Contact retention:**

Contacts size	26	22	20	16	12	8	4
Min force in N	30	44	67	111	111	111	200

Weight comparison

Example for a plug shell size 15

Materials	Weight
Stainless steel	58.80 g
Titanium	33.90 g
Aluminum	20.35 g
Composite	14.30 g

42% lighter
40% lighter
30% lighter

Electrical

• **Test voltage rating (Vrms)**

Service	sea level	at 21000 m
R	400	N/A
M	1 300	800
N	1 000	600
I	1 800	1 000
II	2 300	1 000

• **Contact resistance**

Contacts size	26	22	20	16	12	8	4
Resistance mΩ	16	14.6	7.3	3.8	3.5	3	2

• **Insulation resistance:**
≥ 5 000 MΩ (under 500 Vdc)

• **Contact rating:**

Contacts size	26	22	20	16	12	10	8	4
Rating (A)	3	5	7.5	13	23	33	45	80

• **Shell continuity**
. Aluminum shell:
Cadmium olive drab (W): 2.5 mΩ
Nickel (F): 1 mΩ
Black zinc nickel (Z): 2.5 mΩ
Green zinc cobalt (ZC): 2.5 mΩ
. Composite shell:
Cadmium olive drab (J): 3 mΩ
Nickel (M): 3 mΩ
. Stainless steel shell:
Passivated (K): 10 mΩ
Nickel (S): 1 mΩ
. Titanium shell:
Without plating (TT): 10 mΩ
Nickel (TF): 1 mΩ
. Bronze shell:
Without plating: 5 mΩ

• **Shielding:**
. Aluminum shell:
F: 65 db at 10 GHz
Z, F & W: 85 db at 1 GHz
Z & W: 50 db at 10 GHz
ZC: Consult us
. Composite shell:
J & M: 85 db at 1 GHz
. Stainless steel shell:
K: 45 db at 10 GHz
S: 65 db at 10 GHz
. Titanium shell:
TT: 45 db at 10 GHz
TF: 65 db at 10 GHz
. Bronze shell:
85 db at 10 GHz

Environmental

• **Temperature range:**
. Aluminum shell:
W: -65°C +175°C
F: -65°C +200°C
Z: -65°C +200°C
ZC: -65°C +175°C
. Composite shell:
J: -65°C +175°C
M: -65°C +200°C
Without plating (X): -65°C +175°C
. Stainless steel shell:
K: -65°C +200°C
S: -65°C +200°C
. Titanium shell:
TT: -65°C +200°C
TF: -65°C +200°C
. Bronze shell:
Without plating: -65°C +175°C

• **Sealing:**
Mated connectors meet altitude immersion requirements of MIL-DTL-38999.

• **Salt spray:**
. Aluminum shell:
W: 500 Hrs
F: 48 Hrs
Z: 500 Hrs
ZC: 250 Hrs
. Composite shell:
J: 2000 Hrs
M: 2000 Hrs
Without plating (X): 2000 Hrs
. Stainless steel shell:
K: 500 Hrs
S: 500 Hrs
. Titanium shell:
TT: 500 Hrs
TF: 48 Hrs
. Bronze shell:
Without plating: 500 Hrs

Resistance to fluids

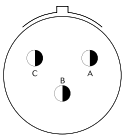
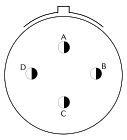
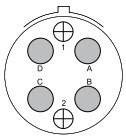
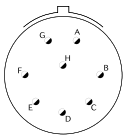
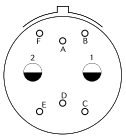
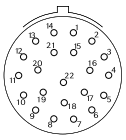
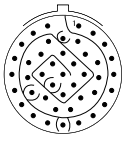
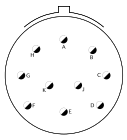
• **According to MIL-DTL-38999 standard**
. Gasoline: JP5 (OTAN F44)
. Mineral hydraulic fluid: MIL-H-5606 (OTAN H515)
. Synthetic hydraulic fluid: Skydrol 500 B4

• **LD4 (SAE AS 1241)**
. Mineral lubricating: MIL-L-7870A (OTAN 0142)
. Synthetic lubricating: MIL-L-23699 (OTAN 0156), MIL-L-7808
. Cleaning fluid: MIL-C-87936 diluted
. De-icing fluid: MIL-A-8243
. Extinguishing fluid: Bromochloromethane
. Cooling fluid: Coolanol

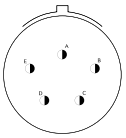
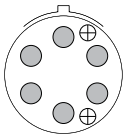
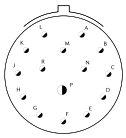
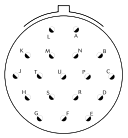
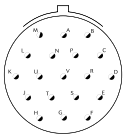
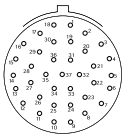
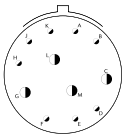
Contact layouts

P Power or High Power · Q Quadrax or Twinax · C Concentric Twinax (=Triax) or Coax · HD High Density · H Hermetic version developed · F Fiber optic ELIO® or Expanded beam

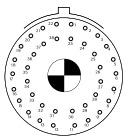
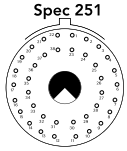
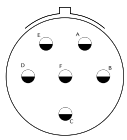
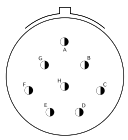
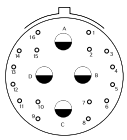
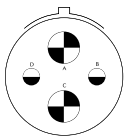
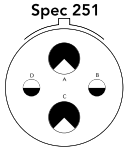
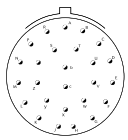
13 / C

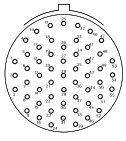
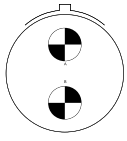
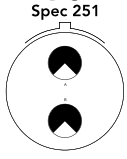
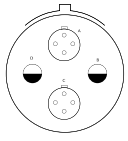
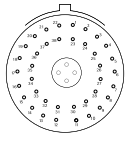
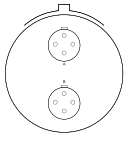
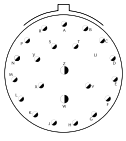
03	04	04	08	26	35	43	98
							
3#16 Service I	4#16 Service I H	4 Optical positions F	8#20 Service I H	2#12, 6#22D Service M	22#22D Service M H	43#26 Service R HD	10#20 Service I H

15 / D

05	06	15	18	19	35	97
						
5#16 Service II	6 Optical positions F	1#16, 14#20 Service I	18#20 Service I H	19#20 Service I H	37#22D Service M H	4#16, 8#20 Service I H

17 / E

02	02 Spec 251	06	08	20	22	22 Spec 251	26
							
38#22D 1#8 Triax Service M C	38#22D 1#8 Power P	6#12 Service I H	8#16 Service II H	4#12 16#22D Service M	2#12 2#8 Triax Service M C	2#12 2#8 Power P	26#20 Service I H

35	75	75 Spec 251	80	81	82	99
						
55#22D Service M H	2#8 Triax Service M C	2#8 Power P	2#12 2#8 Quadrax Q	38#22D 1#8 Quadrax Q	2#8 Quadrax Q	2#16, 21#20 Service I

As stated in MIL-DTL-38999 standard, insert arrangements uding multi-axial contacts (coax, twinax, quadrax, ...) should not be used in firewall aplications.

MIL-DTL-38999 part numbers

Basic Series	D38999/	20	W	B	35	P	N	L
Shell style: **20:** Square flange receptacle **24:** Jam nut receptacle **26:** Plug with RFI shielding.								
Plating: **Z:** Black zinc nickel **W:** Olive drab cadmium **F:** Nickel								
Shell size: A, B, C, D, E, F, G, H, J								
Contact layout: See page 18 for layout according to MIL-DTL-38999								
Contact type: **P:** Pin **A:** Connector supplied less pin contact or with specific contacts (connector marking: A + orientation) **S:** Socket **B:** Connector supplied less socket contact or with specific contacts (connector marking: B + orientation)								
Orientation: N, A, B, C, D, E (see page 75)								
L: For P or S contact type only, connector delevired without contacts, connector marking P or S (without L)								

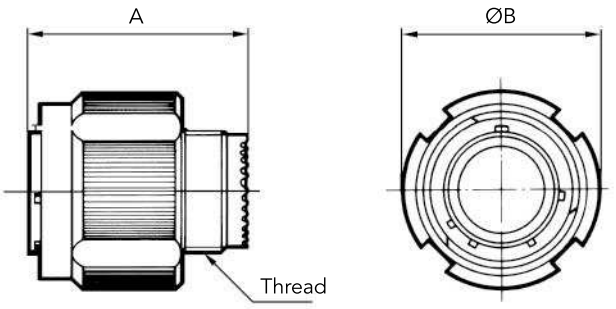
Note: To place an order of MIL connectors delivered without MIL removable crimp contacts and keep P or S plus orientation marking, it must be specify clearly on the order (by adding a suffix L at the end of the P/N or specified in comment).
Delivered with MIL contacts mandatory.
As stated in MIL-DTL-38999 standard, insert arrangements uding multi-axial contacts (coax, twinax, quadrax, ...) should not be used in firewall aplications.

EN3645 part numbers

Basic Series	EN3645	W	6	G	N	35	B	N
Plating: **W:** Olive drab cadmium **F:** Nickel								
Shell style: **0:** Square flange receptacle **6:** Plug **7:** Jam nut receptacle								
Shell size: 09=**A,** 11=**B,** 13=**C,** 15=**D,** 17=**E,** 19=**F,** 21=**G,** 23=**H,** 25=**J**								
Grounding: **N:** Standard insert not grounded								
Contact layout: See page 18 for layout according to EN3645								
Contact type: **A:** Connector supplied less pin contact **B:** Connector supplied less socket contact **F:** Socket **M:** Pin								
Orientation: **N, A, B, C, D, E** (see page 75)								

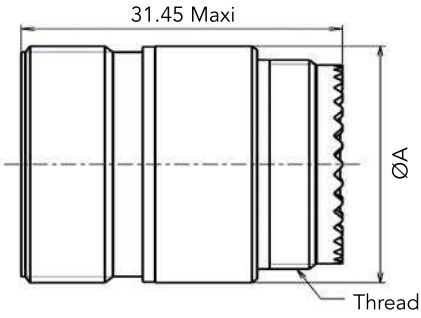
Dimensions

Plug type 5



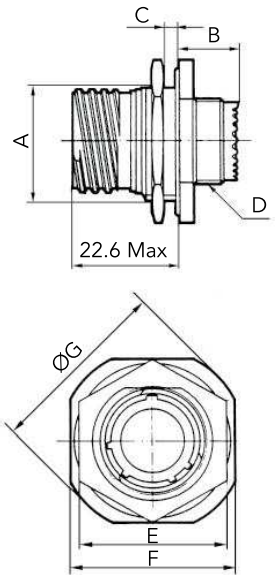
Shell size	A Max	Thread	ØB Max
09 (A)	31.00	M12 x 1-6g	21.80
11 (B)		M15 x 1-6g	25.00
13 (C)		M18 x 1-6g	29.40
15 (D)		M22 x 1-6g	32.50
17 (E)		M25 x 1-6g	35.70
19 (F)		M28 x 1-6g	38.50
21 (G)		M31 x 1-6g	41.70
23 (H)		M34 x 1-6g	44.90
25 (J)		M37 x 1-6g	48.00

Receptacle type 1



Shell size	Thread	ØA
09 (A)	M12 x 1-6g	15.90
11 (B)	M15 x 1-6g	19.00
13 (C)	M18 x 1-6g	22.25
15 (D)	M22 x 1-6g	25.45
17 (E)	M25 x 1-6g	30.20
19 (F)	M28 x 1-6g	31.75
21 (G)	M31 x 1-6g	34.95
23 (H)	M34 x 1-6g	38.10
25 (J)	M37 x 1-6g	41.30

Receptacle type 7



Shell size	$A^{\pm 0.15}$	B Max	C Max	D Thread	E Max	$F^{\pm 0.4}$	ØG Max
09 (A)	16.53	9.9	3.2	M12 x 1-6g	23	27	30.5
11 (B)	19.07			M15 x 1-6g	26	31.8	35.2
13 (C)	23.82			M18 x 1-6g	31	34.9	38.4
15 (D)	26.97			M22 x 1-6g	34	38.1	41.6
17 (E)	30.15			M25 x 1-6g	37	41.3	44.8
19 (F)	33.32			M28 x 1-6g	41	46	49.5
21 (G)	36.50			M31 x 1-6g	46	49.2	52.7
23 (H)	39.67			M34 x 1-6g	47	52.4	55.9
25 (J)	42.85			M37 x 1-6g	51.23	55.6	59

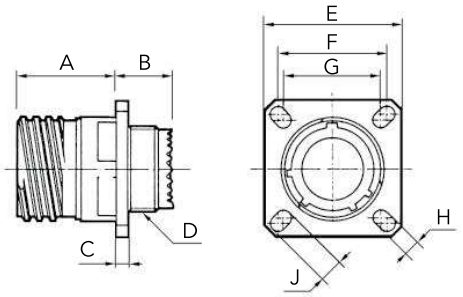
Recommended coupling torque on panel for jam nut receptacle (type 7)

Shell	09 (A)	11 (B)	13 (C)	15 (D)	17 (E)	19 (F)	21 (G)	23 (H)	25 (J)
Coupling torque (±0.5 N.m)	4	5	7	8	9	10	12	13	14

Note: All dimensions are in millimeters (mm)

Dimensions

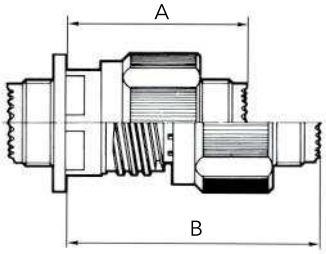
Receptacle type 0



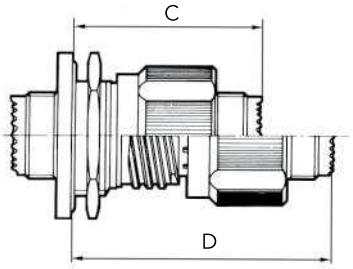
Shell size	A Max	B Max	C Max	D Thread	E±0.3	F	G	H±0.2	J±0.2
09 (A)	20.9	10.72	2.5	M12 x 1-6g	23.8	18.26	15.09	3.25	5.49
11 (B)				M15 x 1-6g	26.2	20.62	18.26		4.93
13 (C)				M18 x 1-6g	28.6	23.01	20.62		
15 (D)				M22 x 1-6g	31	24.61	23.01		4.45
17 (E)				M25 x 1-6g	33.3	26.97	24.61		4.93
19 (F)				M28 x 1-6g	36.5	29.36	26.97		
21 (G)	20.07	11.54	3.2	M31 x 1-6g	39.7	31.75	29.36		
23 (H)				M34 x 1-6g	42.9	34.93	31.75	3.91	6.15
25 (J)				M37 x 1-6g	46	38.1	34.93		

Mated connectors

Type 0 with plug

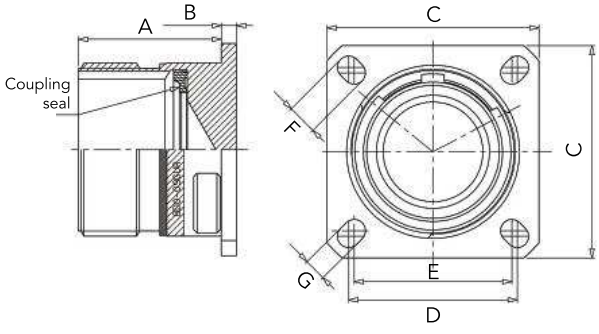


Type 7 with plug



Shell size	A Max	B Max	C Max	D Max
09 to 11	37.00	52.30	38.30	53.60
13 to 19	37.00	52.30	38.50	53.80
21 to 25	36.00	51.30	38.50	53.80

Dummy receptacle



Shell size	Part number	A Max	B Max	C±0.30	D	E	F±0.20	G±0.20
09	8D0-09•UR	20.90	2.50	23.80	18.26	15.09	4.49	3.25
11	8D0-11•UR	20.90	2.50	26.20	20.62	18.26	4.93	3.25
13	8D0-13•UR	20.90	2.50	28.60	23.01	20.62	4.93	3.25
15	8D0-15•UR	20.90	2.50	31.00	24.61	23.01	4.93	3.25
17	8D0-17•UR	20.90	2.50	33.30	26.97	24.61	4.93	3.25
19	8D0-19•UR	20.90	2.50	36.50	26.97	24.61	4.93	3.25
21	8D0-21•UR	20.10	3.20	39.70	31.75	29.36	4.93	3.25
23	8D0-23•UR	20.10	3.20	42.90	34.93	31.75	6.15	3.91
25	8D0-25•UR	20.10	3.20	46.00	38.10	34.93	6.15	3.91

•: "G" for Olive green cadmium; "F" for Nickel.

Note: All dimensions are in millimeters (mm)