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SOURIAU

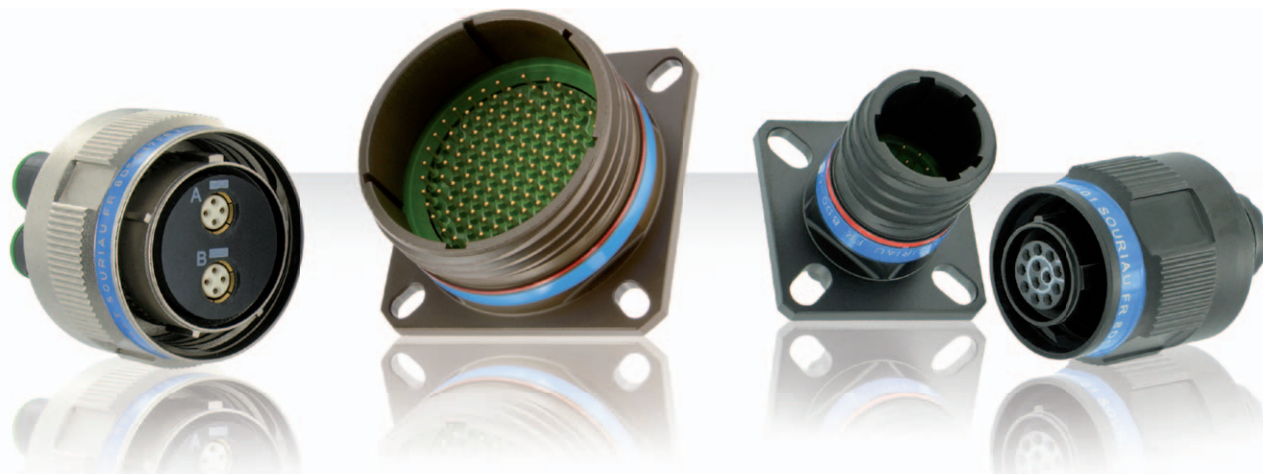
8D SERIES



Standard Aerospace & Military Connectors

MIL-DTL-38999 Series III / EN3645

Esterline
Connection Technologies



Presentation

Since the early 80's, **SOURIAU** is a major supplier of 38999 Series III, the screw-coupled version of MIL-C-38999. Present on the main international programs, **SOURIAU** has developed a range of products that meet the performance required in extreme environments. This product family is in accordance with MIL-DTL-38999 Series III, EN3645, CECC (standard for bronze shell), and also meets many customers' standards (Rolls Royce, ABS, BACC, ...)

This evolution of MIL-C-38999 allows:

- A high contact density up to 128 contacts #22D
- A quick screw coupling with self locking mechanism
- High resistance to harsh environments (vibration, 200°C)

Always at the cutting edge of innovation, **SOURIAU's** teams have continuously improved this range of connectors:

- Composite version in the 90's (Its choice is recommended wherever weight is critical)
- Titanium version for weight saving and very high and mechanical resistance
- Today **SOURIAU** remains innovative with cadmium free and RoHS solutions.

In 2009 **SOURIAU** was the first to be QPL qualified for Zinc Nickel plating.

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8D SERIES

8D Series

Overview

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Typical applications



Civil Aeronautics

© Dell / Fotolia



Military Aeronautics

© Npologuy / Fotolia



Defense

Courtesy of Esterline Communication Systems



Ground Military

© JPS / Fotolia



Industrial - Railway

© Metlion / Fotolia



Marine - Offshore

© Aleksey Stemmer / Fotolia

Features & Benefits

QPL

MIL-DTL-38999 Qualified

54 qualified layouts.
Qualified protective caps.

ROBUST

High reliability

Temperature up to 200°C.
High vibration withstanding (44g).
500 mating/unmating cycles.

**LIGHT
WEIGHT**

High end materials

Aluminum (D38999 & EN3645 qualified).
Composite (D38999, EN3645 & BACC qualified).
Titanium version.

**LARGE
OFFER**

Versatility

RoHS platings, high density layouts, ...
Contacts: signal, high speed (optical, quadrax), high power, ...
Specific shells: double flange, clinch nuts, integrated backshell, ...

**FIRE
SEAL**

Class K

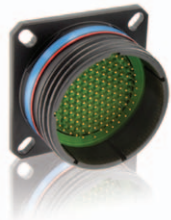
Stainless steel (D38999, EN3645 & BACC qualified).
Hermetic version.

A superior concept

5
Materials & Platings

Versatile & Robust

Full Contact offer



Aluminum
Black zinc nickel RoHS,
Nickel RoHS,
Green zinc cobalt,
Olive drab cadmium



Composite
Nickel RoHS,
Olive drab cadmium,
Without plating



Stainless Steel
Passivated RoHS,
Nickel RoHS

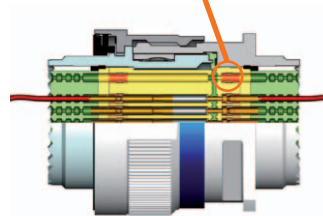
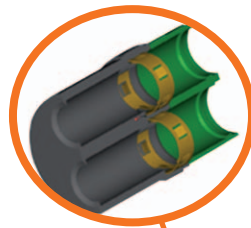


Titanium
Nickel RoHS,
Without plating



Bronze
Without plating

Metallic clips retention
Unique technology,
High performance **contact retention**,
High temperature and **high vibrations** withstanding



Accessories
Full **backshells** offer,
Protective **caps**,
Tooling

High sealing
IP67,
Each contact cavity is individually sealed

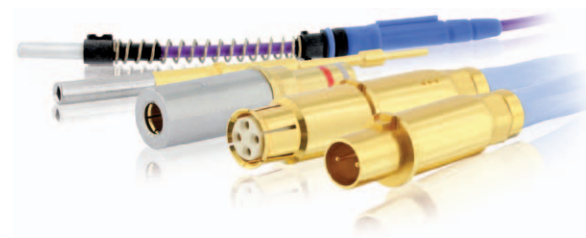
Versatility
PC Tail contacts with or without shoulder,
Crimp contacts,
Solder cup contacts,
Wire wrap contacts

High density
#26 contact layouts

Adaptability
Common cavity for all **#8 contacts**

Multi-contact technology
Signal transmission,
High power up to 850A,
High speed data transmission:

- . Quadrax
- . Coax
- . Twinax
- . Triax (= concentric twinax)
- . ELIO® fiber optic
- . Expanded beam



Derived Series

Various possibilities of range extension and shell variant from Standard Series.
The only limit is your imagination: Consult us !

HIGH SPEED SOLUTIONS

 <p>Twinax and Quadrax contacts see page 86</p>	 <p>BMA coaxial contacts see page 92</p>	 <p>ELIO® fiber optic contacts see page 96</p>	 <p>ELIOBEAM fiber optic contacts see page 102</p>
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POWER SOLUTIONS

 <p>Power contacts see page 106</p>	 <p>High power contacts see page 111</p>
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COMPACT SOLUTIONS

 <p>High density see page 116</p>	 <p>Plug with integrated backshell see page 118</p>
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SMART DESIGN SOLUTIONS

 <p>High vibration: 8DV Series see page 122</p>	 <p>Clinch nuts or helicoils see page 126</p>
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PC TAIL CONTACTS SOLUTIONS





 <p>Double flange receptacle see page 129</p>	 <p>PC tail contact without shoulder see page 132</p>
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REINFORCED SEALING

 <p>Resin sealed connector see page 134</p>	 <p>Glass sealed connector see page 137</p>
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INTERCONNECT SOLUTIONS

SUNBANK provides a large variety of interconnect solutions to vector and secure the cable routing. Consult us for more information.

 <p>Backshells</p>	 <p>Flexible conduits</p>	 <p>Protective caps</p>	 <p>Accessories</p>
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A performing MIL standard connector design

Quick coupling

1 1/4 turn to mate



Scoop proof

No risk of damaging contacts during the coupling operation



Fully shielded

Shell to shell bottoming = perfect shield continuity

360° shielding

360° teeth for optimum shield continuity with accessories

EMI Ring



Self locking

Mechanism patented by SOURIAU. Connector will never unscrew even under high vibration (44 g)

Visual mating

Red band visible = not correctly mated



Red band hidden = correctly mated



A universal product platform

38999 Series I

MIL-DTL-38999 8LT Series



- . High density MIL-spec circular
- . Scoop proof
- . Bayonet coupling
- . Mounting: screws or jam nut
- . Shell: Aluminum alloy
- . Plating: Cadmium or nickel
- . QPL approved
- . Numerous layouts

38999 Series II

MIL-DTL-38999 8T Series

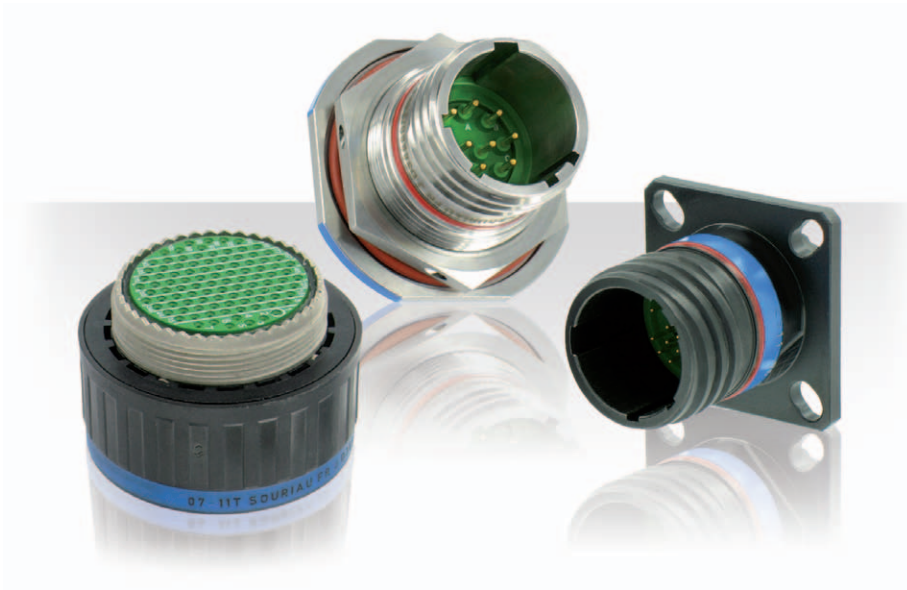


- . Short version of 38999 Series I
- . High density MIL-spec circular
- . Bayonet coupling
- . Mounting: screws or jam nut
- . Shell: Aluminum alloy
- . Plating: Cadmium, nickel or hard anodized
- . QPL approved

VG96912 & JN1003 8ST Series



- . High density
- . Lightweight version of Series I
- . Scoop proof, bayonet coupling
- . Mounting: screws or jam nut
- . Shell: Aluminum alloy
- . Plating: Cadmium or nickel
- . VG 96912 German specification
- . JN 1003 Typhoon specification



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
- **Vibration:**
 - . Sinus (D38999, EN3645, BACC63):
 - . 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 ambient T°
- **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	42% lighter
Aluminum	20.35 g	40% lighter
Composite	14.30 g	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

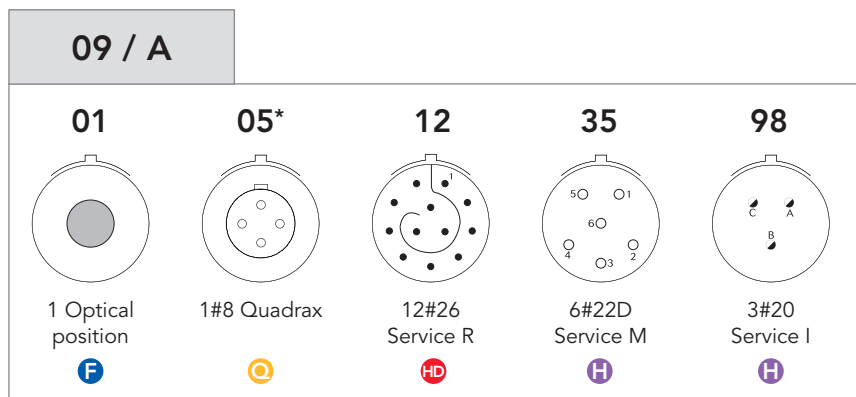
• LD4 (SAE AS 1241)

- . 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

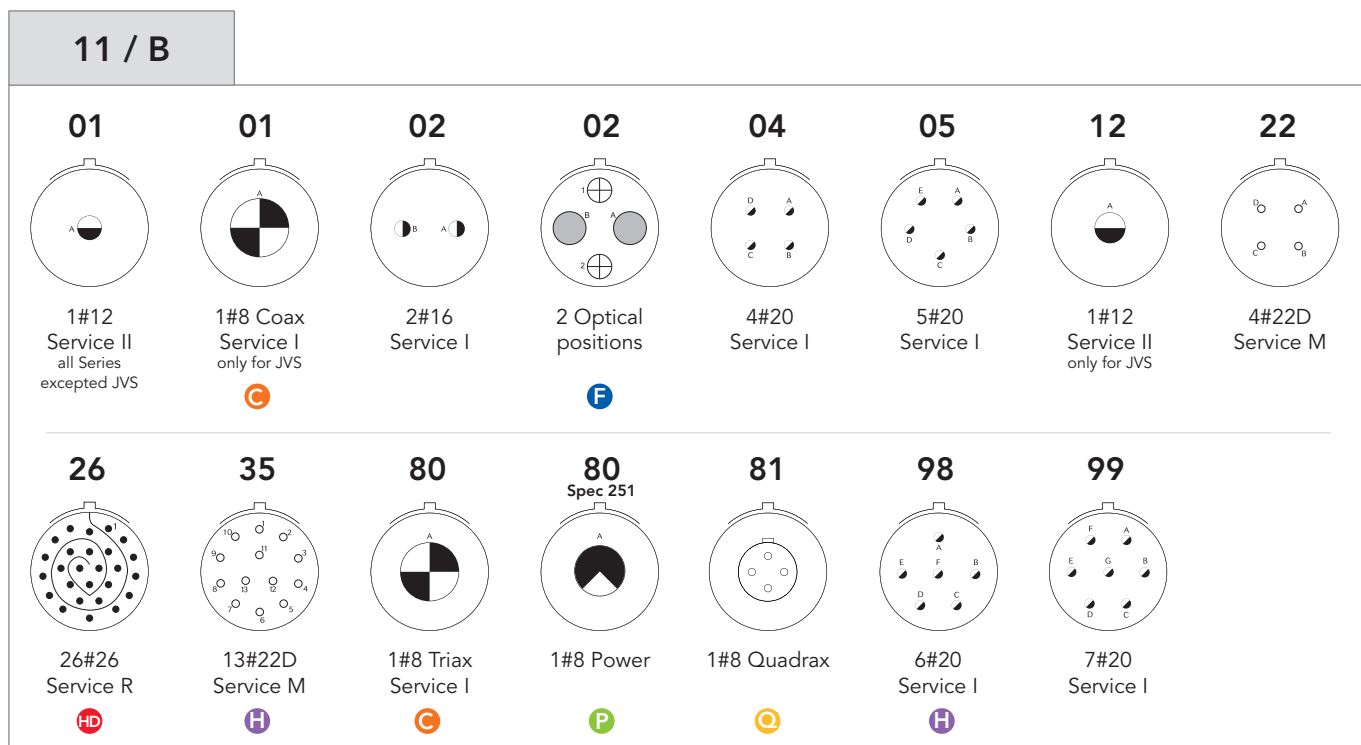
Contact layouts

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

Contact sizes
 ● #26
 ○ #22D
 ◐ #20
 ◑ #16
 ◒ #12
 ◓ #10
 ◔ #8 Quadrax or Twinax
 ◕ Fiber optic ELIO® or Expanded beam
 ◖ #8 Triax (=Concentric Twinax) or Coax - consult us
 ◗ #8 Power
 ◘ #4 Power
 ◙ High Power



* 09-05 layout:
 - Grounded version only (spec. 620)
 - Plug with female contact & receptacle with male contact only



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

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

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

<p>05</p> <p>5#16 Service II</p>	<p>06</p> <p>6 Optical positions</p> <p>F</p>	<p>15</p> <p>1#16, 14#20 Service I</p>	<p>18</p> <p>18#20 Service I</p> <p>H</p>	<p>19</p> <p>19#20 Service I</p> <p>H</p>	<p>35</p> <p>37#22D Service M</p> <p>H</p>	<p>68</p> <p>68#26 Service R</p> <p>HD</p>	<p>97</p> <p>4#16, 8#20 Service I</p> <p>H</p>
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17 / E

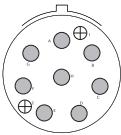
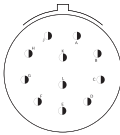
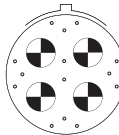
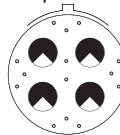
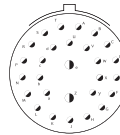
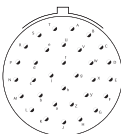
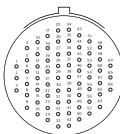
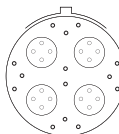
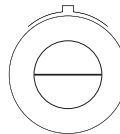
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<p>35</p> <p>55#22D Service M</p> <p>H</p>	<p>75</p> <p>2#8 Triax Service M</p> <p>C</p>	<p>75 Spec 251</p> <p>2#8 Power</p> <p>P</p>	<p>80</p> <p>2#12 2#8 Quadrax</p> <p>Q</p>	<p>81</p> <p>38#22D 1#8 Quadrax</p> <p>Q</p>	<p>82</p> <p>2#8 Quadrax</p>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

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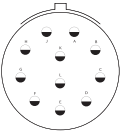
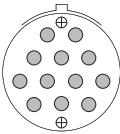
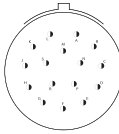
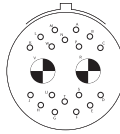
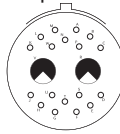
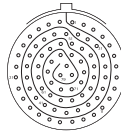
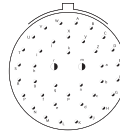
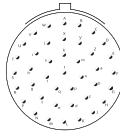
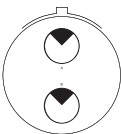
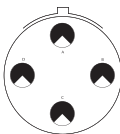
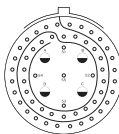
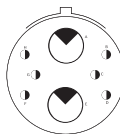
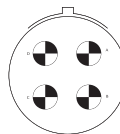
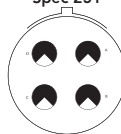
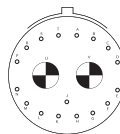
Contact layouts

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

19 / F

<p>08</p>  <p>8 Optical positions</p> <p>F</p>	<p>11</p>  <p>11#16 Service II</p>	<p>18</p>  <p>14#22D 4#8 Triax Service M</p> <p>C</p>	<p>18 Spec 251</p>  <p>14#22D 4#8 Power</p> <p>P</p>	<p>28</p>  <p>26#20 2#16 Service I</p>
<p>32</p>  <p>32#20 Service I</p>	<p>35</p>  <p>66#22D Service M</p> <p>H</p>	<p>84</p>  <p>14#22D 4#8 Quadrax</p> <p>Q</p>	<p>H1</p>  <p>1#00 High power</p> <p>P</p>	

21 / G

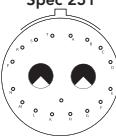
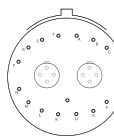
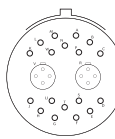
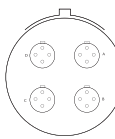
<p>11</p>  <p>11#12 Service I</p>	<p>12</p>  <p>12 Optical positions</p> <p>F</p>	<p>16</p>  <p>16#16 Service II</p>	<p>20</p>  <p>18#20 2#8 Triax Service M</p> <p>C</p>	<p>20 Spec 251</p>  <p>18#20 2#8 Power</p> <p>P</p>	<p>35</p>  <p>79#22D Service M</p>	<p>39</p>  <p>2#16 37#20 Service I</p>	<p>41</p>  <p>41#20 Service I</p> <p>H</p>
<p>42</p>  <p>2#4 Power Service I</p> <p>P</p>	<p>48</p>  <p>4#8 Power Service I</p> <p>P H</p>	<p>59</p>  <p>55#22D 4#12 Service M</p>	<p>72</p>  <p>6#16 2#4 Power Service I</p> <p>P</p>	<p>75</p>  <p>4#8 Triax Service M</p> <p>C</p>	<p>75 Spec 251</p>  <p>4#8 Power</p> <p>P</p>	<p>77</p>  <p>17#22D 2#8 Triax Service M</p> <p>C</p>	<p>→ See next page for more size 21/G layouts</p>

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

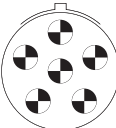
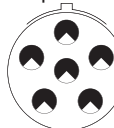
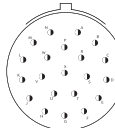
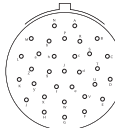
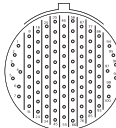
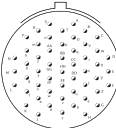
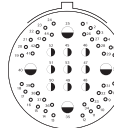
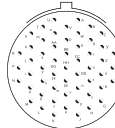
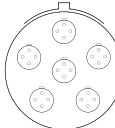
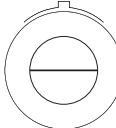
Contact layouts

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

21 / G

<p>77 Spec 251</p>  <p>17#22D 2#8 Power</p> P	<p>78</p>  <p>17#22D 2#8 Quadrax</p> Q	<p>80</p>  <p>18#20 2#8 Quadrax</p> Q	<p>84</p>  <p>4#8 Quadrax</p> Q
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23 / H

<p>06</p>  <p>6#8 Triax Service M</p> C	<p>06 Spec 251</p>  <p>6#8 Power Service M</p> P	<p>21</p>  <p>21#16 Service II</p>	<p>32</p>  <p>32#20 Service I</p>	<p>35</p>  <p>100#22D Service M</p>
<p>53</p>  <p>53#20 Service I</p> H	<p>54</p>  <p>4#12, 9#16 40#22D Service M</p>	<p>55</p>  <p>55#20 Service I</p> H	<p>86</p>  <p>6#8 Quadrax</p> Q	<p>H1</p>  <p>1#000 High power</p> P

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

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

25 / J							
<p>04</p> <p>48#20 8#16 Service I</p> <p>H</p>	<p>07</p> <p>97#22D 2#8 Triax Service M</p> <p>C</p>	<p>07 Spec 251</p> <p>97#22D 2#8 Power</p> <p>P</p>	<p>08</p> <p>8#8 Triax Service M</p> <p>C</p>	<p>08 Spec 251</p> <p>8#8 Power</p> <p>P</p>	<p>11</p> <p>2#20 9#10 Service N</p> <p>H</p>	<p>17</p> <p>36#22D 6#8 Triax</p> <p>C</p>	<p>17 Spec 251</p> <p>36#22D 6#8 Power</p> <p>P</p>
<p>19</p> <p>19#12 Service I</p> <p>H</p>	<p>20*</p> <p>10#20, 13#16 4#12 Coax 3#8 Triax Service N</p> <p>C</p>	<p>20* Spec 251</p> <p>10#20 13#16, 4#12 3#8 Power</p> <p>P</p>	<p>24</p> <p>12#16 12#12 Service I</p> <p>H</p>	<p>24</p> <p>24 Optical positions</p> <p>F</p>	<p>29</p> <p>29#16 Service I</p> <p>H</p>	<p>35</p> <p>128#22D Service M</p> <p>C</p>	<p>37</p> <p>37#16 Service II</p> <p>H</p>
<p>41</p> <p>22#22D, 3#20 11#16, 2#12 3#8 Triax Service M</p> <p>C</p>	<p>41 Spec 251</p> <p>22#22D, 3#20 11#16, 2#12 3#8 Power</p> <p>P</p>	<p>43</p> <p>23#20 20#16 Service I</p> <p>H</p>	<p>44</p> <p>4#16 4#4 Power Service I</p> <p>P</p>	<p>46</p> <p>40#20, 4#16 2#8 Coax Service I</p> <p>C</p>	<p>46 Spec 251</p> <p>40#20, 4#16 2#8 Power Service I</p> <p>P</p>	<p>61</p> <p>61#20 Service I</p> <p>H</p>	<p>80</p> <p>10#20 13#16 4#12 Coax 3#8 Quadrax</p> <p>Q</p>
<p>81</p> <p>22#22D 3#20, 11#16 2#12 3#8 Quadrax</p> <p>Q</p>	<p>82</p> <p>97#22D 2#8 Quadrax</p> <p>Q</p>	<p>86</p> <p>40#20 4#16 2#8 Quadrax</p> <p>Q</p>	<p>87</p> <p>36#22D 6#8 Quadrax</p> <p>Q</p>	<p>88</p> <p>8#8 Quadrax</p> <p>Q</p>	<p>90</p> <p>40#20, 4#16 2#8 Triax Service I</p> <p>C</p>	<p>H1</p> <p>1#0000 High power</p> <p>P</p>	

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

Contact layouts (matrix)

Shell size	Layout	MIL-DTL-38999 (OPL) Aluminum, Stainless steel & Composite	8D Titanium	JVS-CECC Bronze connector	Hermetics	EN3645	BACC63 CT/CU DB/DC	Number of contacts	#26	#22D	#20	#16	#12	#10	#8	#4	Fiber optic or High power
09 / A	09-01	S	S	S				1									1 Optic.
	09-05 (1)	S	S	S				1							1 Qdx		
	09-12	S						12	12								
	09-35	Q	S	Q	S	Q	Q	6		6							
	09-98	Q	S	Q	S	Q	Q	3			3						
11 / B	11-01	S	S					1					1				
	11-01			S				1							1 Coax		
	11-02	Q	S	Q		Q	Q	2				2					
	11-02	S	S	S				2									2 Optic.
	11-04	Q	S	S			Q	4			4						
	11-05	Q	S	Q		Q	Q	5			5						
	11-12			S				1					1				
	11-22	S	S	S				4		4							
	11-26	S						26	26								
	11-35	Q	S	Q	S	Q	Q	13		13							
	11-80	S	S	S				1								1 Twx	
	11-80 sp.251	S	S	S				1							1 Pow		
	11-81	S	S	S				1							1 Qdx		
	11-98	Q	S	Q	S	Q	Q	6			6						
11-99	Q	S	Q		Q	Q	7			7							
13 / C	13-03	S	S	S				3									
	13-04	Q	S	Q	S	Q	Q	4				4					
	13-04	S	S	S				4									4 Optic.
	13-08	Q	S	Q	S	Q	Q	8			8						
	13-26	S	S	Q		Q		8		6			2				
	13-35	Q	S	Q	S	Q	Q	22		22							
	13-43	S						43	43								
13-98	Q	S	Q	S	Q	Q	10			10							
15 / D	15-05	Q	S	Q		Q	Q	5				5					
	15-06	S	S	S				6									6 Optic.
	15-15	Q	S	Q		Q	Q	15			14	1					
	15-18	Q	S	Q	S	Q	Q	18			18						
	15-19	Q	S	Q	S	Q	Q	19			19						
	15-35	Q	S	Q	S	Q	Q	37		37							
	15-97	Q	S	Q	S	Q	Q	12			8	4					
17 / E	17-02	Q	S	S		Q	Q	39		38					1 Twx		
	17-02 sp.251	S	S	S				39		38					1 Pow		
	17-06	Q	S	Q	S	Q	Q	6					6				
	17-08	Q	S	Q	S	Q	Q	8				8					
	17-20	S	S	S				20		16			4				
	17-22	S	S	S				4					2		2 Twx		
	17-22 sp.251	S	S	S				4					2		2 Pow		
	17-26	Q	S	Q	S	Q	Q	26			26						
	17-35	Q	S	Q	S	Q	Q	55		55							
	17-75	S	S	S				2							2 Twx		
	17-75 sp.251	S	S	S				2							2 Pow		
	17-80	S	S	S				4					2		2 Qdx		
	17-81	S	S	S				39		38					1 Qdx		
17-82	S	S	S			Q	2							2 Qdx			
17-99	Q	S	Q		Q	Q	23			21	2						
19 / F	19-08	S	S	S				8									8 Optic.
	19-11	Q	S	Q		Q	Q	11				11					
	19-18	Q	S	S			Q	18		14					4 Twx		
	19-18 sp.251	S	S	S													
	19-28	Q	S	Q		Q	Q	28			26	2					
	19-32	Q	S	Q		Q	Q	32			32						
	19-35	Q	S	Q	S	Q	Q	66		66							
	19-84	S	S	S				18		14					4 Qdx		
19-H1	S						1									1 #00	

- S SOURIAU's layout
- Q SOURIAU's layout & Layout according to corresponding norm
- (1) Grounded insert only - Please consult us
- #8 Pow: Power; Qdx: Quadrax; Twx: Concentric Twinax

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

Contact layouts (matrix)

Shell size	Layout	MIL-DTL-38999 (OPL) Aluminum, Stainless steel & Composite	8D Titanium	JVS-CECC Bronze connector	Hermetics	EN3645	BACC63 CT/CU DB/DC	Number of contacts	#26	#22D	#20	#16	#12	#10	#8	#4	Fiber optic or High power
21 / G	21-11	Q	S	Q		Q	Q	11					11				
	21-12	S	S	S				12									12 Optic
	21-16	Q	S	Q		Q	Q	16				16					
	21-20	S	S	S				20			18				2 Twx		
	21-20 sp.251	S	S	S				20			18				2 Pow		
	21-35	Q	S	Q		Q	Q	79	79								
	21-39	Q	S	Q		Q	Q	39			37	2					
	21-41	Q	S	Q	S	Q	Q	41			41						
	21-42	S	S	S				2									2 Pow
	21-48	S	S	Q	S			4							4 Pow		
	21-59	S	S	S	S			59	55				4				
	21-72	S	S	S	S			8				6					2 Pow
	21-75	Q	S	S	S		Q	Q	4						4 Twx		
	21-75 sp.251	S	S	S	S			4							4 Pow		
	21-77	S	S	S	S			19		17					2 Twx		
	21-77 sp.251	S	S	S	S			19		17					2 Pow		
21-78	S	S	S	S			19		17					2 Qdx			
21-80	S	S	S	S			20			18				2 Qdx			
21-84	S	S	S	S			4							4 Qdx			
23 / H	23-06	S	S	S				6							6 Twx		
	23-06 sp.251	S	S	S				6							6 Pow		
	23-21	Q	S	Q		Q	Q	21				21					
	23-32	Q	S	S				32			32						
	23-35	Q	S	Q		Q	Q	100	100								
	23-53	Q	S	Q	S	Q	Q	53			53						
	23-54	S	S	S		Q		53	40			9	4				
	23-55	Q	S	Q	S	Q	Q	55			55						
23-86	S	S	S	S			6							6 Qdx			
23-H1	S						1									1 #000	
25 / J	25-04	Q	S	S	S	Q	Q	56			48	8					
	25-07	Q	S	S		Q	Q	99		97					2 Twx		
	25-07 sp.251	S	S	S				99		97					2 Pow		
	25-08	Q	S	Q ⁽²⁾		Q	Q	8							8 Twx		
	25-08 sp.251	S	S	S				8							8 Pow		
	25-11	Q	S	S		Q	Q	11			2			9			
	25-17	S	S	S				42		36					6 Twx		
	25-17 sp.251	S	S	S				42		36					6 Pow		
	25-19	Q	S	Q	S	Q	Q	19					19				
	25-20	Q	S	S ⁽³⁾		Q ⁽⁴⁾	Q ⁽⁵⁾	30			10	13	4 ⁽⁶⁾		3 Twx		
	25-20 sp.251	S	S	S				30			10	3	4		3 Pow		
	25-24	Q	S	Q		Q	Q	24				12	12				
	25-24	S	S	S				24									24 Optic.
	25-29	Q	S	Q		Q	Q	29				29					
	25-35	Q	S	Q		Q	Q	128		128							
	25-37	Q	S	S		Q	Q	37				37					
	25-41	S	S	S				41		22	3	11	2		3 Twx		
	25-41 sp.251	S	S	S				41		22	3	11	2		3 Pow		
	25-43	Q	S	Q		Q	Q	43			23	20					
	25-44	S	S	S				8				4				4 Pow	
25-46	Q	S	S		Q	Q	46			40	4			2 Coax			
25-46 sp.251	S	S	S				46			40	4			2 Pow			
25-61	Q	S	Q		Q	Q	61			61							
25-80	S	S	S				30			10	13	4		3 Qdx			
25-81	S	S	S				41		22	3	11	2		3 Qdx			
25-82	S	S	S				99		97					2 Qdx			
25-86	S	S	S				46			40	4			2 Qdx			
25-87	S	S	S				42		36					6 Qdx			
25-88	S	S	S				8							8 Qdx			
25-90	Q	S	S				46			40	4			2 Twx			
25-H1	S						1									1 #0000	

- S SOURIAU's layout
- Q SOURIAU's layout & Layout according to corresponding norm
- (2) For CECC, layout 25-08 only delivered without contact
- (3) For classes F, W, S, K only
- (4) For classes F, W, K only
- (5) Qualified BACC63DB/DC only
- (6) 4 #12 coax (2+2)
- #8 Pow: Power; Qdx: Quadrax; Twx: Concentric Twinax

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

8D SERIES

Standard Series

■ Aluminum Series:	
Part numbers	22
Dimensions	24
Connectors weight	27
Backshells	28
Metallic caps	34
■ Composite Series:	
Part numbers	35
Dimensions	37
Connectors weight	39
Backshells	40
■ Stainless Steel Series:	
Part numbers	41
Dimensions	43
Connectors weight	46
■ Titanium Series:	
Part numbers	47
Dimensions	48
Connectors weight	51
■ Bronze Series:	
Part numbers	52
Dimensions	53
Connectors weight	56
Backshells	57
Metallic caps	61

Connector part numbers

Basic Series	8D	0	-	11	W	35	P	N			L
<p>Shell style:</p> <ul style="list-style-type: none"> 0: Square flange receptacle 1: In line receptacle 7: Jam nut receptacle 5: Plug with RFI shielding <p>Also available:</p> <ul style="list-style-type: none"> . Square flange receptacle with clinch nuts or helicoils (see page 126) . Jam nut receptacle with double flange (see page 129) 											
<p>Type:</p> <ul style="list-style-type: none"> - : Connectors with standard crimp contacts. L: Receptacle with long PC tail (male and female size #22D, #20). C: Receptacle with short PC tail (male and female #22D, #20, #16, #12). S: Receptacle with specific PC tail (male et female #22D) W: Receptacle with male contacts #22D for wire wrap (3 wraps) T: Receptacle with male contacts #20 for wire wrap (2 wraps) P: Receptacle with solder cup contacts - please consult us <ul style="list-style-type: none"> . see page 134 for Reinforced sealing Series with solder cup contacts . see page 68 for solder cup contacts information 											
<p>Shell size: 09, 11, 13, 15, 17, 19, 21, 23, 25</p>											
<p>Plating:</p> <ul style="list-style-type: none"> W: Olive drab cadmium F: Nickel ZC: Green zinc cobalt Z: Black zinc nickel 											
<p>Contact layout: See pages 13 to 19</p>											
<p>Contact type:</p> <ul style="list-style-type: none"> 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) 											
<p>Orientation: N, A, B, C, D, E (see page 75)</p>											
<p>Specification:</p> <ul style="list-style-type: none"> 046: Tin plated PC tail contact SnPb (non RoHS) 046E: Tin plated PC tail contact Sn pure (RoHS) 046S: Tin plated PC tail contact SAC305 (RoHS) 251: Connector provided with power contacts (layouts with contact #8) 022: Fuel tank 											
<p>Special custom:</p> <ul style="list-style-type: none"> None: Standard plastic cap M: Antistatic plastic cap L: For P or S contact type only, connectors delivered without contacts, connectors marking P or S plus orientation 											

Note: PC tail contacts without shoulder also available. Please see page 132.

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 delivered 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 specified 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.

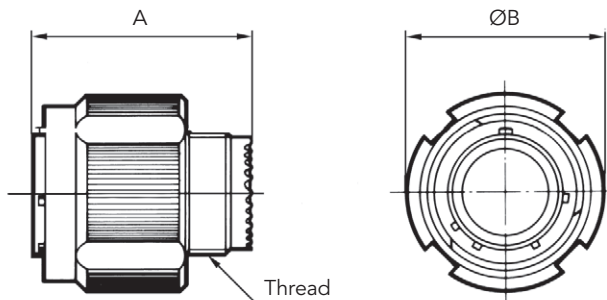
As stated in MIL-DTL-38999 standard, insert arrangements using multi-axial contacts (coax, twinax, quadax, ...) should not be used in firewall applications.

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)								

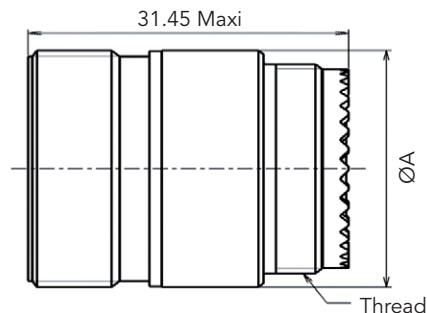
Dimensions

Plug type 5



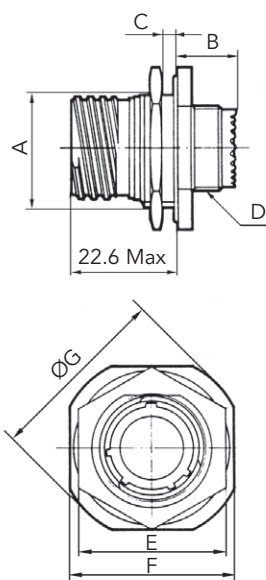
Shell size	A Max	Thread	ØB Max
09 (A)	31.00	M12 x 1-6g	21.80
11 (B)		M15 x 1-6g	25.00
13 (C)		M18 x 1-6g	29.40
15 (D)		M22 x 1-6g	32.50
17 (E)		M25 x 1-6g	35.70
19 (F)		M28 x 1-6g	38.50
21 (G)		M31 x 1-6g	41.70
23 (H)		M34 x 1-6g	44.90
25 (J)		M37 x 1-6g	48.00

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



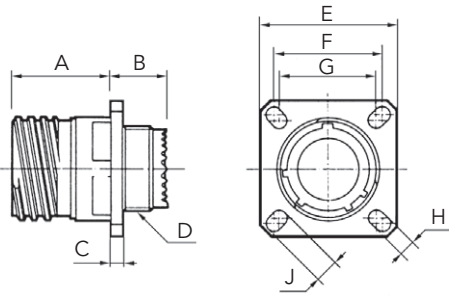
Shell size	A ^{±0.15}	B Max	C Max	D Thread	E Max	F ^{±0.4}	ØG Max
09 (A)	16.53	9.9	3.2	M12 x 1-6g	23	27	30.5
11 (B)	19.07			M15 x 1-6g	27	31.8	35.2
13 (C)	23.82			M18 x 1-6g	31	34.9	38.4
15 (D)	26.97			M22 x 1-6g	34	38.1	41.6
17 (E)	30.15			M25 x 1-6g	37	41.3	44.8
19 (F)	33.32			M28 x 1-6g	41	46	49.5
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

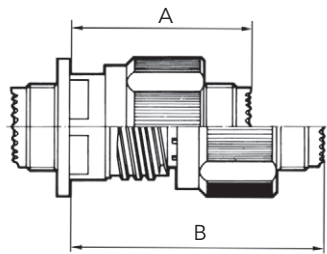
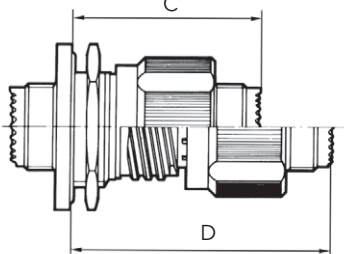
Recommended coupling torque on panel for jam nut receptacle (type 7)

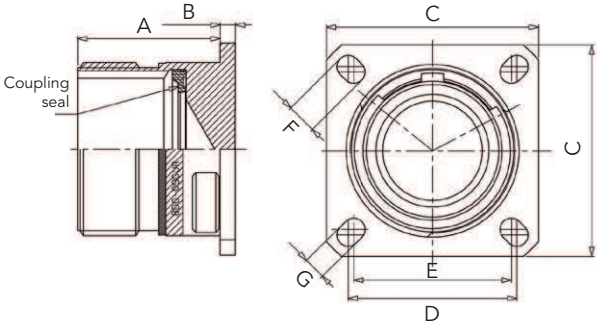
Shell	09 (A)	11 (B)	13 (C)	15 (D)	17 (E)	19 (F)	21 (G)	23 (H)	25 (J)
Coupling torque (±0.5 N.m)	4	5	7	8	9	10	12	13	14

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	4.39		
15 (D)	M22 x 1-6g				31	24.61	23.01	4.93		
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	4.93		
21 (G)	20.07	11.54	3.2	M31 x 1-6g	39.7	31.75	29.36	3.91	6.15	
23 (H)	M34 x 1-6g	42.9	34.93	31.75						
25 (J)	M37 x 1-6g	46	38.1	34.93						

Mated connectors																						
 <p>Type 0 with plug</p>	 <p>Type 7 with plug</p>	<table border="1"> <thead> <tr> <th>Shell size</th> <th>A Max</th> <th>B Max</th> <th>C Max</th> <th>D Max</th> </tr> </thead> <tbody> <tr> <td>09 to 11</td> <td>37.00</td> <td>52.30</td> <td>38.30</td> <td>53.60</td> </tr> <tr> <td>13 to 19</td> <td>37.00</td> <td>52.30</td> <td>38.50</td> <td>53.80</td> </tr> <tr> <td>21 to 25</td> <td>36.00</td> <td>51.30</td> <td>38.50</td> <td>53.80</td> </tr> </tbody> </table>	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
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)