8D Series - MIL-DTL-38999 Series III

Introduction

This product family is in accordance with MIL-DTL-38999 K Serie III , EN 3645 and CECC standard for bronze shell

Proposed in aluminium, composite, stainless steel, titanium and bronze versions.
This family gives :

- A high contact density up to 128 contacts #22D.
- A quick screw coupling with self locking mechanism.
- 100% scoop proof offering polarising options by angular positioning of keys.
- EMI enhanced protection by shielding ring and shell to shell bottoming.

Moreover, composite connectors reach high performance in terms of:

- Resistance to salt spray (> 2000 hours)
- Endurance : (> 1500 mating / Unmating operations with specific contacts)

Its choice is recommended wherever weight is critical (typically –30% versus aluminium version) or particularly in harsh climatic and mechanical environments.

8D Titanium version is characterized by a very high and mechanical resistance:

- Weight saving as compared to stainless steel
- Unplated and nickel plated version available

8D / D38999 family has applications in:

- Aeronautics and military
- Marine and offshore
- Industrial.

For more informations or questions, please contact us to:

Contactmilaero@souriau.com

8D Series - MIL-DTL-38999 Series III

Overview

Standard series

QPL

Aluminium

Composite

Stainless steel

CECC

Bronze

A large panel of contacts and inserts available on whole product family.
Contacts: crimp : PC tails / Wire wrap / Coax / Triax / Power / Quadrax / Elièo (Optical fiber)

Range extension series

Titanium

Quadrax

Reinforced sealing

Hermetic

Optical Elio cts

Power

USB

Technical characteristics

Characteristics

• **Shell:**
Aluminium, composite, stainless steel, bronze

• **Shells plating:**
Aluminium shell:
Cadmium olive drab (W)
Nickel (F)
Black zinc nickel (L)
Green zinc cobalt (Z)
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)
Boîtier bronze:
Without plating

• **Insulator:** Thermoplastic or thermoset.

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

• **Contacts:** Copper alloy

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

• **Endurance:**
- 500 mating / unmating operations whatever the material used
- 1500 mating / unmating operations with composite connectors + specifics contacts

• **Shock:**
300g, 3 ms according EN 2591-D2 method A

• **Vibration:**
Sinus:
10 à 2000 Hz, 3x12 hrs
(60g, 140 – 2000 Hz)
with temperature cycling
Random:
- 50 to 2000 Hz, 2x8 Hrs
(1g²/ Hz, 100 – 2000Hz) at T° max.
- 25 to 2000 Hz, 2x8 Hrs
(5g²/ Hz, 100 – 300Hz)
(at ambiant T°)
Test with accessories in acc with EN 2591-D3

• **Contacts retention:**

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

Weight comparison

Example for a plug shell size 15

Materials	Weight
Stainless steel	58.80 grs
Titanium	33.90 grs
Aluminium	20.35 grs
Composite	14.30 grs

40% lighter
42% lighter
30% lighter

Electrical

• **Test voltage rating (Vrms):**

Service	At sea level	At 21000 m
M	1 300	800
N	1 000	600
I	1 800	1 000
II	2 300	1 000

For Quadrax see page 418

• **Contact resistance:**

Contacts size	22	20	16	12	8	4
Cts resistance (mΩ)	14.6	7.3	3.8	3.5	3	2

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

• **Contact rating:**

Contacts size	22	20	16	12	8	4
Contact rating (A)	5	7,5	13	23	45	80

• Shell continuity

Aluminium shell:
Cadmium olive drab (W): 2.5 mΩ
Nickel (F): 1 mΩ
Black zinc nickel (L): 2.5 mΩ
Green zinc nickel (Z): 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:**
Aluminium shell:
- 65 db at 10 GHz (F) – 50 db at 10 GHz (W)
- 85 db at 1 GHz (F)
- (L & Z): Consult us
Composite shell:
- 90 db at 10 GHz
- 85 db at 1 GHz
Stainless steel shell:
- 45 db at 10 Ghz (K)
- 65 db at 10 Ghz (S)
Titanium shell:
- 45 db at 10 Ghz (TT)
- 65 db at 10 Ghz (TF)
Bronze shell: 85 db at 10 Ghz

Technical characteristics

Climatics

- **Temperature range:**

Aluminium shell:
Cadmium olive drab (W): -65°C +175°C
Nickel (F): -65°C +200°C
Black zinc nickel (L): -65°C +200°C
Green zinc nickel (Z): -65°C +200°C

Composite shell:
Cadmium olive drab plating (J): -65°C +175°C
Nickel (M): -65°C +200°C
Without plating (X): -65°C +175°

Stainless steel shell:
Passivated (K): -65°C +200°C
Nickel (S): -65°C +200°C

Titanium shell:
Without plating (TT): -65°C +200°C
Nickel (TF): -65°C +200°C

Bronze shell:
No plating: -65°C +175°C

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

- **Salt spray:**

Aluminium shell:
Cadmium olive drab (W): 500 Hrs
Nickel (F): 48 Hrs
Black Zinc nickel (L): 500 Hrs
Green zinc cobalt (Z): 500 Hrs

Composite shell:
Cadmium olive drab (J) : 2000 Hrs
Nickel (M): 2000 Hrs
Without plating (X): 2000 Hrs

Stainless steel shell:
Passivated (K): 500 Hrs
Nickel (S): 48 Hrs

Titanium shell:
Without plating (TT): 500 Hrs
Nickel (TF): 48 Hrs

Bronze shell:
No plating: 500 Hrs

Resistance to fluids

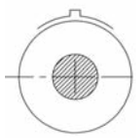
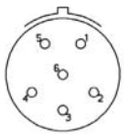
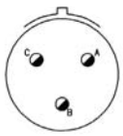
- **According to MIL-DTL-38999 standard.**
Gazoline: JP5 (OTAN F44)
Mineral hydrolic fluid: MIL-H-5606 (OTAN H515)
Synthetic hydraulic fluid: Skydrol 500 B4

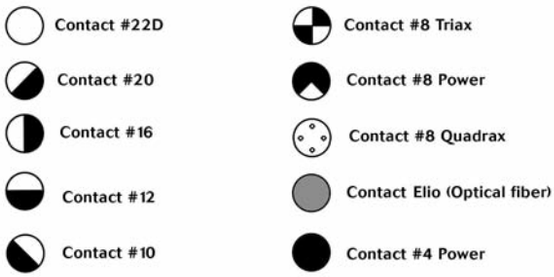
- **LD4 (SAE AS 1241).**
Mineral lubrificating: MIL-L-7870A (OTAN 0142)
Synthetic lubrificating: MIL-L-23699 (OTAN 0156), MIL-L-7808.
Cleaning fluid: MIL-DTL-25769 dilué/diluted
De-icing fluid: MIL-A-8243.
Extinguishing fluid: Chlorobrométhane
Cooling fluid: Coolanol

8D Series - MIL-DTL-38999 Series III

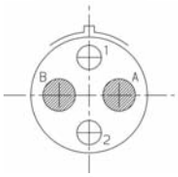
Contact layouts

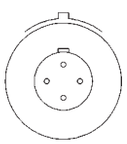
09 / A

01	35	98
		
1 Optical way	6#22D Service M	3#20 Service I

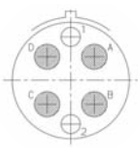


11 / B

01	01	02	02	04	05	12	22
							
1#12 Service II All series ex-cepted JVS	1#8 Service I only for JVS	2#16 Service I	2 Optical ways	4#20 Service I	5#20 Service I	1#12 Service II only for JVS	4#22D Service M

35	80	81	98	99
				
13#22D Service M	1#8 triax Service I	1#8 Quadrax	6#20 Service I	7#20 Service I

13 / C

03	04	04	08	26	35	98
						
3#16 Service I	4#16 Service I	4 Optical ways	8#20 Service I	2#12 6#22D Service M	22#22D Service M	10#20 Service I

Elio fiber optics Ethernet Quadrax

8D Series - MIL-DTL-38999 Series III

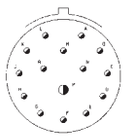
Contact layouts

15 / D

05

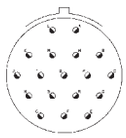
5#16
Service II

15



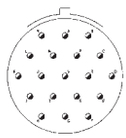
1#16
14#20
Service I

18



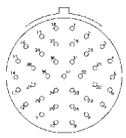
18#20
Service I

19



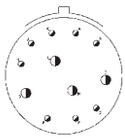
19#20
Service I

35



37#22D
Service M

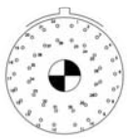
97



4#16
8#20
Service I

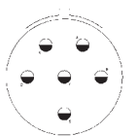
17 / E

02



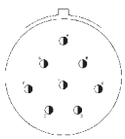
38#22D
1#8 triax
Service M

06



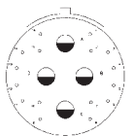
6#12
Service I

08



8#16
Service II

20



4#12
16#22D
Service M

22

2#12
2#8 Triax
Service M

26

26#20
Service I

35

55#22D
Service M

75

2#8 triax
Service M

80

2#12
2#8 Quadrax

81

38#22D
1#8 Quadrax

82

2 Quadrax

99

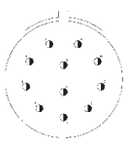
2#16
21#20
Service I

19 / F

08

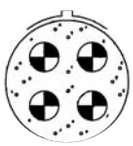
8
Optical ways

11



11#16
Service II

18



14#22D
4#8 Triax
Service M

28

26#20
2#16
Service I

32

32#20
Service I

35

66#22D
Service M

84

66#22D
Service M

Elio fiber optics

Ethernet Quadrax

8D Series - MIL-DTL-38999 Series III

Contact layouts

21 / G

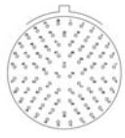
11

11#12
Service I

16

16#16
Service II

35



79#22D
Service M

39

2#16
37#20
Service I

41

41#20
Service I

42

2#4 power
Service I

48

4#8 power
Service I

59

55#22D
4#12
Service M

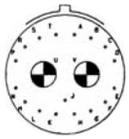
72

2#4 power
6#16
Service I

75

4#8 triax
Service M

78



17#22D
2#8 Coax
Service M

84

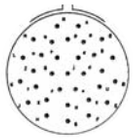
4 Quadrax

23 / H

21

21#16
Service II

32



32#20
Service I

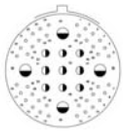
35

100#22D
Service M

53

53#20
Service I

54



4#12
9#16
40#22D
Service M

55

55#20
Service I

25 / J

04

8#16
48#20
Service I

07

2#8 triax
97#22D
Service M

08

8#8 triax
Service M

11

2#20
9#10
Service N

19

19#12
Service I

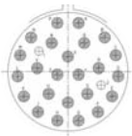
20(1)

10#20
4#12 coax
13#16
3#8 triax
Service N

24

12#16
12#12
Service II

24



24
Optical Ways

29

29#16
Service I

35

128#22D
Service M

37

37#16
Service I

41

22#22D
3#20
11#16
2#12
3#8 triax
Service M

43

23#20
20#16
Service I

44

4#4 power
4#16
Service I

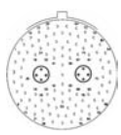
46

40#20
4#16
2#8 coax
Service I

61

61#20
Service I

82



97#22D
2#8 Quadrax

80

10#20 - 4#12 coax
13#16
3#8 Quadrax

81

22#22D - 3#20
11#16 - 2#12
3#8 Quadrax

86

40#20
4#16
2#8 Quadrax

88

8 Quadrax

90

40#20
4#16
2#8 Twinax
Service I

(1) For classes F, W, K, S only.

Elio fiber optics

Ethernet Quadrax

8D Series - MIL-DTL-38999 Series III

Contact layouts

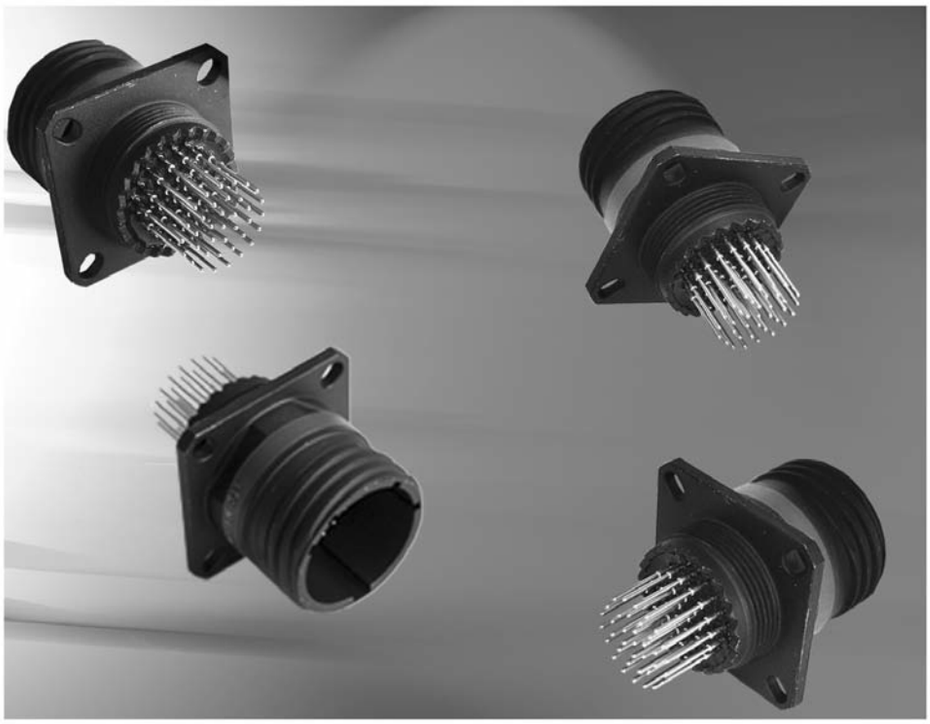
Shell Size	Layout	Service	MIL - DTL - 38999 (QPL) Alu	Stainless steel	Composite	8D Titanium	JVS (CECC) Bronze	Hermetics	Number of contacts	#22D	#20	#16	#12	#10	#8	#4 Power	Optical Way
09 / A	09 - 01	-							1								1
	09 - 05*	-							1						1 Quadrax		
	09 - 35	M					x		6	6							
	09 - 98	I					x		3		3						
11 / B	11 - 01	II							1				1				
	11 - 01	II					x		1						1 Coax		
	11 - 02	I					x		2			2					
	11 - 02	-							2								2
	11 - 04	I					x		4		4						
	11 - 05	I					x		5		5						
	11 - 12	I					x		1				1				
	11 - 22	M							4	4							
	11 - 35	M					x		13	13							
	11 - 80	I							1						1 Triax		
	11 - 81	-							1						1 Quadrax		
	11 - 98	I					x		6		6						
	11 - 99	I					x		7		7						
13 / C	13 - 04	I					x		4			4					
	13 - 04	-							4								4
	13 - 03	I							3								
	13 - 08	I					x		8		8						
	13 - 26	M					x		8	6			2				
	13 - 35	M					x		22	22							
	13 - 98	I					x		10		10						
15 / D	15 - 05	II					x		5			5					
	15 - 15	I					x		15		14	1					
	15 - 18	I					x		18		18						
	15 - 19	I					x		19		19						
	15 - 35	M					x		37	37							
	15 - 97	I					x		12		8	4					
17 / E	17 - 02	M							39	38					1 Triax		
	17 - 06	I					x		6		6						
	17 - 08	II					x		8			8					
	17 - 20	M							20	16			4				
	17 - 26	I					x		26		26						
	17 - 35	M					x		55	55							
	17 - 75	M					x		2						2 Triax		
	17 - 81	-							39	38					1 Quadrax		
	17 - 82	-							2						2 Quadrax		
	17 - 99	I					x		23		21	2					
19 / F	19 - 08	-							8								8
	19 - 11	II					x		11			11					
	19 - 18	M							18	14					4 Triax		
	19 - 28	I					x		28		26	2					
	19 - 32	I					x		32		32						
	19 - 35	M					x		66	66							
21 / G	21 - 11	I					x		11				11				
	21 - 16	II					x		16			16					
	21 - 35	M					x		79	79							
	21 - 39	I					x		39		37	2					
	21 - 41	I					x		41		41						
	21 - 42	I					x		2							2	
	21 - 48	I					x		4						4 Power		
	21 - 59	M							59	55			4				
	21 - 72	-					x		8							2	
	21 - 75	-					x		4						4 Triax		
	21 - 78	M							19	17					2 Coax		
	21 - 84	-							4						4 Quadrax		
23 / H	23 - 21	II					x		21			21					
	23 - 32	I							32		32						
	23 - 35	M					x		100	100							
	23 - 53	I					x		53		53						
	23 - 54	M							53	40		9	4				
	23 - 55	I					x		55		55						
25 / J	25 - 04	I							56		48	8					
	25 - 07	M							99	97					2 Triax		
	25 - 08	-					x(2)		8						8 Triax		
	25 - 11	N							11		2			9			
	25 - 19	I					x		19				19				
	25 - 20(1)	N					x		30		10	13	4		3 Triax		
	25 - 24	II					x		24			12	12				
	25 - 24	-							24								24
	25 - 29	I					x		29			29					
	25 - 35	M					x		128	128							
	25 - 37	I							37			37					
	25 - 41	N							41	22	3	11	2		3 Triax		
	25 - 43	I					x		43		23	20					
	25 - 44	I							8			4				4	
	25 - 46	I					x		46		40	4			2 Coax		
	25 - 61	I					x		61		61						
	25 - 80	N							30		10	13	4		3 Quadrax		
	25 - 81	N							41	22	3	11	2		3 Quadrax		
	25 - 82	M							99	97					2 Quadrax		
	25 - 86	I							46		40	4			2 Quadrax		
	25 - 88	-							8						8 Quadrax		
	25 - 90	-				x					40	4			2 Quadrax		

* Grounded Insert only - (1) For classes F, W, S, K only - (2) For CECC, Layout 25 - 08 only delivery without contact

Layout according to MIL-DTL-38999 X = Layout according to CECC 75.201.00

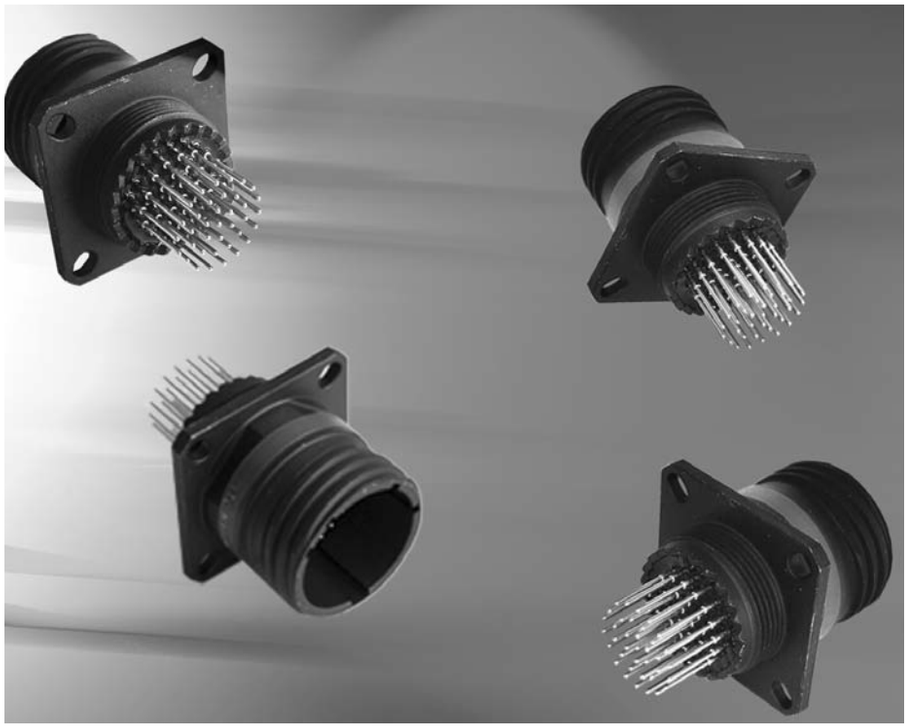
Souriau's layout

8D Reinforced sealing series



Derived from: MIL-DTL-38999 Series III

8D Reinforced sealing series



Description

- Reinforced sealing receptacle with male or female straight spill contacts.
- High hermiticity performance: 10^{-7} atm.cm^3/s
- 100 % scoop proof.
- High density connectors.
- Lower profile for compactness.
- Weight saving compared to hermetic version.
- Reinforced sealing for harsh environments.
- Good shock resistance.

Layouts

Arrangements / Layouts

All 8D layouts can be manufactured with Resin sealed (except power).

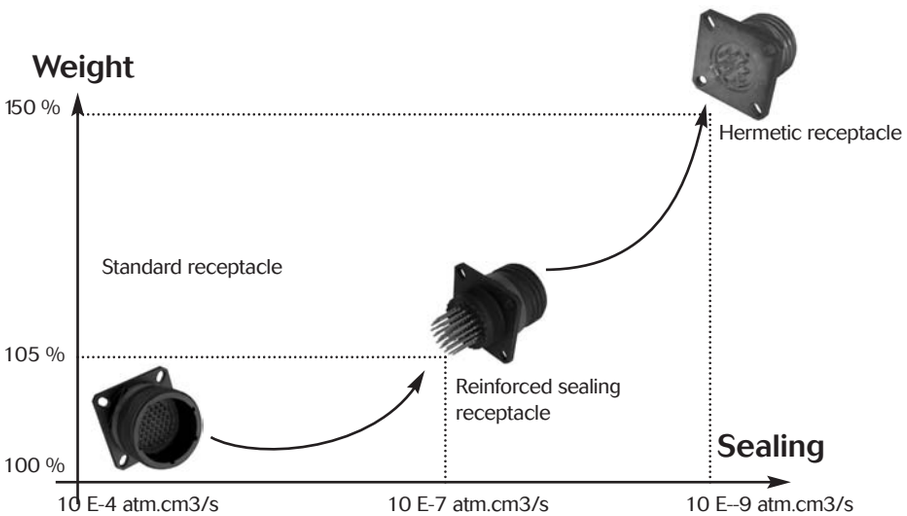
Ordering information

After the basic series "8D", related to the digit "R" (8D+R…).
Don't forget the digit related to the spill lenght (C, M, L, S).

Examples:

8D (Alu) = 8DR 0 C 13 W 35 PN
8D (Titane) = 8DR 7 L 13 TT 35 PN

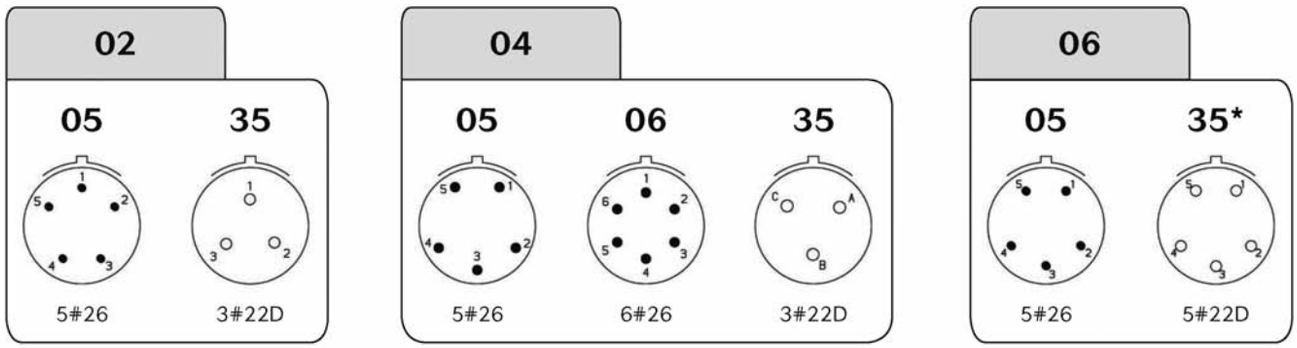
Comparison between standard, renforced sealing and hermetic version



8STM Compact Connectors Series

Derived from: MIL-DTL-38999

Contact layouts



* For PC tail contacts, please consult us.

Ordering information

Basic Series	8STM	0	C	02	W	05	P	N	...

Shell type:
- **0:** Square flange receptacle with conductive gasket
- **1:** In line receptacle with conductive gasket
- **6:** Plug without conductive gasket
- **7:** Jam nut receptacle with conductive gasket

Style:
- **None:** Connectors with standard crimp contact
- **C:** Receptacle with PC tail contacts (shell styles 0 and 3 only)

Shell size: 02 - 04 - 06

Plating :
- **W:** Olive drab cadmium
- **F:** Nickel

Contact layouts: See table in the beginning

Contact type:
- **P:** Pin
- **S:** Socket

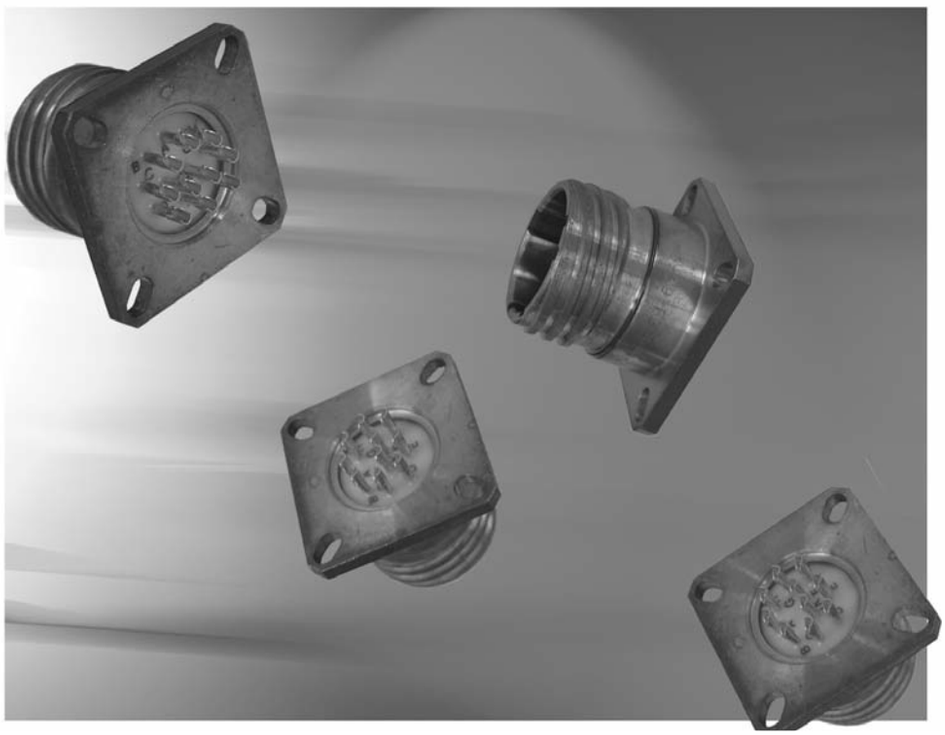
Orientation:
- **N, A, B, C, D, E, U:** Blue

Specification:
- **None:** Standard version
- **022:** Fuel tank version

Shell type

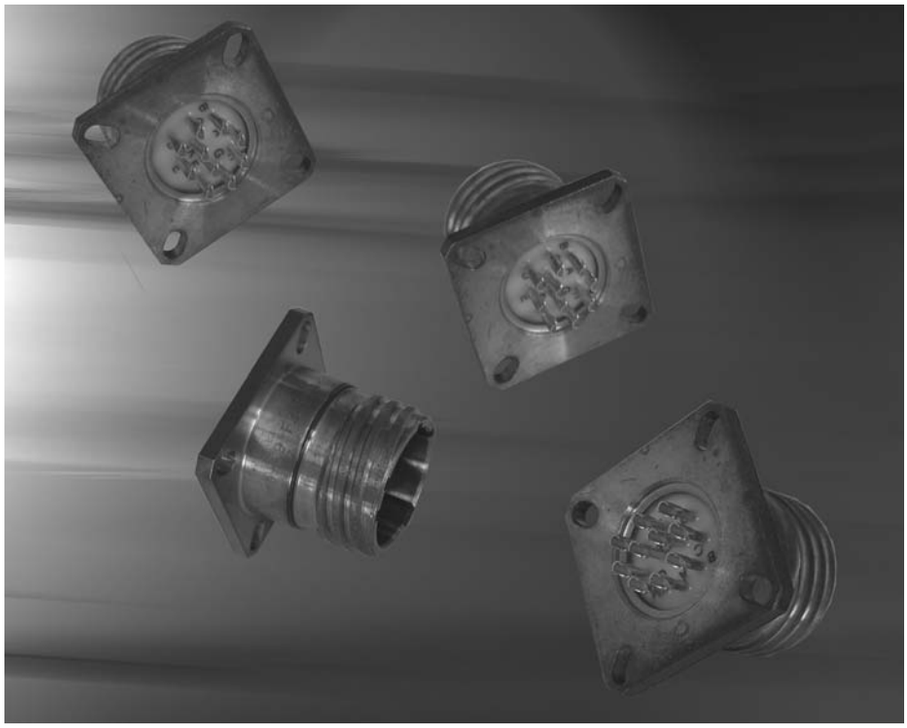
Note: for any further product, please refer to the 8STM catalogue.

F 38999 Hermetic



Derived from: MIL-DTL-38999 Serie III

F 38999 Hermetic



Description

As per MIL-DTL 38999

- Glass insulator
- High hermiticity performance
- Ideal for high pressure environments
- Low profile

Technical features

Mechanical

- **Shell:** stainless steel
- **Shell plating:** passivated
- **Interfacial seal:** silicone elasthomer
- **Contacts:** gold
- **Endurance:** 500 operations
- **Hermeticity:**
  no leakage in excess of 10^{-7} cm^3/s

Electrical

- **Test voltage rating:**

Service	Sea level	At 2100 m
M	1 300	800
I	1 800	1 000
II	2 300	1 000

- **Shielding:** 45 dB at 10 GHz
- **Insulation resistance:**
  5000 mΩ (under 500 Vdc)
- **Current rating:**

Contact size	Rating (A)
# 22 D	3
# 20	5
# 16	10
# 12	17

Environmental

- **Temperature:** -65°C at 200°C
- **Salt spray:** per MIL DTL 38999

Ordering information

Basic Series	F38999	21	Y	A	35	P	N	WF	-

Shell style:
21: Box mounting flange receptacle
23: Jam nut receptacle
25: Solder mounting receptacle

Class:
Y: Passivated stainless steel

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

Contact layout:
See page 139to 141

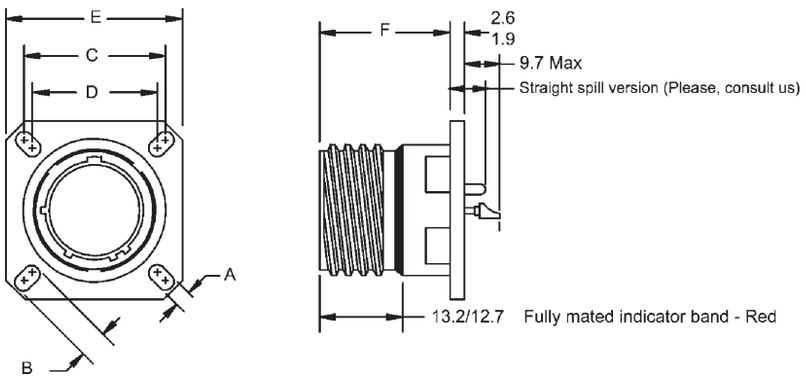
Contact types:
P: Male solder cup
C: Male straight spill (please consult us)

Orientation:
N, A, B, C, D, E (See page 190)

WF: Mandatory suffix

Specification:
None for standard product

Box mounting flange receptacle (type 21)

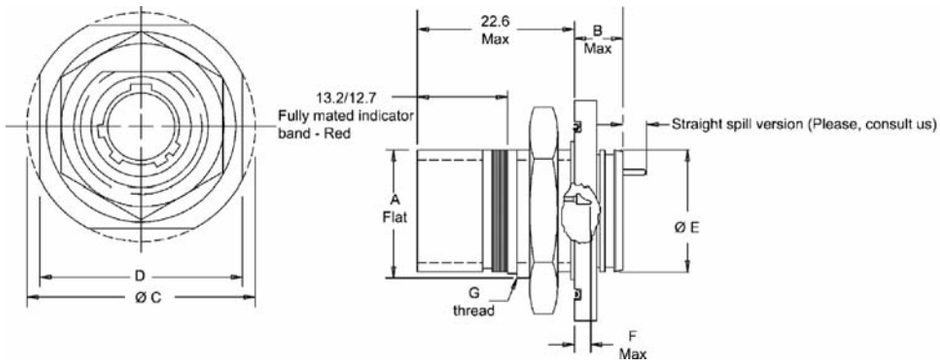


Shell A size	± 0.20	B ± 0.20	C	D	E ± 0.30	F Max.
A (9)	3.25	5.49	18.26	15.09	23.80	21.40
B (11)	3.25	4.93	20.62	18.26	26.20	21.40
C (13)	3.25	4.93	23.01	20.62	28.60	21.40
D (15)	3.25	4.93	24.61	23.01	31.00	21.40
E (17)	3.25	4.93	26.97	24.61	33.30	21.40
F (19)	3.25	4.93	29.36	26.97	36.50	21.40
G (21)	3.25	4.93	31.75	29.36	39.70	21.40
H (23)	3.91	6.15	34.93	31.75	42.90	21.40
J (25)	3.91	6.15	38.10	34.93	46.00	21.40

Dimensions in millimeters

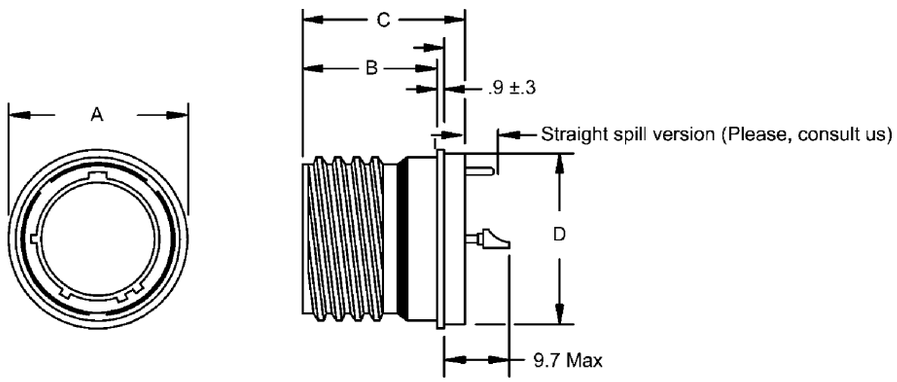
F 38999 Hermetic

Jam nut receptacle type 23



Shell size	A flat +.10 -.15	B Max.	Ø C ± .3	Ø D ± .4	Ø E ± .3/0	F Max.	G thread
A (9)	16.53	9.10	30.20	27.00	16.30	5.30	M17 x 1-6g
B (11)	19.07	9.10	34.90	31.80	19.40	5.30	M20 x 1-6g
C (13)	23.82	9.10	38.10	34.90	22.70	5.10	M25 x 1-6g
D (15)	26.97	9.10	41.30	38.10	25.90	5.10	M28 x 1-6g
E (17)	30.15	9.10	44.50	41.30	29.00	5.10	M32 x 1-6g
F (19)	33.32	9.70	49.20	46.00	32.20	5.10	M35 x 1-6g
G (21)	36.50	9.70	52.40	49.20	35.40	5.10	M38 x 1-6g
H (23)	39.67	9.70	55.60	52.40	38.60	5.10	M41 x 1-6g
J (25)	42.85	9.70	58.70	55.60	41.70	5.10	M44 x 1-6g

Solder mounting receptacle (type 25)



Shell size	ØA B Max.	Max.	C Max.	D Max.
A (9)	19.40	17.20	23.80	17.10
B (11)	21.80	17.20	23.80	19.90
C (13)	24.90	17.20	23.80	23.10
D (15)	28.10	17.20	23.80	26.20
E (17)	31.30	17.20	23.80	29.40
F (19)	33.60	17.20	23.80	31.80
G (21)	36.80	17.20	23.80	35.00
H (23)	40.00	17.20	24.60	38.20
J (25)	43.20	17.20	24.60	41.30

Dimensions in millimeters

8D Series with RJ45-USB

Derived from: MIL-DTL-38999 Serie III

8D Series with RJ45-USB

Description

- Derived from MIL-DTL-38999 Serie III
- True ruggedized RJ45 & USB A solution
- High vibration resistance
- Shock resistant
- IP67
- Shielded
- No tools for cabling

Application

- Data transmission using standard interface.
- Flight data transmissions.

Technical features

Mechanical

- **Aluminium:**
- **Composite:**
- **Shell:** aluminium alloy or carbon reinforced thermoplastic
- **Shell plating:**
  - nickel or olive green cadmium
  - composite no protection
- **Insert:** thermoplastic
- **Endurance:** 500 matings
- **Vibration:** 10-500 Hz 20 g
- **RJ 45 receptacle jack:**
- **USB A jack receptacle:**

Electrical

- **RJ45:** - 10 BaseT, 100 BaseTX and 1000 BaseT Networks cat 5e per TIA/EIA 568 A/B
- **USB serie A:** meet all requirement of the "Universal serial bus specification" (revision 2)

Environmental

- **Meets MIL-DTL-38999**
  Excepted:
- **Sealing:** IP67 with cap MIL-DTL-38999
- **Temperature:** -40°C at 85°C

Fluid resistance

- **Meets MIL-DTL-38999**
  Excepted:
  with a cap
  Backshells and caps
  Per AS85049 or equivalent sold separately

  NB: No tools for cabling

8D Series with RJ45-USB

Ordering information

Basic Series	8D	0	F	19	W	RJ	S	N	***

Shell style:
- **0:** square flange receptacle
- **5:** plug
- **7:** jam nut receptacle (Aluminium only)

Designator:
- **F:** feedthrough
- **S:** solder out
- **C:** Pigtail cable receptacle
- **P:** Pigtail cable plug

Shell size:
- **17:** USB
- **19:** RJ 45

Plating:
- **W:** cadmium / olive drab cadmium (Aluminium)
- **F:** nickel (Aluminium)
- **X:** no plating (composite)
- **J:** cadmium / olive drab cadmium (composite)
- **M:** nickel / nickel (composite)
- **L:** black zinc (Aluminium) - Please, consult us
- **Z:** zinc cobalt

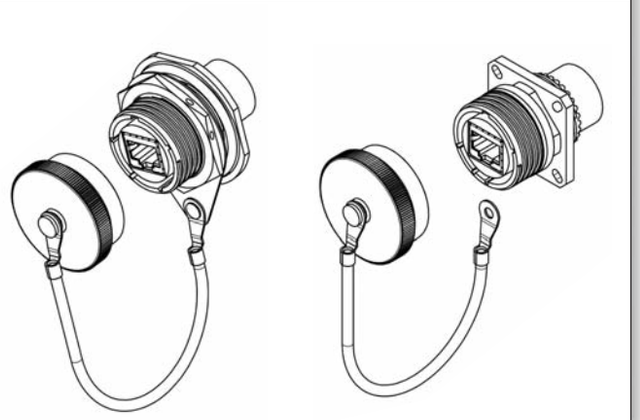
Insert:
- **RJ:** RJ 45
- **UA:** USB type A
- **UB:** USB type B (please consult us)

Contact style:
- **S:** receptacle
- **P:** plug

Keying:
- **N, A, B, C, D, E** (See page 190)

Cable length:
- **Numbers of specification:** available for specific lenght (please consult us)
- **None:** for plug and receptacle supplied with pigtail, the cable lenght standard is 12 inches (304 mm)
  Exemple : pigtail cable receptacle standard = 8D0C19WRJSN
  Exemple : pigtail cable plug standard = 8D5P19WRJPN

8D RJ 45 Series



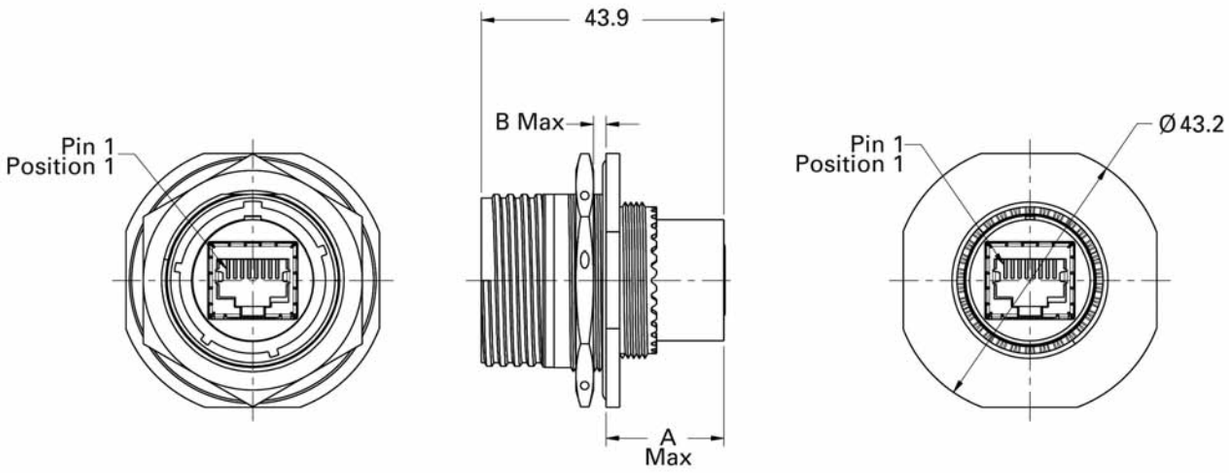
8D USB Series

Nota :
- Caps for plug and receptacle: must be ordered separatly
- This connectors accepted the standard accessories Mil-DTL-3899
- Bronze version (JVS) and stainless steel (D3899-K,S) connectors are available (please consult us)

8D Series with RJ45-USB

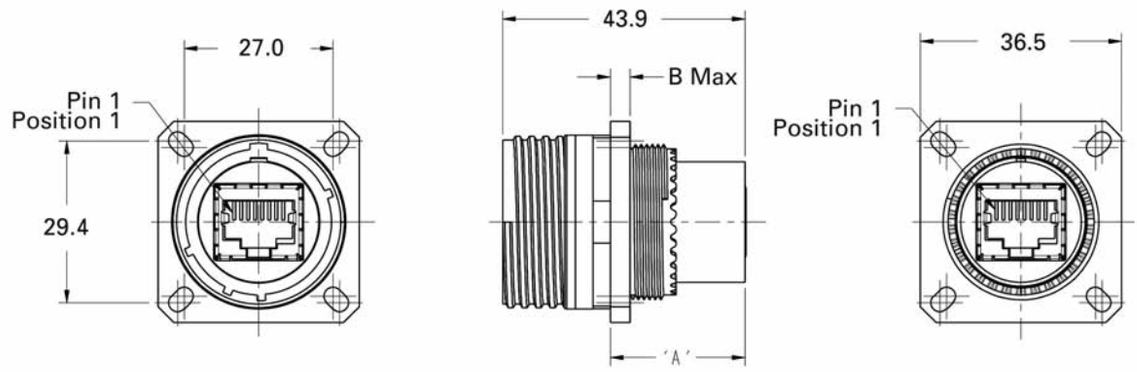
RJ 45 Feedthrough serie

Jam nut receptacle



Shell A type	Max.	B Max.
Aluminium	21.34	3.20

Square flange receptacle



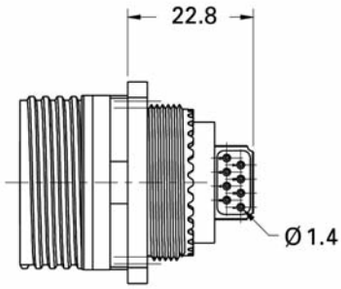
Shell A type	Max.	B Max.
Aluminium	21.34	3.20
Composite	21.34	3.20

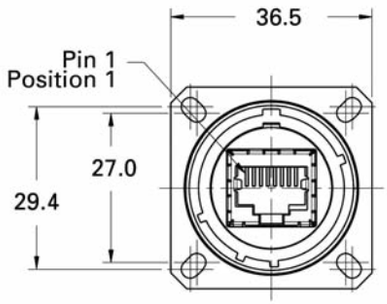
8D Series with RJ45-USB

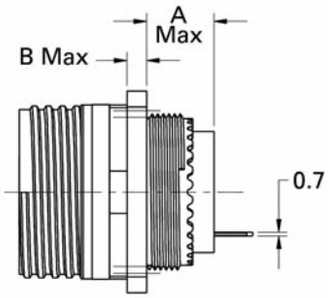
RJ45 Solder out serie

Suare flange receptacle

Shell A type	Max.	B Max.
Aluminium	11.91	2.50
Composite	12.14	3.65

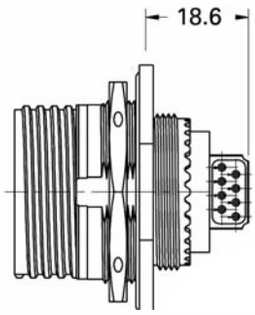


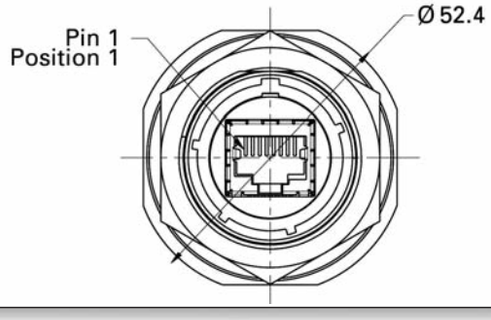


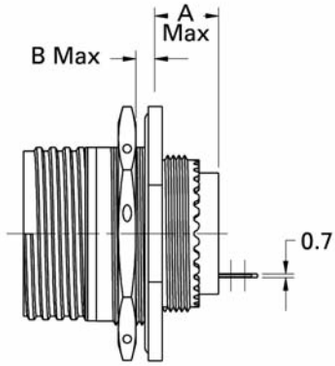


Jam nut receptacle

Shell A type	Max.	B Max.
Aluminium	12.70	3.20



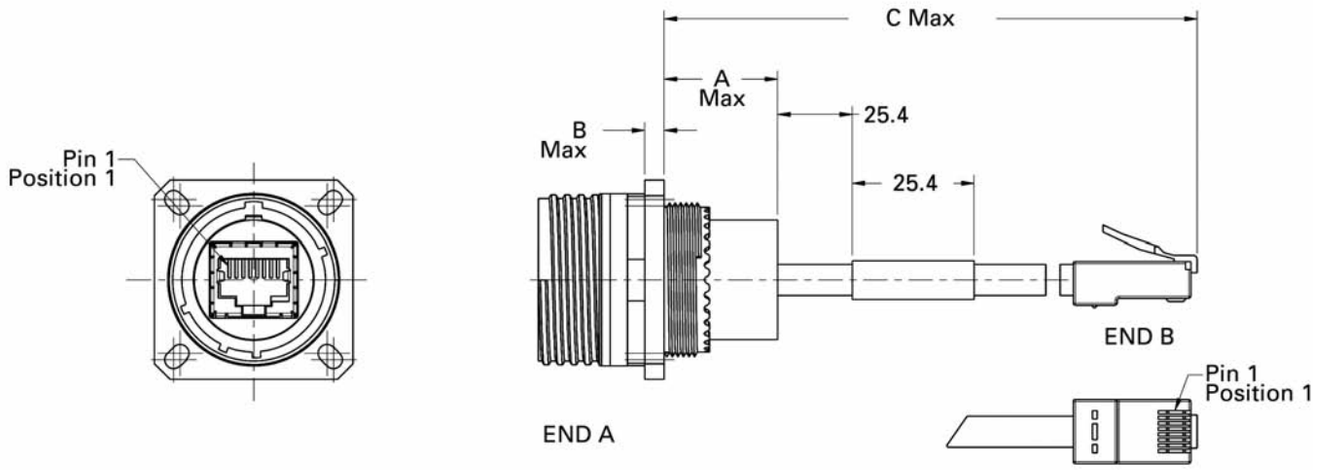




8D Series with RJ45-USB

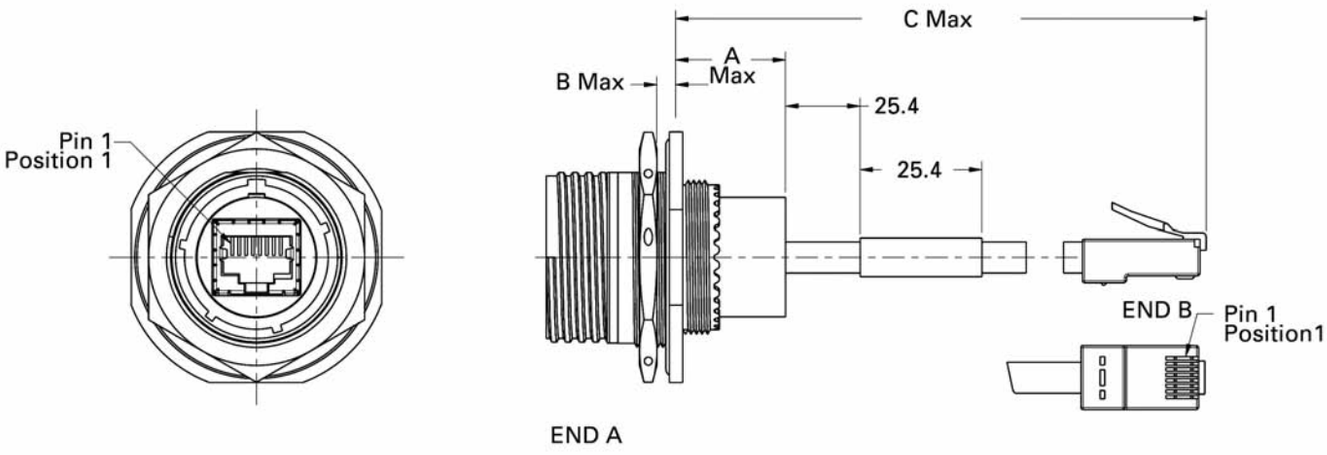
RJ45 Pigtail serie

Suare flange receptacle



Shell A type	Max.	B Max.	C Max.
Aluminium	20.78	2.50	304.80 ±25.4
Composite	20.78	3.65	304.80

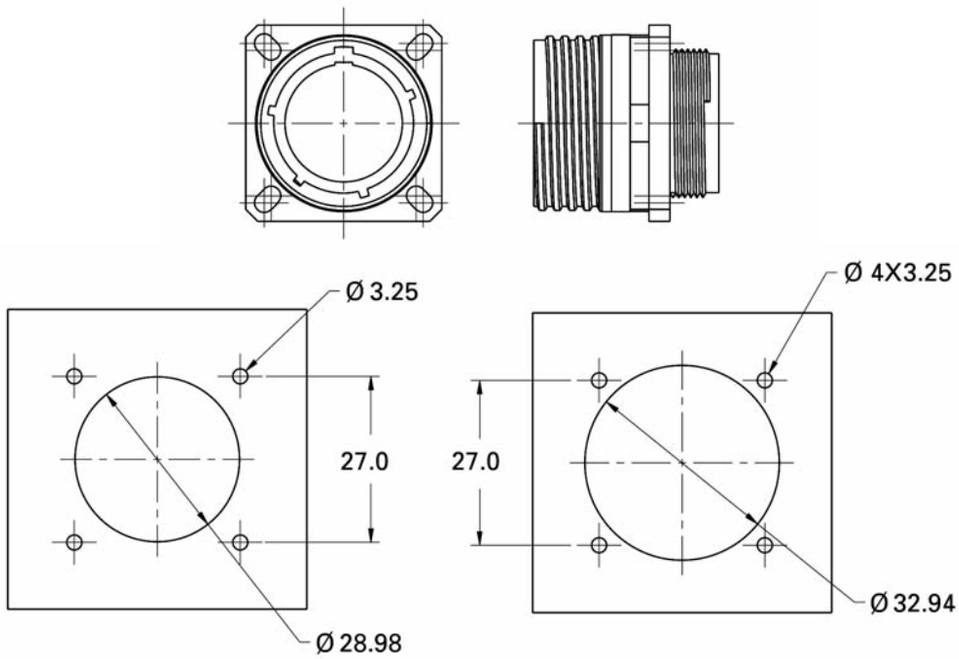
Jam nut receptacle



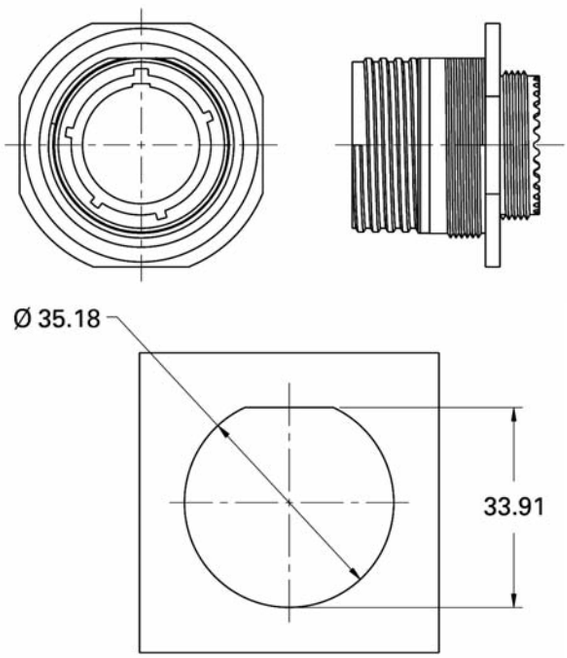
Shell A type	Max.	B Max.	C Max.
Aluminium	21.34	3.20	304.80 ±25.4

Panel cut out for RJ45 serie

Suare flange receptacle



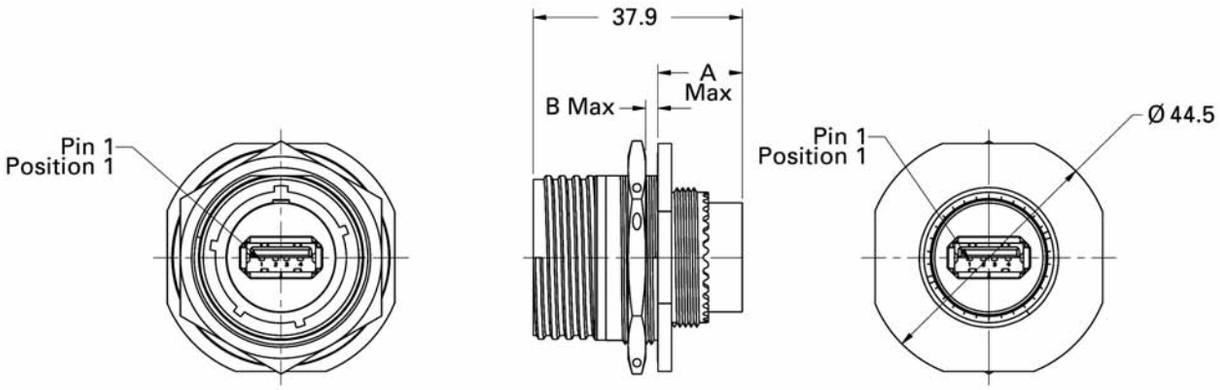
Jam nut receptacle



8D Series with RJ45-USB

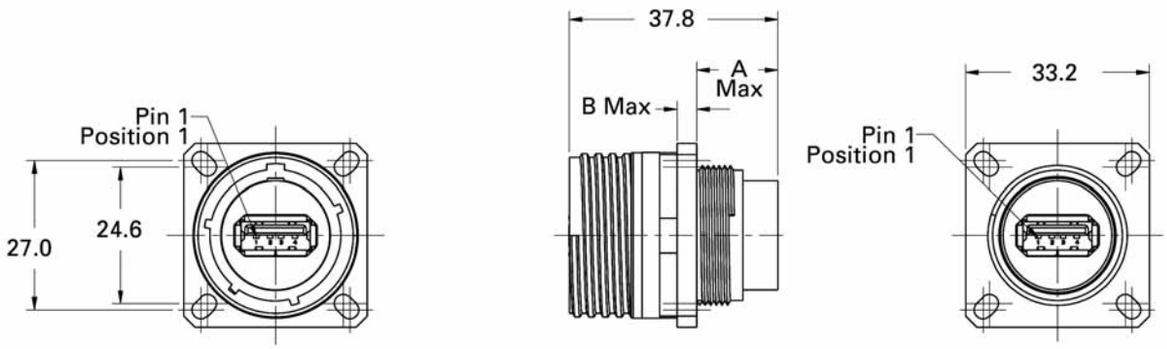
USB Feedthrough serie

Jam nut receptacle



Shell A type	Max.	B Max.
Aluminium	15.24	3.20

Square flange receptacle



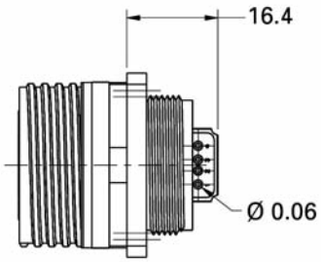
Shell A type	Max.	B Max.
Aluminium	4.45	2.50
Composite	4.88	3.85

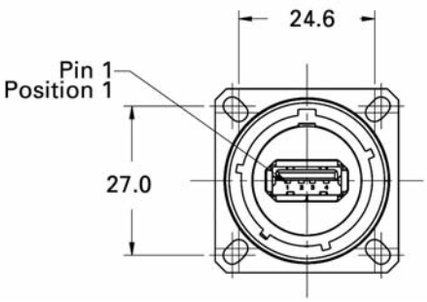
8D Series with RJ45-USB

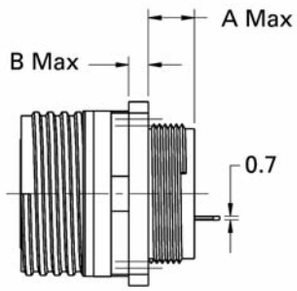
USB Solder out serie

Suare flange receptacle

Shell A type	Max.	B Max.
Aluminium	8.10	2.50
Composite	8.33	3.65

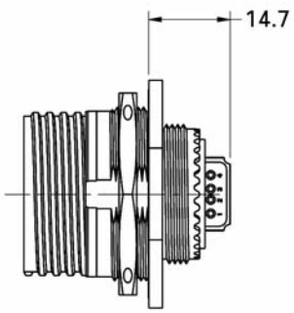


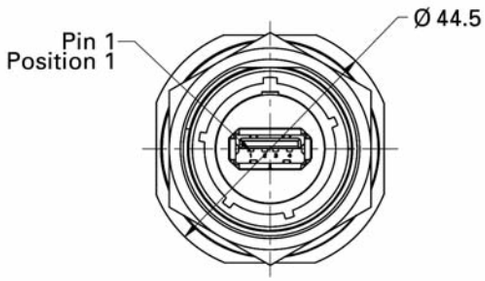


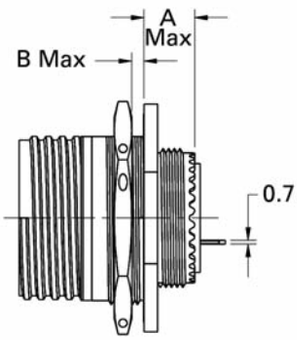


Jam nut receptacle

Shell A type	Max.	B Max.
Aluminium	11.94	3.20



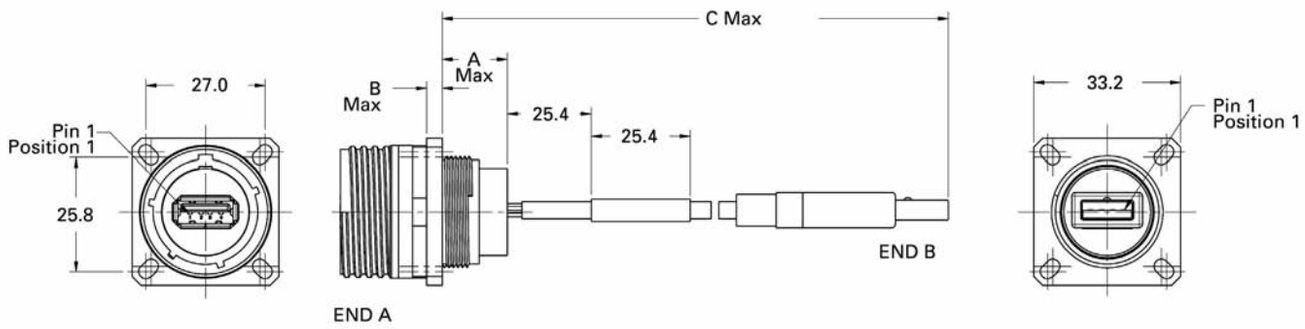




8D Series with RJ45-USB

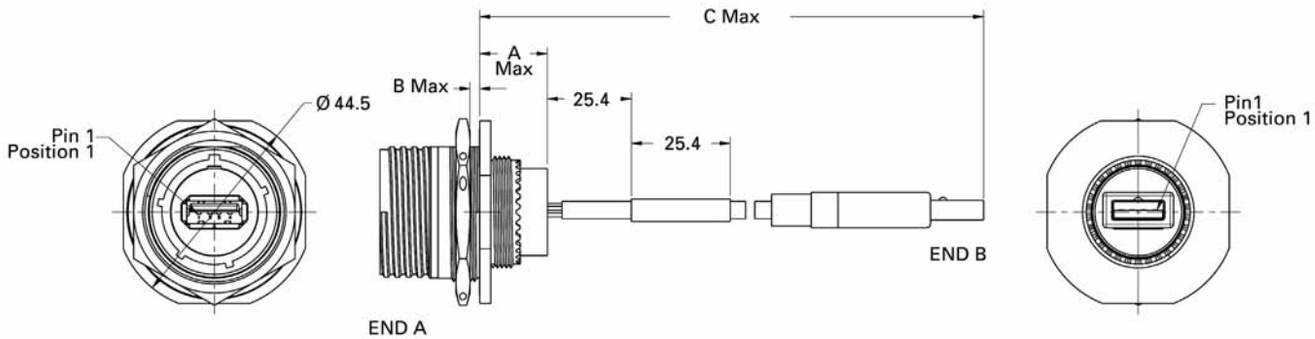
USB Pigtail serie

Suare flange receptacle



Shell A type	Max.	B Max.	C Max.
Aluminium	14.45	2.50	304.80 ±25.4
Composite	14.68	3.65	304.80

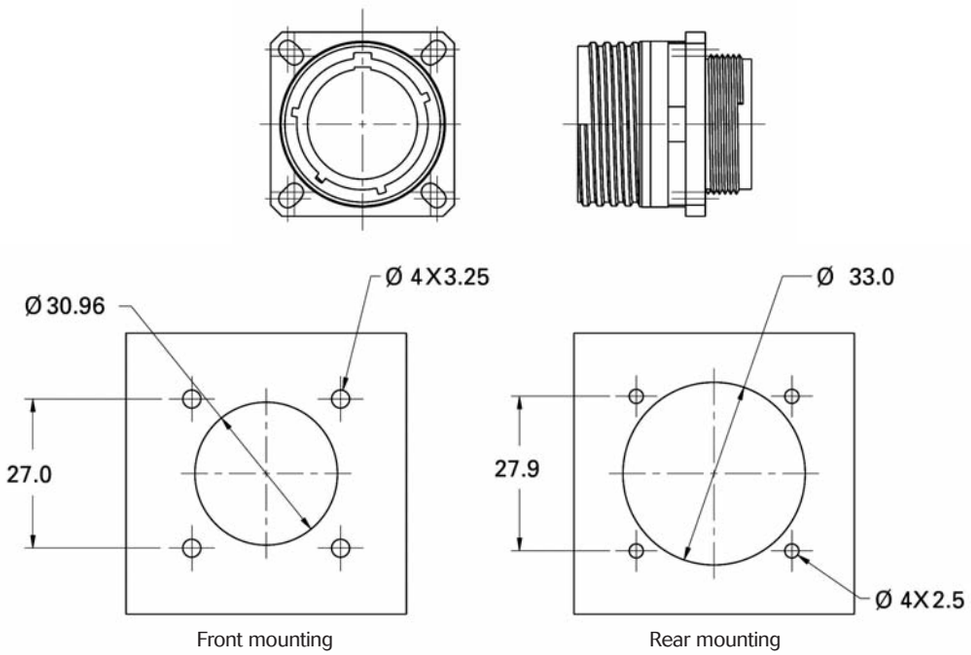
Jam nut receptacle



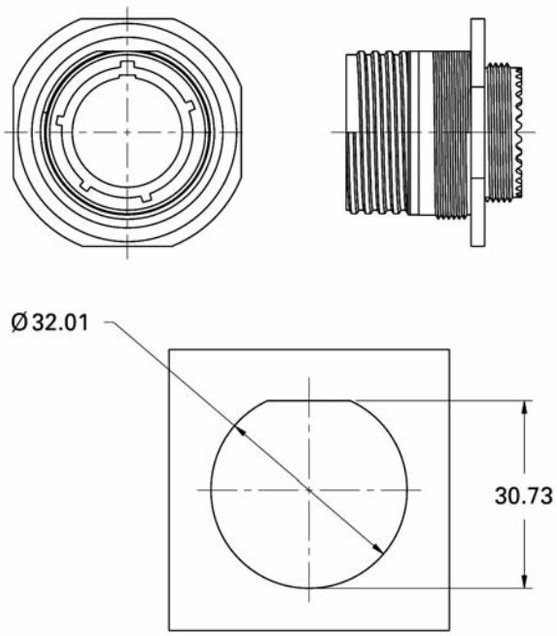
Shell A type	Max.	B Max.	C Max.
Aluminium	15.24	3.20	304.80 ±25.4

Panel cut out for USB serie

Suare flange receptacle



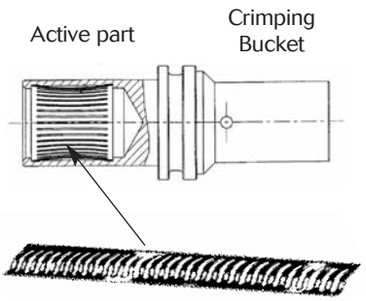
Jam nut receptacle



Technical Features And Benefits

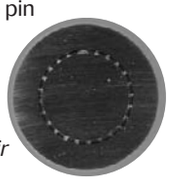
A unique contact design with a braid socket

- Enabling **20 contact points** for a size 4 contact vs 2 or 3 for a standard socket,
- Allowing **20 % more intensity** as compared to standard socket,
- Excellent **vibration withstanding**,
- Insure **excellent crimping** (crimping bucket can be heat treated to insure good plasticity without affecting the active part elasticity insuredby the braid – added after heat treatment).



Braid : active part of the socket.

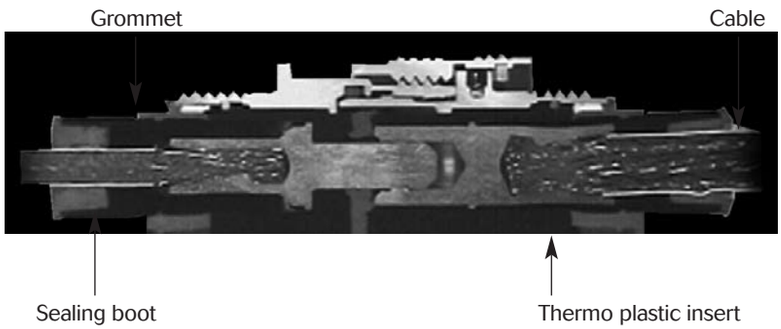
20 contact points on the pin for a #4 contact



Cut of a contact mated pair

A versatile individual sealing on the cable

- Sealing on the cable done thanks to a sealing boot,
- Same connector can **accomodate a wild range of cable diameter.**



Longitudinal cut of a connector

A contact technology integrated in well proven standard aeromil connectors

- Up to 200°C service temperature,
- Up to 60G vibration withstanding.

8D Power Series

Description

- Quick screw coupling connector with removable crimp contact.
- Designed to be used in severe environments, fluid resistance, high shock and vibration.
- Shell available in, aluminium, composite, Stainless steel, Titanium & Bronze.
- Six layouts with different current rating.
- Consult us for power hermetic version.

Applications

- Power supply in harsh environment: Electro Hydraulic actuator on Aircraft wings, Electro Mechnical actuator for Aircraft Thrust Reverser…

Technical Features

Mechanical

- **Shell:** Aluminum alloy, Composite, Bronze, Stainless steel, Titanium.
- **Plating:**
  - Olive green cadmium (W/J),
  - Nickel (F/M/TF/S),
  - Without plating (X for composite, TT for titanium and JVS),
  - Passivated (K).
- **Grommet and seal:** Silicon elastomer.
- **Insulator:** Thermoset
- **Contact body:** Copper Alloy.
- **Contact retention:**
  #• 4 = 200N - # 8 = 111N.
- **Shock:** 300 g during 3ms.
- **Endurance:** 500 mating / unmating operations.
- **Vibration:** as per MIL DTL 38999.

Electrical

- **Dielectric withstanding:**
Test voltage rating (Vrms).

Service	Sea level	at 21 000 m
M	1 300	800
I	1 800	1 000

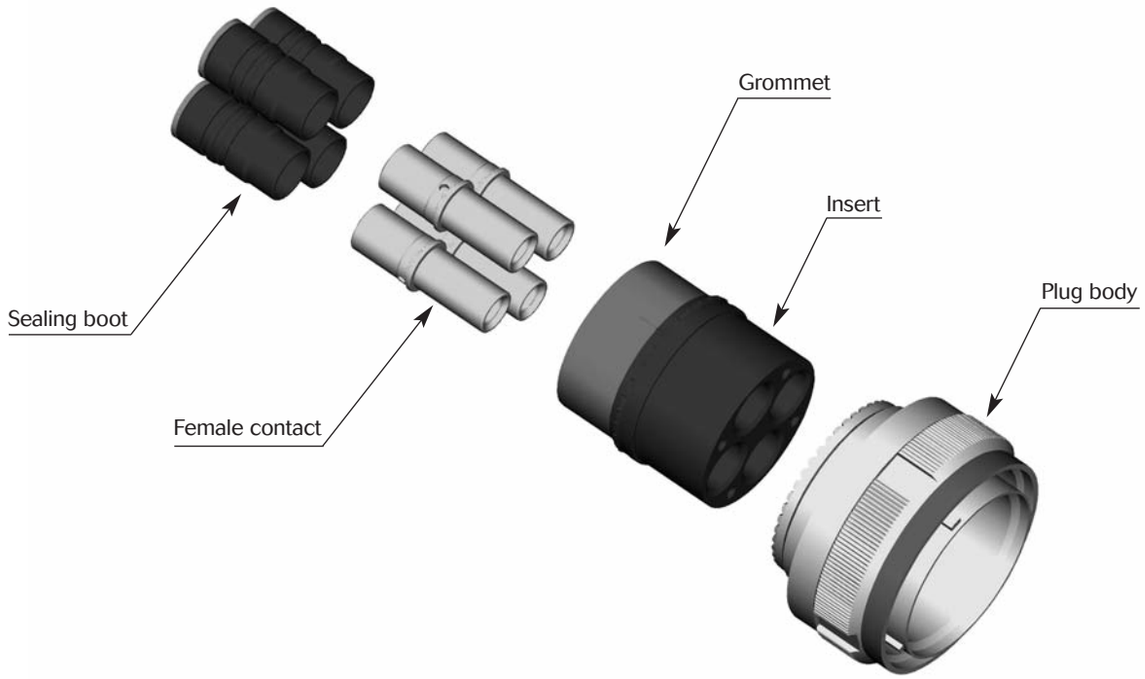
- **Insulation Resistance:** 5000 MΩ under 500 Vdc.
- **Max current rating per contact:**
  # 4 = 80 A - # 8 = 45 A.
- **Contact resistance:**
  # 4 = 2 mΩ - # 8 = 3 MΩ.
- **Shielding:** as per MIL DTL 38999.
- **Electrical continuity:**
  W = 2.5 mΩ, F = 1mΩ,
  J, M = 3 mΩ,
  JVS = 5 mΩ.

Environmental

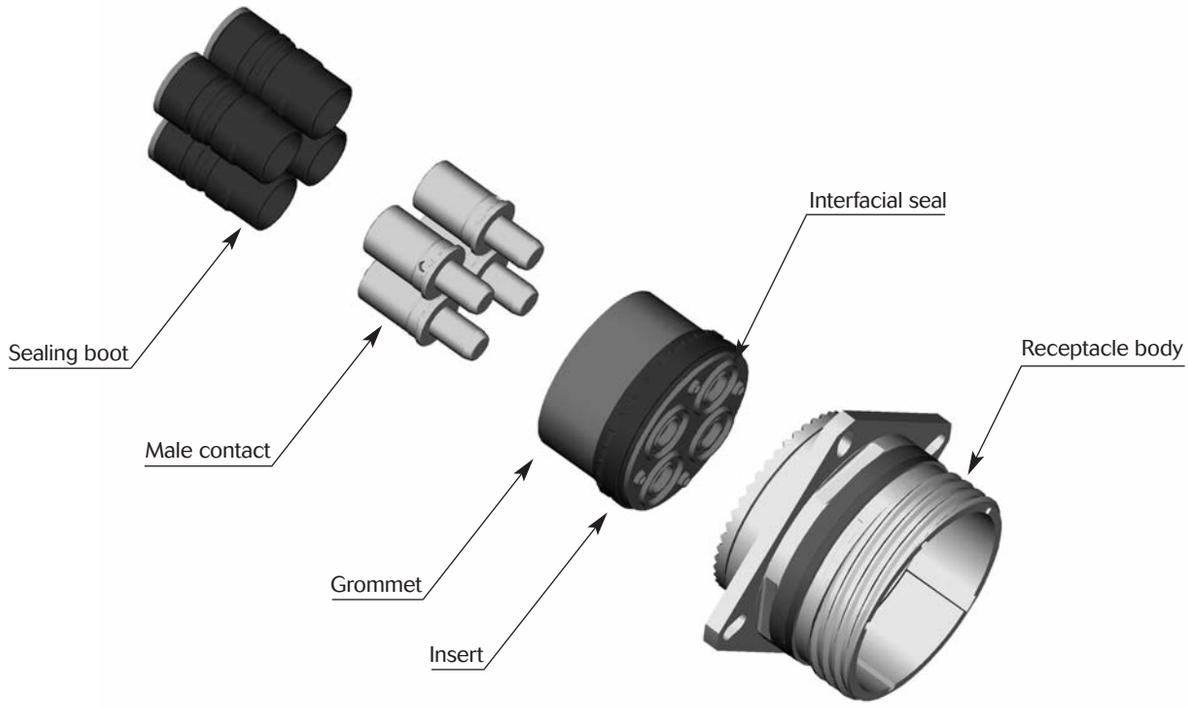
- **Temperature range:**
  W, J, X, JVS = - 65°C +175°C,
  F, M, K, S, TT, TF = - 65°C +200°C.
- **Sealing:** as per MIL DTL 38999.
- **Damp Heat:** as per MIL DTL 38999.
- **Slat Spray:**
  W, TT, TF, K, JVS = 500 hours,
  F, S = 48 hours,
  J,M,X = 2000 hours.
- **Fire resistance:**
  as per EN 2591 - c 17 method A.
- **Resistance to fluid:**
  as per MIL – DTL - 38999.

3D view

Female Plug



Male Receptacle



8D Power Series

Ordering information

Basic Series	8D	0	-	11	W	80	P	N	251

Style: 0: Square flange receptacle
5: Plug with RFI shielding
7: Jam nut receptacle

Type: Crimp contact

Shell Size: 11 - 17 - 21 - 25

Plating: (according shell material - see below)

Aluminum shell:	**W** (olive green cadmium)	**F** (nickel)	
Composite shell:	**J** (olive green cadmium)	**M** (nickel)	**X** (without plating)
Stainless steel shell:	**K** (corrosion resistant)	**S** (nickel)	
Titanium shell:	**TT** (without plating)	**TF** (nickel)	

Contact layouts: see p. 267

Contact style	**P:** Pin contact	**A:** Male connector supplied without contact.
	S: Socket contact	**B:** Female connector supplied without contact.

Orientation: N - A - B - C - D - E

Specification: 251: to be added for layouts 11-80, 17-75, 21-75, 25-08 to be supplied with power contacts.

Ordering information (Marine Bronze serie)

Basic Series	JVS	16	A	11	80	P	N	251

Style: 00: Square flange receptacle
07: Jam nut receptacle
16: Plug

Material: A: Bronze shell material

Shell Size: 11 - 17 - 21 - 25

Contact layouts: see p. 267

Contact style	**P:** Pin contact	**A:** Male connector supplied without contact.
	S: Socket contact	**B:** Female connector supplied without contact.

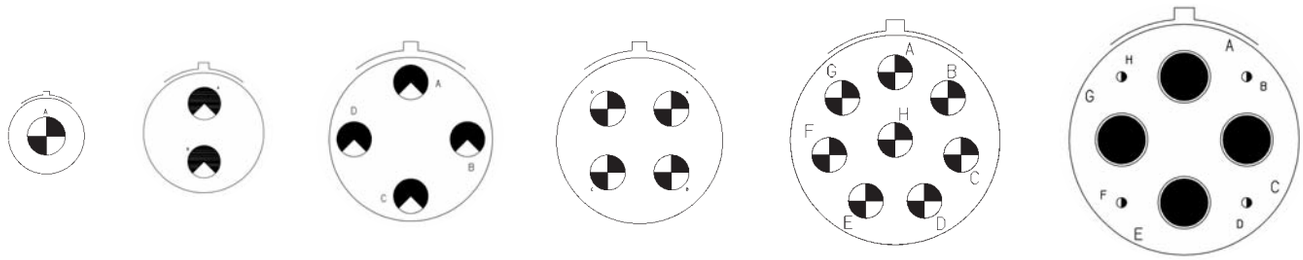
Orientation: N - A - B - C - D - E

Specification: 251: to be added for layouts 11-80, 17-75, 21-75, 25-08 to be supplied with power contacts.

8D Power Series

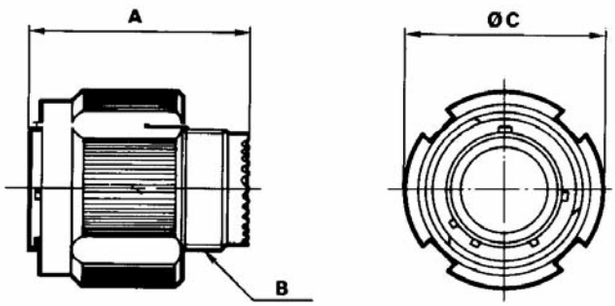
Layouts

11-80	17-75	21-48	21-75	25-08	25-44
Spec 251	*Spec 251*		*Spec 251*	*Spec 251*	



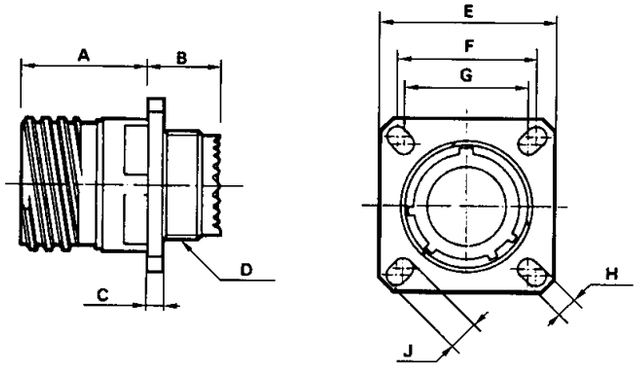
1#8	2#8	4#8	4#8	8#8	4#4 - 4#16

Dimension plug type 5 - for all material



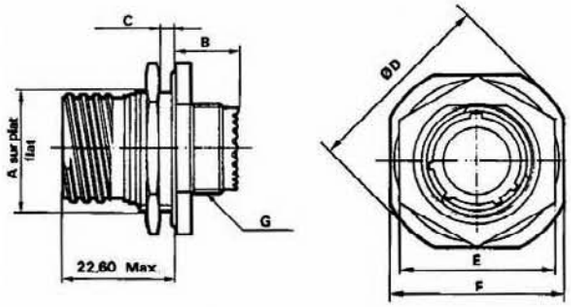
Shell size	11	17	21	25
A max	31	31	31	31
B (thread)	M 15x1-6 g	M 25x1-6 g	M 31x1-6 g	M 37x1-6 g
C max	25,00	36,5	42,5	48,4

Dimension receptacle type 0 - for all material



Shell size	11	17	21	25
A max	20,83	20,83	20,10	20,10
B max	12,00	12,00	12,00	12,00
C max	2,50	3,65	4,35	4,35
D (Thread)	M15x1-6 g	M 25x1-6 g	M 31x1-6 g	M 37x1-6 g
E ± 0,3	26,20	33,30	39,70	46,00
F	20,62	26,97	31,75	38,10
G	18,26	24,61	29,36	34,93
H ± 0,20	3,25	3,25	3,25	3,91
J ± 0,20	4,93	4,93	4,93	6,15

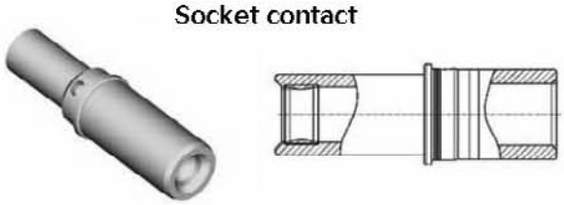
Dimension Jam nut type 7 - for all material (excepted composite)



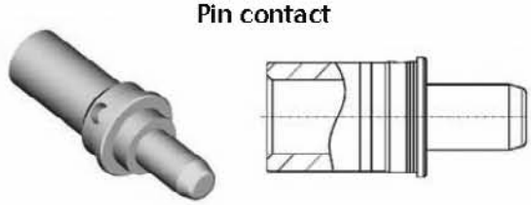
Shell size	11	17	21	25
A +0.10 -0.15	19.07	30.18	36.50	42.85
B max	9.90	9.90	9.90	9.90
C max	3.20	3.20	3.20	3.20
D max	35.20	44.80	52.70	59.00
E max	27.00	37.00	46.00	51.23
F 0.4	31.80	41.30	49.20	55.60
G (thread)	M 15x1-6g	M 25x1-6g	M 31x1-6g	M 37x1-6g

Contacts

Socket contact



Pin contact



Contact size	Contact type	Contact reference	Cable		Protection	Dimensions	
			Cable size	Cable material		L	D
#4	Male	8599-7534	#4-5 or 10-16mm² **	Copper	Au	9.70	5.74
	Female	8599-7535				16.58	8.50
	Male	8599-7598 900 *	for cable 25mm² (#3)	Copper	Au	9.70	5.74
	Female	8599-7599 900 *				16.58	8.50
#4 with reduced barrel	Male	8599-7528 900	#6 or 10mm² **	Copper	Au	9.70	5.74
	Female	8599-7529 900				16.58	8.50
#8 JVS only	Male	8599-7544	#8 or 10 **	Copper	Au	9.60	3.64
	Female	8599-7541				16.00	7.30
#8	Male	8599-7580	#8 or 10 **	Copper	Au	9.60	3.64
	Female	8599-7581				16.00	7.30

* Not included in connector P/N. Must be ordered separately.
** To be used with crimping bucket reductor.

Sealing boot and crimping bucket reducer

Contact size	Cable size	Cable material	Sealing boot reference
#4	16mm²	Copper	8599-4594
	10mm²		8599-4593
#8	#8	Copper	8599-4542
	#10		8599-4547

Contact size	Cable size	Reducing sleeve reference
#4	10mm²	8400-2352A
#8	#10	8599-7545

Tooling

Contact size	Contact type	Contact reference	Cable AWG	Crimping tool	Die set	Locator	Contact extraction tool (metallic)	Contact extraction tool (plastic)
#4	Male	8599-7534	#4-5 or 10-16mm² *	M22520/23-01	M22520/23-04	M22520/23-11	8533-8175	M81969/14-07
	Female	8599-7535	#4-5 or 10-16mm² *	M22520/23-01	M22520/23-04	M22520/23-11	8533-8175	M81969/14-07
#8 JVS only	Male	8599-7544	#8 or 10 *	M22520/23-01	M22520/23-02	8599-9601	8660-197	M81969/14-12
	Female	8599-7541	#8 or 10 *	M22520/23-01	M22520/23-02	8599-9601	8660-197	M81969/14-12
#8	Male	8599-7580	#8 or 10 *	M22520/23-01	M22520/23-02	8599-9601	8660-197	M81969/14-12
	Female	8599-7581	#8 or 10 *	M22520/23-01	M22520/23-02	8599-9601	8660-197	M81969/14-12

Manual hand tool also existing fo power contacts #8.
* To be used with crimping bucket reductor.

Automatic tool for contacts #4 & #8

Crimping tool (M22520/23-01)

Die set (M22520/23-02)

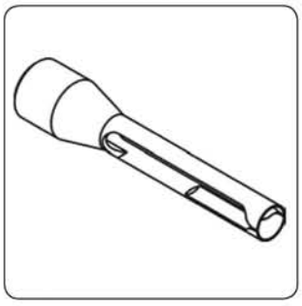
Locator (M22520/23-11)

Manual hand tool for contacts #8

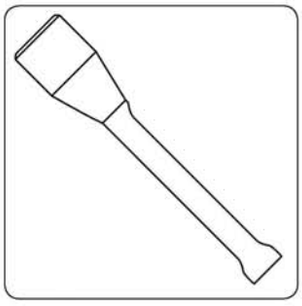
Crimping tool (M300 BT)

Locator (SP 593)

Extraction tool



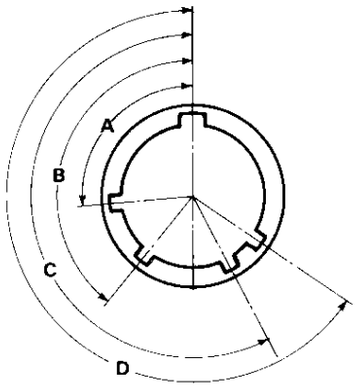
Metallic extraction tool
for #4 (8533-8175)



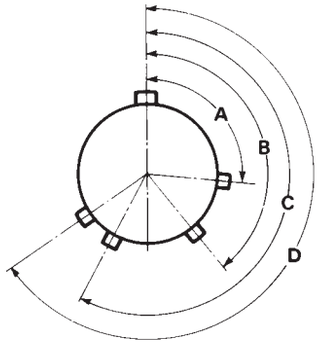
Metallic extraction tool
for #8 (8660-197)

Orientations

Viewed from face of receptacle



Viewed from front of plug

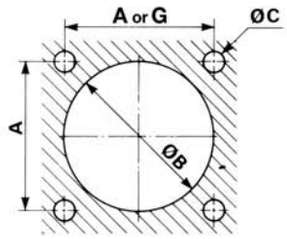


Shell size	Angles	N	A	B	C	D	E
09 (A)	A° B° C° D°	105 140 215 265	102 132 248 320	80 118 230 312	35 140 205 275	64 155 234 304	91 131 197 240
11 (B)	A° B° C° D°	95 141 208 236	113 156 182 292	90 145 195 252	53 156 220 255	119 146 176 298	51 141 184 242
13 (C)	A° B° C° D°	95 141 208 236	113 156 182 292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

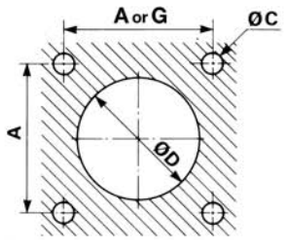
Panel cut-out

Square flange receptacle (type 0)

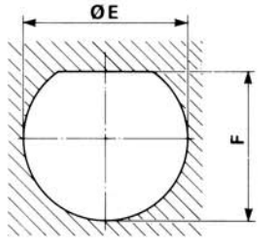
Rear Mounting



Front Mounting



Jam nut receptacle (type 7)



Shell size	9 (A)	11 (B)	13 (C)	15 (D)	17 (E)	19 (F)	21 (G)	23 (H)	25 (J)
A	18.26	20.62	23.01	24.61	26.97	29.36	31.75	34.93	38.10
G	15.09	18.26	20.62	23.01	24.61	26.97	29.36	31.75	34.94
B min.	16.66	20.22	23.42	26.59	30.96	32.94	36.12	39.29	42.47
C ± 0.13	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.91	3.91
D min.	13.11	15.88	19.05	23.01	25.81	28.98	32.16	34.93	37.69
E + 0.25	17.78	20.96	25.65	28.83	32.01	35.18	38.35	41.53	44.70
F 0	17.02	19.59	24.26	27.56	30.73	33.91	37.08	40.26	43.43

Max. thickness panel for receptacle : - type 0 : front mounting = 3,2 mm and Rear mounting 2,5 mm - type 7 : 3.2 mm -

(Dimensions in millimeters).

Gaskets

Shell size	Part numbers	
	Gasket for receptacles type 0* (ordered separately)	O ring for receptacle type 7
09 (A)	8599-5541	AS3582-019
11 (B)	8599-5542	AS3582-022
13 (C)	8599-5543	AS3582-024
15 (D)	8599-5544	AS3582-026
17 (E)	8599-5545	AS3582-028
19 (F)	8599-5546	AS3582-128
21 (G)	8599-5547	AS3582-130
23 (H)	8599-5548	AS3582-132
25 (J)	8599-5549	AS3582-134

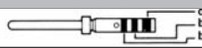
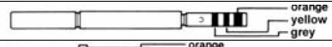
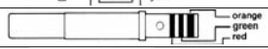
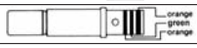
* For front mounting

Plastic protective caps*

Shell size	Part numbers		
	Caps for receptacles	Caps for plugs	Caps for composite plugs only(J and M)
9 (A)	70777	8500-5587 A	MS90376-12R
11 (B)	MS90376-12R	70198	8500-5598
13 (C)	MS90376-14R	8500-5600	8500-5600
15 (D)	MS90376-16R	8500-5601	8500-5601
17 (E)	70201	8500-5602	8500-5602
19 (F)	70209	8500-5592 A	8500-5592 A
21 (G)	MS90376-22R	8500-5593 A	8500-5593 A
23 (H)	MS90376-24R	8500-5593 A	70472
25 (J)	8500-5593 A	J599ABC6009A00	J599ABC6009A00

*Excepted 8D composite version (X): supplied without cap

Crimp contacts

Contact size	Contact type	Souriau P/N (without colour code)	MIL-DTL-38999 Contacts	
			Part number	Profile and colour code
#22D	Pin	8599-0702 JJ	M39029/58 360	
	Socket	8599-0706 900	M39029/56 348	
#20	Pin	8599-0703 SA	M39029/58 363	
	Socket	8599-0707 900	M39029/56 351	
#16	Pin	8599-0704 MJ	M39029/58 364	
	Socket	8599-0708 900	M39029/56 352	
#16 Coaxial	Pin	-	M39029/76 424	
	Socket	-	M39029/77 428	
#12	Pin	8599-0705 MJ	M39029/58 365	
	Socket	8599-0709 900	M39029/56 353	
#12 Coaxial	Pin	-	M39029/102 558	
	Socket	-	M39029/103 559	
	Pin	-	M39029/28 211	
	Socket	-	M39029/75 416	
#10 Power	Pin	-	M39029/58 528	
	Socket	-	M39029/56 527	
#8 Power	Pin	8599-7544(1)	-	
	Socket	8599-7541(1)	-	
	Pin	8599-7580	-	
	Socket	8599-7581	-	
	Boot	8599-4542	-	For wire #8
		8599-4547	-	For wire #10
	Reductor	8599-7645	-	
#8 Coaxial	Pin	-	M39029/60 367	
	Socket	-	M39029/59 366	
	Boot	8590-4571	-	
#8 Triaxial	Pin	-	M39029/90 529	
	Socket	-	M39029/91 530	
	Boot	8590-4571	-	
#4 Power	Pin	8599-7598 900*	-	For wire 25 mm²
	Socket	8599-7599 900*	-	
	Pin	8599-7534		For wire 21.15 mm²
	Socket	8599-7535		
	Boot for Cable 16 mm²	8599-4594	-	
	Boot for Cable 10 mm²	8599-4593	-	
	Reductor Cable 10 mm²	8400-2352A	-	
#4 Power with reduced barrel	Pin	8599-7528 900	-	Mating part #4 / Barrel #6
	Socket	8599 7529 900	-	
	Boot	8599-4593	-	

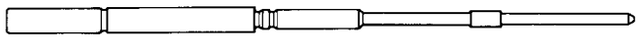
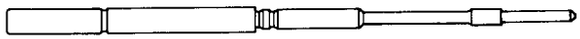
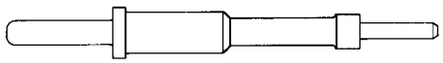
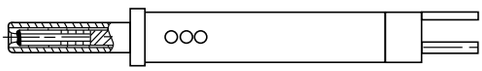
* Not included in connector P/N. Must be ordered separately.
(1) JVS only

Common section

Crimp contacts

Contact size	Contact type	Contact Ø	Conductor section				External Ø over insulator	
			AWG		mm²			
			min	max	min	max	min	max
#22D	Pin	0.76	28	22	0.095	0.34	0.76	1.37
	Socket							
#20	Pin	1.00	24	20	0.21	0.60	1.02	2.11
	Socket							
#16	Pin	1.60	20	16	0.60	1.34	1.65	2.77
	Socket							
#16 Coaxial	Pin	1.60	RG 174 RG 179 RG 316				1.65	2.60
	Socket							
#12	Pin	2.40	14	12	1.91	3.18	2.46	3.61
	Socket							
#12 Coaxial	Pin		RG 174 RG 179 RG 316				2.40	2.60
	Socket							
	Pin							
	Socket							
#10 Power	Pin	3.20	Please consult us				-	2.95
	Socket							
#8 Power	Pin	3.64	-	8	-	8.98	-	-
	Socket							
	Boot		-	-	-	-	4.50	6.5
			-	-	-	-	2.50	4
	Reductor		-	-	-	-	-	-
#8 Coaxial	Pin		RG 188 A/U				-	2.80
	Socket							
	Boot							
#8 Triaxial	Pin	5.50	0,76MIL-C17/176 00002 FILECA F.2703/14 RAYCHEM CHEMINAX 10612 FILOTEX M 17/176 00002				3.15	3.40
	Socket							
	Boot							
#4 Power	Pin	5.74	-	(3)	-	25	-	-
	Socket							
	Pin		5	4	16	21.15	-	-
	Socket							
	Boot Available for 8599-7534 and 7535 contacts		-	-	-	-	6.35	7.50
			-	-	-	-	4	5.8
	Reductor		-	-	-	-	-	-
	Cable 10 mm							
#4 Power with reduced barrel	Pin	5.74	6		13.3		-	-
	Socket							
	Boot		-		-		4	5.80

Straight spill contacts

Contact size	Contact type	Spill type	Part number	Profile
# 22D	Pin	L	8599 - 0720 900	
	Pin	L	8599 - 0750 900	
	Pin	M	8599 - 8028 900	
	Pin	C	8599 - 0730 900	
	Pin	S	8599 - 0796 900	
	Socket	L	8599 - 0721 900	
	Socket	C	8599 - 0731 900	
	Socket	S	8599 - 0797 900	
# 20	Pin	M	8599 - 0658 JJ	
	Socket	M	8599 - 0759 900	
	Pin	C	8599 - 0724 900	
	Socket	C	8599 - 0725 900	
	Pin	L	8599 - 0771 900	
	Socket	L	8599 - 0772 900	
# 16	Pin	C	8599 - 0726 900	
	Pin	C	8599 - 7482A 900	
	Socket	C	8599 - 0727 900	
Contact coaxial # 16	Pin	C	8599 - 1000 900	
# 12	Pin	C	8599 - 7929 900	
	Socket	C	8599 - 7932 900	
	Socket	C	8599 - 7485A 900	

S: Specific spill **L:** Long spill **C:** Short spill **M:** Medium spill

Coaxial contacts #12

Part Numbers	Designation
THA1-0151A	Coaxial socket solder #12
THA1-0152A	Coaxial pin solder #12
THA1-0155A	Coaxial pin crimp contact #12
THA1-0156A	Coaxial crimp contact #12

Solder cup

Contact size	Contact Type	Part number
# 22D	Pin	8599-0750 900
# 16	Pin	8599-7482A 900
# 12	Socket	8599-7485A 900

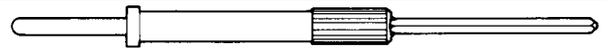
For other contacts type please consult us

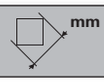
Common section

Crimp contacts: 1500 mating

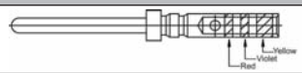
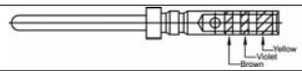
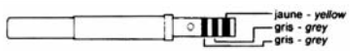
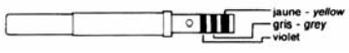
Contact size	MIL-DTL-38999 contacts		
	Contact type	Part number	Profile and colour code
#22 D	Pin (H)	M39029/107 620	Blue - Red - Black
	Socket (J)	M39029/106 614	Blue - Brown - Yellow
#20	Pin (H)	M39029/107 621	Blue - Red - Brown
	Socket (J)	M39029/106 615	Blue - Brown - Green
#16	Pin (H)	M39029/107 622	Blue - Red - Red
	Socket (J)	M39029/106 616	Blue - Brown - Blue
#12	Pin (H)	M39029/107 623	Blue - Red - orange
	Socket (J)	M39029/106 617	Blue - Brown - Gray

Wire wrap contacts

Contact size	Contact type	Part number	Profile
# 22D	Pin	8599 - 0790 JJ	
# 20	Pin	8599 - 0791 900	

Contact size	Contact type	Contact Ø (mm)	 mm
# 22D	Pin	0.76	0.86
# 20	Pin	1	0.86

Thermocouple contacts

Contact size	Contact type	Souriau part numbers (without color code)	MIL-DTL-38999 contacts	
			Part numbers	Profile and colour code
# 22 D Chromel	Pin	-	M39029/87-472	
	Socket	-	M39029/88-484	
# 22 D Alumel	Pin	-	M39029/87-471	
	Socket	-	M39029/88-483	
# 20 Chromel	Pin	8599-0749 900	8599-0949 900	
	Socket	8599-0753 900	8599-0953 900	
# 20 Alumel	Pin	8599-0761 900	8599-0961 900	
	Socket	8599-0765 900	8599-0965 900	

Contact size	Ø Contact (mm)	Wire section Awg		Wire section mm²		Ø Over insulation mm	
		min	max	min	max	min	max
# 22 D Chromel Alumel	0.75	28	22	0.095	0.34	0.76	1.37
# 20 Chromel Alumel	1	24	20	0.21	0.6	1.02	2.11

Common section

Crimping tools

Contact size	Contact type	Pliers						
		M22520/1-01 (Souriau 8365) Turret part number		M22520/2-01 (Souriau 8476-01) Locator part number		M300 BT	M22520/23-01	
		Norme	Souriau	Norme	Souriau	Locator part number	Turret part number	Locator part number
# 22D	Pin	-	-	M22520/2-09	8476-09	-	-	-
	Socket	-	-	M22520/2-07	8476-07	-	-	-
# 20	Pin	M22520/1-04	8365-04	M22520/2-10	8476-10	-	-	-
	Socket				8476-10	-	-	-
# 16	Pin	M22520/1-04	8365-04	-	-	-	-	-
	Socket			-	-	-	-	-
# 12	Pin	M22520/1-04	8365-04	-	-	-	-	-
	Socket			-	-	-	-	-
# 8 Power	Pin	-	-	-	-	SP 593	M22520/23-02	8599-9601
	Socket	-	-	-	-			
# 4 Power	Pin	-	-	-	-	-	M22520/23-04	M22520/23-11
	Socket	-	-	-	-	-		

Contact size	Contact type	Pliers		
		M22520/2-01 (Souriau 8476-01) Locator part number	M22520/4-01 Locator part number	M22520/5-01 Locator part number
# 12 Coaxial	Inner	-	-	M22520/5-03
	Outer	-	-	
# 16 Coaxial	Inner	M22520/2-35	-	-
	Outer	-	M22520/4-02	-
# 8 Coaxial	Inner	M22520/2-31	-	-
	Outer	-	-	M22520/5-05
# 8 Triaxial	Inner	K709	-	-
	Middle	-	-	Y631 closure B
	Ferrule	-	-	Y631 closure A

* Pneumatic pliers

Nota: for the #10 contact's plier and locator, please consult us.

Insertion and extraction tools & Filler plugs

Contact size	Material	Part number		Insertion/extraction tools		Filler plugs		
		Specification	Souriau	Insertion	Extraction	Specification part number	Part number	Color
# 22D	Plastic	M81969/14-01	-	Green	White	MS27488-22	8660-212	Black
# 20	Plastic	M81969/14-10	-	Red	Orange	MS27488-20	8522-389 A	Red
# 16	Plastic	M81969/14-03	-	Blue		MS27488-16	8522-390 A	Blue
# 12	Plastic	M81969/14-04	-	Yellow	White	MS27488-12	8522-391 A	Yellow
# 10	Plastic	M81969/14-05	-	Grey	-	-	-	
# 8	Plastic	M81969/14-12	-	-	Red			
	Metallic	-	8660-197	-	-	-	-	-
# 4	Plastic	M81969/14-07	-	-	Blue			
	Metallic	-	8533-8175	-	-	-	-	-

Dummy contact size 8

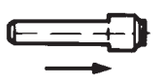
Part number: 8599-0308

Dummy contact size 4

Part number: 8599-0310

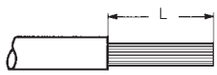
Filler plugs

Direction of introduction in grommet



Wiring instruction

Cable preparation and wire stripping

Contact size	L min.	L Max.	
# 22D	3,58 *.14 .16*	3,99	
# 20	5,31 *.21 .23*	5,82	
# 16	5,31 *.21 .23*	5,82	
# 12	5,31 *.21 .23*	5,82	
# 8	12,5 *.49 .51*	13	
# 4	12,5 *.49*	13 *.51*	

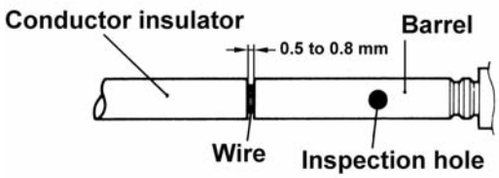
L = Length of wire stripping

Insertion of wire in contact barrel

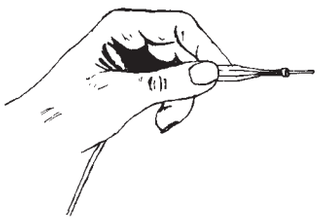
When inserting the stripped wire into the contact barrel check that no strands are left outside and that the wire is visible through the wire inspection hole in the barrel.

Important:

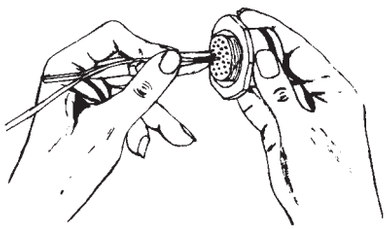
- Slide any accessories over wire strands before carrying out the following operations.
- Contacts are inserted and extracted from the rear of the connector.

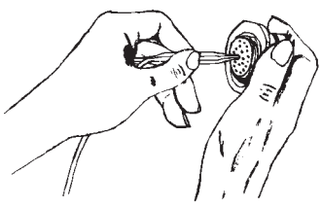


Insertion of the contacts



❶ Engage the crimp cable/contact assembly into the longitudinal slot of the plastic tool (coloured tip). Slide the tool down the cable until the tip of the tool touches the contact retention shoulder.





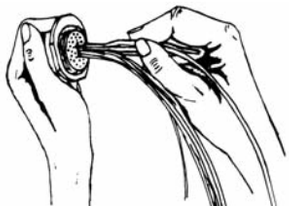
❷ Introduce the contact into the required contact cavity in the insulator, pushing tool axially, until the contact snaps into position in clip.

❸ Withdraw the tool (from rear). Check that the contact is firmly locked by pulling wire gently. When connector is fully loaded, check the position of contact tips. They should all be in the same plane.

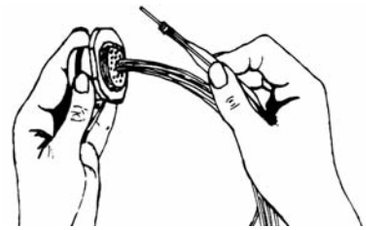
Nota: For larger sizes of cable which are stiff enough manual insertion without tool is preferable.

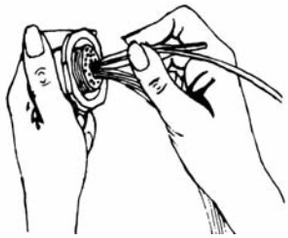
Common section

Extraction of the contacts



❶ Engage the appropriate cable into the longitudinal slot of the tool with the white tip towards connector.





❷ Slide the tool down towards the contact. Insert the tool in the insulator until it touches the contact shoulder.

❸ Holding the tool-contact and cable assembly together, remove them simultaneously.

Backshell tightening and slackening tools

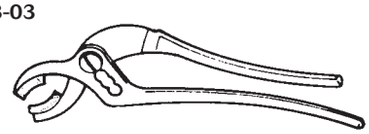
Backshell tightening pliers, part number: 8498-03

Square jaws, part number: 8500-1015 (order 2 jaws).

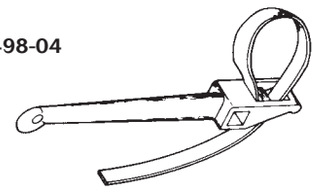
Strap clamp, part number: 8498-04

Spare strap, part number: 8498-103

8498-03

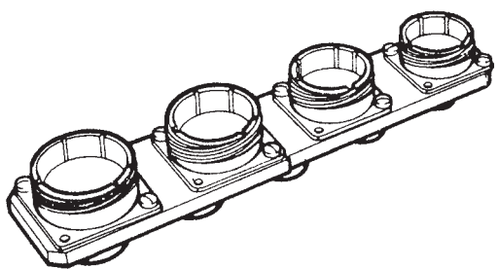


8498-04



Tightening support

Part number: 8599-0831
This tool is made up of dummy receptable housings of all 9 sizes for all key polarisation, and locates free connectors during wiring and fitting of rear accessories.



ELIO® Technology major Technical Features and Benefits

Versatility - One contact whatever the connector

- MIL DTL 38999
- ARINC 600
- EN 3545
- EN2997

Standard electrical cavity adaptor

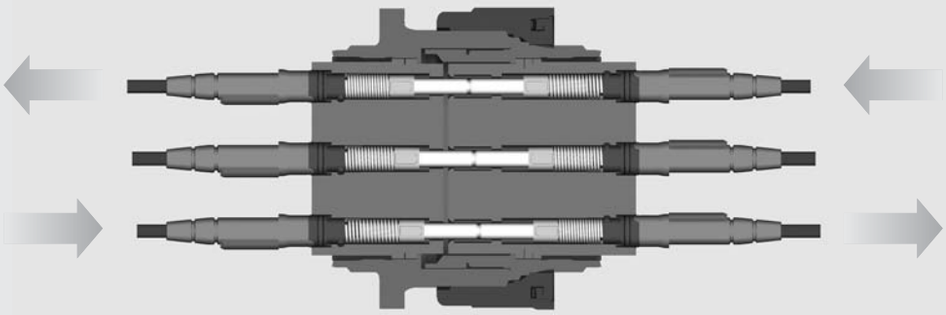
- Terminus can fit in any #8 Quadrax cavity using adaptors.

High-Density Version

- Specific ELIO® inserts are available in standard shell for high-density.

Anti-pistonning – spring-loaded terminus

- Pulling on one side does not affect the connection and the optical performance thanks to the spring of the termini.



When pulling on one side, the other side will move to keep the optical contact.

ELIO® Technology major Technical Features and Benefits

Sealed Technology

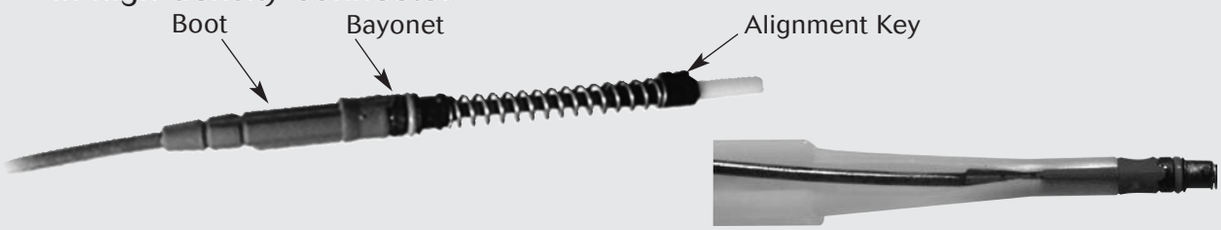
- ELIO® is a sealed contact.
- No backshell is needed.

Easy to clean – access from front face

- Terminus is easy to clean without removing it from the connector.

Easy to install – no specific tool

- Teminus is easy to install thanks to the bayonet-boot feature,
- A standard size 12 electrical tool can be fitted on the boot for installation in high density connector.



Terminus with standard electrical tool.

Easy to terminate – less than 5 minutes

- Terminus is hermaphroditic (same in receptacle and plug) – one termination procedure,
- ST® -like termination procedure,
- Standard ST® ferrule,
- Automatic polishing tools available.

Elio® Contact

Today's technology for Airborn and Military equipment is more and more complex, requiring the management of an increasing flow of information at greater speeds. In response to this need, SOURIAU offers a wide range of copper and fiber optic solutions for high speed network in harsh environments. These solutions can handle data speeds from several Mbit/s up to several Gbit/s using a wide array of communication protocols (Ethernet, ATM...).
Fiber optic is the best solution when high data-rate and large bandwith are required.

ARINC 801
EN 4531
ABS 1379

Technical characteristics
Butt-Joint optic connector for military and aerospace on-board equipment, wherever weight saving and severe climatic or mechanical resistance are requested.

Range of applications
Fiber optic connectors apply wherever robustness, high performance and easy maintenance are needed.

Main applications
Marine, Aerospace, Military, Geophysics, Railways...

Recommended cables
SOURIAU can offer a wide range of cables, from low cost to highly performing aeronautical cables.

Ordering information

Elio	09	N	G	L	A

Cable external diameter:
09: 0.9 mm or cable wider than 1.9mm with 0.9mm jacket inside
18: from 1.5mm to 1.9mm

Contact sealing:
W: waterproof (1.8mm +/- 0.1mm cable only)
N: non sealed

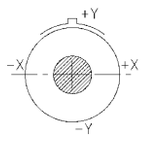
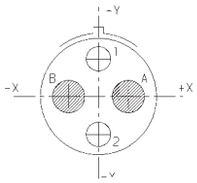
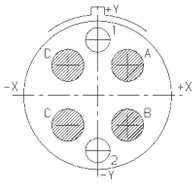
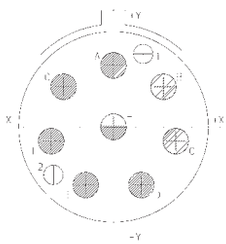
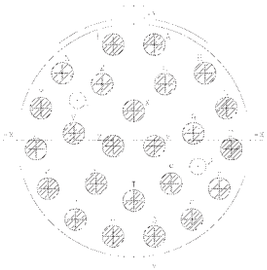
Fibre type:
G: 50 or 62,5/125 µm
E: 9/125 µm (PC ferrule)
D: 100/140 µm

Boot type:
L: long boot
S: short boot
N: no boot (non sealed version only)

Contact version index

MIL-DTL-38999 with ELIO® Contact

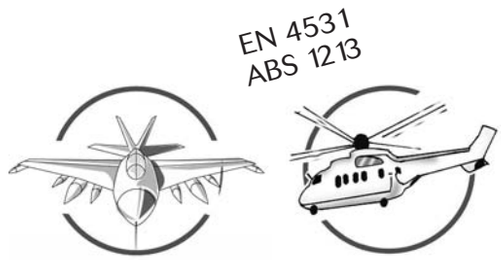
Available inserts - Table 1 (front face of male insert)

1 optical way	2 optical ways	4 optical ways	8 optical ways	24 optical ways
				
09-01	**11-02**	**13-04**	**19-08**	**25-24**

ELIO® C connector

Key features

- Standard MIL-DTL-38999 Serie IIIcomposite with specific high density ELIO® insert,
- Environmental performance as per MIL-DTL-38999 and EN 3645 standard,
- Only light weight RoHS connector resisting to more than 500 hours salt spray,
- Temperature range : -65°C + 125°C



Ordering information

	8D	5	E	11	J	02	A	N
Shell Type **5** - Plug **0** - Receptacle with 4 hole square flange fixing								
Designation **E** - ELIO® optical connector								
Shell Size 09 - 11 - 13 - 19								
Plating **J** - Olive green cadmium **M**- Nickel **X** - Without plating								
Insert Arrangement see table 1								
Male/Female insert **A** - Male insert **B** - Female insert with ceramic alignment sleeves								
Polarization N, A, B, C, D, E								

Applications

Fiber optic connector for military and aerospace on-board equipment, wherever weight saving and severe climatic or mechanical resistance are requested.

ELIO® Minum connector

Key features

- Standard MIL-DTL-38999 Serie IIIaluminium shell with specific high density ELIO® insert,
- Light and robust connector
- Environmental performance as per MIL-DTL-38999 and EN 3645 standard,
- Temperature range: -65°C + 125°C

Ordering information

	8D	5	E	11	W	02	A	N
Shell Type **5** - Plug **0** - Receptacle with 4-hole square flange fixing **7** - Receptacle with single hole jam nut fixing								
Designation **E** - ELIO® optical connector								
Shell Size 09 - 11 - 13 - 19 - 25								
Plating **W**- Olive green cadmium **F** - Nickel								
Insert Arrangement see table 1								
Male/Female insert **A** - Male insert **B** - Female insert with ceramic alignment sleeves								
Polarization N, A, B, C, D, E								

Applications

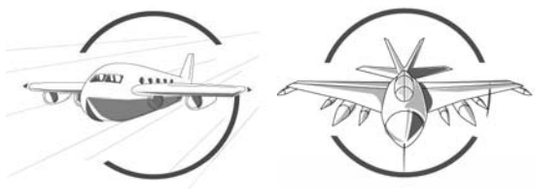
Fiber optic connector for all military and aeronautical purposes wherever severe vibration or mechanical resistance are requested.

MIL-DTL-38999 with Elio® Contact

ELIO® Steel connector

Key features

- Standard MIL-DTL-38999 Series III stainless steel class K or S shell with specific high density ELIO® insert,
- Very robust connector,
- Environmental performance as per MIL-DTL-38999 and EN 3645 standard,
- Temperature range: -65°C +150°C.



Ordering information

	8D	5	E	11	K	02	A	N
Shell Type **5** - Plug **0** - Receptacle with 4-hole square flange fixing **7** - Receptacle with single hole jam nut fixing								
Designation **E** - ELIO® optical connector								
Shell Size 09 - 11 - 13 - 19 - 25								
Plating **K** - Stainless Steel **S** - Stainless Steel Nickel plated								
Insert Arrangement see table 1								
Male/Female insert **A** - Male insert **B** - Female insert with ceramic alignment sleeves								
Polarization N, A, B, C, D, E								

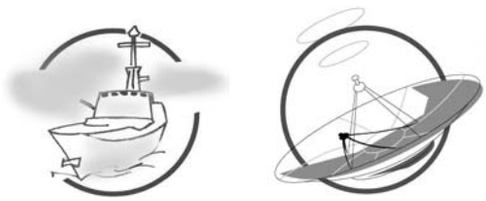
Applications

Fiber optic connector for all industrial, military and aerospace purposes wherever robustness and high temperature resistance are requested.

ELIO® Bronze connector

Key features

- Standard MIL-DTL-38999 Series III bronze shell with specific high density ELIO® insert,
- Very robust connector,
- Environmental performance as per MIL-DTL-38999,
- Temperature range: -65°C, +150°C.

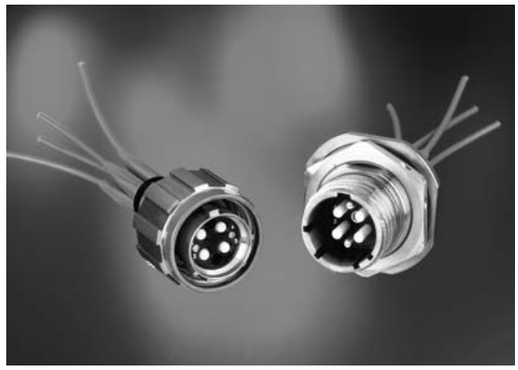


Ordering information

	JVS E	6	A	11	02	A	N
Shell Style **6** - Plug **0** - Receptacle with 4-hole square flange fixing **7** - Receptacle with single hole jam nut fixing							
Material **A** - Bronze							
Shell Size 09 - 11 - 13 - 19 - 25							
Insert Arrangement see table 1							
Male/Female insert **A** - Male insert **B** - Female insert with ceramic alignment sleeves							
Polarization N, A, B, C, D, E							

Applications

Fiber optic connector for all military and aeronautical wherever sever vibration or mechanical resistance are requested.

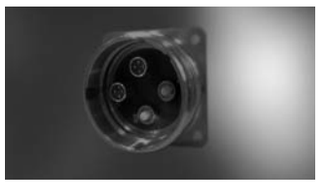


ELIO® 8 Adaptor: version for Quadrax # 8 cavity

EN 4626
ABS 1379

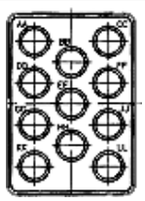
Key features

- ELIO® 8 is an adaptor to enable the ELIO® contact to fit any size 8 Quadrax cavities of ARINC 404/600, EN2997, EN3545 and EN3646 connectors. Therefore, any layout including size 8 Quadrax cavities can be implemented with the ELIO® fiber optic contact.
- Possibility to mix optical and electrical signals in the same insert,
- Temperature range -65°C + 125°C
- Designed to comply with ELIO® contact optical performances,

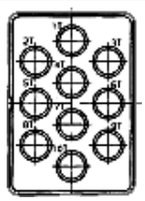


Insert proposals of ARINC 600

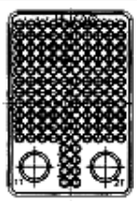
Cavity A, B, D, E of ARINC 600 size 2 and 3



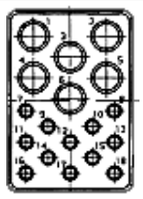
I - Q11*
11 cavities #8



I - Q10*
10 cavities #8



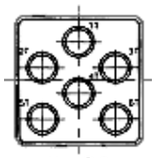
I - 118Q2
118 cavities #22
2 cavities #8



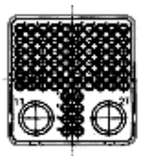
I - 1C12Q6*
12 cavities #12
6 cavities #8

* Grounded metal

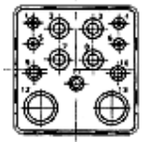
Cavity C, F of ARINC 600 size 2 and 3



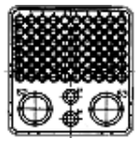
II - Q6
6 cavities #8



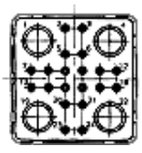
II - 68Q2
68 cavities #22
2 cavities #8



II - 11Q2
4 cavities #20
3 cavities #16
4 cavities #12
2 cavities #8



II - 62Q2
160 cavities #22
2 cavities #16
2 cavities #8



II - 20Q4
20 cavities #20
4 cavities #8

Ordering information of ELIO® adaptator

MALE INSERT	ELIO-AQOP	ARINC 404 ARINC 600 Rear Release
	ELIO-AQ4P (Identification Red line)	EN 2997 EN 3545 8525
	ELIO-AQ1P	ARINC 404 ARINC 600 Front Release

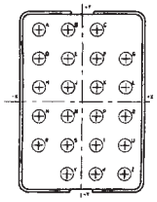
FEMALE INSERT	ELIO-AQOS	ARINC 404 ARINC 600 EN 2997 8525
	ELIO-AQOS	EN 3545
	ELIO-AQES	

ELIO® 600 connector

Key features

- Standard ARINC 600 shell,
- High fiber optic density thanks to specificELIO® cavities
- Designed to comply with ELIO® contact opticalperformances
- Environmental performance as per MIL-DTL- 1344 standard,
- Temperature range -65°C + 125°C

Insert proposal



22 specific ELIO® contact cavities

Other: please consult us.

Technical Features and Benefits

An optimized high speed copper contact

- ✓ **Size 8** outer contact with 4 strategically spaced size 24 inner contacts forming two **100 or 150Ω** matched impedance with excellent 360° shielding,
- ✓ Equivalent to **two twinax contacts** with:
  - better performances (reduced cross talk),
  - shorter cabling time,
  - compact profile,
  - lighter weight.

- ✓ One contact completes a **full duplex 100 Mbps ethernet** link, and fulfills the ISO/IEC 11801 **categorie 6** requirements

A versatile technology

- ✓ Fit the major harsh environment **mil-aero connectors**:

Arinc 600

MIL-DTL-38999

EN2997

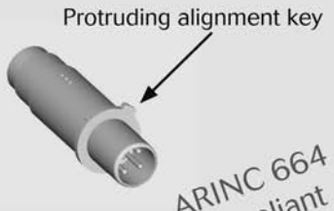
EN3646

- ✓ **Ground connection** of the cable braid to the connector shell on :
  - All Arinc 600 layouts
  - MIL-DTL-38999
  - EN2997 layouts 08-01 & 28-06

A standardized technology

- ✓ 2 designs for 2 standards:

- **Protruding alignment key** for Arinc 600, EN2997, EN3646



- **In line alignment key** for MIL-DTL-38999

Technical characteristics

Electrical

- **ISO/IEC 11801 category 6 compliant:**
  - Next (cross talk): > 46 dB at 250 MHz
  - Return loss: > 16dB at 250 MHz
  - Shield effectiveness: > 36dB at 80 MHz
- **Contact to shell continuity:**
  < 10 mΩ (ARINC 600)
- **Contact resistance** (low level):
  - initial 15 mΩ,
  - after tests 30 mΩ,

Electrical (continue)

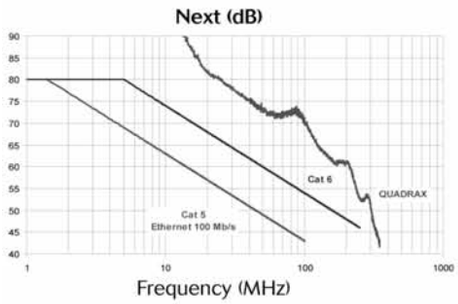
- **Dielectric withstanding voltage:**

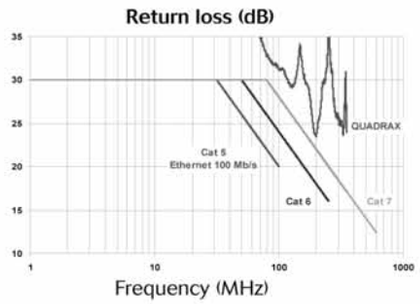
Altitude	Service I
Sea level 21 000 m	500 Vrms 125 Vrms

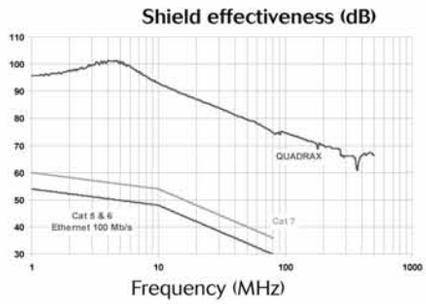
- **Insulation resistance:**
at ambient temperature:
> 5000 mΩ
at high temperature:
> 1000 mΩ
- **#24 contact cable size acceptance:**
AWG 22 to AWG 26

Mechanical

- **Operating temperature:**
-65°C + 200°C,
- **Inner contact:** copper alloy
- **Body:** copper alloy
- **Insulator:** thermoplastic
- **Contact plating:** gold over nickel







Ordering information

✓ ARINC 600, EN2997, EN3646 contacts
Protruding alignment key.

View	Contact type	Sealing	T° Max	Impedance	Release	Version	SOURIAU part number	ABS part number
	Male	Unsealed	200°C	100Ω	Rear	Crimp	ETH1-1100A	ABS0973 M08A
	Female	Unsealed	200°C	100Ω	Rear	Crimp	ETH1-1101A	ABS0974 F08A
	Male	Unsealed	200°C	100Ω	Front	PC tail L= 6.35 mm	ETH1-1110A	-
	Male	Unsealed	200°C	100Ω	Front	Tinned PC tail L= 6.35 mm	ETH1-1123A	-
	Male	Unsealed	260°C	100Ω	Rear	Crimp	ETH1-1126A	-
	Female	Unsealed	260°C	100Ω	Rear	Crimp	ETH1-1127A	-

✓ Sealing boot / Sealing plug

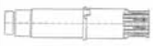
View	Type	Connector	Temperature	SOURIAU Part number
	Sealing boot	EN2997	200°C	8533 8236
		EN2997	260°C	8533 8307
		Arinc 600	200°C	8660 6053
	Sealing plug	EN2997	260°C	8533 8330

Quadrax Contact

✓ 38999 series I & 3 contacts

In line alignment key.

All contacts are delivered with a sealing boot.

View	Contact type	Sealing	Impedance	Release	Version	SOURIAU part number
	Male	Sealed	100Ω	Rear	Crimp	ETH1-1235A
	Female	Sealed	100Ω	Rear	Crimp	ETH1-1236A
	Male	Sealed	100Ω	Rear	PC tail	ETH1-1237A
	Female	Sealed	100Ω	Rear	PC tail	ETH1-1238A
	Male	Sealed	150Ω	Rear	PC tail	ETH1-1501A
	Female	Sealed	150Ω	Rear	PC tail	ETH1-1502A
	Male	Sealed	150Ω	Rear	Crimp	ETH1-1503A
	Female	Sealed	150Ω	Rear	Crimp	ETH1-1504A

✓ Quadrax tools

• Outer body: M22520/5-01 crimping tool and M22520/5-45 die set rep B,

crimping tool

• Signal contact: M22520/201 crimping tool and K709 positioner,

crimping tool & positioner

• Insertion/extraction tool (standard size 8 cavity tools): 8660-197 (metallic) or M81969/8-14 (plastic)

8660-197

M81969/8-14

Recommanded cable

Charactristic impedance	Reference	Cable type	Number of pairs
100	ABS 1503 KD23	Star quad	2

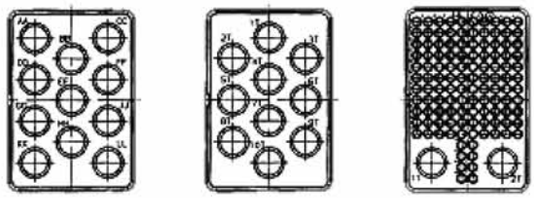
ARINC 600 with Quadrax Contact

Mechanical

ARINC 600 shell: alodine or nickel plated,
ARINC 600 insulator: thermoplastic, thermoset or metal,
Clip #8: copper alloy, gold over nickel plated,
Quadrax contact retention: 155N min,
Quadrax contact insertion force: 11N max,
Contact to shell conductivity <10mΩ,
Protruding alignment key,
Crimp and PC tail versions,
Fiber optic upgrade possible with Elio 8 adaptor and Elio fiber optic contact.

Layouts

Cavitiy A, B, D, E of ARINC 600 size 2 and 3



I - Q11* I - Q10* I - 118Q2

Cavitiy C,F of ARINC 600 size 2 and 3

II - Q6* II - 68Q2 II - 11Q2 II - 62Q2 II - 20Q4

* Grounded metal insert

Contact layouts

#8 «Quadrax» type cavities are compatible with all standard #8 coaxial, triaxial, ELIO 8 and Quadrax contacts.

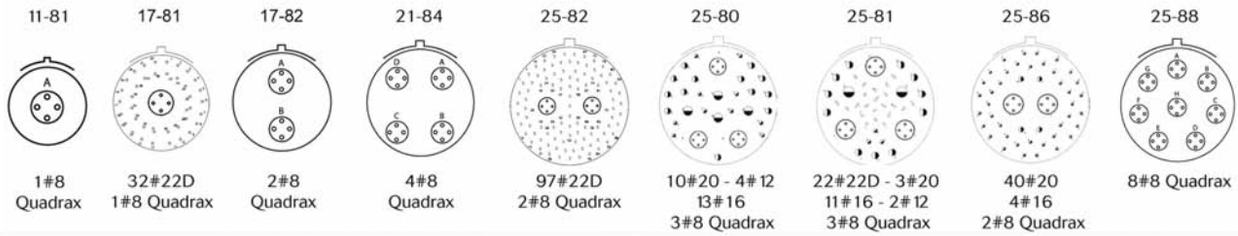
Insert name	ARINC 600 Cavity	Receptacle	Plug	Number of cavities				
		contact release	contact release	#22	#20	#16	#12	#8 «Quadrax» type
I-Q11	A, B, D, E	Front/Rear	Rear					11
I-Q10	A, B, D, E	Front/Rear	Rear					10
I-118Q2	A, B, D, E	Front	Rear	118				2
II-Q6	C, F	Front/Rear	Rear					6
II-68Q2	C, F	Front	Rear	68				2
II-11Q2	C, F	Front	Rear		4	3	4	2
II-62Q2	C, F	Front	Rear	60		2		2
II-20Q4	C, F	Front	Rear		20			4

MIL-DTL-38999 with Quadrax Contact

Mechanical

Standard D38999 shell,
Standard D38999 insulator (Thermoplastic, thermoset) or specific grounded metallic insert,
Clip #8: copper alloy (gold plated),
In-line alignment key.

Layouts



Ordering information

Basic series	**8D**	**0**	**Q**	**21**	**W**	**84**	**P**	**N**	**308**

Style
0 - square flange receptacle
5 - plug with RFI shielding
7 - Jam nut receptacle (except composite version)

Type
Q - crimp
C - PC tail

Shell size 11, 17, 21, 25

Plating

Aluminium:	**W** - olive green cadmium **Z** - green zinc cobalt	**F** - nickel	**L** - black zinc nickel
Composite:	**J** - olive green cadmium	**M** - nickel	**X** - without plating
Stainless steel:	**K** - corrosion resistant	**S** - nickel	
Titanium:	**TT** - without plating	**TF** - nickel	

Insert arrangement (see above)

Contact type
P - pin
S - socket
A - male connector supplied without quadrax contact
B - female connector supplied without quadrax contact

Orientation N - A - B - C - D - E

Specification
284* - quadrax grounded contact (100Ω)
308 - quadrax not grounded contact (100Ω)
384* - quadrax grounded contact (150Ω)
408 - quadrax not grounded contact (150Ω)

JVS bronze

Basic series	**JVS**	**Q**	**00A**	**21**	**84**	**P**	**N**	**308**

Type
Q - crimp
C - PC tail

Style
00A - square flange receptacle
07A - jam nut receptacle
16A - plug

Shell size 11, 17, 21, 25

Insert arrangement (see above)

Contact type
P - pin
S - socket
A - male connector supplied without quadrax contact
B - female connector supplied without quadrax contact

Orientation N - A - B - C - D - E

Specification
284* - quadrax grounded contact (100Ω)
308 - quadrax not grounded contact (100Ω)
384* - quadrax grounded contact (150Ω)
408 - quadrax not grounded contact (150Ω)

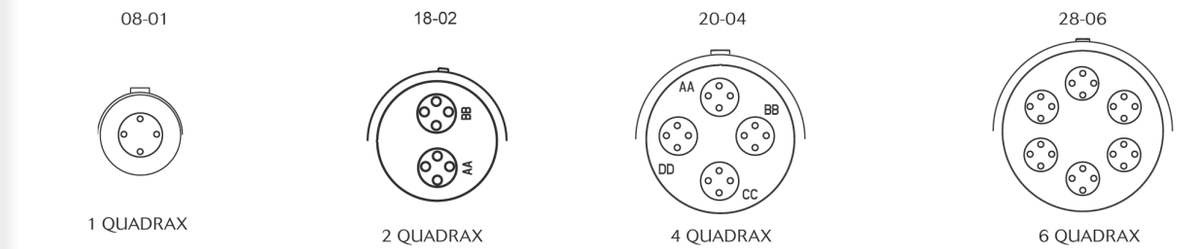
* Excepted mixte versions (17-81, 25-80, 25-81, 25-82, 25-86)

EN 2997 with Quadrax Contact

Mechanical

Robust EN2997 screw coupling system for high vibration applications,
Compliant with ABS 1340-1343, ABS 1426-1427,
Airbus qualified ABS 0973 and AB0974 crimp quadrax contacts,
Specific 260°C quadrax contact version available,
Protruding alignment key.

Layouts



Ordering information

	Layout	Circular plug		Square flange receptacle	
		SOURIAU PN	ABS PN	SOURIAU PN	ABS PN
Aluminium version	18-02	8533 3RS 1802PNL 8533 3RS 1802PN126 8533 3RS 1802SNL 8533 3RS 1802SN126	ABS 1343 C1802NF ABS 1343 P1802N ABS 1343 D1802NF ABS 1343 S1802N	8533 0RS 1802PNL 8533 0RS 1802PNL126 8533 0RS 1802SNL 8533 0RS 1802SN126	ABS 1426 C1802NF ABS 1426 P1802N ABS 1426 D1802NF ABS 1426 S1802N
	20-04	8533 3RS 2004PNL 8533 3RS 2004PN126 8533 3RS 2004SNL 8533 3RS 2004SN126	ABS 1343 C2004NF ABS 1343 P2004N ABS 1343 D2004NF ABS 1343 S2004N	8533 0RS 2004PNL 8533 0RS 2004PN126 8533 0RS 2004SNL 8533 0RS 2004SN126	ABS 1426 C2004NF ABS 1426 P2004N ABS 1426 D2004NF ABS 1426 S2004N
	28-06	8533 3RS 2806PNL 8533 3RS 2806PN126 8533 3RS 2806SNL 8533 3RS 2806SN126	ABS 1343 C2806NF ABS 1343 P2806N ABS 1343 D2806NF ABS 1343 S2806N	8533 0RS 2806PNL 8533 0RS 2806PN126 8533 0RS 2806SNL 8533 0RS 2806SN126	ABS 1426 C2806NF ABS 1426 P2806N ABS 1426 D2806NF ABS 1426 S2806N
Stainless steel version	08-01	8533 3ES 0801PN165 8533 3ES 0801PNL165 8533 3ES 0801SN165 8533 3ES 0801SNL165	ABS 1340 P0801N ABS 1340 P0801NF ABS 1340 S0801N ABS 1340 S0801NF	8533 0ES 0801PN165 8533 0ES 0801PNL165 8533 0ES 0801SN165 8533 0ES 0801SNL165	ABS 1427 P0801N ABS 1427 P0801 NF ABS 1427 S0801N ABS 1427 S0801NF
	18-02	8533 3ES 1802PNL 8533 3ES 1802PN126 8533 3ES 1802SNL 8533 3ES 1802SN126	ABS 1340 C1802NF ABS 1340 P1802N ABS 1340 D1802NF ABS 1340 S1802N	8533 0ES 1802PNL 8533 0ES 1802PN126 8533 0ES 1802SNL 8533 0ES 1802SN126	ABS 1427 C1802NF ABS 1427 P1802N ABS 1427 D1802NF ABS 1427 S1802N
	20-04	8533 3ES 2004PNL 8533 3ES 2004PN126 8533 3ES 2004SNL 8533 3ES 2004SN126	ABS 1340 C2004NF ABS 1340 P2004N ABS 1340 D2004NF ABS 1340 S2004N	8533 0ES 2004PNL 8533 0ES 2004PN126 8533 0ES 2004SNL 8533 0ES 2004SN126	ABS 1427 C2004NF ABS 1427 P2004N ABS 1427 D2004NF ABS 1427 S2004N
	28-06	8533 3ES 2806PNL 8533 3ES 2806PN126 8533 3ES 2806SNL 8533 3ES 2806SN126	ABS 1340 C2806NF ABS 1340 P2806N ABS 1340 D2806NF ABS 1340 S2806N	8533 0ES 2806PNL 8533 0ES 2806PN126 8533 0ES 2806SNL 8533 0ES 2806SN126	ABS 1427 C2806NF ABS 1427 P2806N ABS 1427 D2806NF ABS 1427 S2806N

EN 3646 with Quadrax Contact

Mechanical

Smallest harsh environments Quadrax connector,
Bayonet coupling,
Per Airbus ABS1054 and ABS1057 and per EN3646,
Black anodized aluminium shell size 8,
Airbus qualified ABS 0973 and ABS 0974 crimp quadrax contact,
Protruding alignment key.

Layouts

08-01

1 QUADRAX

Ordering information

	Layout	SOURIAU PN	ABS PN
Circular plug	0801 (8B01)	8525 16R8B01SNHL164	ABS 1054 A60801 BN + ABS 1057-08A01
		8525 16R8B01SNH164	ABS 1054 A60801 FN + ABS 1057-08A01
Square flange receptacle	08-01 (8B01)	8525 10R8B01PNHL164	ABS 1054 A00801 AN + ABS 1057-08A01
		8525 10R8B01PNH164	ABS 1054 A00801 MN + ABS 1057-08A01