

8D Series

MIL-DTL-38999 Series III



8D Series - Presentation

38999 Series III: 8D Series

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:

- Civil and military aeronautics
- Ground military
- Industrial
- Marine and offshore

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.

This product family is in accordance with MIL-DTL-38999 Series III, EN 3645, CECC (standard for bronze shell), ... and also meets many customers' standards (Rolls Royce, ABS, BACC, ...)

8D Series

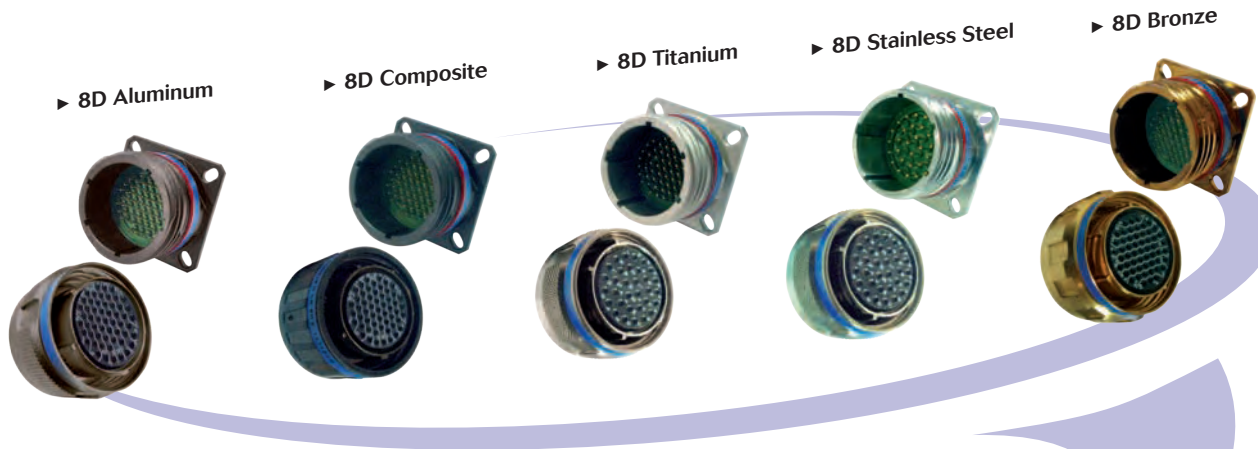
MIL-DTL-38999 Series III



8D Series - Product overview

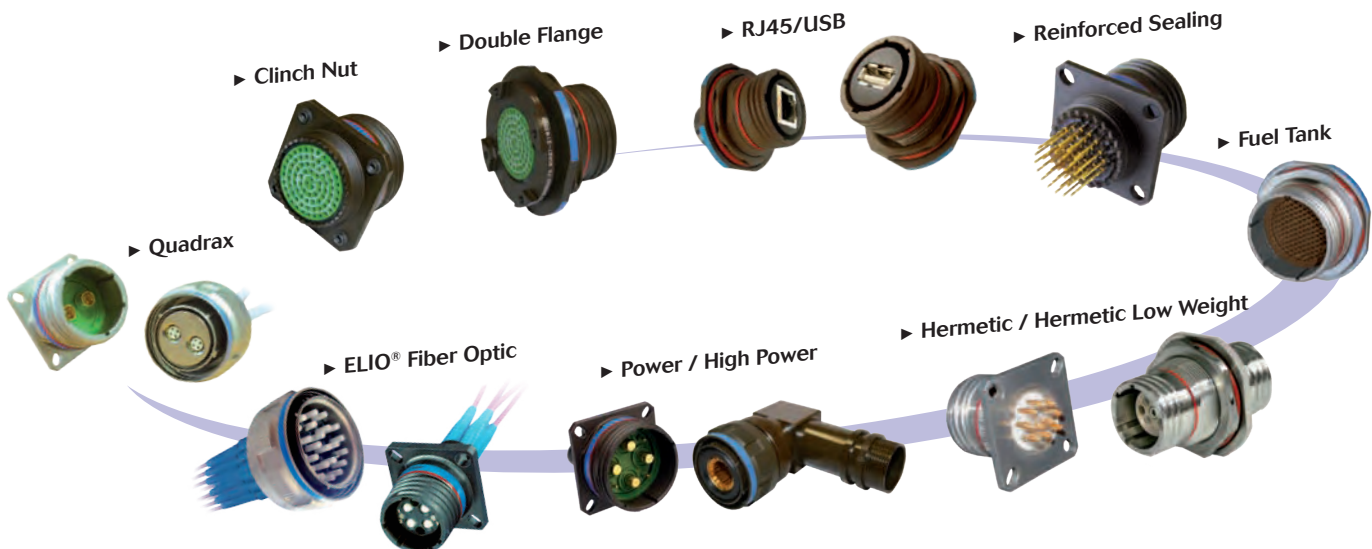
Standard Series

- ▶ 5 different materials
- ▶ A full platform that matches any environment
- ▶ Different platings (including RoHS & Cadmium free platings)



Derived Series

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



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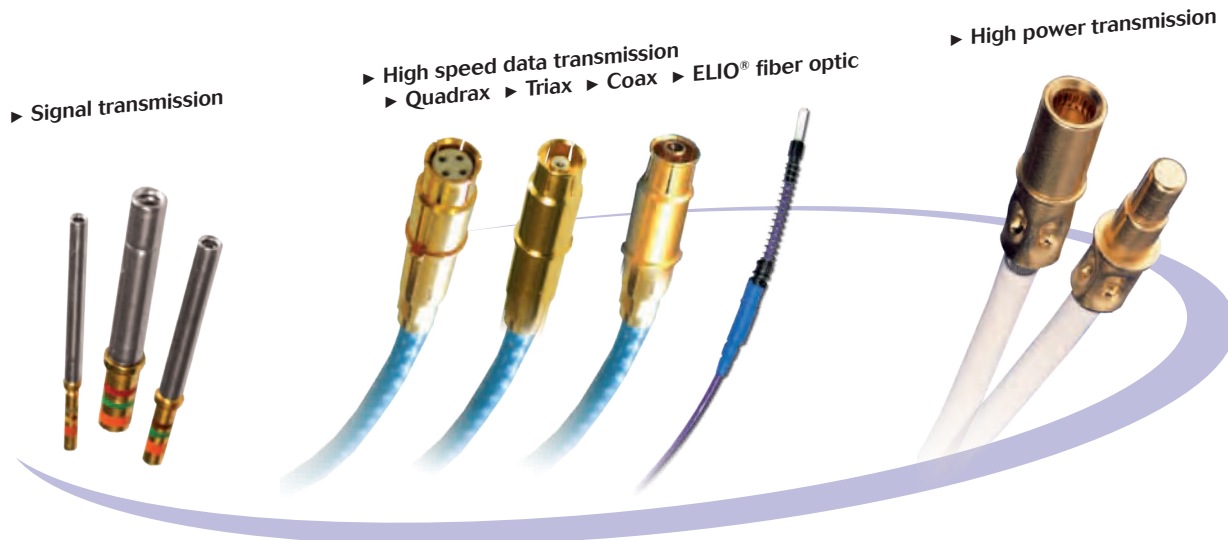
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8D Series - A superior concept

A full range of contact

► Multi-contact technology provides versatile connectors



► Various contact styles

► Crimp ► Solder cup ► PC tails ► Wire wrap ► PCB contacts without shoulder

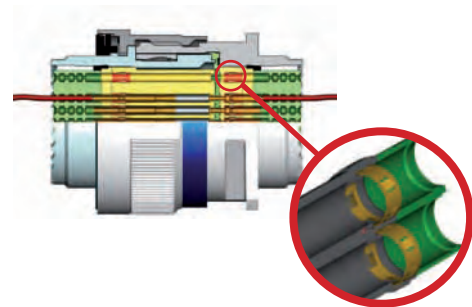
► Common cavity for all #8 contacts

Metal clips patented by Souriau

► Unique clip retention technology

► High performance contact retention system:

- Insure high temperature withstanding
- Provides superior strenght in vibrations
- Better retention characteristics than plastic clips



High performance sealing (IP67)

► Each contact cavity is individually sealed

Accessories available

► Protective caps, backshells, tools, ...

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A performing MIL standard connector design

Scoop proof connector

- ▶ No risk of damaging the contact during the coupling operation

Unique self locking mechanism

- ▶ Connector will never unscrew even under high vibration (44g)

Visual mating indication

- ▶ Red band visible = not correctly mated



- ▶ Red band hidden = correctly mated



Quick screw coupling

- ▶ 1 1/4 turn to mate



Fully shielded connector

- ▶ 360° shielding



- ▶ Shell to shell bottoming
= perfect shield continuity

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Description

- High contact density
- Screw coupling
- Contact protection: 100% Scoop proof
- Shell size from 9 to 25
- Accessories available (protective caps, backshells, etc...)
- RFI - EMI shielding and shell to shell continuity
- Hermetic
- Protected by cadmium, nickel, green zinc cobalt or black zinc nickel plating

Applications

- Civil and Military Aerospace
- Marine and Offshore Equipment
- Defense and Ground Military
- Industrial

Standards

- MIL-DTL-38999 Series III
- EN3645
- BACC63CT/CU; BACC63DB/DC

Technical features

Mechanical

- **Shell:**
Aluminum, composite, stainless steel, bronze
- **Shells plating:**
 - . Aluminum shell:
 - Cadmium olive drab (W)
 - Nickel (F)
 - Black zinc nickel (Z)
 - Green zinc cobalt (ZO)
 - . 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/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 T° 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 ambient T°
- Test with accessories in acc with EN2591-D3

• Contact 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 g	42% lighter
Titanium	33.90 g	
Aluminum	20.35 g	40% lighter
Composite	14.30 g	
		30% lighter

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Electrical

• Test voltage rating (Vrms)

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

• Contact resistance

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

• Shell continuity

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

• Shielding:

- . Aluminum shell:
 - F: 65 db at 10 GHz
 - F: 85 db at 1 GHz
 - W: 50 db at 10 GHz
 - Z & ZC: Consult us
- . Composite shell:
 - J: 90 db at 10 GHz
 - 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

Climatics

• 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: 48 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 hydrolic fluid: MIL-H-5606 (OTAN H515)
- . Synthetic hydraulic fluid: Skydrol 500 B4

• LD4 (SAE AS 1241)

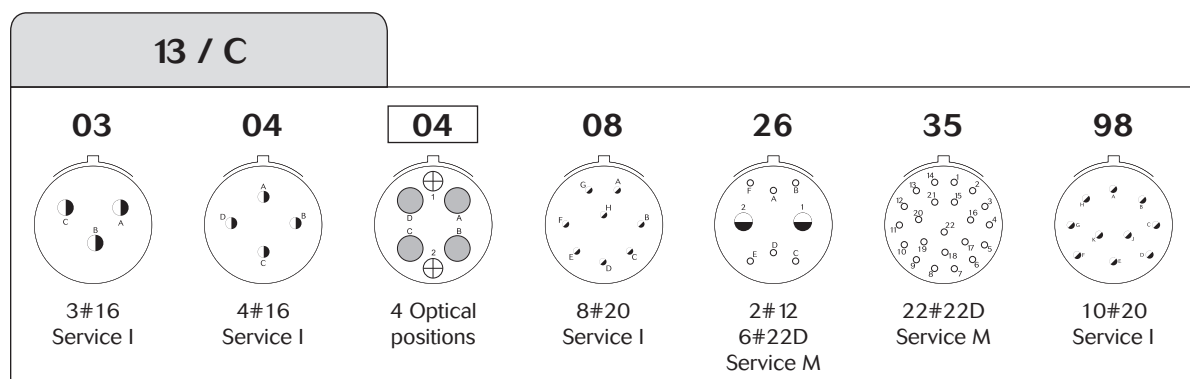
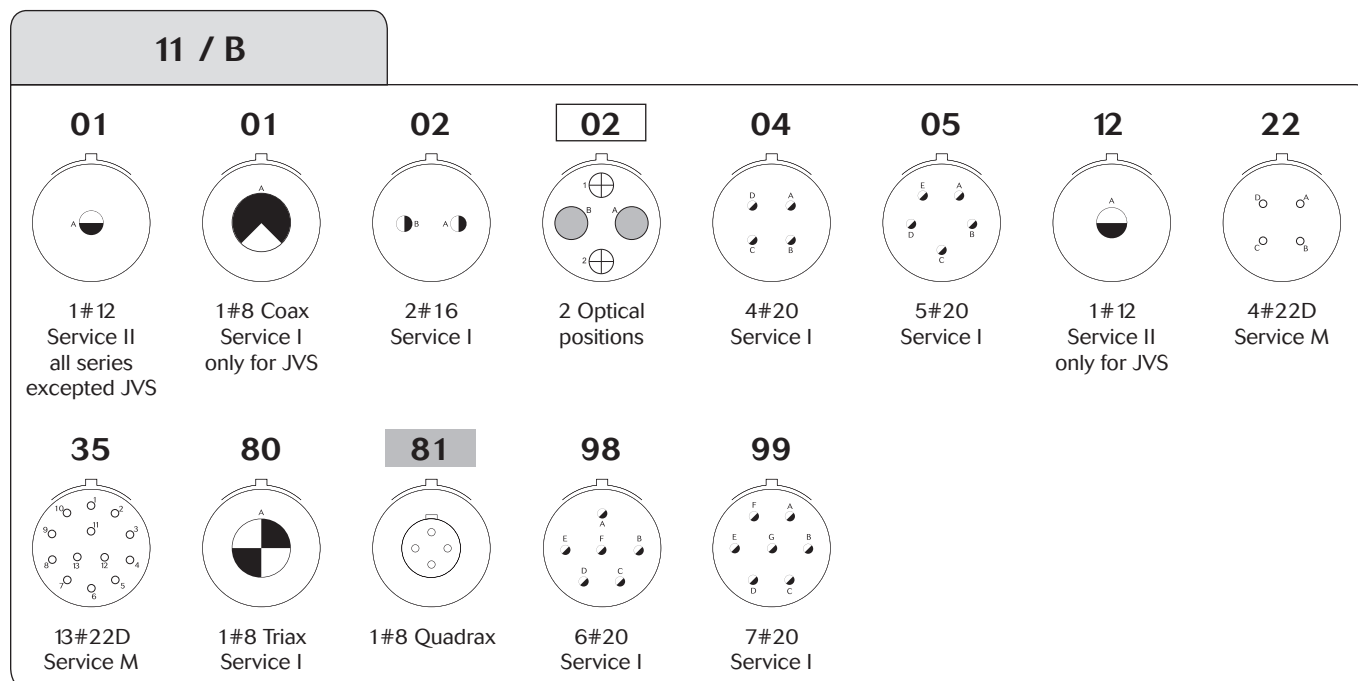
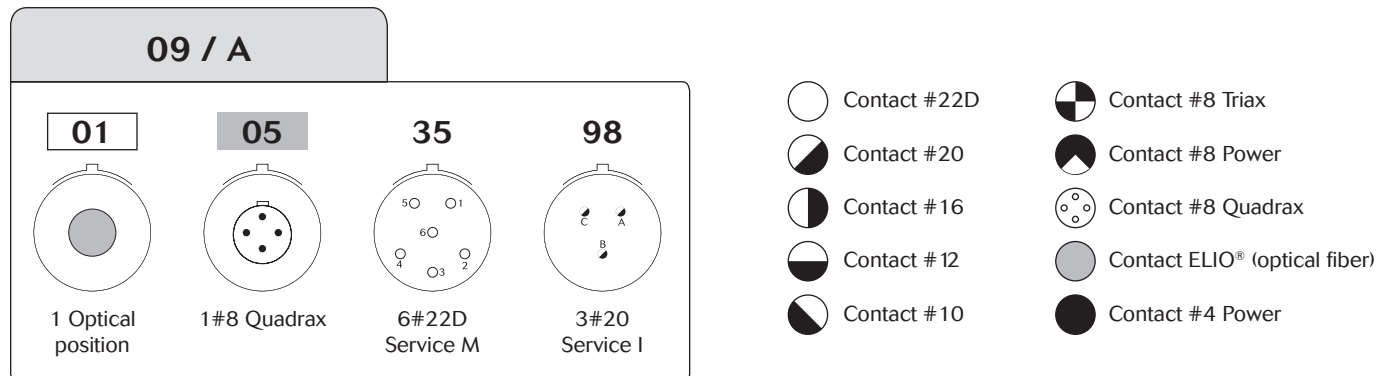
- . Mineral lubricating: MIL-L-7870A (OTAN 0142)
- . Synthetic lubricating: MIL-L-23699 (OTAN 0156), MIL-L-7808
- . Cleaning fluid: MIL-DTL-25769 diluted
- . De-icing fluid: MIL-A-8243
- . Extinguishing fluid: Chlorobrométhane
- . Cooling fluid: Coolanol

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Contact layouts



ELIO® fiber optic Ethernet Quadrax

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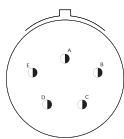
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Contact layouts

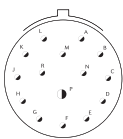
15 / D

05



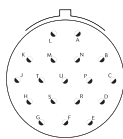
5#16
Service II

15



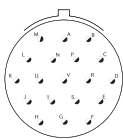
1#16
14#20
Service I

18



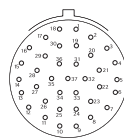
18#20
Service I

19



19#20
Service I

35



37#22D
Service M

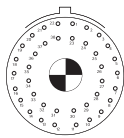
97



4#16
8#20
Service I

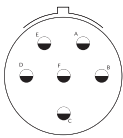
17 / E

02



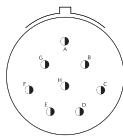
38#22D
1#8 Triax
Service M

06



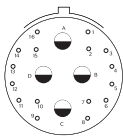
6#12
Service I

08



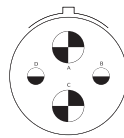
8#16
Service II

20



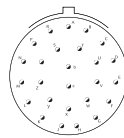
4#12
16#22D
Service M

22



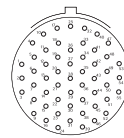
2#12
2#8 Triax
Service M

26



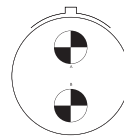
26#20
Service I

35



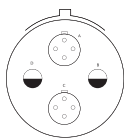
55#22D
Service M

75



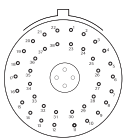
2#8 Triax
Service M

80



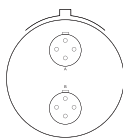
2#12
2#8 Quadrax

81



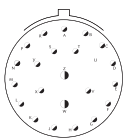
38#22D
1#8 Quadrax

82



2#8 Quadrax

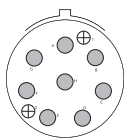
99



2#16
21#20
Service I

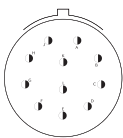
19 / F

08



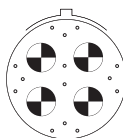
8 Optical
positions

11



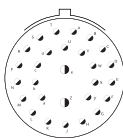
11#16
Service II

18



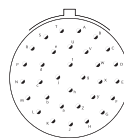
14#22D
4#8 Triax
Service M

28



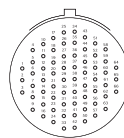
26#20
2#16
Service I

32



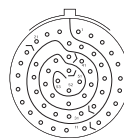
32#20
Service I

35



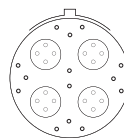
66#22D
Service M

53*



53#22D

84



14#22D
4#8 Quadrax

8D Series

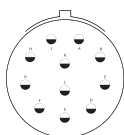
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Contact layouts

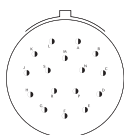
21 / G

11



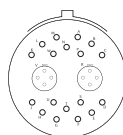
11# 12
Service I

16



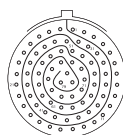
16# 16
Service II

20*



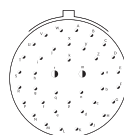
18# 20
2#8 Quadrax

35



79# 22D
Service M

39



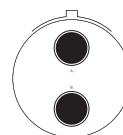
2# 16
37# 20
Service I

41



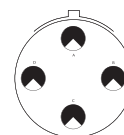
41# 20
Service I

42



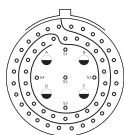
2# 4 Power
Service I

48



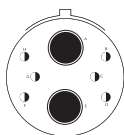
4# 8 Power
Service I

59



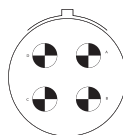
55# 22D
4# 12
Service M

72



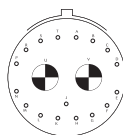
2# 4 Power
6# 16
Service I

75



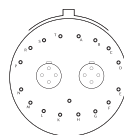
4# 8 Triax
Service M

77



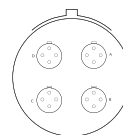
17# 22D
2# 8 Coax
Service M

78



17# 22D
2# 8 Quadrax

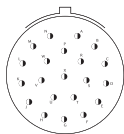
84



4# 8 Quadrax

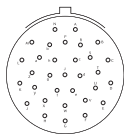
23 / H

21



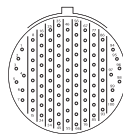
21# 16
Service II

32



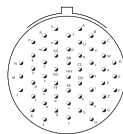
32# 20
Service I

35



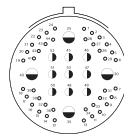
100# 22D
Service M

53



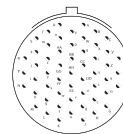
53# 20
Service I

54



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

55



55# 20
Service I

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Contact layouts

25 / J							
04	07	08	11	17	19	20*	24
8#16 48#20 Service I	2#8 Triax 97#22D Service M	8#8 Triax Service M	2#20 9#10 Service N	36#22D 6#8 Triax	19#12 Service I	10#20, 13#16 4#12 Coax 3#8 Triax Service N	12#16 12#12 Service II
24	29	35	37	41	43	44	46
24 Optical positions	29#16 Service I	128#22D Service M	37#16 Service I	22#22D, 3#20 11#16, 2#12 3#8 Triax Service M	23#20 20#16 Service I	4#4 Power 4#16 Service I	40#20, 4#16 2#8 Coax Service I
61	80	81	82	86	87	88	90
61#20 Service I	10#20 13#16 4#12 Coax 3#8 Quadrax	22#22D 3#20, 11#16 2#12 3#8 Quadrax	97#22D 2#8 Quadrax	40#20 4#16 2#8 Quadrax	36#22D 6#8 Quadrax	8#8 Quadrax	40#20, 4#16 2#8 Twinax Service I

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Contact layouts (matrix)

Shell size	Layout	MIL-DTL-38999 (QPL) Aluminum, Stainless steel & Composite	8D Titanium	JVS (CECC) Bronze connectors	Hermetics	EN3645	BACC63 CT/CU DB/DC	Number of contacts	#22D	#20	#16	#12	#10	#8	#4 Power	Optical posi- tions
09 / A	09-01							1								1
	09-05 (1)	Consult us	Consult us	Consult us				1						1 Qdx		
	09-35							6	6							
	09-98							3		3						
11 / B	11-01							1				1				
	11-01							1						1 Coax		
	11-02							2			2					
	11-02							2								2
	11-04							4		4						
	11-05							5		5						
	11-12							1				1				
	11-22							4	4							
	11-35							13	13							
	11-80							1						1 Triax		
	11-81							1						1 Qdx		
	11-98							6		6						
	11-99							7		7						
13 / C	13-03							3								
	13-04							4			4					
	13-04							4								4
	13-08							8		8						
	13-26							8	6			2				
	13-35							22	22							
	13-98							10		10						
15 / D	15-05							5			5					
	15-15							15		14	1					
	15-18							18		18						
	15-19							19		19						
	15-35							37	37							
	15-97							12		8	4					
17 / E	17-02							39	38					1 Triax		
	17-06							6				6				
	17-08							8			8					
	17-20							20	16			4				
	17-22							4				2		2 Triax		
	17-26							26		26						
	17-35							55	55							
	17-75							2						2 Triax		
	17-80							4				2		2 Qdx		
	17-81							39	38					1 Qdx		
	17-82							2						2 Qdx		
	17-99							23		21	2					
19 / F	19-08							8								8
	19-11							11			11					
	19-18							18	14					4 Triax		
	19-28							28		26	2					
	19-32							32		32						
	19-35							66	66							
	19-53							53	53							
	19-84							18	14					4 Qdx		

 Souriau's layout
 Souriau's layout & Layout according to corresponding norm
 (1) Grounded insert only
 #8 Pow: Power; Qdx: Quadrax; Twx: Twinax

8D Series

MIL-DTL-38999 Series III



Contact layouts (matrix)

Shell size	Layout	MIL-DTL-38999 (QPL) Aluminum, Stainless steel & Composite	8D Titanium	JVS (CECC) Bronze connectors	Hermetics	EN3645	BACC63 CT/CU DB/DC	Number of contacts	#22D	#20	#16	#12	#10	#8	#4 Power	Optical posi- tions
21 / G	21-11							11				11				
	21-16							16			16					
	21-20							20		18				2 Qdx		
	21-35							79	79							
	21-39							39		37	2					
	21-41							41		41						
	21-42							2							2	
	21-48							4						4 Pow		
	21-59							59	55			4				
	21-72							8							2	
	21-75							4						4 Triax		
	21-77							19	17					2 Coax		
23 / H	21-78							19	17					2 Qdx		
	21-84							4						4 Qdx		
	23-21							21			21					
	23-32							32		32						
	23-35							100	100							
	23-53							53		53						
25 / J	23-54							53	40		9	4				
	23-55							55		55						
	25-04							56		48	8					
	25-07							99	97					2 Triax		
	25-08			(2)				8						8 Triax		
	25-11							11		2			9			
	25-17							42	36					6 Triax		
	25-19							19				19				
	25-20	(3)		(4)		(5)	(6)	30		10	13	4		3 Triax		
	25-24							24			12	12				
	25-24							24								24
	25-29							29			29					
	25-35							128	128							
	25-37							37			37					
	25-41							41	22	3	11	2		3 Triax		
	25-43							43		23	20					
	25-44							8			4				4	
	25-46							46		40	4			2 Coax		
	25-61							61		61						
	25-80							30		10	13	4		3 Qdx		
	25-81							41	22	3	11	2		3 Qdx		
	25-82							99	97					2 Qdx		
	25-86							46		40	4			2 Qdx		
	25-87							42	36					6 Qdx		
	25-88							8						8 Qdx		
	25-90							46		40	4			2 Twx		

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



8D Series

D38999 Composite Series

Connector part numbers

Basic Series	8D	0	-	11	J	35	P	N	-	-	L
Shell style:											
0: Square flange receptacle											
5: Plug with RFI shielding											
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).											
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 (male and female size #22D; male #16 & #12; female #16 & #12 and male female #20 please consult us)											
Shell size: 09, 11, 13, 15, 17, 19, 21, 23, 25											
Plating:											
J: Olive drab cadmium											
M: Nickel											
X: Without plating											
Contact layout: See pages 13 to 16											
Contact type:											
P: Pin (500 mating/unmating)											
H: Pin (1500 mating/unmating)											
A: Connector supplied less pin contact or with specific contacts (connector marking: A + orientation)											
S: Socket (500 mating/unmating)											
J: Socket (1500 mating/unmating)											
B: Connector supplied less socket contact or with specific contacts (connector marking: B + orientation)											
Orientation: N, A, B, C, D, E (see page 64)											
Specification:											
046: Tinned straight PC tail											
251: Connector provided with power contacts (layouts with contact #8)											
022: Fuel tank											
Special custom:											
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.											

MIL-DTL-38999 part numbers*

Basic Series	D38999/	20	M	B	35	P	N	L
Shell style:								
20: Square flange receptacle								
26: Plug with RFI shielding.								
Plating:								
J: Olive drab cadmium								
M: Nickel								
Shell size: 09=A, 11=B, 13=C, 15=D, 17=E, 19=F, 21=G, 23=H, 25=J								
Contact layout: See page 17 for layout according to MIL-DTL-38999								
Contact type:								
P: Pin (500 mating/unmating)								
H: Pin (1500 mating/unmating)								
A: Connector supplied less pin contact or with specific contacts (connector marking: A + orientation)								
S: Socket (500 mating/unmating)								
J: Socket (1500 mating/unmating)								
B: Connector supplied less socket contact or with specific contacts (connector marking: B + orientation)								
Orientation: N, A, B, C, D, E (see page 64)								
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 specify clearly on the order (by adding a suffix L at the end of the P/N or specified in comment).



8D Series

D38999 Composite Series

BACC part numbers

Basic Series: BACC63CT: 8D5*M (composite plug) BACC63CU: 8D0*M (composite square flange receptacle)	BACC63CT	13	98	P	N	H
Shell size: 09=A, 11=B, 13=C, 15=D, 17=E, 19=F, 21=G, 23=H, 25=J						
Contact layout: See page 17 for layout according to BACC						
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 64)						
H: Without contacts & without filler plug = L -: Empty with contacts						

EN3645 part numbers

Basic Series	EN3645	J	6	G	N	35	B	N
Plating: J: Olive drab cadmium M: Nickel								
Shell style: 0: Square flange receptacle 6: Plug								
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 17 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 64)								

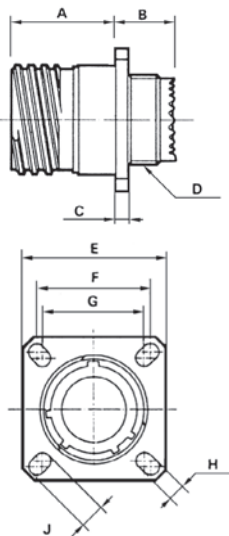
8D Series

D38999 Composite Series



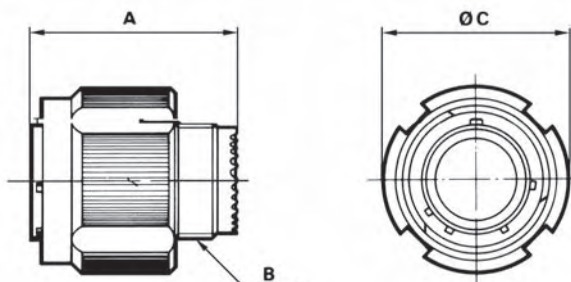
Dimensions

Receptacle type 0



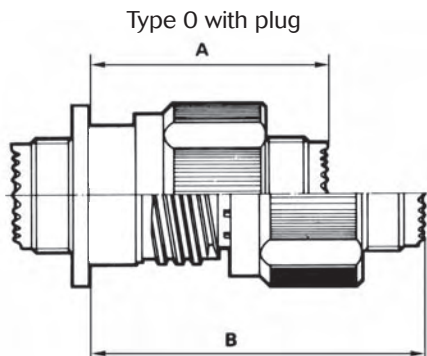
Shell size	A Max	B Max	C Max	D Thread	E ± 0.3	F	G	H ± 0.2	J ± 0.2
09 (A)	19.65	11.96	3.65	M12 x 1-6g	23.8	18.26	15.09	3.25	5.49
11 (B)				M15 x 1-6g	26.2	20.62	18.26		4.93
13 (C)				M18 x 1-6g	28.6	23.01	20.62		4.39
15 (D)				M22 x 1-6g	31	24.61	23.01		4.93
17 (E)				M25 x 1-6g	33.3	26.97	24.61		4.93
19 (F)	18.85	12.76	3.7	M28 x 1-6g	36.5	29.36	26.97	3.91	6.15
21 (G)			4.35	M31 x 1-6g	39.7	31.75	29.36		6.15
23 (H)			4.4	M34 x 1-6g	42.9	34.93	31.75		6.15
25 (J)				M37 x 1-6g	46	38.1	34.93		6.15

Plug type 5



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

Mated connectors



Shell size	A Max.	B Max.
09 (A)	37.00	52.30
11 (B)	37.00	52.30
13 (C)	37.00	52.30
15 (D)	37.00	52.30
17 (E)	37.00	52.30
19 (F)	37.00	52.30
21 (G)	36.00	51.30
23 (H)	36.00	51.30
25 (J)	36.00	51.30

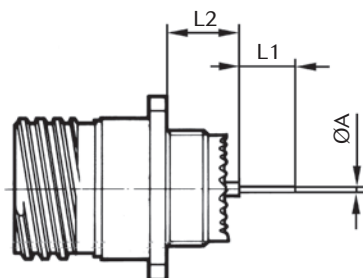
Note: All dimensions are in millimeters (mm)

8D Series

D38999 Composite Series



Receptacle with straight PC tail contacts



		Shell size			09 (A)	11 (B)	13 (C)	15 (C)	17 (E)	19 (F)	21 (G)	23 (H)	25 (J)
		Contact size	Contact type	PC tail type									
A		#22D	M & F	L & C					0.70				
		#22D	M & F	S					0.50				
		#20	M & F	C					0.70				
		#16	M & F	C					1.15				
L1		#22D	M & F	L					8.50				
		#22D	M & F	C					4.00				
		#22D	M & F	S					5.00				
		#20	M & F	C					5.00				
		#16	M & F	C					5.00				
L2	Min	#22D	M	L & C				9.48				9.59	
	Max	#22D	M	L & C				10.38				10.48	
	Min	#22D	F	L & C				9.15				9.26	
	Max	#22D	F	L & C				10.58				10.69	
	Min	#22D	M	S				9.65				9.76	
	Max	#22D	M	S				10.55				10.65	
	Min	#22D	F	S				9.65				9.76	
	Max	#22D	F	S				10.55				10.65	
	Min	#20	M	C				9.65				9.76	
	Max	#20	M	C				10.55				10.65	
	Min	#20	F	C				9.65				9.76	
	Max	#20	F	C				10.55				10.65	
	Min	#16	M	C				9.65				9.76	
	Max	#16	M	C				10.55				10.65	
	Min	#16	F	C				9.65				9.76	
	Max	#16	F	C				10.55				10.65	

M: Male contact F: Female contact L: Long PC tail C: Short PC tail S: Specific PC tail

Note: All dimensions are in millimeters (mm)

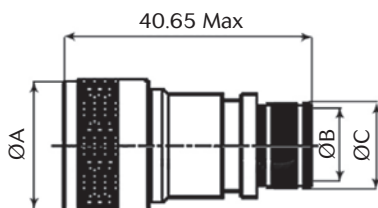
8D Series

D38999 Composite Series

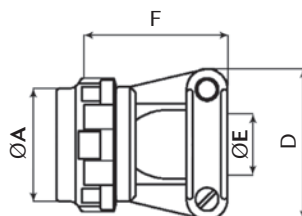


Backshells

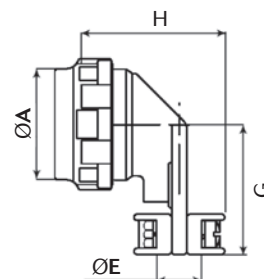
Straight backshell for EMI/RFI heat shrink boots (Type 88)



Straight cable clamp (Type 91)



90° cable clamp (Type 92)



Shell size	ØA Max	ØB ^{±0.10} Entry size		ØC Entry size		D Max	E Max	F Max	G	H
		02	03	02	03					
09	21.80	N/A	6.35	N/A	10.03	24.90	5.55	21.25	22.20	26.95
11	25.00	N/A	7.92	N/A	11.61	26.00	6.70	24.30	23.80	27.95
13	29.40	7.92	11.13	11.61	14.81	30.50	8.75	27.95	26.20	30.00
15	32.50	11.13	14.27	14.81	17.96	33.00	11.70	27.95	28.60	33.00
17	35.70	12.70	15.88	16.38	19.56	36.10	13.85	31.25	33.30	35.05
19	38.50	15.88	19.05	19.56	22.73	38.60	15.60	35.80	34.95	36.85
21	41.70	15.88	20.62	19.56	24.30	41.65	17.75	38.35	38.10	39.15
23	44.90	17.47	23.83	21.06	27.51	45.00	19.80	42.15	41.30	41.15
25	48.00	19.05	25.40	22.73	29.08	48.00	21.60	44.70	44.45	42.95

Basic Series

M85049

91

11

M

Backshell type:

91: Straight cable clamp

92: 90° cable clamp

Shell size:

09, 11, 13, 15, 17, 19, 21, 23, 25

Plating:

J: Olive drab cadmium over electroless nickel

M: Electroless nickel

T: Without plating (Type 91 & 92 only)

Entry size (Type 88 only):

02: See table above

03: See table above

Note: All dimensions are in millimeters (mm)

8D Series

D38999 Composite Series



Connectors weight

	With contacts				Without contact			
	Plug (type 5)		Receptacle (type 0)		Plug (type 5)		Receptacle (type 0)	
	Male	Female	Male	Female	Male	Female	Male	Female
09 35	8.5	10.1	7.8	9.4	8.1	8.6	7.4	7.9
09 98	8.5	9.8	7.8	9.1	8.1	8.6	7.4	7.9
11 01	12.8	15.7	10.4	13.3	12.1	14.1	9.7	11.7
11 02	11.5	14.1	09.3	11.8	10.9	12.5	08.7	10.3
11 04	12.6	15.7	10.2	13.3	12.0	14.1	9.7	11.7
11 05	12.6	15.8	10.2	13.4	11.9	13.8	9.5	11.5
11 22	11.4	13.8	09.1	11.6	11.1	12.8	08.8	10.6
11 35	12.5	16.0	10.1	13.6	11.6	12.8	9.2	10.4
11 80	15.25	18.6	13.40	10.4	10.75	11.63	08.90	09.4
11 98	12.5	15.3	10.1	12.9	11.7	12.8	9.3	10.5
11 99	11.8	15.0	09.6	12.8	10.8	12.2	08.6	10.0
13 04	17.2	20.9	13.7	17.5	15.6	17.9	12.4	14.3
13 08	17.6	22.8	14.1	19.2	16.5	19.6	12.9	16.1
13 26	17.9	23.6	14.4	20.1	16.2	18.9	12.7	15.4
13 35	17.4	23.1	13.8	19.6	15.8	17.6	12.3	14.1
13 98	17.2	21.8	13.7	18.3	15.8	17.9	12.3	14.3
15 05	21.4	26.7	16.6	21.9	19.8	22.8	15.0	18.0
15 15	22.2	29.3	17.4	24.5	19.9	23.0	15.1	18.1
15 18	22.4	31.3	17.6	26.5	19.9	24.0	15.0	19.2
15 19	22.0	29.6	17.1	24.8	19.2	22.0	14.5	17.2
15 35	22.0	31.3	17.2	26.5	19.4	22.0	14.6	17.2
15 97	21.8	28.9	17.1	24.1	19.4	22.6	14.7	17.8
17 02	26.51	38.85	25.23	37.57	19.35	22.35	18.07	21.07
17 06	25.9	35.5	23.2	32.8	21.9	25.9	19.2	23.2
17 08	24.9	33.6	22.2	30.1	22.4	27.4	19.7	24.7
17 26	25.5	36.3	22.8	33.6	21.8	25.9	19.2	23.1
17 35	25.7	39.3	23.0	36.6	21.9	25.5	19.2	22.8
17 75	31.3	42.6	28.6	39.9	22.3	28.6	19.6	25.9
17 99	25.5	36.1	22.8	33.4	22.0	26.1	19.3	23.4
19 11	32.1	45.7	26.1	39.7	28.7	37.1	22.7	31.1
19 32	31.3	44.7	25.3	38.7	26.8	31.9	20.8	25.9
19 35	31.6	48.1	25.6	42.0	27.1	31.6	21.0	25.6
21 11	38.0	57.9	32.8	52.6	30.8	40.3	25.5	35.1
21 16	35.1	50.4	29.9	45.2	30.2	37.9	24.9	32.7
21 35	35.4	56.1	30.1	50.8	29.9	36.3	24.6	31.1
21 39	36.8	57.1	31.5	51.9	31.0	40.8	25.7	35.5
21 41	35.3	52.7	30.1	47.5	29.6	36.3	24.3	31.0
21 48	42.41	62.40	37.71	57.70	29.3	36.2	24.6	31.5
21 75	47.3	64.2	42.6	59.50	29.3	36.2	24.6	31.5
23 21	43.1	66.3	38.0	61.2	36.5	49.9	31.5	44.8
23 35	41.4	67.5	36.3	62.5	34.4	42.5	29.3	37.5
23 53	41.5	63.6	36.4	58.6	34.1	42.4	29.0	37.4
23 55	42.2	65.3	42.2	60.2	34.5	43.3	29.4	38.2
25 07	53.6	90.05	49.0	84.85	37.8	51.8	33.2	46.6
25 11	59.08	81.60	54.48	77.00	40.8	53.8	36.2	49.2
25 19	51.7	83.7	46.6	78.6	39.2	53.3	34.0	48.2
25 24	51.2	82.5	46.1	77.4	39.6	54.0	34.4	48.9
25 29	49.5	78.5	44.4	73.4	40.5	55.9	35.4	50.7
25 35	47.3	80.1	42.2	75.0	38.4	48.1	33.2	43.0
25 37	49.27	80.36	45.47	76.16	37.8	51.50	34.0	47.30
25 44	69.64	93.70	65.04	94.65	36.1	45.80	31.5	46.75
25 43	49.6	80.2	44.4	75.1	40.1	55.4	35.0	50.3
25 46	51.9	75.7	46.7	70.1	37.2	47.4	32.1	42.2
25 61	46.6	73.4	41.5	68.2	38.1	48.9	32.9	43.8
25 08	72.9	104.8	67.8	99.6	36.9	48.8	31.8	43.6
25 20	57.9	88.2	52.8	83.0	36.4	46.6	31.3	41.5
25 04	50.4	80.2	45.3	75.0	41.2	54.8	36.1	49.6

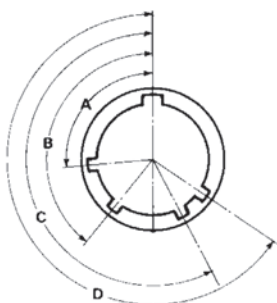
Weight in gram (+/- 15%)

8D Series

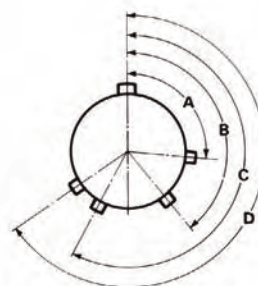
Common Section



Orientations



Viewed from front face of receptacle

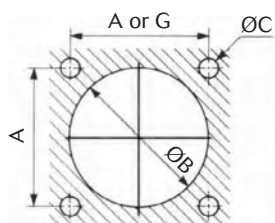


Viewed from front face of plug

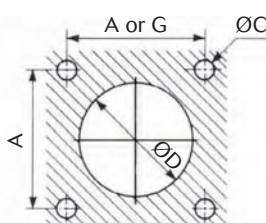
Shell size	Angles	N	A	B	C	D	E
9 (A)	A°	105	102	80	35	64	91
	B°	140	132	118	140	155	131
	C°	215	248	230	205	234	197
	D°	265	320	312	275	304	240
11 (B), 13 (C) & 15 (D)	A°	95	113	90	53	119	51
	B°	141	156	145	156	146	141
	C°	208	182	195	220	176	184
	D°	236	292	252	255	298	242
17 (E), 19 (F), 21 (G), 23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

Panel cut-out

Square flange receptacle (Type 0)

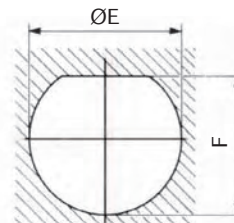


Rear mounting



Front mounting

Jam nut receptacle (Type 7)



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

Max. thickness panel for receptacle: Type 0: front mounting = 3.2 mm, rear mounting = 2.5 mm
Type 7: 3.2 mm

Note: All dimensions are in millimeters (mm)

8D Series

Common Section



Crimp contacts

Contact size	Contact type	Souriau Part number (without color code)	MIL-DTL-38999 contacts	
			Part number	Profile and color code
#22D	Pin	8599-0702 JJ	M39029/58 360	 Black / Blue / Orange
	Socket	8599-0706 900	M39029/56 348	 Grey / Yellow / Orange
#20	Pin	8599-0703 SA	M39029/58 363	 Orange / Blue / Orange
	Socket	8599-0707 900	M39029/56 351	 Brown / Green / Orange
#16	Pin	8599-0704 MJ	M39029/58 364	 Yellow / Blue / Orange
	Socket	8599-0708 900	M39029/56 352	 Red / Green / Orange
#16 Coaxial	Pin	-	M39029/76 424	 Yellow / Red / Yellow
	Socket	-	M39029/77 428	 Grey / Red / Yellow
#12	Pin	8599-0705 MJ	M39029/58 365	 Green / Blue / Orange
	Socket	8599-0709 900	M39029/56 353	 Orange / Green / Orange
#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 *	-	
	Socket	8599-7541 *	-	
	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 mm ²
	Socket	8599-7599 900 **	-	
	Pin	8599-7534	-	For wire 21.15 mm ²
	Socket	8599-7535	-	
	Boot	for cable 16 mm ² 8599-4594	-	
		for cable 10 mm ² 8599-4593	-	
	Reductor cable 10 mm ² 8400-2351A		-	
#4 Power with reduced barrel	Pin	8599-7528 900	-	Mating part #4 / Barrel #6
	Socket	8599-7529 900	-	
	Boot	8599-4593	-	

* JVS only. ** Not included in connector Part number. Must be ordered separately.

8D Series

Common Section



Crimp contacts

Contact size	Contact type		Contact Ø	Conductor section				External Ø over insulator		
				AWG		mm²		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			RG 174					1.65	2.60
	Socket			RG 179 RG 316						
#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									
#8 Coaxial	Pin			RG 180 A/U					-	2.80
	Socket									
	Boot									
#8 Triaxial	Pin			5.50	0,76MIL-C 17/176 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	5.80	
	Reductor cable 10 mm²			-	-	-	-	-	-	
#4 Power with reduced barrel	Pin			6			13.3		-	-
	Socket									
	Boot			-	-	-	-	4	5.80	

8D Series

Common Section



Straight PC tail contacts

Contact size	Contact type	PC tail 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	-
#16	Pin	C	8599-0726 900	-
	Pin	C	8599-07482A 900	-
	Socket	C	8599-0727 900	
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 PC tail
L: Long PC tail
M: Medium PC tail
C: Short PC tail

8D Series

Common Section



Coaxial contacts #12

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

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.

Crimp contacts: 1500 mating

Contact size	MIL-DTL-38999 contacts		
	Contact type	Part number	Color code
#22D	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	Contact Ø (mm)	Profile	 (mm)
#22D	Pin	8599-0790 JJ	0.76		0.86
#20	Pin	8599-0791 900	1		0.86

Quadrax #8 contacts

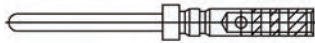
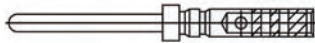
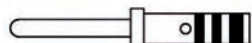
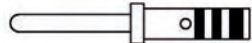
Contact type	Version	Souriau Part Number	Cross Norm	T°	Impedance	Sealing	Release
Pin	PCB mount	ETH1-1237A	-	125°C	100Ω	Sealed	Rear
		ETH1-1501A	-		150Ω		
	Crimp	ETH1-1345A	EN3155-074	200°C	100Ω		
		ETH1-1503A	-		150Ω		
Socket	PCB mount	ETH1-1238A	-	125°C	100Ω		
		ETH1-1502A	-		150Ω		
	Crimp	ETH1-1346A	EN3155-075	200°C	100Ω		
		ETH1-1504A	-		150Ω		

8D Series

Common Section

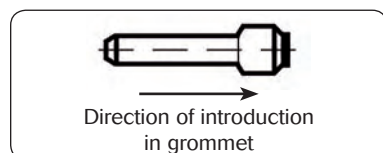


Thermocouple contacts

Contact size	Contact type	Souriau part numbers (without color code)	MIL-DTL-38999 contacts		Ø Contact (mm)	Wire section				Ø Over insulation (mm)	
			Part numbers	Profile and color code		Awg		mm²			
						min	max	min	max	min	max
#22D Chromel	Pin	-	M39029/87-472	 Red / Violet / Yellow	0.75	28	22	0.095	0.34	0.76	1.37
	Socket	-	M39029/88-484	 Yellow / Grey / Yellow							
#22D Alumel	Pin	-	M39029/87-471	 Brown / Violet / Yellow							
	Socket	-	M39029/88-483	 Orange / Grey / Yellow							
#20 Chromel	Pin	8599-0749 900	8599-0949 900	 Blue / Violet / Yellow	1	24	20	0.21	0.6	1.02	2.11
	Socket	8599-0753 900	8599-0953 900	 Grey / Grey / Yellow							
#20 Alumel	Pin	8599-0761 900	8599-0961 900	 Green / Violet / Yellow							
	Socket	8599-0765 900	8599-0965 900	 Violet / Grey / Yellow							

Dummy contacts

Size	Part number
#16	8599-6A016001A
#8	8599-0308
#4	8599-0310



Filler plugs

Contact size	Filler plugs		
	MS Part number (Rev. N)	Souriau Part number	Color
#22D	MS27488-22-2	8660-212	Black
#20	MS27488-20-2	8522-389A	Red
#16	MS27488-16-2	8522-390A	Blue
#12	MS27488-12-2	8522-391A	Yellow

8D Series

Common Section



Insertion & extraction tools

Contact size	Material	Part number		Color	
		MIL standard	Souriau	Insertion	Extraction
#22D	Plastic	M81969/14-01	-	Green	White
#20	Plastic	M81969/14-10	-	Red	Orange
#16	Plastic	M81969/14-03	-	Blue	White
#12	Plastic	M81969/14-04	-	Yellow	White
#10	Plastic	M81969/14-05	-	Grey	-
#8	Plastic	M81969/14-12	-	-	Green
	Metalic	-	8660-197	-	-
#4	Plastic	M81969/14-07	-	-	Blue
	Metalic	-	8533-8175	-	-

Crimping tools

Contact size	Contact type	Plier M22520/1-01		Plier M22520/2-01 (Souriau 8476-01)		Plier M300BT	Plier * M22520/23-01	
		Turret Part number		Locator Part number		Locator Part number	Turret Part number	Locator Part number
		Norm	Souriau	Norm	Souriau			
#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					-	-	-
#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	Plier M22520/2-01 (Souriau 8476-01)	Plier M22520/31-01	Plier M22520/4-01	Plier M22520/5-01
		Locator Part Number	Locator Part number	Locator Part Number	Die set Part Number
#12 Coaxial M39029/102-558 M39029/103-559	Inner	-	-	-	M22520/5-03
	Outer	-	-	-	
#12 Coaxial M39029/28-211 M39029/75-416	Inner	M22520/2-34	-	-	-
	Outer	-	M22520/31-02	-	-
#16 Coaxial	Inner	M22520/2-35	-	-	-
	Outer	-	-	M22520/4-02	-
#8 Coaxial	Inner	M22520/2-31	-	-	-
	Outer	-	-	-	M22520/5-05 closure B
#8 Triaxial	Inner	K709	-	-	-
	Middle	-	-	-	Y631 closure B
	Ferrule	-	-	-	Y631 closure A

* Pneumatic plier

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

8D Series

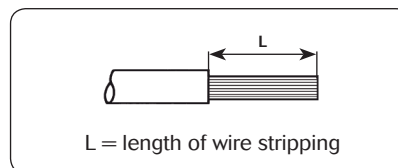
Common Section



Wiring instruction

Cable preparation and wire stripping

Contact size	#22D	#20	#16	#12	#8	#4
L min	3.58 .14	5.31 .21	5.31 .21	5.31 .21	12.5 .49	12.5 .49
L max	3.99 .16	5.82 .23	5.82 .23	5.82 .23	13 .51	13 .51

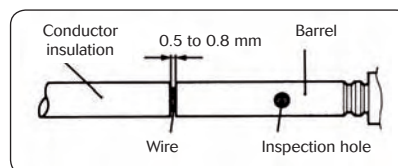


Insertion of wire in contact barrel

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.

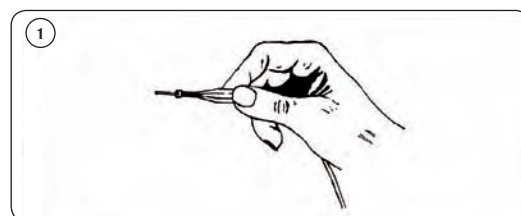
Important :

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

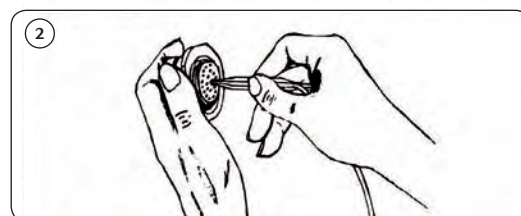


Insertion of the contacts

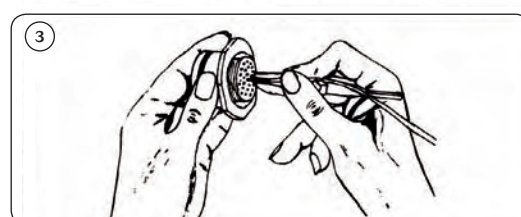
1 - Engage the crimp cable / contact assembly into the longitudinal slot of the plastic tool (coloured tip). Slide the tool down the cable until the tip of the tool abuts the contact retention shoulder.



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



3 - Withdraw the tool (from rear). Check that 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.

8D Series

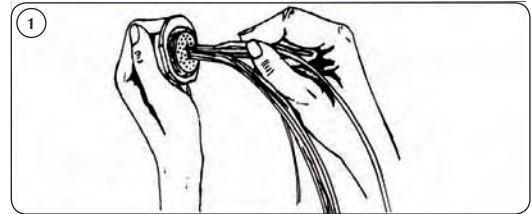
Common Section



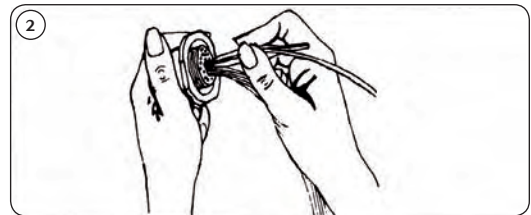
Wiring instruction

Extraction of the contacts

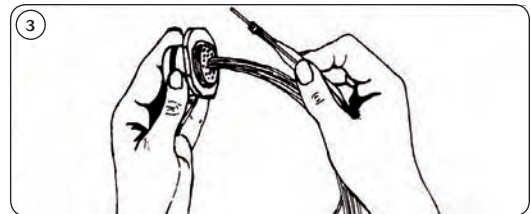
1 - Engage the appropriate cable into the longitudinal slot of the tool with the white tip towards connector.



2 - Slide the tool down towards the contact. Insert the tool in the insulator until it abuts the contact shoulder.



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



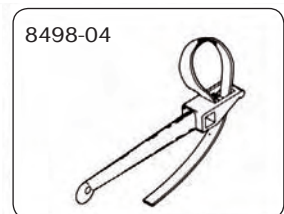
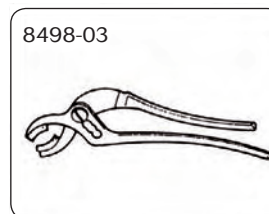
Backshell tightening and slackening tools

Backshell tightening pliers, part number : 8498-03

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

Strap clamp : 8498-04

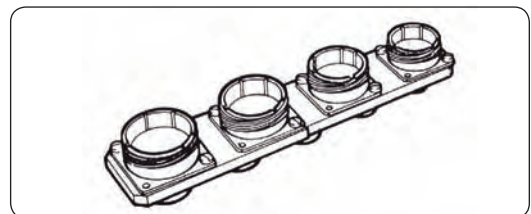
Spare strap : 8498-103



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.



8D Series

Common Section



Gaskets

Shell size	Gasket for receptacles Type 0* (ordered separately)	O ring for receptacle Type 7
9 (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	Caps for receptacles	Caps for plugs	Caps for composite plugs only (J & M)	Antistatic caps for receptacles	Antistatic caps for plugs
9 (A)	70777	8500-5587 A	MS90376-12R	70777N	8500-5587N
11 (B)	MS90376-12R	70198	8500-5598	MS9037612RF	8500-5588N
13 (C)	MS90376-14R	8500-5600	8500-5600	MS9037614RF	8500-5600N
15 (D)	MS90376-16R	8500-5601	8500-5601	MS9037616RF	8500-5601N
17 (E)	70201	8500-5602	8500-5602	70201N	8500-5602N
19 (F)	70209	8500-5592 A	8500-5592 A	8500-5590N	8500-5592N
21 (G)	MS90376-22R	8500-5593 A	8500-5593 A	8500-5591N	8500-5593N
23 (H)	MS90376-24R	8500-5593 A	70472	8500-5592N	8500-5591N
25 (J)	8500-5593 A	J599ABC6009A00	J599ABC6009A00	8500-5593N	8500-5592N

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