

SPACE GRADE 38999

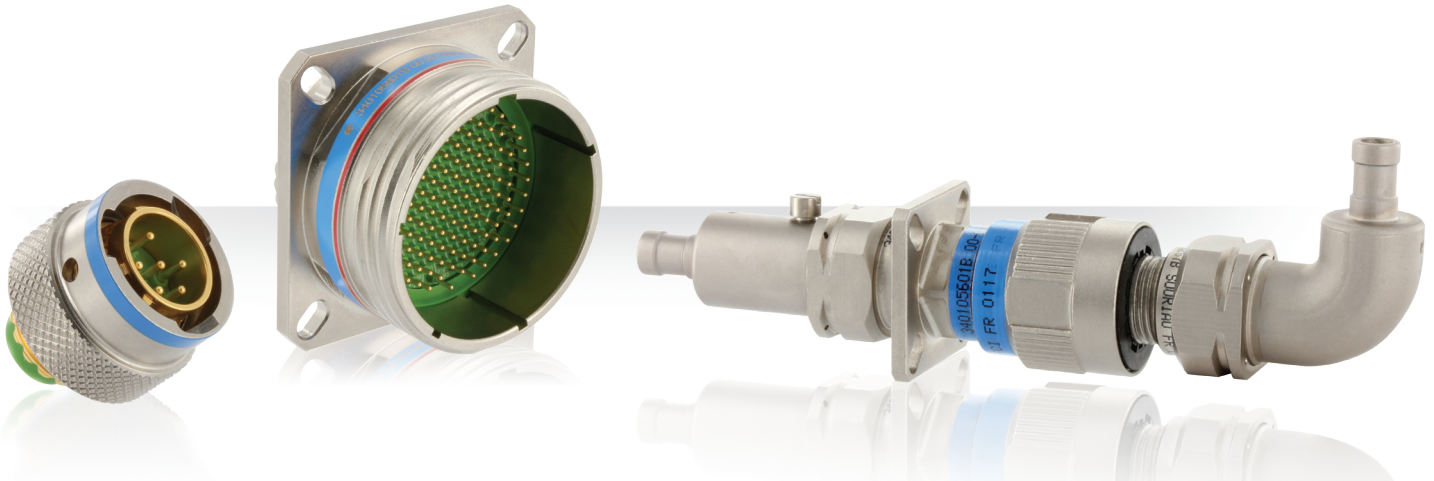


Space Grade Circular Connectors ESCC 3401 & MIL-DTL-38999



SOURIAU
Connection Technologies

Space Grade 38999 Series



Presentation

Since the 80's **SOURIAU** has been supporting the Space Industry by supplying standard and dedicated interconnect solutions. Among the full range of standard series developed and qualified for space applications, the Space Grade 38999 Series has been used on the main international programs.

Based on MIL-DTL-38999 standard, **SOURIAU**'s Space Grade 38999 Series has evolved and expanded to keep providing the best-in-class service.

The Space Grade 38999 Series is now offering 2 types of locking mechanisms, 9 shell sizes, over 50 layouts, electrical contact size range from #22 to #4, several versions and accessories.

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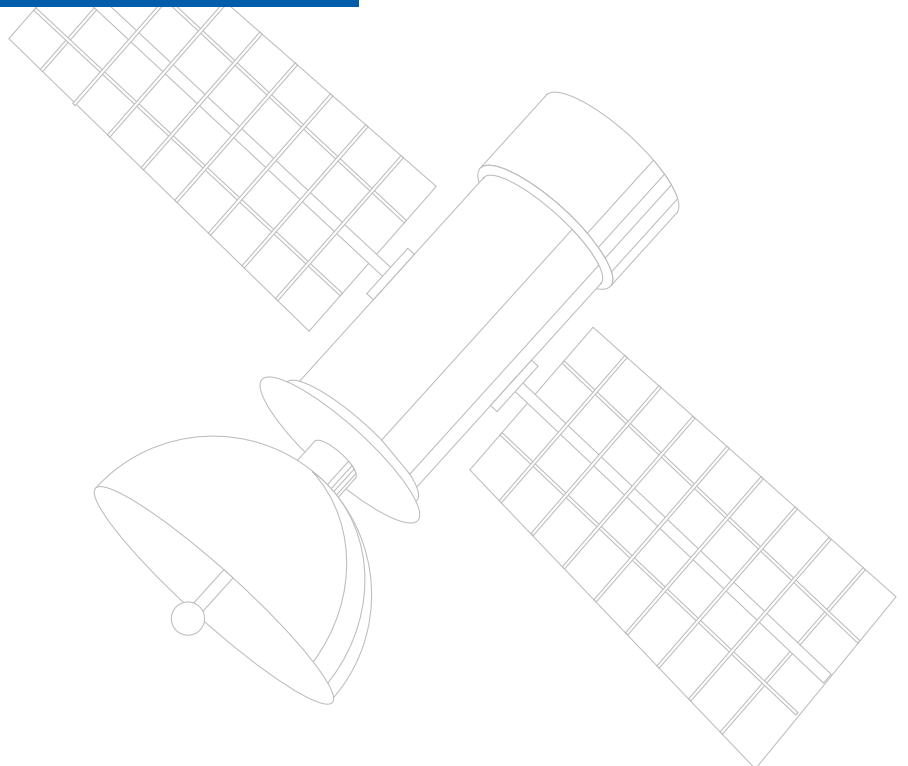
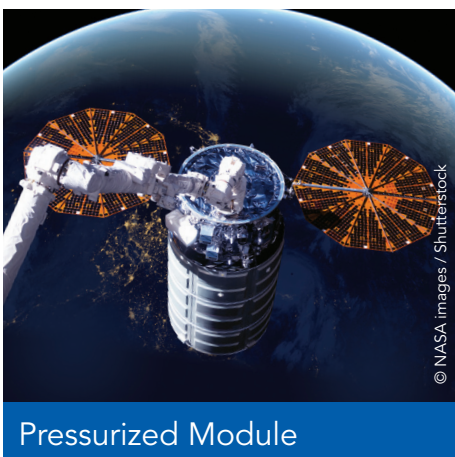
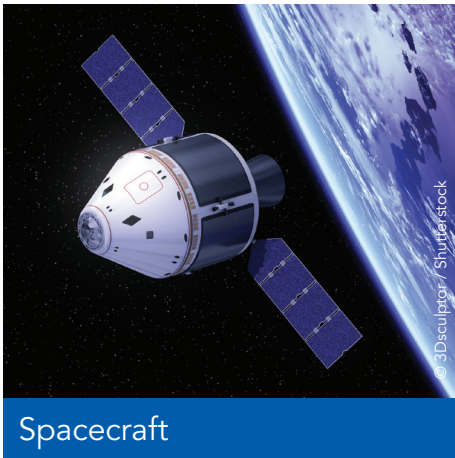
SPACE GRADE 38999

Space Grade 38999 Series

Overview

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Typical applications



Features & Benefits

QPL

MIL and ESCC qualified

ESA/ESCC 3401 qualified.
MIL-DTL-38999 qualified.
No LAT required.
Screening Level 1 according to EEE-INST-002.

QUICK & ROBUST

Safe, quick and easy mating

Scoop proof design to prevent bent contact.
Keying and self-locking mechanism to secure the right connection.
Quick manual locking, no tools, bolts or loose items required.

HIGH RATINGS

Highest space standards performances

Highest voltage withstanding.
Highest temperature withstanding.
Highest shock and vibration withstanding.

NON OUTGASSING

Space environment compatible materials

Rigorous material selection and qualification.
Non-outgassing materials.
Machined shells to ensure the best material integrity.

LARGE OFFER

Broad range

Large choice of sizes and standard layouts, to gather connection points and enable different ratings.
Rear removable contacts.
Qualified backshells.

Serving space industry...

- Space environment compatible
 - Non-outgassing and qualified components materials
 - Dedicated process and consumables to enable product's space environment compatibility
 - Burr free and non-reflective



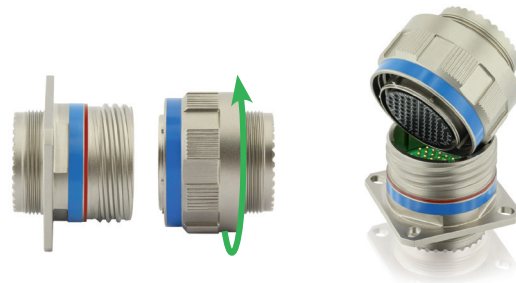
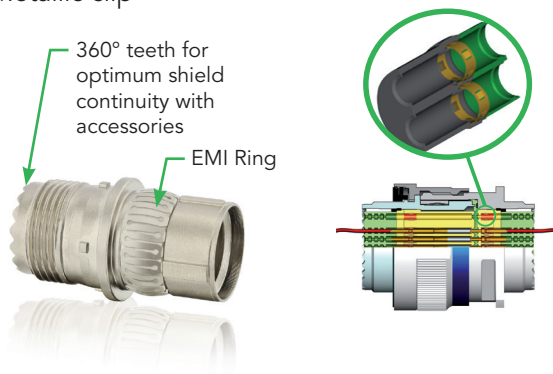
- Space industry highest requirements
 - QPL, no LAT required
 - Materials, processes and supply chain fully approved by Qualification authorities
 - Thorough in-production and final controls
 - Deep traceability



... with high-end products

- Strong design
 - High performances in harsh conditions
 - Fully shielded connector
 - Patented self-locking mechanisms
 - Metallic clip

- Quick and easy to use
 - Quick screw and bayonet coupling
 - Scoop proof: 5-position polarization, correct mating indication
 - No risk of damaging contacts during the coupling operation



Quality assurance testing

- Qualification
 - European Source approved to ESA/ESCC circular connectors specifications and USA MIL-DTL-38999 Class G QPL Source

- Final production tests
 - Visual (100%)
 - Intermateability
 - Dimensional (by sampling)

- Production control
 - Visual (100%)
 - Insulation resistance (100%)
 - Contact retention (100%)
 - Dimensional (by sampling)
 - Dielectric withstanding voltage (100%)
 - Female contact capability (100%)

- Lot acceptance tests
 - ESCC 3401 Chart IV qualified
 - Periodic requalification through ESCC 3401 Chart V
 - MIL-DTL-38999 qualification and periodic tests

+50
Layouts
(mixed, HD, ...)

2
Locking
Systems

3
Mounting
Styles

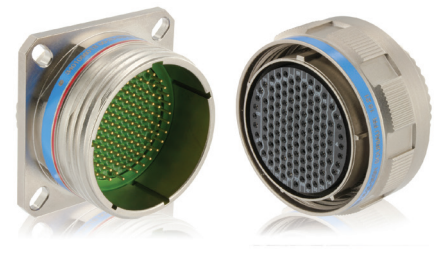
QPL STANDARD SERIES



8LTS SERIES - 38999 Series I
Bayonet Coupling - p.18



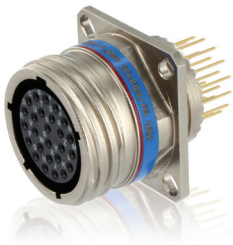
8TS SERIES - 38999 Series II
Low Profile Bayonet Coupling - p.22



8DS SERIES - 38999 Series III
Screw Coupling - p.26

- ESA/ESCC and MIL (Class G) QPL versions available
- RoHS and REACH compliant
- 8TS low profile version, lighter and 30% shorter
- Extended capabilities and benefits compared to standard rectangular solutions
- Various possibilities of customization

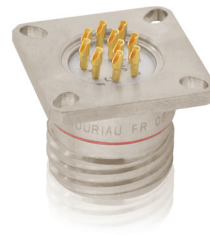
QPL 8DS DERIVED SERIES



STRAIGHT PC TAILS
p.30



MONO-TRIAX
p.32



HERMETIC RECEPTACLES
p.34



HERMETIC FEEDTHROUGHS
p.34

BACKSHELLS - p.40



BACKSHELL NUTS

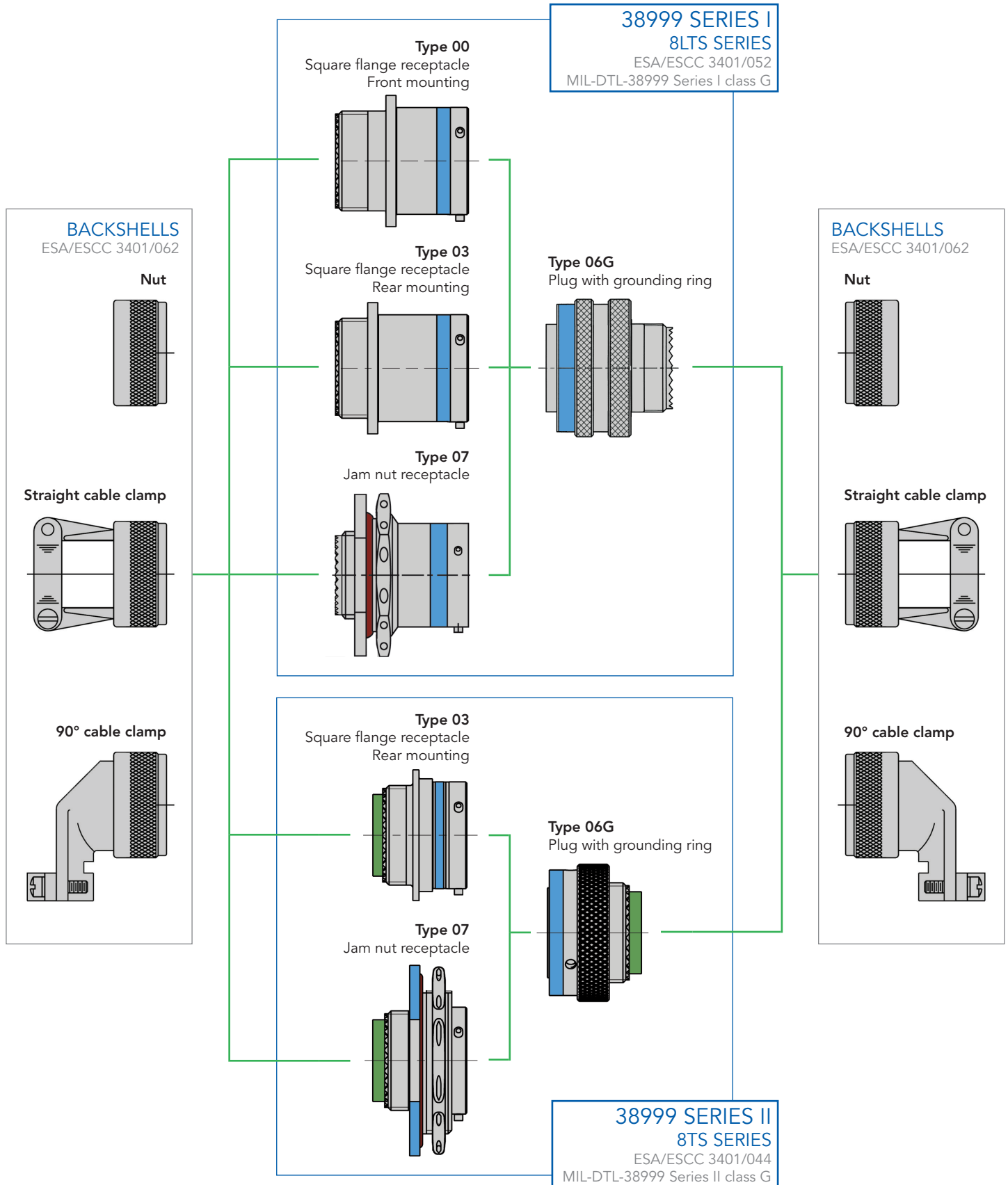


STRAIGHT CABLE CLAMPS

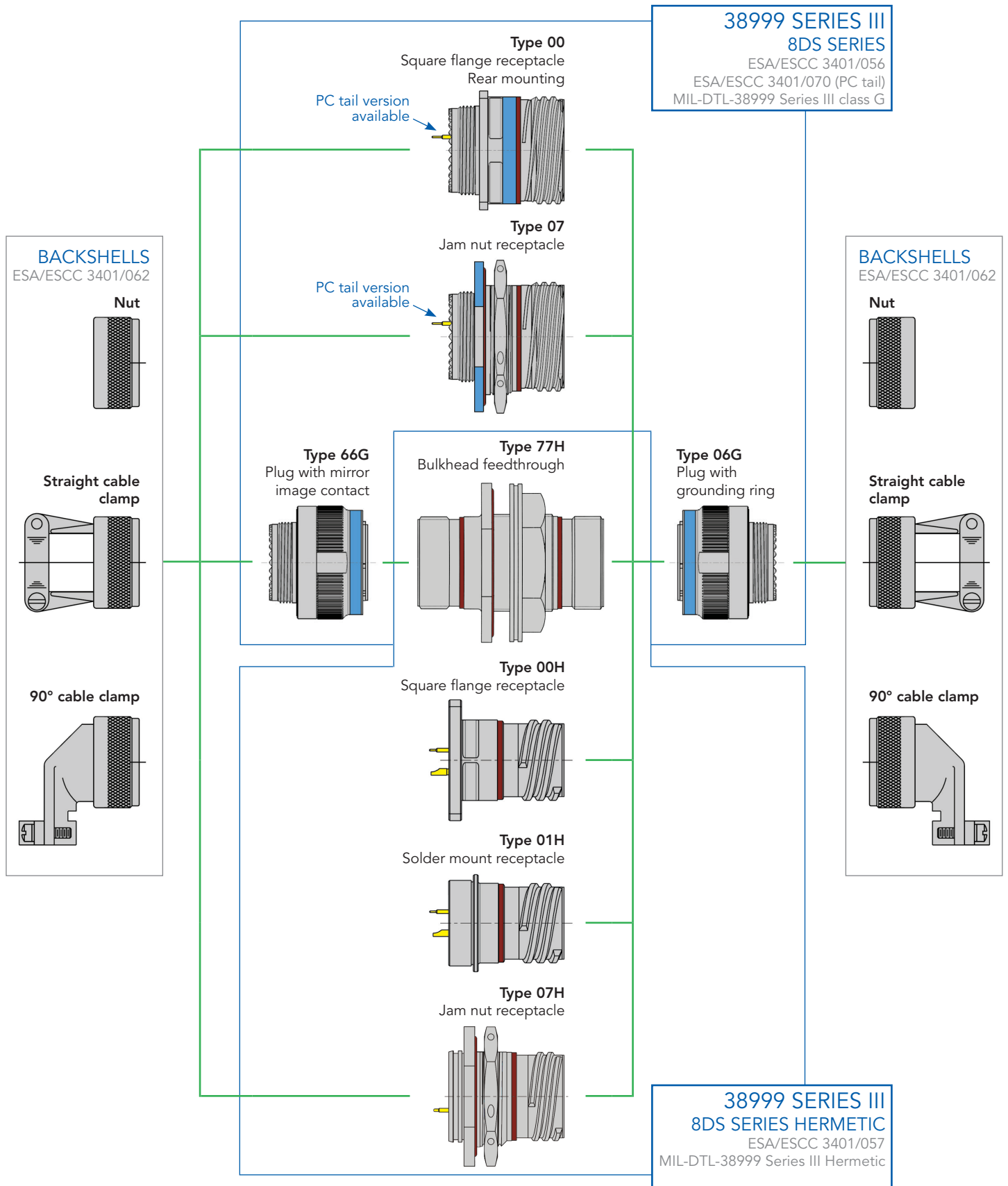


90° CABLE CLAMPS

Bayonet coupling



Screw coupling



Contact layouts

I 8LTS Series
 II 8TS Series
 III 8DS Series
 PC 8DS Series PC Tail version
 H 8DS Series Hermetic version
 Contact sizes #22D #20 #16 #12 #8 Triax (=Concentric Twinax) or Coax - consult us
 * ESA layout only ** Not available in MIL class G

08 - 09/A

01* 1#8 Service I III	35 6#22D Service M I II III PC H	98 3#20 Service I I II III PC H
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10 - 11/B

01 1#12 Service II I III	02 2#16 Service I I III	04 4#20 Service I I III H	05 5#20 Service I I II III H	35 13#22D Service M I II III PC H	98 6#20 Service I I II III PC H	99 7#20 Service I I II III
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12 - 13/C

04 4#16 Service I I II III H	08 8#20 Service I I II III H	26** 2#12, 6#22D Service M I II III	35 22#22D Service M I II III PC H	98 10#20 Service I I II III PC H
--	--	---	---	--

14 - 15/D

05 5#16 Service II I II III H	15 1#16, 14#20 Service I I II III	18 18#20 Service I I II III H	19 19#20 Service I I II III H	35 37#22D Service M I II III PC H	97 4#16, 8#20 Service I I II III
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Contact layouts

I 8LTS Series
 II 8TS Series
 III 8DS Series
 PC 8DS Series PC Tail version
 H 8DS Series Hermetic version
 Contact sizes ○ #22D ◐ #20 ◑ #16 ◒ #12 ◓ #8 Triax (=Concentric Twinax) or Coax - consult us

** Not available in MIL class G

16 - 17/E

02** 38#22D 1#8 Triax Service M I III	06 6#12 Service I I II III	08 8#16 Service II I II III H	26 26#20 Service I I II III H	35 55#22D Service M I II III PC H	75 2#8 Triax Service M I III	99 2#16, 21#20 Service I I II III
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18 - 19/F

11 11#16 Service II I II III H	32 32#20 Service I I II III H	35 66#22D Service M I II III PC H
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20 - 21/G

11 11#12 Service I I II III	16 16#16 Service II I II III H	35 79#22D Service M I II III PC H	39 2#16 37#20 Service I I II III	41 41#20 Service I I II III H	75** 4#8 Triax Service M I III
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22 - 23/H

21 21#16 Service II I II III H	35 100#22D Service M I II III PC H	53 53#20 Service I I II III PC H	55 55#20 Service I I II III
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Contact layouts

I 8LTS Series
 II 8TS Series
 III 8DS Series
 PC 8DS Series PC Tail version
 H 8DS Series Hermetic version
 ○ #22D
 ◐ #20
 ◑ #16
 ◒ #12
 ◓ #8 Power
 ◔ #4 Power
 ◕ #8 Triax (=Concentric Twinax) or Coax - consult us
 * ESA layout only ** Not available in MIL class G

24 - 25/J

03*	04	07*	08**	19	20**	24
2#4 1#8 Service I	48#20 8#16 Service I	7#8 Power Service I	8#8 Triax Service M	19#12 Service I	10#20, 13#16 4#12 Coax 3#8 Triax Service N	12#16 12#12 Service I
III	I II III	I III H	I III	III PC	III	I II III PC
29	35	37	43	46**	61	
29#16 Service I	128#22D Service M	37#16 Service II	23#20 20#16 Service I	40#20, 4#16 2#8 Triax Service I	61#20 Service I	
I II III H	I II III PC H	I III	I III	I III	I II III PC H	

QPL Series Cross Table

SOURIAU	ESCC	MIL	Description
8LTS	3401/052	MS27456 MS27466 MS27467 MS27468	38999 Series I connectors with removable crimp contacts
8TS	3401/044	MS27473 MS27474 MS27497	38999 Series II connectors with removable crimp contacts
8DS	3401/056	D38999/20 D38999/24 D38999/26	38999 Series III connectors with removable crimp contacts
8DS	3401/070	-	38999 Series III connectors with straight spill contacts
8DS-H	3401/057	-	38999 Series III hermetic receptacles and feedthrough
-	3401/062	M85049	Backshells for 38999 Series I, II and III connectors
8975	3401/045	M39029/57 M39029/58	Crimp contacts for 8TS-3401/044
8975	3401/058	M39029/56 M39029/58	Crimp contacts for 8LTS-3401/052 and 8DS-3401/056
-	3401/066	-	Triax crimp contact for 8DS-3401/056

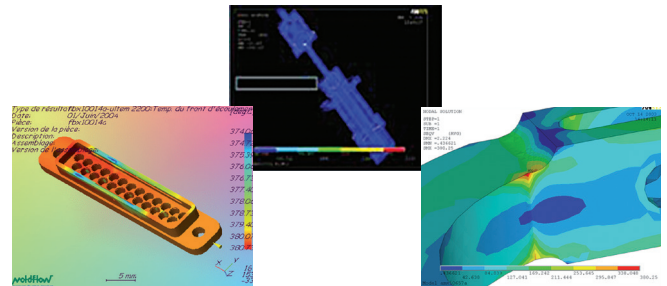
Our expertise

Thanks to more than 50 years of experience in the space industry, we have accumulated a very rich know-how to support our customers.

This expertise goes from product definition to solution validation and stringent production processes, to follow our motto: *reliable people, reliable solutions!*

Product definition

- **Material Choice:** Atomic Oxygen corrosion resistance, cold welding prevention, limited outgassing, etc...
- **Product design:** expertise on launching systems design as well as robotic operated connections
- Know-how to support specific needs



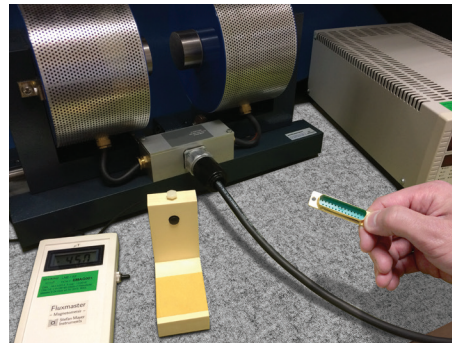
Stress and heat dissipation analysis

Validation and qualification

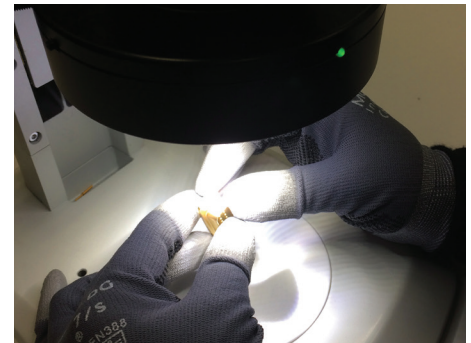
- In-house certified independent laboratory
- Capability to simulate various environments as well as to measure any key parameters



Vacuum bell for robotic operating testing
-170°C/+200°C temperature gradient



Residual magnetism and magnetic permeability measurement



Binocular controls

Production processes

- Stringent production process
- Controlled environment
- Binocular inspection
- Rigorous traceability procedures and documentation



Clean Room handling

SPACE GRADE 38999

Space Grade 38999 Series

Standard Series

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Ordering information	32
Dimensions and weights	33
■ 8DS Series Hermetic:	
Ordering information	34
Dimensions and weights	35

Description

- Standard profile bayonet coupling connector
- To be mounted with crimp contacts:
 - . ESA/ESCC 3401/058
 - . MIL/ M39029
- To be mounted with backshells:
 - . ESA/ESCC 3401/062
 - . MIL/ M85049
- Standards:
 - . ESA/ESCC 3401/052 (QPL)
 - . MIL-DTL-38999 Series I class G (QPL)
- High contact density
- Contact protection : 100% Scoop proof
- Shell size from 9 to 25
- Screening Level 1 according to EEE-INST-002



Technical features

Material

- **Shell:**
Aluminum alloy
Dull low reflective electroless nickel plated, burr free
- **Grounding:**
Beryllium copper
- **Insulator:**
Bonded sandwich thermoplastic
- **Grommet and interfacial seal:**
Non-outgassing silicone
- **Contacts retaining clip:**
Beryllium copper
- **Contacts:**
Copper Alloy
Gold over nickel plating
- **Backshell:**
Aluminium alloy
Dull low reflective electroless nickel plated, burr free

Mechanical

As per ESA/ESCC 3401 test methods and applicable ESA/ESCC detail specifications

- **Endurance:** 500 mating cycles
- **Shock:** 75g, 11 milliseconds, half sine wave
- **Vibration:**
Sinus
 - . 10-55Hz at 8,25mm double amplitude displacement
 - . 56-2000Hz at 50g
 Random
 - . 20-100Hz at +6dB per octave
 - . 100-2000Hz, constant at 1g2/Hz

• Contact retention:

Contacts size	22	20	16	12	8	4
Max force in N	44	67	111	111	150	180

• Tightening torque for mounting nut:

Receptacle size	9	11	13	15	17	19	21	23	25
Torque Max. (Nm)	6	8	10	13	16	18	20	22	24

Environmental

As per ESA/ESCC 3401 test methods and applicable ESA/ESCC detail specifications

- **Operating temperature:** -65°C to +200°C
- **Storage temperature:** 1000h/200°C
- **Outgassing:** TML < 1%; CVCM < 0.1%

Electrical

As per ESA/ESCC 3401 test methods and applicable ESA/ESCC detail specifications

• Voltage proof (sea level):

Service Rating	II	I	M	N
Vrms	2300	1800	1300	1000

• Working voltage (sea level):

Service Rating	II	I	M	N
Vrms	575	450	325	250

• Mated shell conductivity: Voltage drop max. 1 mV

• Rated current:

Contacts size	22	20	16	12	8	4
Rating (A)	5	7.5	13	23	46	80

• Contact resistance Rcl max. (under 10 mA): All contacts sizes: 8.0 mΩ

• Contact resistance Rcr max. (at rated current):

Contacts size	22	20	16	12	8	4
Resistance mΩ	14	7	4	3.5	0.55	0.45

• Insulation resistance: RI ≥ 10 000 MΩ

Ordering information

SOURIAU Part Number

Basic series	8LTS	00	09	35	P	N	L
Shell type							
00: Square flange receptacle (front mounting)							
03: Square flange receptacle (rear mounting)							
06G: Plug with grounding ring							
07: Jam nut receptacle							
Shell size: 09; 11; 13; 15; 17; 19; 21; 23; 25							
Contact layout: See tables pages 12 to 14							
Contact type							
P: Pin							
S: Socket							
Orientation: N, A, B, C, D - see table page 45							
L: Connector delivered without contacts (connector marked P or S, L not marked)							

ESA/ESCC Part Number

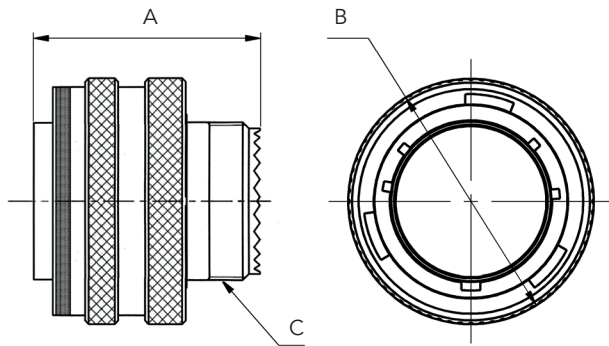
ESCC specification number	3401 052	01	B	00	09	35	P	N	L
Type of variant ESA mandatory									
B testing level mandatory									
Shell type									
00: Square flange receptacle (front mounting)									
03: Square flange receptacle (rear mounting)									
06: Plug with grounding ring									
07: Jam nut receptacle									
Shell size: 09; 11; 13; 15; 17; 19; 21; 23; 25									
Contact layout: See tables pages 12 to 14									
Contact type									
P: Pin									
S: Socket									
Orientation: N, A, B, C, D - see table page 45									
L: Connector delivered without contacts (connector marked P or S, L not marked)									

MIL-DTL-38999 Class G Part Number

MIL specification number	MS27	466G	11	F	35	A	B
Shell Type							
466G: Square flange receptacle							
656G: Square flange receptacle (rear mounting)							
468G: Jam nut receptacle							
467G: Plug with RFI shielding							
Shell size: 09; 11; 13; 15; 17; 19; 21; 23; 25							
Shell Coating - Not to be modified							
Contact layout: See tables pages 12 to 14							
Contact type							
A: Connector supplied less pin contacts							
B: Connector supplied less socket contacts							
P: Pin							
S: Socket							
Orientation: Empty (= N orientation), A, B, C, D - see table page 45							

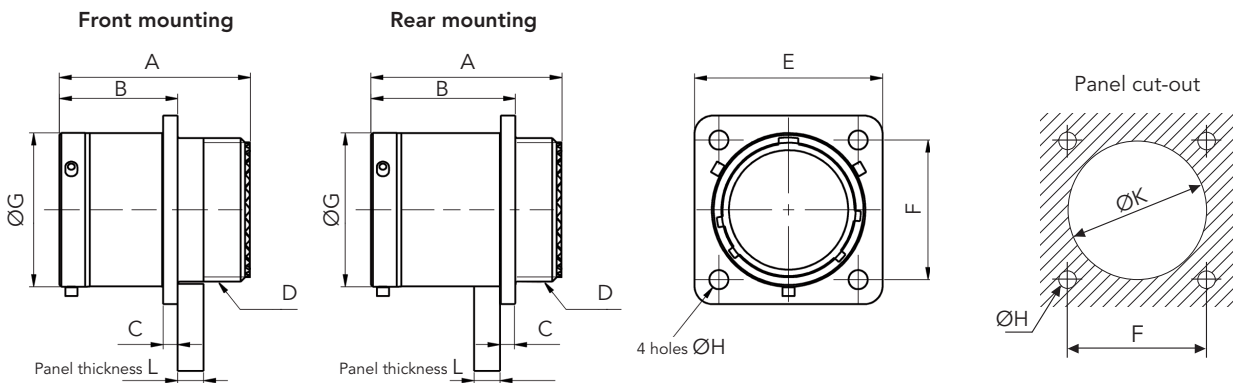
Dimensions

Type 06G - Plug with grounding ring



Shell size	A Max	B Max	ØC Thread UNEF-2A (inch/UNC)
9	31.32	21.8	0.4375 - 28
11		25	0.5625 - 24
13		29.4	0.6875 - 24
15		32.5	0.8125 - 20
17		35.7	0.9375 - 20
19		38.5	1.0625 - 18
21		41.7	1.1875 - 18
23		44.85	1.3125 - 18
25		48	1.4375 - 18

Type 00 (front mounting) & Type 03 (rear mounting) - Square flange receptacle

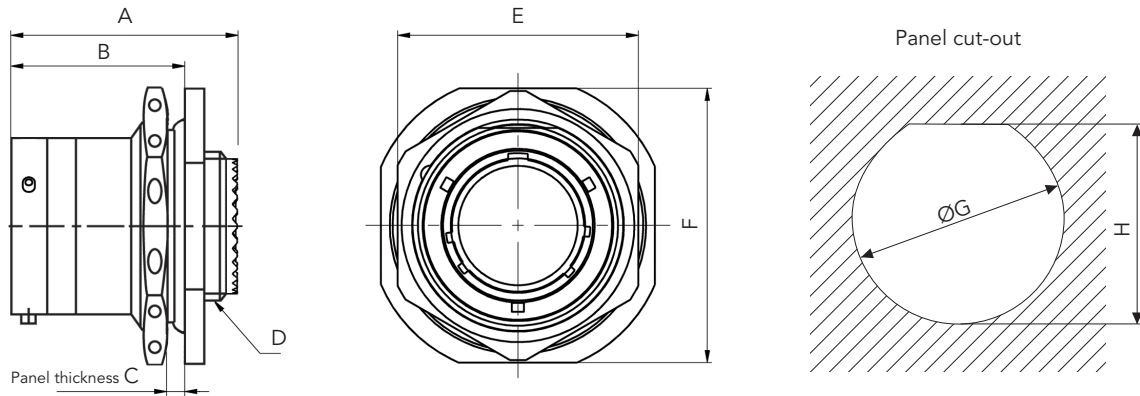


Shell size	A Max		B Max		C Max	ØD Thread UNEF-2A (inch/UNC)	E		F Max	ØG		ØH		ØK Min		L Max
	Front mounting	Rear mounting	Front mounting	Rear mounting			Min	Max		Min	Max	Min	Max	Min	Max	
9	32.02	31.33	18.53	20.83	2.5	0.4375 - 28	23.95	24.55	18.26	14.41	14.53	3.15	3.45	15.70	16.66	2.5
11						0.5625 - 24	26.3	26.9	20.62	17.66	17.78			18.70	20.22	
13						0.6875 - 24	28.7	29.3	23.01	21.47	21.59			21.80	23.42	
15						0.8125 - 20	31.05	31.65	24.61	24.65	24.77			25.00	26.59	
17						0.9375 - 20	33.45	34.05	26.97	27.82	27.94			28.30	30.96	
19						1.0625 - 18	36.6	37.2	29.36	30.54	30.66			31.00	32.94	
21						1.1875 - 18	39.8	40	31.75	33.71	33.83			34.20	36.12	
23						1.3125 - 18	42.95	43.55	34.93	36.88	37			37.30	39.29	
25						1.4375 - 18	46.2	46.7	38.1	40.06	40.18			40.50	42.47	

Note: All dimensions are in millimeters (mm)

Dimensions

Type 07 - Jam nut receptacle



Shell size	A Max	B Max	C		ØD Thread UNEF-2A (inch/UNC)	E		ØF		ØG Min	H Min	Tightening Torque (Nm)
			Min	Max		Min	Max	Min	Max			
9	31.68	23.36	16.43	16.63	0.4375 - 28	22.25	22.45	26.95	27.75	17.78	17.02	4
11			18.97	19.17	0.5625 - 24	25.45	25.65	31.7	32.5	20.96	19.59	5
13			23.72	23.92	0.6875 - 24	30.2	30.4	34.91	35.71	25.65	24.26	7
15			26.87	27.07	0.8125 - 20	33.35	33.55	38.89	39.09	28.83	27.56	8
17			30.05	30.25	0.9375 - 20	36.55	36.75	41.23	42.03	32	30.73	9
19			33.22	33.42	1.0625 - 18	39.7	39.9	45.97	46.77	35.18	33.91	10
21			36.4	36.6	1.1875 - 18	42.9	43.1	49.18	49.98	38.35	37.08	12
23			39.57	39.77	1.3125 - 18	46.05	46.25	52.36	53.16	41.53	40.26	13
25			42.75	42.95	1.4375 - 18	50.85	51.05	55.53	56.33	44.7	43.45	14

Connectors weight - in gram (±15%)

Shell size	Shell type		
	00 & 03	07	06
9	11	15	17
11	17	20	23
13	22	26	28
15	25	34	34
17	38	44	44
19	40	49	49
21	52	60	60
23	54	63	63
25	58	75	70

8LTS Series without contact and backshell.

Note: All dimensions are in millimeters (mm)

Description

- Low profile bayonet coupling connector
- To be mounted with crimp contacts:
 - . ESA/ESCC 3401/045
 - . MIL/ M39029
- To be mounted with backshells:
 - . ESA/ESCC 3401/062
 - . MIL/ M85049
- Standards:
 - . ESA/ESCC 3401/044
 - . MIL-DTL-38999 Series II class G
- Shell sizes from 8 to 24
- Screening Level 1 according to EEE-INST-002



Technical features

Material

- **Shell:**
Aluminium alloy
Dull low reflective electroless nickel plated, burr free
- **Grounding:**
Beryllium copper
- **Insulator:**
Bonded sandwich thermoplastic
- **Grommet and interfacial seal:**
Non-outgassing silicone
- **Contacts retaining clip:**
Beryllium copper
- **Contacts:**
Copper Alloy
Gold over nickel plating
- **Backshell:**
Aluminium alloy
Dull low reflective electroless nickel plated, burr free

Mechanical

As per ESA/ESCC 3401 test methods and applicable ESA/ESCC detail specifications

- **Endurance:** 500 mating cycles
- **Shock:** 75g, 11 milliseconds, half sine wave
- **Vibration:**
 - Sinus
 - . 10-55Hz at 8,25mm double amplitude displacement
 - . 56-2000Hz at 50g
 - Random
 - . 20-100Hz at +6dB per octave
 - . 100-2000Hz, constant at 1g²/Hz

• Contact retention:

Contacts size	22	20	16	12	8	4
Max force in N	44	67	111	111	150	180

• Tightening torque for mounting nut:

Receptacle size	8	10	12	14	16	18	20	22	24
Torque Max. (Nm)	S. II 9	11	14	16	18	20	22	24	27

Environmental

As per ESA/ESCC 3401 test methods and applicable ESA/ESCC detail specifications

- **Operating temperature:** -65°C to +200°C
- **Storage temperature:** 1000h/200°C
- **Outgassing:** TML < 1%; CVCM < 0.1%

Electrical

As per ESA/ESCC 3401 test methods and applicable ESA/ESCC detail specifications

• Voltage proof (sea level):

Service Rating	II	I	M	N
Vrms	2300	1800	1300	1000

• Working voltage (sea level):

Service Rating	II	I	M	N
Vrms	575	450	325	250

• Mated shell conductivity: Voltage drop max. 1 mV

• Rated current:

Contacts size	22	20	16	12	8	4
Rating (A)	5	7.5	13	23	46	80

• Contact resistance Rcl max. (under 10 mA): All contacts sizes: 8.0 mΩ

• Contact resistance Rcr max. (at rated current):

Contacts size	22	20	16	12	8	4
Resistance mΩ	14	7	4	3.5	0.55	0.45

• Insulation resistance: RI ≥ 10 000 MΩ

Ordering information

SOURIAU Part Number

Basic series	8TS	00	08	35	P	N	L
Shell type							
03: Square flange receptacle (rear mounting)							
06: Plug without grounding ring							
06G: Plug with grounding ring							
07: Jam nut receptacle							
Shell size: 08; 10; 12; 14; 16; 18; 20; 22; 24							
Contact layout: See tables pages 12 to 14							
Contact type							
P: Pin							
S: Socket							
Orientation: N, A, B, C, D - see table page 45							
L: Connector delivered without contacts (connector marked P or S, L not marked)							

ESA/ESCC Part Number

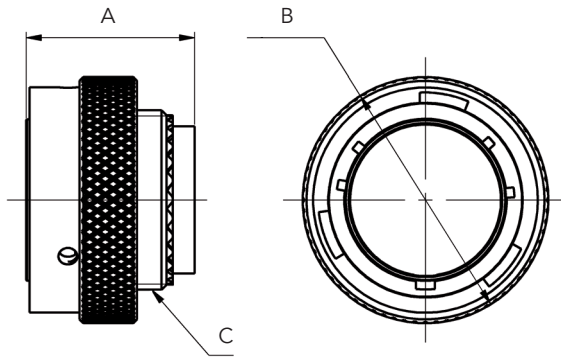
ESCC specification number	3401 044	01	B	00	08	35	P	N	L
Type of variant ESA mandatory									
B testing level mandatory									
Shell type									
03: Square flange receptacle (rear mounting)									
06: Plug without grounding ring									
06G: Plug with grounding ring									
07: Jam nut receptacle									
Shell size: 08; 10; 12; 14; 16; 18; 20; 22; 24									
Contact layout: See tables pages 12 to 14									
Contact type									
P: Pin									
S: Socket									
Orientation: N, A, B, C, D - see table page 45									
L: Connector delivered without contacts (connector marked P or S, L not marked)									

MIL-DTL-38999 Class G Part Number

MIL specification number	MS27	497G	12	F	35	A	B
Shell Type							
497G: Square flange receptacle (rear mounting)							
474G: Jam nut receptacle							
473G: Plug with RFI shielding							
Shell size: 08; 10; 12; 14; 16; 18; 20; 22; 24							
Shell Coating - Not to be modified							
Contact layout: See tables pages 12 to 14							
Contact type							
A: Connector supplied less pin contacts							
B: Connector supplied less socket contacts							
P: Pin							
S: Socket							
Orientation: Empty (= N orientation), A, B, C, D - see table page 45							

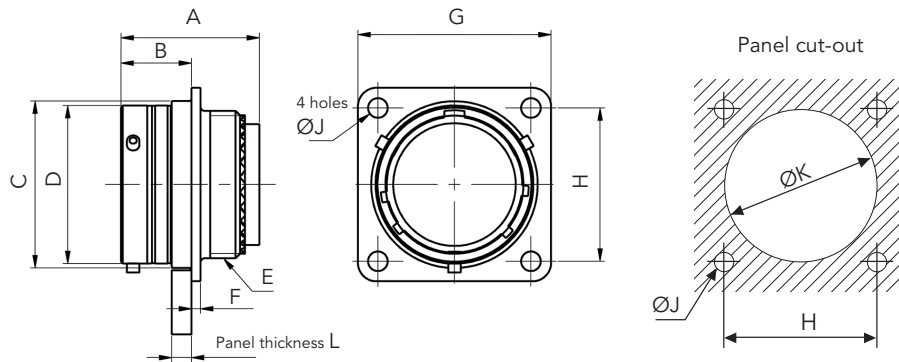
Dimensions

Type 06G - Plug with grounding ring & Type 06 - Plug without grounding ring



Shell size	A Max	B Max	ØC Thread UNEF-2A (inch/UNC)
8	23.27	19.05	0.4375 - 28
10		21.82	0.5625 - 24
12		26.19	0.6875 - 24
14		29.36	0.8125 - 20
16		32.54	0.9375 - 20
18		35.71	1.0625 - 18
20		38.89	1.1875 - 18
22		41.68	1.3125 - 18
24	25.00	44.86	1.4375 - 18

Type 03 - Square flange receptacle (rear mounting)

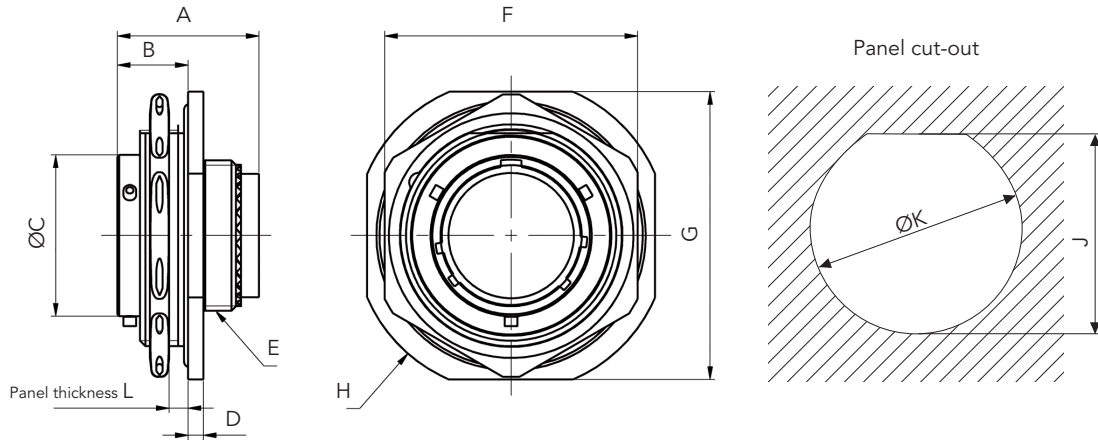


Shell size	A Max	B Max	C Max	D Max	ØE Thread UNEF-2A (inch/UNC)	F Max	G Max	H Max	ØJ Min	ØK Min	L Max
8	25.37	11.35	12.04	13.89	0.4375 - 28	1.75	21.03	15.09	3.25	14.15	3.71
10			15.02	17.07	0.5625 - 24		24.23	18.26		17.32	
12			19.08	21.44	0.6875 - 24		26.59	20.62		21.69	
14			22.25	24.61	0.8125 - 20		28.98	23.01		24.87	
16			25.43	27.79	0.9375 - 20		31.34	24.61		28.04	
18			28.61	30.96	1.0625 - 18		33.73	26.97		31.22	
20			31.78	34.14	1.1875 - 18		36.91	29.36		34.39	
22			34.95	37.31	1.3125 - 18		40.08	31.75		37.57	
24	27.1		38.13	40.49	1.4375 - 18	43.26	34.93	3.91	40.74	4.27	

Note: All dimensions are in millimeters (mm)

Dimensions

Type 07 - Jam nut receptacle



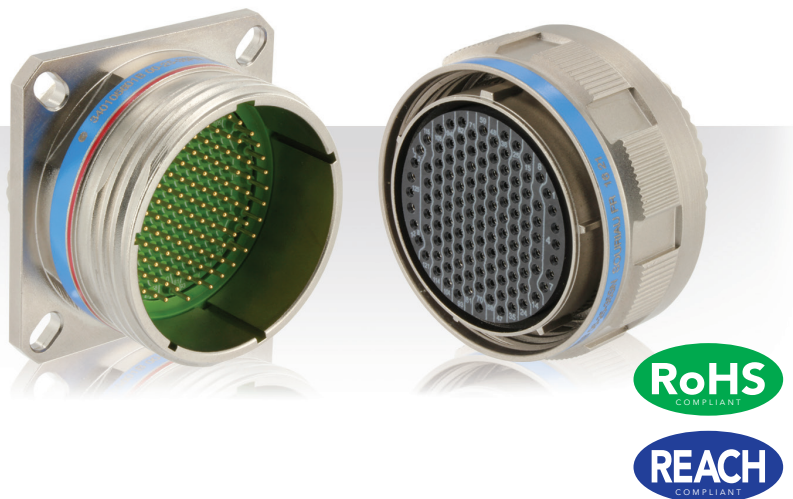
Shell size	A Max	B Max	ØC Max	D Max	ØE Thread UNEF-2A (inch/UNC)	F Max	G Max	H Min	J Max	ØK Min	L Max	Tightening Torque (Nm)
8	26.48	11.26	12.04	2.67	0.4375 - 28	27.4	32.16	35.34	21.08	22.46	2.90	5
10			15.02		0.5625 - 24	30.61	35.34	38.51	24.26	25.58		6
12			19.08		0.6875 - 24	33.75	38.51	41.69	27.53	28.8		8
14			22.25		0.8125 - 20	36.96	41.69	45.65	30.68	31.98		9
16			25.43		0.9375 - 20	40.1	45.65	48.42	33.86	35.15		10
18			28.61		1.0625 - 18	43.31	48.42	51.62	37.06	38.28		12
20	26.32	11.92	31.78	2.67	1.1875 - 18	46.45	51.62	54.79	40.03	41.5	2.90	13
22			34.95		1.3125 - 18	51.23	54.77	57.94	43.21	44.68		14
24			38.13		1.4375 - 18	54.41	57.94	61.12	46.38	47.85		16

Connectors weight - in gram (±15%)

Shell size	Shell type		
	03	07	06
8	6	12	9
10	8	16	11
12	12	21	16
14	14.5	25.5	20
16	17.5	31	24
18	22	35.5	29
20	27	42.5	34
22	32	49	39
24	37	56.6	46

8TS Series without contact and backshell.

Note: All dimensions are in millimeters (mm)



Description

- Standard profile screw coupling connector Intermateable with NATC (NASA Thread Coupling) connectors
- To be mounted with crimp contacts:
 - . ESA/ESCC 3401/058
 - . MIL/ M39029
- To be mounted with backshells:
 - . ESA/ESCC 3401/062
 - . MIL/ M85049
- Standards:
 - . ESA/ESCC 3401/056 (QPL)
 - . MIL-DTL-38999 Series III class G (QPL)
 - . SSQ21635 NATC (NASA Thread Coupling) intermateable
- Shell sizes from 9 to 25
- PC tail receptacle versions
- Hermetic and Bulkhead feedthrough versions
- Contact protection: 100% scoop proof
- Screening Level 1 according to EEE-INST-002

Technical features

Material

- **Shell:**
 - Non-hermetic version
 - . Aluminum alloy
 - . Dull low reflective electroless nickel plated, burr free
 - Hermetic version
 - . Passivated stainless steel
- **Grounding:**
 - Beryllium copper
- **Insulator:**
 - Non-hermetic version:
 - . Bonded sandwich thermoplastic
 - Hermetic version
 - . Sintered glass
- **Grommet and interfacial seal:**
 - Non-outgassing silicone
- **Contacts retaining clip:**
 - Beryllium copper
- **Contacts:**
 - Copper Alloy
 - Gold over nickel plating
- **Backshell:**
 - Aluminium alloy
 - Dull low reflective electroless nickel plated, burr free

Mechanical

As per ESA/ESCC 3401 test methods and applicable ESA/ESCC detail specifications

- **Endurance:** 500 mating cycles
- **Shock:** 75g, 11 milliseconds, half sine wave
- **Vibration:**
 - Sinus
 - . 10-55Hz at 8,25mm double amplitude displacement
 - . 56-2000Hz at 50g
 - Random
 - . 20-100Hz at +6dB per octave
 - . 100-2000Hz, constant at 1g²/Hz

Contact retention:

Contacts size	22	20	16	12	8	4
Max force in N	44	67	111	111	150	180

Tightening torque for mounting nut:

Receptacle size	9	11	13	15	17	19	21	23	25
Torque Max. (Nm)	6	8	10	13	16	18	20	22	24

Environmental

As per ESA/ESCC 3401 test methods and applicable ESA/ESCC detail specifications

- **Operating temperature:** -65°C to +200°C
- **Storage temperature:** 1000h/200°C
- **Outgassing:** TML < 1%; CVCM < 0.1%
- **Hermeticity (8DS-H version):** 10⁻⁸ cm³/s of helium under a vacuum of 10⁻⁵ Torr

Electrical

As per ESA/ESCC 3401 test methods and applicable ESA/ESCC detail specifications

Voltage proof (sea level):

Service Rating	II	I	M	N
Vrms	2300	1800	1300	1000

Working voltage (sea level):

Service Rating	II	I	M	N
Vrms	575	450	325	250

Mated shell conductivity:

Voltage drop max. 1 mV

Rated current:

Contacts size	22	20	16	12	8	4
Rating (A)	5	7.5	13	23	46	80

Contact resistance Rcl max. (under 10 mA):

All contacts sizes: 8.0 mΩ

Contact resistance Rcr max. (at rated current):

Contacts size	22	20	16	12	8	4
Resistance mΩ	14	7	4	3.5	0.55	0.45

Insulation resistance:

RI ≥ 10 000 MΩ

Ordering information

SOURIAU Part Number

Basic series	8DS	00	09	35	P	N	L
Shell type							
00: Square flange receptacle (rear mounting)							
06G: Plug with grounding ring							
66G: Plug with grounding ring with mirror image contact (mateable with feedthrough receptacle see page 36)							
07: Jam nut receptacle							
Shell size: 09; 11; 13; 15; 17; 19; 21; 23; 25							
Contact layout: See tables pages 12 to 14							
Contact type							
P: Pin							
S: Socket							
Triax contact see page 32							
Orientation: N, A, B, C, D - see table page 45							
L: Connector delivered without contacts (connector marked P or S, L not marked)							

ESA/ESCC Part Number

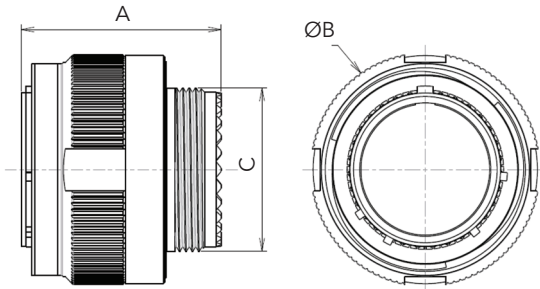
ESCC specification number	3401 056	01	B	00	09	35	P	N	L
Type of variant ESA mandatory									
B testing level mandatory									
Shell type									
00: Square flange receptacle (rear mounting)									
06: Plug with grounding ring									
66: Plug with grounding ring with mirror image contact (mateable with feedthrough receptacle see page 36)									
07: Jam nut receptacle									
Shell size: 09; 11; 13; 15; 17; 19; 21; 23; 25									
Contact layout: See tables pages 12 to 14									
Contact type									
P: Pin									
S: Socket									
Triax contact see page 32									
Orientation: N, A, B, C, D - see table page 45									
L: Connector delivered without contacts (connector marked P or S, L not marked)									

MIL-DTL-38999 Class G Part Number

MIL specification number	D38999	20G	B	35	A	B
Shell Type						
20G: Square flange receptacle						
24G: Jam nut receptacle						
26G: Plug with RFI shielding						
Shell size: A, B, C, D, E, F, G, H, J						
Contact layout: See tables pages 12 to 14						
Contact type						
A: Connector supplied less pin contacts						
B: Connector supplied less socket contacts						
P: Pin						
S: Socket						
Orientation: N, A, B, C, D - see table page 45						

Dimensions

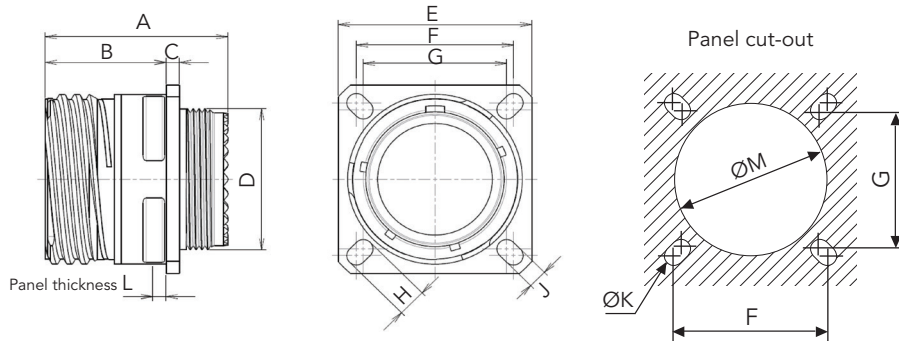
Type 06G & Type 66G - Plug with grounding ring



Shell size	A Max	B Max	ØC Thread
9	31.00	21.80	M12 x 1-6g
11		25.00	M15 x 1-6g
13		29.40	M18 x 1-6g
15		32.50	M22 x 1-6g
17		35.70	M25 x 1-6g
19		38.50	M28 x 1-6g
21		41.70	M31 x 1-6g
23		44.90	M34 x 1-6g
25		48.00	M37 x 1-6g

Type 66G: Plug with grounding ring with mirror image contact (mateable with feedthrough receptacle, see page 36)

Type 00 - Square flange receptacle (rear mounting)

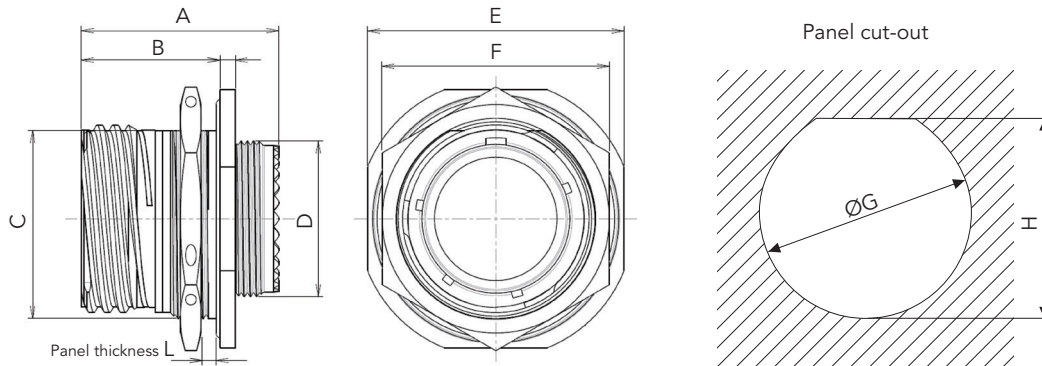


Shell size	A Max	B Max	C ^{±0.1}	ØD Thread	E Max	F Max	G Max	H ^{±0.2}	J ^{±0.2}	ØK Min	ØM Min	L Max
9	31.50	20.90	2.26	M12 x 1-6g	24.10	18.36	15.19	5.49	3.25	3.25	13.11	2.50
11	32.02			M15 x 1-6g	26.50	20.72	18.36	4.93			15.88	
13				M18 x 1-6g	28.90	23.11	20.72	19.05				
15				M22 x 1-6g	31.30	24.71	23.11	4.45			23.01	
17				M25 x 1-6g	33.60	27.07	24.71	4.93			25.81	
19				M28 x 1-6g	36.80	29.46	27.07	4.93			28.98	
21		M31 x 1-6g	40.00	31.85	29.46	6.15	32.16					
23	20.01	2.97	M34 x 1-6g	43.20	35.03	31.85	3.91	3.91	34.93			
25			M37 x 1-6g	46.30	38.20	35.03			37.69			

Note: All dimensions are in millimeters (mm)

Dimensions

Type 07 - Jam nut receptacle



Shell size	A Max	B Max	ØC Max	ØD Thread	E Max	F Max	ØG ^{+0.25} ₋₀	H Max	L Max	Tightening Torque (Nm)
9	32.50	22.60	16.63	M12 x 1-6g	27.4	24.00	17.78	17.02	3.20	4
11			19.17	M15 x 1-6g	32.20	27.00	20.96	19.59		5
13			23.92	M18 x 1-6g	35.30	32.00	25.65	24.26		7
15			27.07	M22 x 1-6g	38.50	36.00	28.83	27.56		8
17			30.25	M25 x 1-6g	41.70	37.00	32.01	30.73		9
19			33.42	M28 x 1-6g	46.40	41.00	35.18	33.91		10
21			20.01	20.01	36.60	M31 x 1-6g	49.60	46.00		38.35
23	39.77	M34 x 1-6g			52.80	50.00	41.53	40.26		13
25	42.95	M37 x 1-6g			56.00	51.23	44.70	43.43		14

Connectors weight - in gram (±15%)

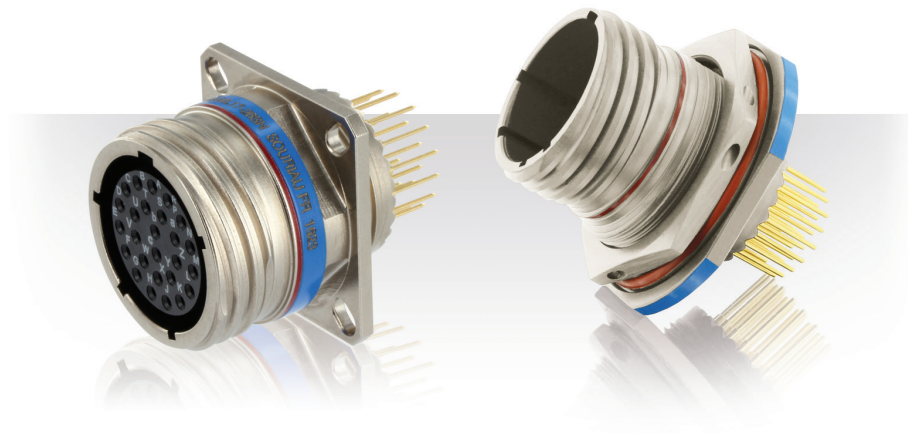
Shell size	Shell type		
	00	07	06 & 66
9	11	15	17
11	17	20	23
13	22	26	28
15	25	34	34
17	38	44	44
19	40	49	49
21	52	60	60
23	54	63	63
25	58	75	70

8DS Series without contact and backshell.

Note: All dimensions are in millimeters (mm)

Description

- Standard profile screw coupling connector with PC tail contacts
- Standards:
 - . ESA/ESCC 3401/070 (QPL)
 - . SSQ21635 NATC (NASA Thread Coupling) intermateable
- Connector only delivered with mounted contacts



Ordering information

SOURIAU Part Number

Basic series	8DS	00	C	09	-	35	P	N
Shell type								
00: Square flange receptacle (rear mounting)								
07: Jam nut receptacle								
Contact style								
L: Long PC tail								
C: Short PC tail								
Shell size: 09; 11; 13; 15; 17; 19; 21; 23; 25								
Dash mandatory								
Contact layout: See tables pages 12 to 14								
Contact type								
P: Pin								
S: Socket								
Orientation: N, A, B, C, D, E - see table page 45								

ESA/ESCC Part Number

ESCC specification number	3401 070	01	B	00	C	09	-	01	P	N
Type of variant ESA mandatory										
B testing level mandatory										
Shell type										
00: Square flange receptacle (rear mounting)										
07: Jam nut receptacle										
Contact style										
L: Long PC tail										
C: Short PC tail										
Shell size: 09; 11; 13; 15; 17; 19; 21; 23; 25										
Dash mandatory										
Contact layout: See tables pages 12 to 14										
Contact type										
P: Pin										
S: Socket										
Orientation: N, A, B, C, D, E - see table page 45										

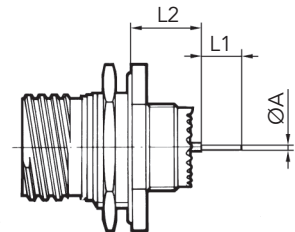
PC tail contact lengths

	Contact size	Contact type	PC tail type	Shell size									
				09	11	13	15	17	19	21	23	25	
ØA	#22D	M & F	Max	L & C	0.70								
	#20	M & F	Max	L & C	0.70								
	#16	M & F	Max	L & C	1.15								
L1	#22D	M & F	Max	L	8.50								
		M & F	Max	C	4.00								
	#20	M & F	Max	L	8.50								
		M & F	Max	C	5.10								
	#16	M & F	Max	L	8.50								
		M & F	Max	C	5.10								
L2	#22D	M	Min	L & C	10.52					10.34			
		M	Max	L & C	11.46					11.28			
		F	Min	L & C	10.19					10.01			
		F	Max	L & C	11.46					11.28			
	#20	M & F	Min	L & C	10.69					10.51			
		M & F	Max	L & C	11.63					11.45			
	#16	M & F	Min	L & C	10.69					10.51			
		M & F	Max	L & C	11.63					11.45			
L3	#22D	M	Min	L & C	9.48				9.59				
		M	Max	L & C	10.58				10.69				
		F	Min	L & C	9.15				9.26				
		F	Max	L & C	10.58				10.69				
	#20	M & F	Min	L & C	9.65				9.76				
		M & F	Max	L & C	10.75				10.86				
	#16	M & F	Min	L & C	9.65				9.76				
		M & F	Max	L & C	10.75				10.86				

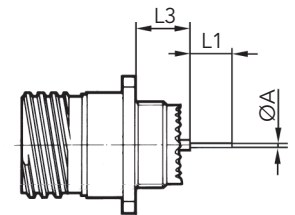
M: Male contact
F: Female contact

L: Long PC tail
C: Short PC tail

Receptacle type 07



Receptacle type 00



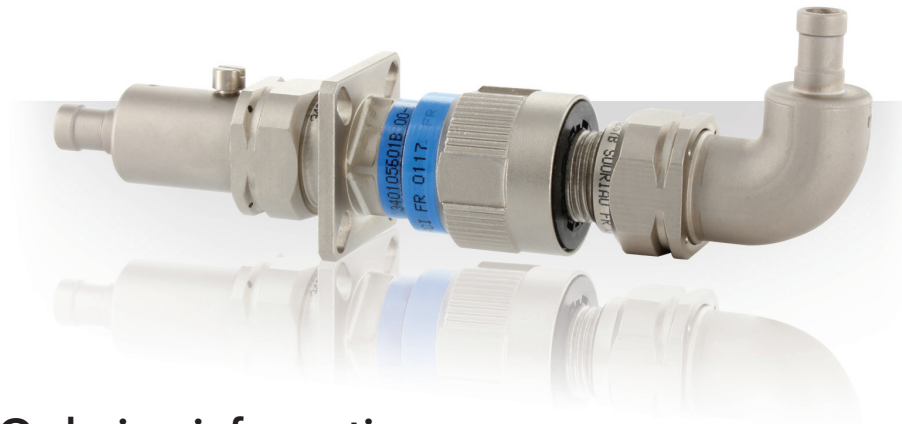
Connectors weight with PC tail contacts - in gram (±15%)

Shell size	Shell type	
	00	07
9	14	18
11	20	23
13	27	31
15	35	44
17	40	56
19	55	64
21	70	80
23	78	95
25	88	100

Note: All dimensions are in millimeters (mm)

Description

- Single #8 Triax contact connector for databus
- Connector with removable crimp Triax contacts according to MIL-DTL-38999 III
- To be mounted with:
 - . ESA/ESCC 3401/066 Triax contacts
 - . ESA/ESCC 3401/062 Backshells
- Standards:
 - . ESA/ESCC 3401/056 (QPL)



Ordering information

SOURIAU Part Number

Basic series	8DS	00	09	01	P	N	L
Shell type							
00: Square flange receptacle (front mounting)							
06G: Plug with grounding ring							
66G: Plug with grounding ring with mirror image contact (mateable with feedthrough receptacle see page 36)							
07: Jam nut receptacle							
Shell size: 09							
Contact layout: 01							
Contact type							
P: Pin							
S: Socket							
Orientation							
N, A, B, C, D, E - see table page 45							
L: Connector delivered without contacts (connector marked P or S, L not marked)							

ESA/ESCC Part Number

ESCC specification number	3401 056	01	B	00	09	01	P	N	L
Type of variant ESA mandatory									
B testing level mandatory									
Shell type									
00: Square flange receptacle (front mounting)									
06: Plug with grounding ring									
66: Plug with grounding ring with mirror image contact (mateable with feedthrough receptacle see page 36)									
07: Jam nut receptacle									
Shell size: 09									
Contact layout: 01									
Contact type									
P: Pin									
S: Socket									
Orientation									
N, A, B, C, D, E - see table page 45									
L: Connector delivered without contacts (connector marked P or S, L not marked)									

Backshells SOURIAU Part Number

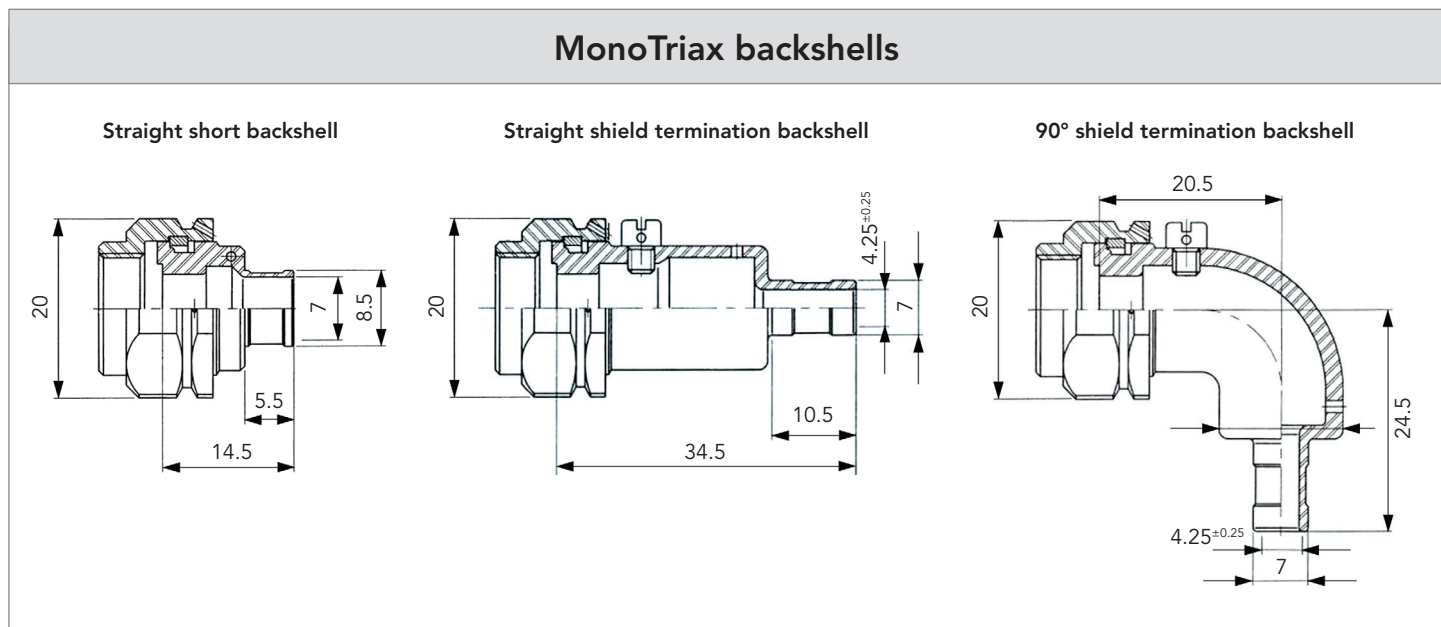
Basic series	8975-66	50A
MonoTriax Backshell type		
50A: Straight short backshell		
41A: Straight shield termination backshell		
44A: 90° shield termination backshell		

Backshells ESA/ESCC Part Number

Basic series	3401 062	65B
MonoTriax Backshell type		
65B: Straight short backshell		
66B: Straight shield termination backshell		
67B: 90° shield termination backshell		

Dimensions

See pages 28 and 29 for plug and receptacles dimensions.



Connectors and backshells weight - in gram (±15%)

Shell size	Shell type			Backshell type		
	00	07	06 & 66	50A	41A	44A
9	11	15	17	11.5	12	13

Note: All dimensions are in millimeters (mm)

Description

- Hermetic screw coupling receptacle and feedthrough
- To be mated with:
 - . ESA/ESCC 3401/056 plugs
- Standards:
 - . ESA/ESCC 3401/057 (QPL)
 - . SSQ21635 NATC (NASA thread coupling)
 - . MIL-DTL-38999 Series III class H



Ordering information

SOURIAU Part Number

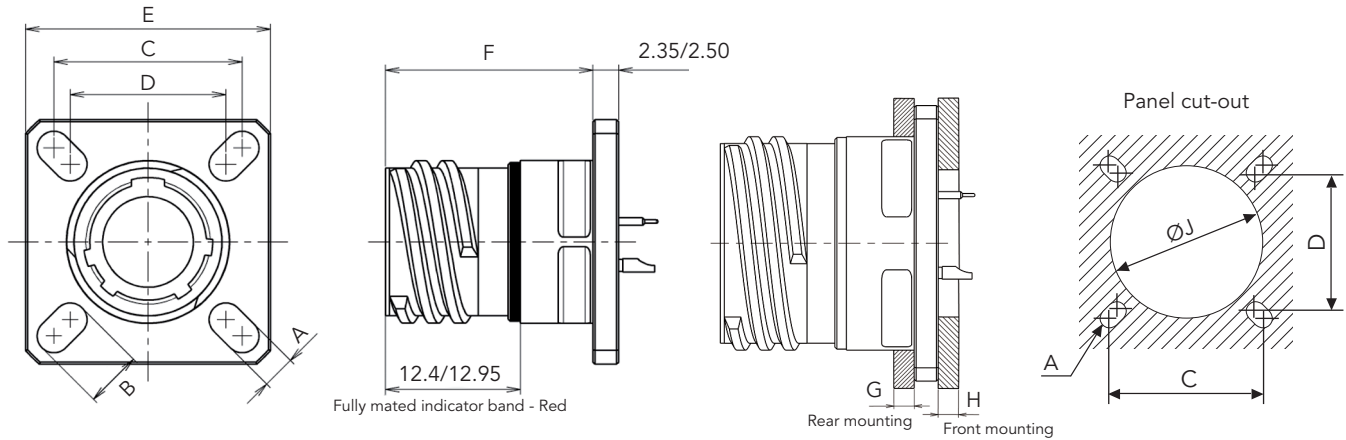
Basic series according to MIL-DTL-38999 Series III Class H	8DS	00H	09	35	P	N
Shell type						
00H: Hermetic square flange receptacle						
01H: Hermetic solder mounting receptacle						
07H: Hermetic jam nut receptacle						
77H: Hermetic bulkhead feedthrough						
Shell size						
09; 11; 13; 15; 17; 19; 21; 23; 25						
Contact layout						
See tables pages 12 to 14						
Contact type						
P: Pin						
Orientation						
N, A, B, C, D, E - see table page 45						

ESA/ESCC Part Number

ESCC specification number	3401 057	01	B	00H	09	35	P	N
Type of variant ESA mandatory								
B testing level mandatory								
Shell type								
00H: Hermetic square flange receptacle								
01H: Hermetic solder mounting receptacle								
07H: Hermetic jam nut receptacle								
77H: Hermetic bulkhead feedthrough								
Shell size								
09; 11; 13; 15; 17; 19; 21; 23; 25								
Contact layout								
See tables pages 12 to 14								
Contact type								
P: Pin								
Orientation								
N, A, B, C, D, E - see table page 45								

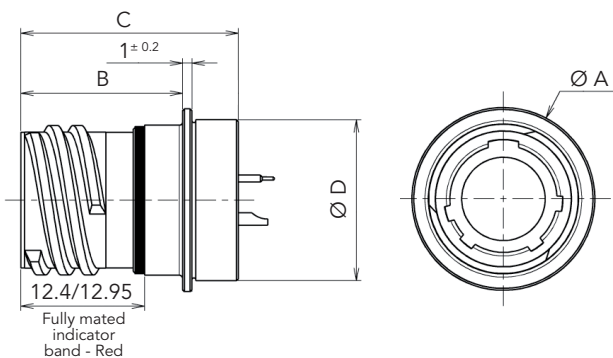
Dimensions

Type 00H - Hermetic square flange receptacle



Shell size	A ± 0.20	B ± 0.20	C	D	E ± 0.30	F max	G max	H max	ØJ	
									Front mounting	Rear mounting
9	3.25	5.49	18.26	15.09	23.80	20.40	2.5	3.2	13.11	16.66
11		4.93	20.62	18.26	26.20				15.88	20.22
13		4.39	23.01	20.62	28.60				19.05	23.42
15		4.39	24.61	23.01	31.00				23.01	26.59
17		4.93	26.97	24.61	33.30				25.81	30.96
19			29.36	26.97	36.50				28.98	32.94
21			31.75	29.36	39.70				32.16	36.12
23		3.91	6.15	34.93	31.75				42.90	34.93
25	38.10			34.93	46.00	37.69	42.47			

Type 01H - Hermetic solder mounting receptacle

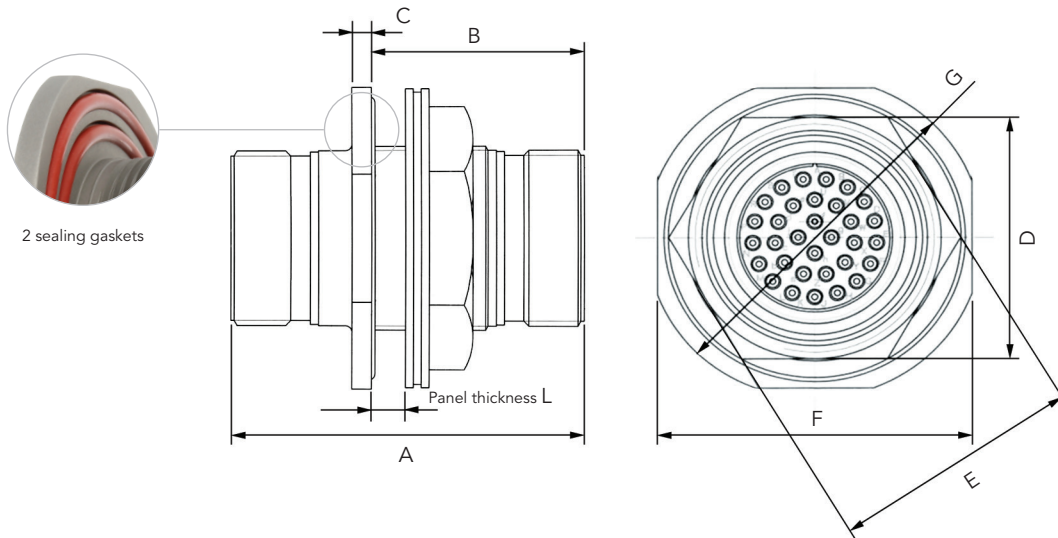


Shell size	Ø A max	B max	C max	D max
9	19.40	17.80	23.80	17.10
11	21.80			19.90
13	24.90			23.10
15	28.10			26.20
17	31.30			29.40
19	33.60			31.80
21	36.80		35.00	
23	40.00		24.60	38.20
25	43.20	41.30		

Note: All dimensions are in millimeters (mm)

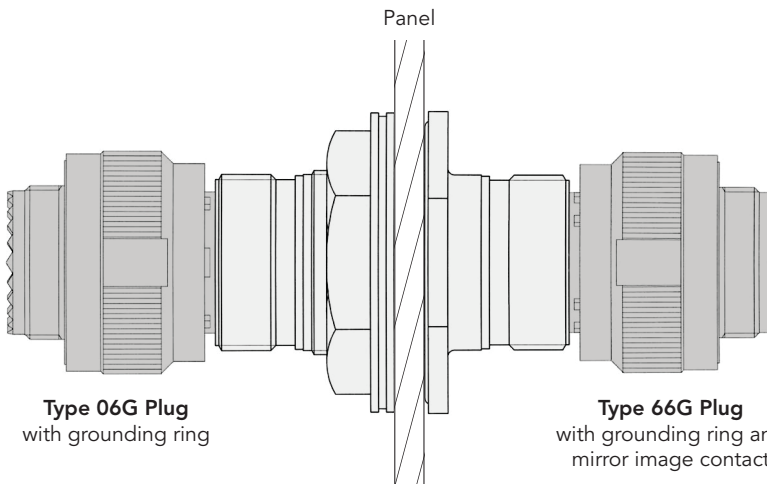
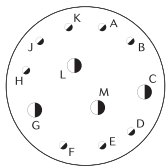
Dimensions

Type 77H - Hermetic bulkhead feedthrough



Shell size	A Max	B Max	C		D		E		F		ØG Max	L		Thread	Tightening Torque (Nm)			
			Min	Max	Min	Max	Min	Max	Min	Max		Min	Max					
9	52.80	31.40	2.50	2.90	16.38	16.63	22.27	22.50	33.00	33.59	36.88	1.57	6.35	M17 x 1-6g	11.5			
11					18.92	19.17	24.88	25.83	37.85	38.38	41.58			M20 x 1-6g	15.7			
13					23.67	23.92	29.77	30.60	41.02	41.55	44.75			M25 x 1-6g	16.8			
15		26.82			27.07	32.92	33.76	44.20	44.79	47.93	M28 x 1-6g			17.9				
17		32.00			2.50	2.90	30.00	30.25	36.12	37.06	47.37			47.90	51.10	M32 x 1-6g	20	
19							33.17	33.42	39.27	40.11	50.55			51.09	54.28	M35 x 1-6g	23.1	
21							36.35	36.60	42.47	43.31	53.72			54.25	57.48	M38 x 1-6g	25.2	
23							39.52	39.77	45.62	46.46	56.90			57.43	60.63	M41 x 1-6g	28.3	
25								42.70	42.95	50.39	51.23			60.07	60.50	63.80	M44 x 1-6g	30.4

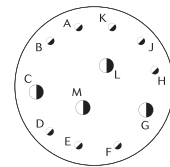
Layout numbering as per MIL-STD-1560



Type 06G Plug with grounding ring

Type 66G Plug with grounding ring and mirror image contact

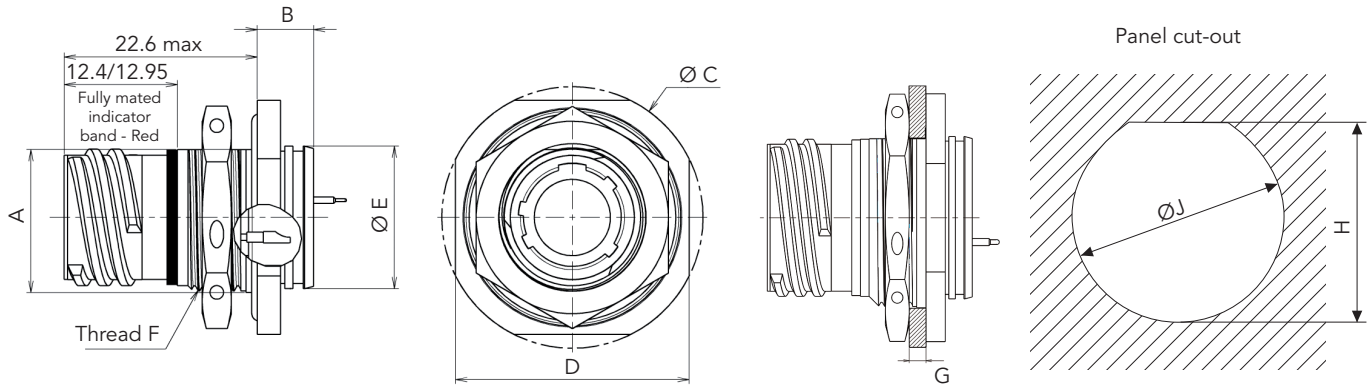
Mirror image layout numbering of MIL-STD-1560



Note: All dimensions are in millimeters (mm)

Dimensions

Type 07H - Hermetic jam nut receptacle



Shell size	A flat ^{+0.10} / _{-0.15}	B max	Ø C ± 0.30	D ± 0.40	Ø E ± 0.30/0	F thread	G	Ø J ⁺⁰ / _{-0.25}	H ^{+0.25} / ₀	Tightening Torque (Nm)
9	16.53	9.10	30.20	27.00	16.30	M17 x 1-6g	3.2	17.60	16.70	4
11	19.07		34.90	31.80	19.40	M20 x 1-6g		20.96	19.59	5
13	23.82		38.10	34.90	22.70	M25 x 1-6g		25.65	24.26	7
15	26.97		41.30	38.10	25.90	M28 x 1-6g		28.83	27.56	8
17	30.15		44.50	41.30	29.00	M32 x 1-6g		32.01	30.73	9
19	33.32	9.70	49.20	46.00	32.20	M35 x 1-6g		35.18	33.91	10
21	36.50		52.40	49.20	35.40	M38 x 1-6g		38.35	37.08	12
23	39.67		55.60	52.40	38.60	M41 x 1-6g		41.53	40.26	13
25	42.85		58.70	55.60	41.70	M44 x 1-6g		44.70	43.43	14

Connectors weight - in gram (±15%)

Shell size	Shell type			
	00H	01H	77H	07H
9	25	20	90	33
11	35	30	115	44
13	42	37	140	54
15	48	42	160	58
17	57	50	200	68
19	62	55	220	74
21	70	63	260	83
23	75	68	290	85
25	83	75	320	92

Note: All dimensions are in millimeters (mm)

SPACE GRADE 38999

Space Grade 38999 Series

Common Section

■ Backshells:		
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■ Wiring instruction		44
■ Orientations		45

Description

- Space Grade circular backshells:
 - . 8LTS/8TS/8DS
 - . ESA/ESCC 3401/062
 - . MIL 85049

Ordering information

ESA/ESCC Part Number

ESCC specification number 3401 062 01 B

Variant see tables below

B testing level mandatory



Variant	Backshell type	For connectors	Shell size
01	Backnut	/052 (Series I)	09
		/054 (Series II)	08
02		/052 (Series I)	11
		/054 (Series II)	10
03		/052 (Series I)	13
		/054 (Series II)	12
04		/052 (Series I)	15
		/054 (Series II)	14
05		/052 (Series I)	17
		/054 (Series II)	16
06		/052 (Series I)	19
		/054 (Series II)	18
07		/052 (Series I)	21
		/054 (Series II)	20
08		/052 (Series I)	23
		/054 (Series II)	22
09		/052 (Series I)	25
		/054 (Series II)	24

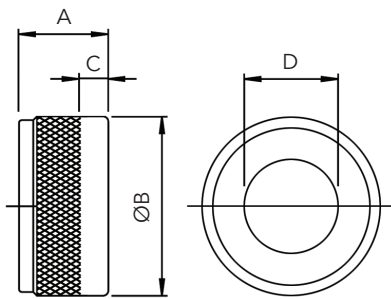
Variant	Backshell type	For connectors	Shell size
10	Straight cable clamp	/052 (Series I)	09
		/054 (Series II)	08
11		/052 (Series I)	11
		/054 (Series II)	10
12		/052 (Series I)	13
		/054 (Series II)	12
13		/052 (Series I)	15
		/054 (Series II)	14
14		/052 (Series I)	17
		/054 (Series II)	16
15		/052 (Series I)	18
		/054 (Series II)	19
16		/052 (Series I)	20
		/054 (Series II)	21
17		/052 (Series I)	23
		/054 (Series II)	22
18		/052 (Series I)	25
		/054 (Series II)	24

Variant	Backshell type	For connectors	Shell size
19	90° cable clamp	/052 (Series I)	09
		/054 (Series II)	08
20		/052 (Series I)	11
		/054 (Series II)	10
21		/052 (Series I)	13
		/054 (Series II)	12
22		/052 (Series I)	15
		/054 (Series II)	14
23		/052 (Series I)	17
		/054 (Series II)	16
24		/052 (Series I)	19
		/054 (Series II)	18
25		/052 (Series I)	21
		/054 (Series II)	20
26		/052 (Series I)	23
		/054 (Series II)	22
27		/052 (Series I)	25
		/054 (Series II)	24

Variant	Backshell type	For connectors	Shell size
28	Backnut	/056 (Series III)	09
29			11
30			13
31			15
32			17
33			19
34			21
35			23
36			25
37			Straight cable clamp
38	11		
39	13		
40	15		
41	17		
42	19		
43	21		
44	23		
45	25		
46	90° cable clamp	/056 (Series III)	
47			11
48			13
49			15
50			17
51			19
52			21
53			23
54			25

Dimensions

Backnut backshell

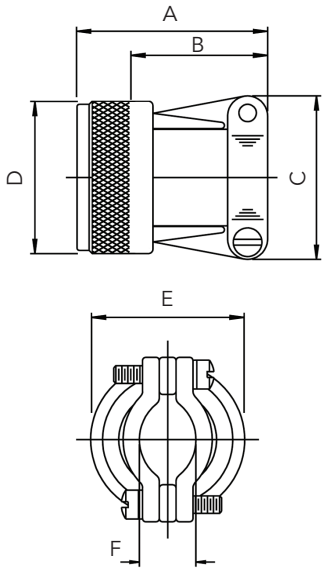


Shell size	A Max		ØB Max		C Max	Thread		ØD Min
	Variants 01 to 09	Variants 28 to 36	Variants 01 to 09	Variants 28 to 36		UNE F-2B	B	
						Variants 01 to 09	Variants 28 to 36	
8/9	13.70	16.80	19.1	21.79	6.60	0.4375-28	M12 x 1-6h	6.7
10/11			21.5	24.99		0.5624-25	M15 x 1-6h	9.9
12/13			25.4	29.39		0.6875-24	M18 x 1-6h	12.8
14/15			27.9	32.49		0.8125-20	M22 x 1-6h	16
16/17			31.8	35.71		0.9375-20	M25 x 1-6h	19.2
18/19			35.6	38.5		1.0625-18	M28 x 1-6h	21.4
20/21			38.1	41.7		1.1875-18	M31 x 1-6h	24.6
22/23			41.9	44.91		1.3125-18	M34 x 1-6h	27.7
24/25			44.5	47.98		1.4375-18	M37 x 1-6h	30.9

Note: All dimensions are in millimeters (mm)

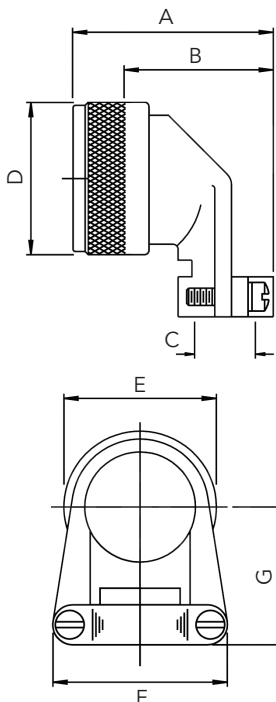
Dimensions

Straight cable clamp backshell



Shell size	A		B Max	C Max	Thread ØD		F		ØE	
	Variants 01 to 09	Variants 28 to 36			UNEF-2B	B	Min	Max	Variants 01 to 09	Variants 28 to 36
					Variants 01 to 09	Variants 28 to 36				
8/9	27.5	23.1	21.6	0.4375-28	M12 x 1-6h	2.49	5.94	19.1	21.79	
10/11	27.5	23.1	22.5	0.5624-25	M15 x 1-6h	3.87	5.94	21.5	24.99	
12/13	30.5	25.7	27.9	0.6875-24	M18 x 1-6h	4.83	8.33	25.4	29.39	
14/15	31.8	26.9	29.2	0.8125-20	M22 x 1-6h	6.60	11.61	27.9	32.49	
16/17	34.3	29.5	33.0	0.9375-20	M25 x 1-6h	7.19	15.6	31.8	35.71	
18/19	40.6	35.8	38.1	1.0625-18	M28 x 1-6h	8.26	16.10	35.6	38.50	
20/21	43.2	38.4	40.6	1.1875-18	M31 x 1-6h	8.71	17.73	38.1	41.70	
22/23	47.0	42.2	43.2	1.3125-18	M34 x 1-6h	9.68	20.9	41.9	44.91	
24/25	49.5	44.7	45.7	1.4375-18	M37 x 1-6h	10.62	21.67	44.5	47.98	

90° cable clamp backshell



Shell size	A Max		B Max		C		Thread ØD		ØE Max		F Max	G Max
	Variants 01 to 09	Variants 28 to 36	Variants 01 to 09	Variants 28 to 36	Min	Max	UNEF-2B	B	Variants 01 to 09	Variants 28 to 36		
							Variants 01 to 09	Variants 28 to 36				
8/9	30.5	35.1	25.7	29.5	2.49	5.94	0.4375-28	M12 x 1-6h	19.1	21.79	21.6	25.4
10/11	30.5	35.1	25.7	29.5	3.89	5.49	0.5624-25	M15 x 1-6h	21.5	24.99	22.5	27.9
12/13	35.6	37.1	30.7	31.5	4.83	8.33	0.6875-24	M18 x 1-6h	25.4	29.39	27.9	27.9
14/15	36.8	41.4	32	35.8	6.6	11.61	0.8125-20	M22 x 1-6h	27.9	32.49	29.2	29.2
16/17	40.6	45.7	35.8	40.1	7.19	15.6	0.9375-20	M25 x 1-6h	31.8	35.71	33.0	33.0
18/19	43.2	46.2	38.4	40.6	8.26	16.1	1.0625-18	M28 x 1-6h	35.6	38.5	38.1	38.1
20/21	47	48.3	42.2	42.7	8.71	17.73	1.1875-18	M31 x 1-6h	38.1	41.7	40.6	40.6
22/23	49.5	51.1	44.7	46.2	9.68	20.9	1.3125-18	M34 x 1-6h	41.9	44.91	43.2	44.5
24/25	53.3	54.6	48.5	49	10.62	21.67	1.4375-18	M37 x 1-6h	44.5	47.98	45.7	47

Note: Wire bundle accommodation range dimension is defined as the envelope area of the wire bundle. This dimension is not meant to define the clamp hardware limits.

Note: All dimensions are in millimeters (mm)

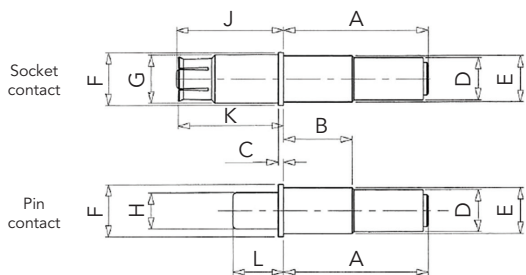
Crimp contacts

Signal and power contacts

Contact size	Conductor section AWG	Variant	Contact type	Part number				Mating end size	Crimp barrel size	Rated current (A)	Max. weight (g)	
				8LTS & 8DS Series	ESCC 3401 052 & 056	8TS Series	ESCC 3401 44				8LTS & 8DS	8TS
#22	#22, #24 & #26	1	Pin	8975 - 2123	3401 058 01B	8975 - 2123	3401 045 01B	22	22	5	0.08	0.08
		2	Socket	8975 - 2130	3401 058 02B	8975 - 2137	3401 045 02B				0.26	11
#20	#20, #22 & #24	3	Pin	8975 - 2124	3401 058 03B	8975 - 2124	3401 045 03B	20	20	7.5	0.16	0.16
		4	Socket	8975 - 2131	3401 058 04B	8975 - 2138	3401 045 04B				0.48	0.21
#16	#16, #18 & #20	5	Pin	8975 - 2125	3401 058 05B	8975 - 2125	3401 045 05B	16	16	13	0.33	0.33
		6	Socket	8975 - 2132	3401 058 06B	8975 - 2139	3401 045 06B				0.87	0.42
#12	#12 & #14	7	Pin	8975 - 2126	3401 058 07B	8975 - 2126	3401 045 07B	12	12	23	0.68	0.68
		8	Socket	8975 - 2133	3401 058 08B	8975 - 2140	3401 045 08B				1.6	0.82
#8	#8 & #10	9	Pin	8975 - 2127	3401 058 09B	N/A	N/A	8	8	45	3.5	N/A
		10	Socket	8975 - 2134	3401 058 10B	N/A	N/A				5	N/A
#4	#8 & #10	11	Pin	8975 - 2128	3401 058 11B	N/A	N/A	4	4	80	6	N/A
		12	Socket	8975 - 2135	3401 058 12B	N/A	N/A				7.5	N/A
	#4 & #6	13	Pin	8975 - 2129	3401 058 13B	N/A	N/A	4	8	45	6	N/A
		14	Socket	8975 - 2180	3401 058 14B	N/A	N/A				7.5	N/A

Triax contacts

Contact size	Accept wire AWG	Variant	Contact type	Part number		Working voltage (V)	Frequency range (MHz)	Rated current (A)	Max. weight (g)
				ESA / ESCC	8DS Series				
#8	22	1	Pin	3401 066 01B	SN1767K 988-A	500	0 to 20	1	6.6
	24								
	26	2	Socket	3401 066 02B	SN 1767K 998-A				9.2



	A	B	C	D	E*	F	G	H	J	K	L
Min	21.34	10.00	0.74	6.93	N/A	7.95	7.22	5.515	15.80	15.88	7.49
Max	22.86	11.00	0.84	7.01	6.53	8.03	7.32	5.565	16.43	16.03	7.74

Note: All dimensions are in millimeters (mm). *After crimping.

Contacts for hermetic connectors

Contact size	Shell type	Contact type	Mating end size	Solder bucket size	Accept wire
#22D	Receptacle	Pin	22	22	22, 24, 26
#20			30	20	20, 22, 24
#22D	22***		N/A	N/A	
#20	20***				
#16	16***				
#12	12***				
#8	8***				

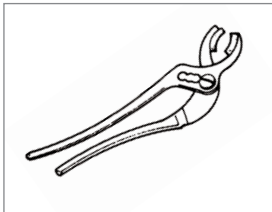
Contacts for MIL class G

Contact size	Pin contact	Socket contact	
	Series I, II & III	Series I & III	Series II
#22D	M39029/58.360	M39029/56.348	M39029/57.354
#20	M39029/58.363	M39029/56.351	M39029/57.357
#16	M39029/58.364	M39029/56.352	M39029/57.358
#12	M39029/58.365	M39029/56.353	M39029/57.359

Toolings

Contact size	Conductor section AWG	Contact type	Crimping tool		Insertion and extraction plastic tool		
			Plier	Locator			
#22	#22, #24 & #26	Pin	M22520/1-02	M22520/1-02	M81969/14-01		
				M22520/1-09			
		Socket		M22520/1-02			
				M22520/1-07			
#20	#20, #22 & #24	Pin	M22520/1-01	M22520/1-04	M81969/14-02		
		Socket					
#16	#16, #18 & #20	Pin			M22520/1-01	M22520/1-04	M81969/14-03
		Socket					
#12	#12 & #14	Pin	M22520/1-01	M22520/1-04			M81969/14-04
		Socket					
#8	#8 & #10	Pin			M22520/23-01	M22520/23-09	M81969/14-12
		Socket					
#4	#8 & #10	Pin	M22520/23-01	M22520/23		M81969/14-07	
		Socket					
	#4 & #6	Pin		M22520/23-01	Point: M22520/23-02		
		Socket					
					Point: M22520/23-04		

Backshell tightening tools



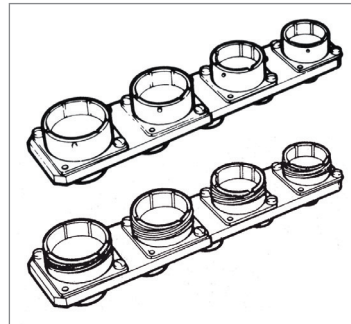
Backshell tightening pliers, part number: 8498-03

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

Tightening of rear accessories:

Shell size	8	10	12	14	16	18	20	22	24
		9	11	13	15	17	19	21	23
Max torque in m/daN	0.62					1.24			

Tightening support

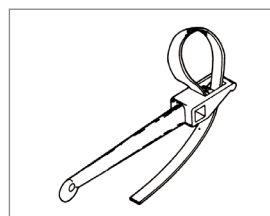


This tool is made up of dummy receptacles housings of all 9 sizes for all key polarisation, and secures free connectors during wiring and fitting of rear accessories.

8LTS & 8TS part number: 8599-0802

8DS part number: 8599-0831

Slackening tools



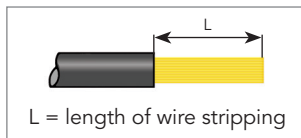
Strap clamp, part number: 8498-04

Spare strap, part number: 8498-103

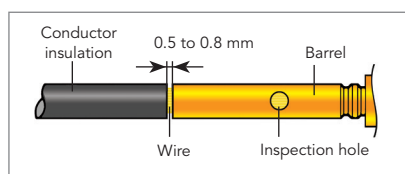
Wiring instruction

Cable preparation and wire stripping

Contact size	#22D	#20	#16	#12	#8	#4
L	4	6		12		



Insertion of wire in contact barrel



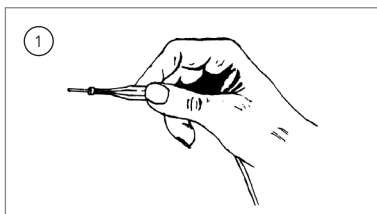
When inserting the stripped wire into the contact barrel check that no strands are left outside and that the wire is visible through the wire inspection hole in the barrel.

Important:

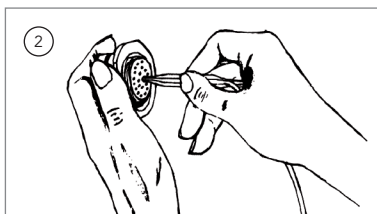
- Slide any accessories over wire strands before carrying out the following operations.
- Contacts are inserted and extracted from the rear of the connector.

Insertion of the contacts

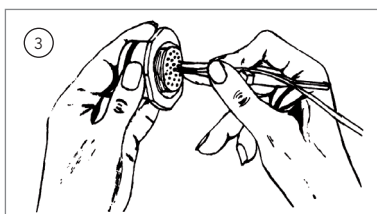
1 - Engage the crimp cable / contact assembly into the longitudinal slot of the plastic tool (coloured tip). Slide the tool down the cable until the tip of the tool abuts the contact retention shoulder.



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

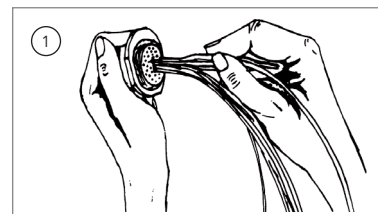


3 - Withdraw the tool from rear. Check that contact is firmly locked by pulling wire gently. When connector is fully loaded, check the position of contact tips. They should all be in the same plane.
Nota: For larger sizes of cable which are stiff enough manual insertion without tool is preferable.

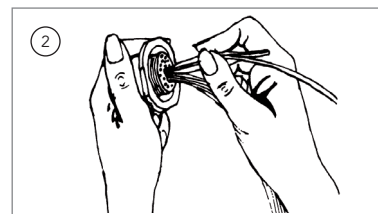


Extraction of the contacts

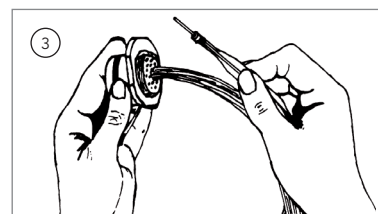
1 - Engage the appropriate cable into the longitudinal slot of the tool with the white tip towards connector.



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.

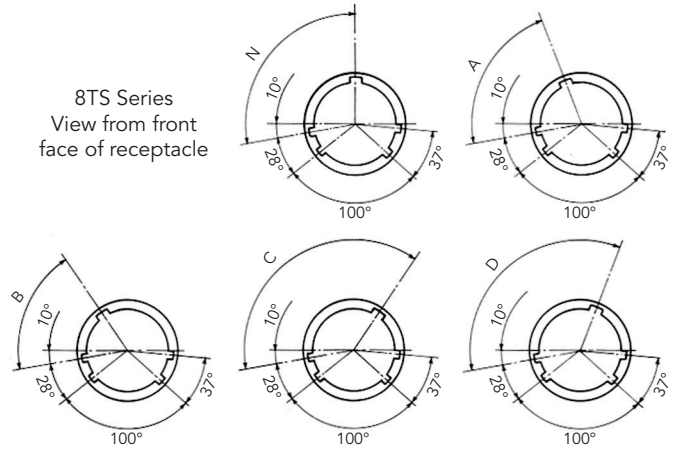
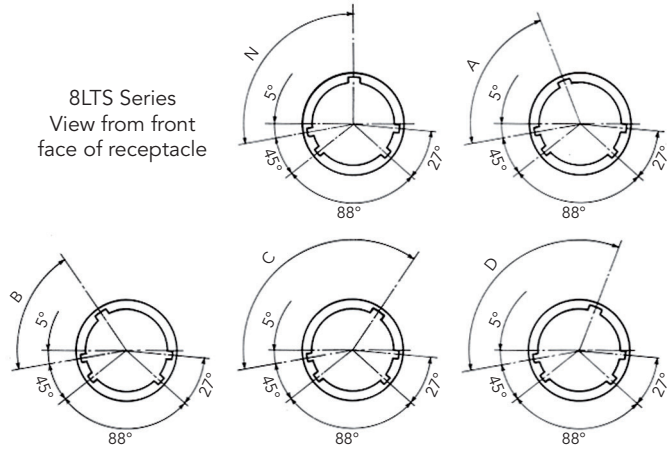


Note: All dimensions are in millimeters (mm)

Orientations

8LTS & 8TS Series

Polarization is determined by the master keyway position. The secondary keyway positions remain fixed.

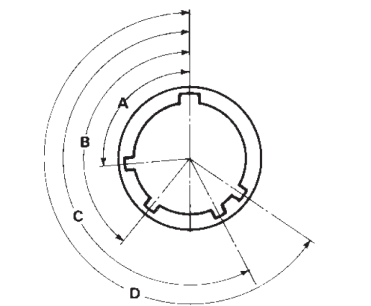


Shell size	8LTS Series - Angles (degrees)				
	N	A	B	C	D
09	95	77	-	-	113
11	95	81	67	123	109
13	95	75	63	127	115
15	95	74	61	129	116
17	95	77	65	125	113
19	95	77	65	125	113
21	95	77	65	125	113
23	95	80	69	121	110
25	95	80	69	121	110

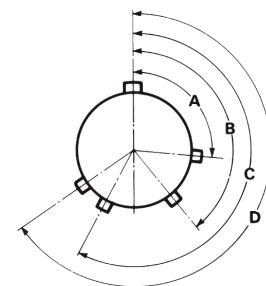
Shell size	8TS Series - Angles (degrees)				
	N	A	B	C	D
08	100	82	-	-	118
10	100	86	72	128	114
12	100	80	68	132	120
14	100	79	66	134	121
16	100	82	70	130	118
18	100	82	70	130	118
20	100	82	70	130	118
22	100	85	74	126	115
24	100	85	74	126	115

8DS Series

Shell size	Angles	N	A	B	C	D	E	T	V
9	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 15	A°	95	113	90	53	119	51		
	B°	141	156	145	156	146	141	-	-
	C°	208	182	195	220	176	184		
	D°	236	292	252	255	298	242		
13	A°	95	113	90	53	119	51	70	75
	B°	141	156	145	156	146	141	136	138
	C°	208	182	195	220	176	184	218	224
	D°	236	292	252	255	298	242	261	268
17 21	A°	80	135	49	66	62	79	58	85
	B°	142	170	169	140	145	153	162	150
	C°	196	200	200	200	180	197	188	191
	D°	293	310	244	257	280	272	316	307
19 23 25	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		



Viewed from front face of receptacle



Viewed from front face of plug

SPACE GRADE 38999

Space Grade 38999 Series

Range Extension

■ Space grade <i>microComp</i> ® Series	48
■ Space grade D-Sub Series	48
■ Robotics and EVA connectors	49
■ Launcher umbilicals and custom products	49
■ Quick disconnect connectors	50
■ Custom space "System"	50

Product range extension

Space Grade microComp® Series

Composite miniature high density rectangular connector available with crimp removable contacts (AWG 24 to 28) and PC tails (straight or 90°).

Space and weight saving:

- . No more extra PC board needed.
- . Save more than 55% in volume in your electronic box integration.

High density:

- . From 7 ways in 1.5 cm².
- . Up to 104 ways in 8 cm².

High performances:

- . High vibration and voltage withstanding.
- . 500 mating cycles.
- . Operating temperature: -55°C to +125°C.

User friendly:

- . Easy for installation and maintenance.
- . Removable #26 crimp contacts.



Space Grade D-Sub Series

Successful space heritage. Thoroughly used by the space industry on scientific and commercial missions since 1988.

Listed by space agencies:

- . ESA/ESCC 3401 qualified.
- . MIL-DTL-24308 qualified.
- . GSFC S-311 qualified.
- . No LAT required.

Space environment compatible:

- . Non magnetic.
- . Non outgassing.

Broad range:

- . Complete range to build an end-to-end solution: backshells, locking accessories, savers.



Product range extension

Robotics & EVA 8976/8977 Series

Interconnect adapted to robotic use, with an eased connect/disconnect operation.
Rectangular 8976 Series. Circular 8977 Series.

Dedicated to space environment:

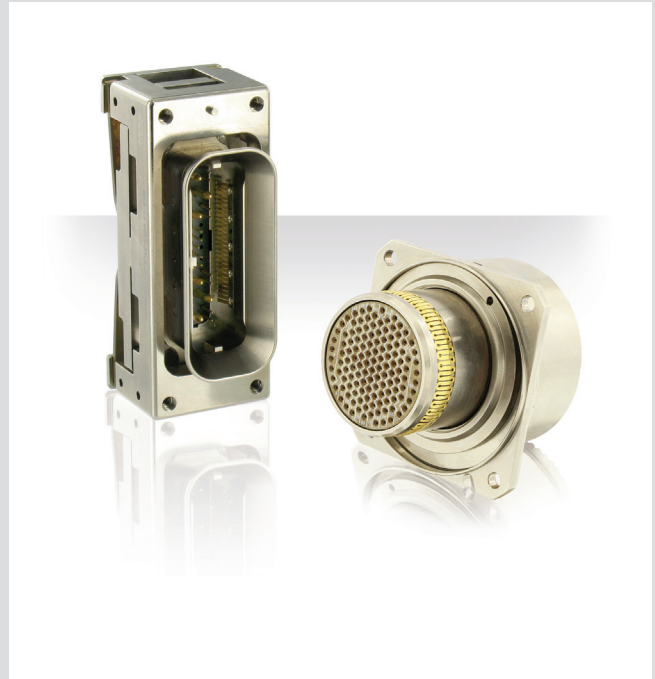
- . Integrated misalignment catching system enabling multiple robotic connections and disconnections
- . Deep space environment (Atox) compatibility

High reliability:

- . Thermal differential compatibility between plug and receptacle
- . Fitted with SOURIAU L.I.F. contacts for low operation force and high durability (6000 operations)
- . High EMI shielding efficiency

User friendly:

- . Easy inspection, maintenance or repair after wiring



Launcher Umbilicals & Custom Products

Umbilical connections to link the launcher to the pad, with specific ejection technologies.

Electrical umbilicals:

- . Interconnections between the launching vehicle and the pad to provide electric signals, power, 1553B Bus as well as cooling air ducts.
- . Each harness features a dead-face concept on the launcher side and a last minute plug released by pull out slings as rocket lifts off.

Pneumatic umbilicals:

- . Used for air conditioning of satellites with purified dry air during pre-launch phase.
- . Disconnection is ensured by the vehicle.



Product range extension

Quick Disconnect 8D8/8D9/8D36 Series

Quick Release interconnect solutions based on MIL-DTL-38999 design.

8D8/8D9 Series:

- . Lanyard release ball locking mechanism to enable easy and safe disconnection, with 360° angle pulling.
- . Push-pull configuration enabling dense and recessed connections.
- . Reliable sensitive locking system for blind mating.
- . High performance in vibrations and low disconnection force.

8D36 Series:

- . According to aircraft/store interface standard MIL-STD-1760E, Type 1 (weapon release).
- . Patented screw-coupling locking system to achieve safe disconnection at high speed, with 360° angle pulling.
- . Modular and Field Repairable solution to maximize operational time.



Custom Space "System"

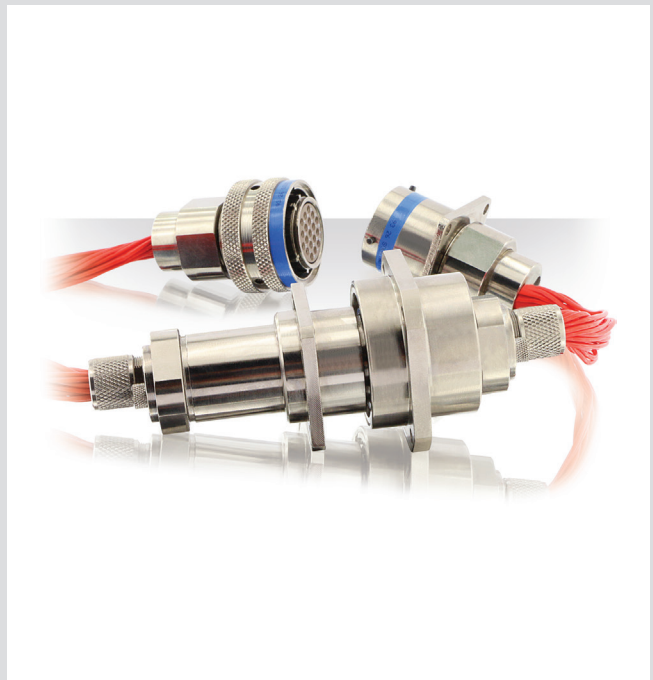
SOURIAU designs and markets interconnection systems according to user specifications.

Space proven:

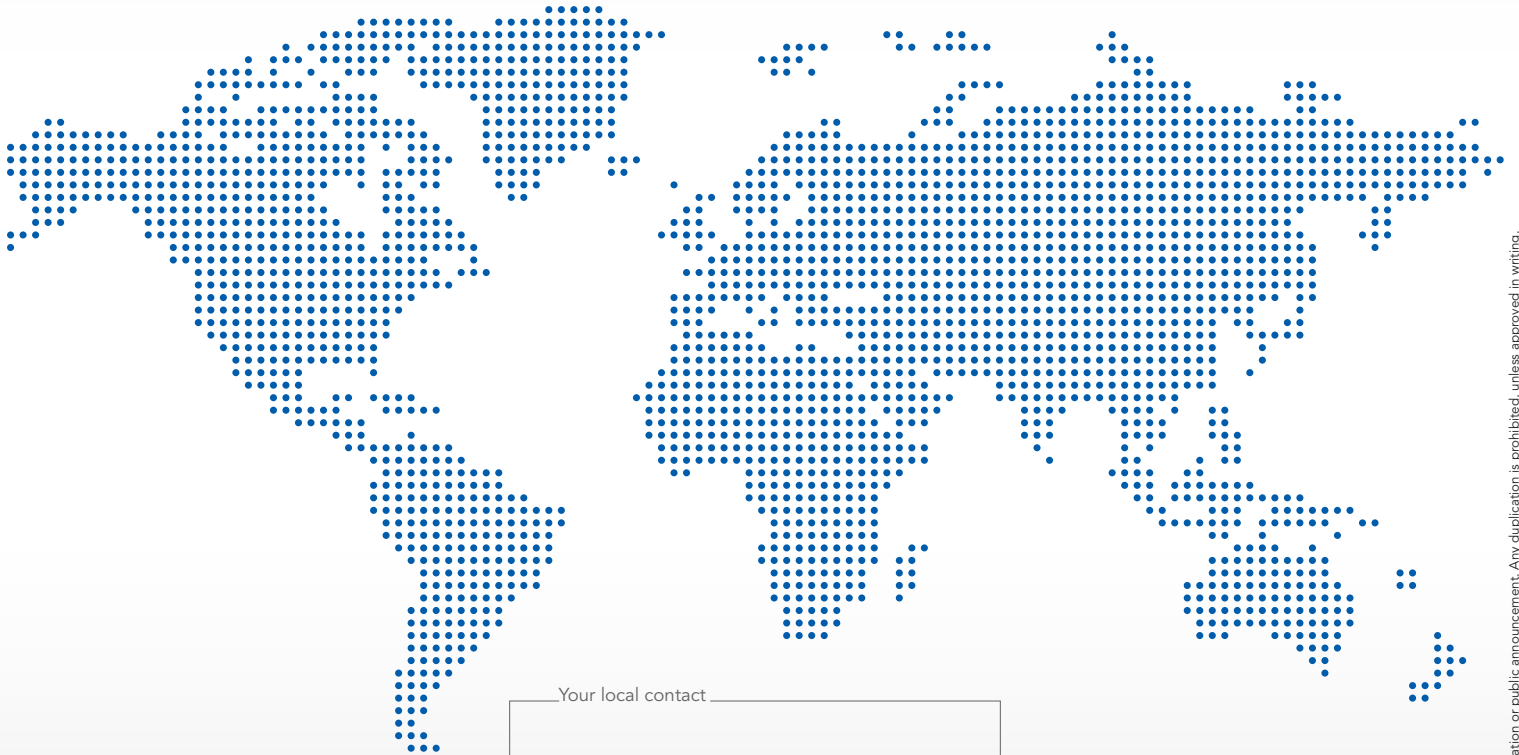
- . One of the major requirements is to avoid any cold welding phenomena during probe release.

High reliability:

- . Harnesses are assembled and tested in SOURIAU's class 10.000 clean room.



Reliable People, Reliable Solutions



Your local contact



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