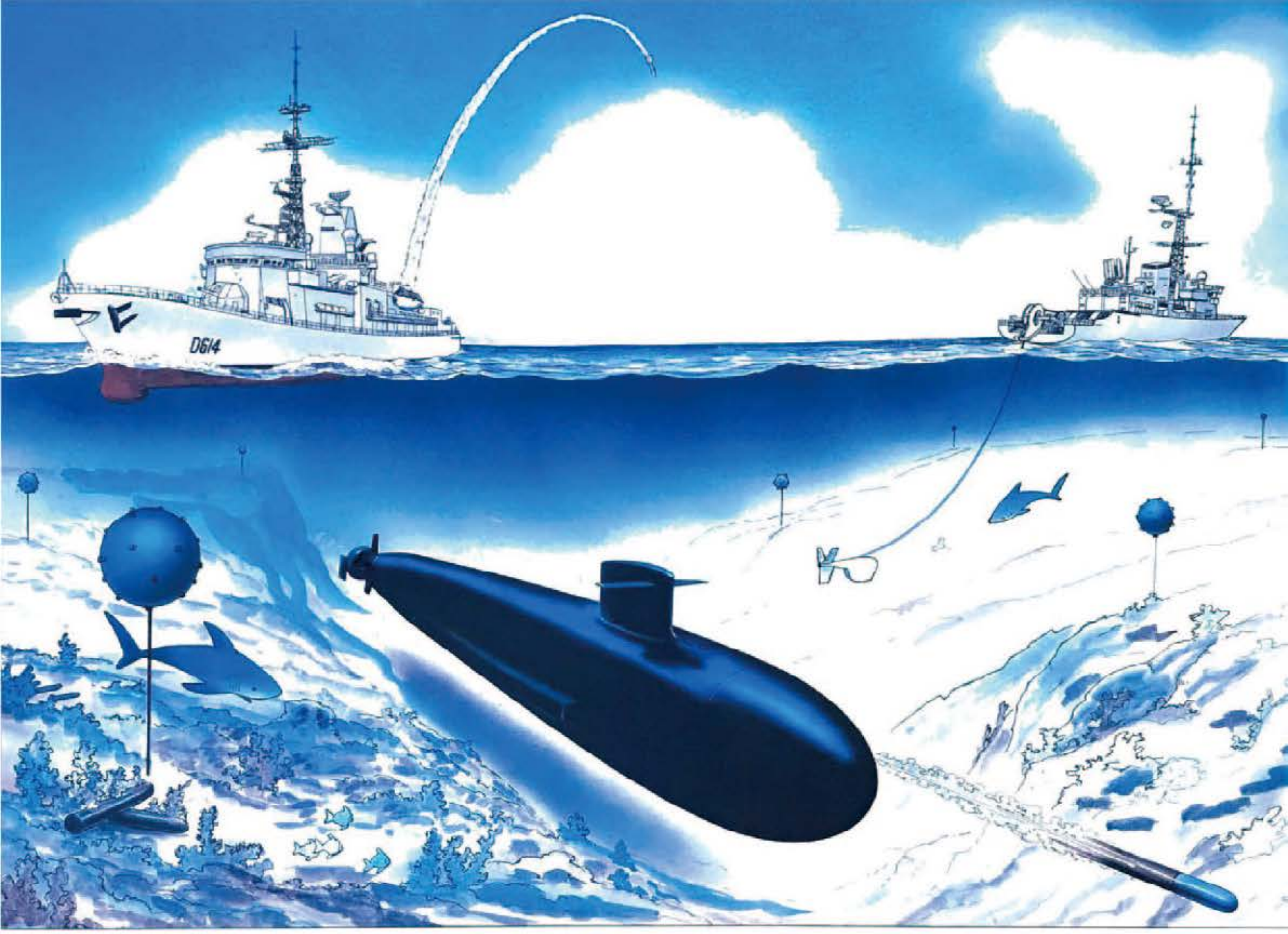


8808
Thrubulkead signal connector for submarine pressure hull equipment

TAE
Feed thru power connector for submarine hull equipment

8820
Thrubulkead signal connectors for internal submarine equipment

8810
Basic product line for reliable subsea mateable applications

8828
Umbilical connector for external torpedo equipment

8479
"A" and "B" cable connector and receptacle for torpedo equipment

軍規防水氣密接頭

SOURIAU

Esterline
Connection Technologies

Circular Connectors

Rectangular Connectors

Push-Pull Connectors

PCB Connectors

Miniature Connectors

Fiber Connectors

Waterproof Connectors

Hermetic Connectors

Power Connectors

UL & IEC Connectors

Standard Connectors

High Speed Connectors

Feedthrough Connectors

Underwater Connectors

Space Grade Connectors

Nuclear Grade Connectors

***尚有許多不同功能需求型錄資料，詳洽 佳昭公司。**

大 綱 目 錄

MARINE SERIES

SOURIAU

M Series

Underwater Connectors

水深 3000 公尺使用

Esterline Connection Technologies

Presentation

The M Series connectors meet the highest standards of safety for deep immersion. It is currently used in many applications: from oil and gas industry service to renewable energy generation system and military submarines.

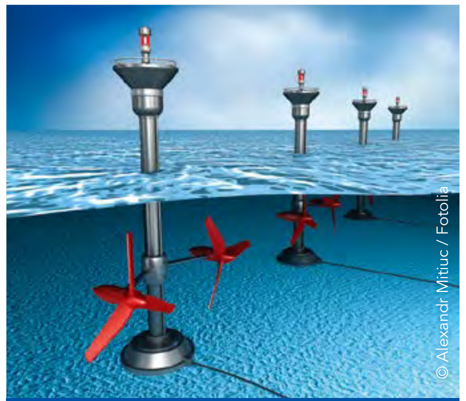
The M Series feature a large range of shell styles, layouts or insulator materials. No matter you need to convey signal information or high power we have the right product or we can make it.

Contents

Typical applications

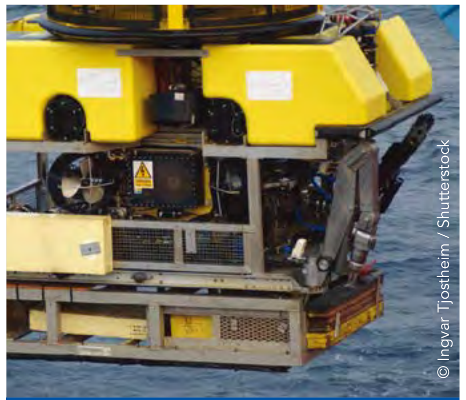
Submarines

Oil and Gas



Marine Renewable Energies

Towed Streamers



ROVs & AUVs

Vessels

Features & Benefits

FIELD PROVEN

Extensively Used in Underwater Application

Oil and Gas services: Geophysics, inspection or instrumentation
ROVs and AUVs
Military marine: Submarines, torpedoes or vessels
Marine Renewable Energy: Tidal turbine, farm architecture…

ROBUST

Designed for Harsh Environment

Repairable connectors with removable inserts
No stress on O-rings by conical coupling interface
Extreme resistance to pull-out or transverse forces, vibrations and shocks
Double sealing security thanks to two O-rings in coupling interface

PERFOR-MANCES

High Performance Levels

Withstanding 500 cycles mating/unmating
Standard watertightness products tested at 200 bars
Up to 300 bars for the overmolded versions
Up to 1000 bars for the oil filled versions

LARGE OFFER

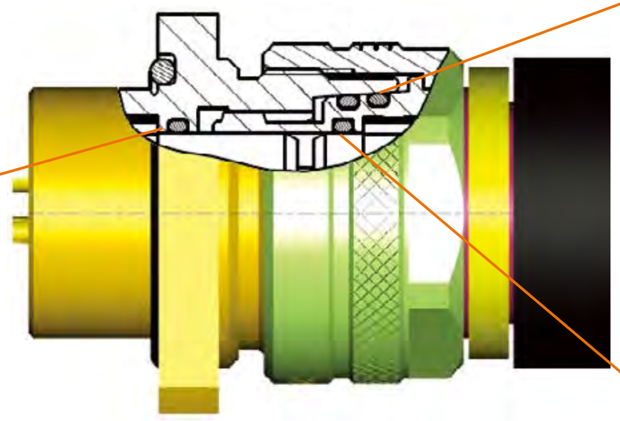
Standard and Special Products

Contacts: Signal, high speed (optical, triax…), high power
Wide range of body styles and sizes
Single, double watertightness or overmolded on cable termination

Features & Benefits

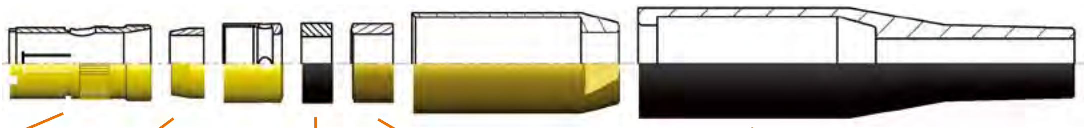
Sealed and reliable connectors

- O-ring for insert to shell sealing on both plug and receptacle
- Redundancy with 2 O-rings on plug taper seat for plug to receptacle sealing
- Conical coupling interface to reduce the stress on O-rings



High performance sealing and mechanical retention

- **Standard watertightness**: **Perfect sealing on cable jacket** is achieved with the compression of a pressure gland integrated into the plug's backshell. Robust cable clamp ensures the **mechanical retention of the cable** and a removable protective boot is added on the backshell for additional sealing and cable support.



2 cable clamp sets are presented on page 25 and 26:
A type: Without 360° braid termination
M type: With 360° braid termination

- **Plugs for cable overmold (SA type): Increased pressure rating.** Shell shape enables excellent resin adhesion on PUR and Neoprene® jackets.

- **Double watertightness*: The solution for cables with outer and inner sheaths.** Compared with standard watertightness plugs, an integrated compound housing allows the sealing between the inner sheath and the shell. The sealing on the outer sheath is made with a pressure gland. It provides an extra protection in case of water ingress due to outer jacket damage.

- **Pressure Balanced Oil Filled*: Special shell for pressure balanced oil filled harnesses.**

*Please consult us

Features & Benefits

High grade materials for long term immersion

- **Shells are manufactured from Nickel Aluminium Bronze which has been specifically developed for underwater applications and is proven to be highly corrosion resistant in sea water. This material has excellent electrical conductivity properties and is extremely robust and long lasting.**
- **Good resistance to biological fouling**
- **Insulators are made of PTFE or PCTFE which features near zero water absorption and excellent electrical insulating properties.**
- **O-rings are made from Nitrile for excellent fluid compatibility (sea water, mineral oil...) and long durability.**
- **Contacts are gold over nickel plated brass.**
- **RoHS compliant.**

Easy wiring and installation

- **Scoop proof: No risk of damaging contacts during the coupling operation when using a female plug and a male receptacle.**
- **Removable insulators: To allow easy wiring and replacement in case of wiring mistakes or servicing.**

M Series | Overview

Range overview

Standard range page 12 to 31

Receptacles

- **RER: Jam nut**
- **REC: Square flange**
- **RECSC: Cable connecting**

Plugs

- **FED: Plug**
- **FED (SA or SB): Plug for cable overmolding**

Feedthrough

- **TER: Jam nut feedthrough**
- **TEC: Square flange feedthrough**

In-line receptacles

- **PCE: In-line receptacle**
- **PCE (SA or SB): In-line receptacle for external overmolding**

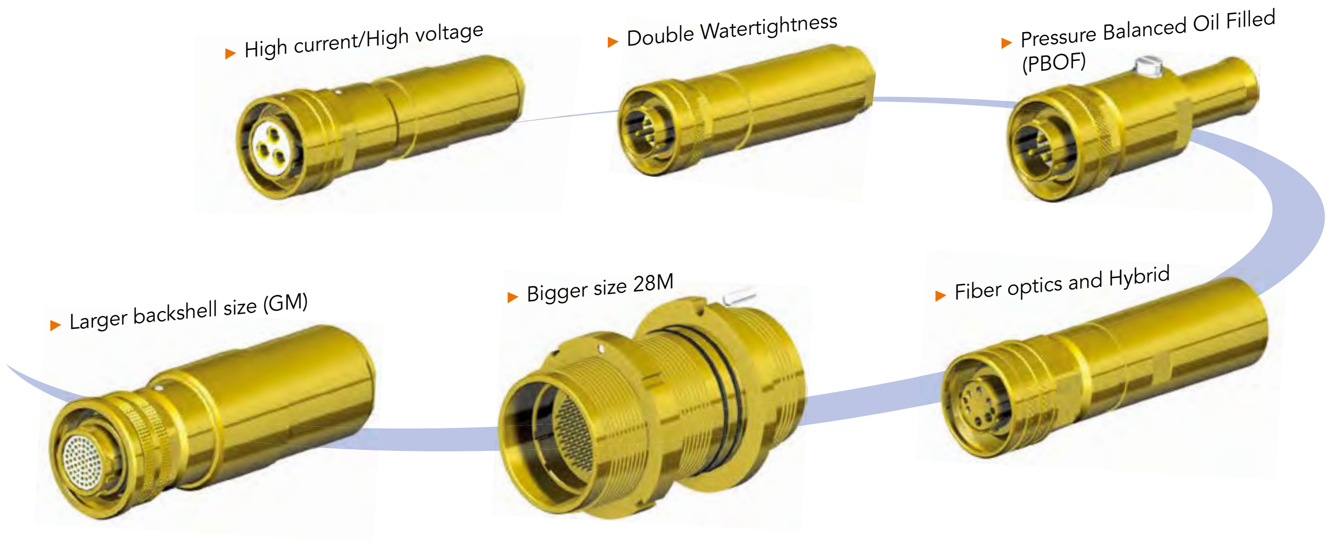
Pressure sealing caps

- **BER: For receptacles, in-line receptacles and feedthroughs**
- **BEF: For plugs**

Range extension page 43 to 45

Various possibilities of range extension & shell variant from standard series

- The only limit is your imagination, Consult us!

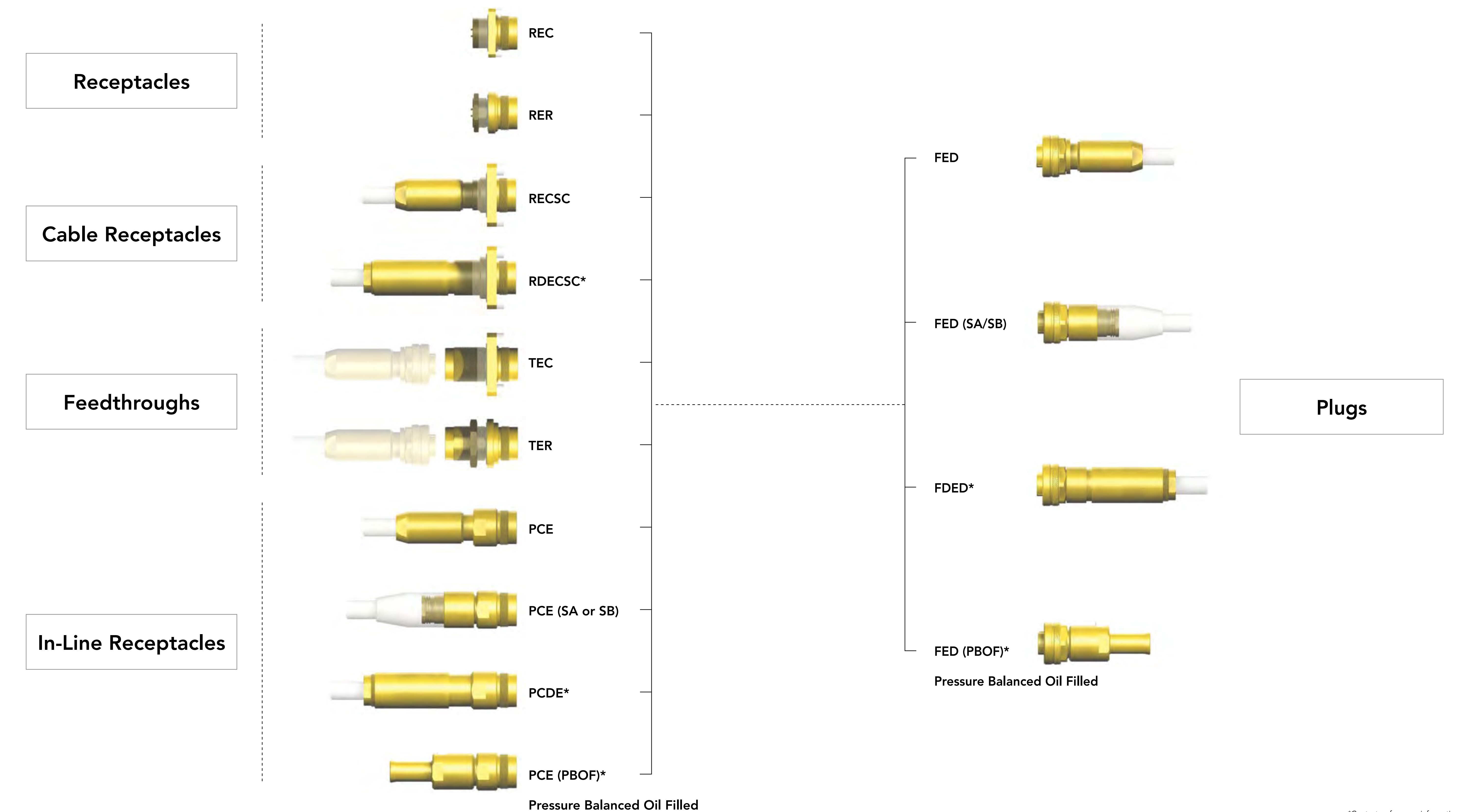


Typical harness examples

Overview

M Series | Overview

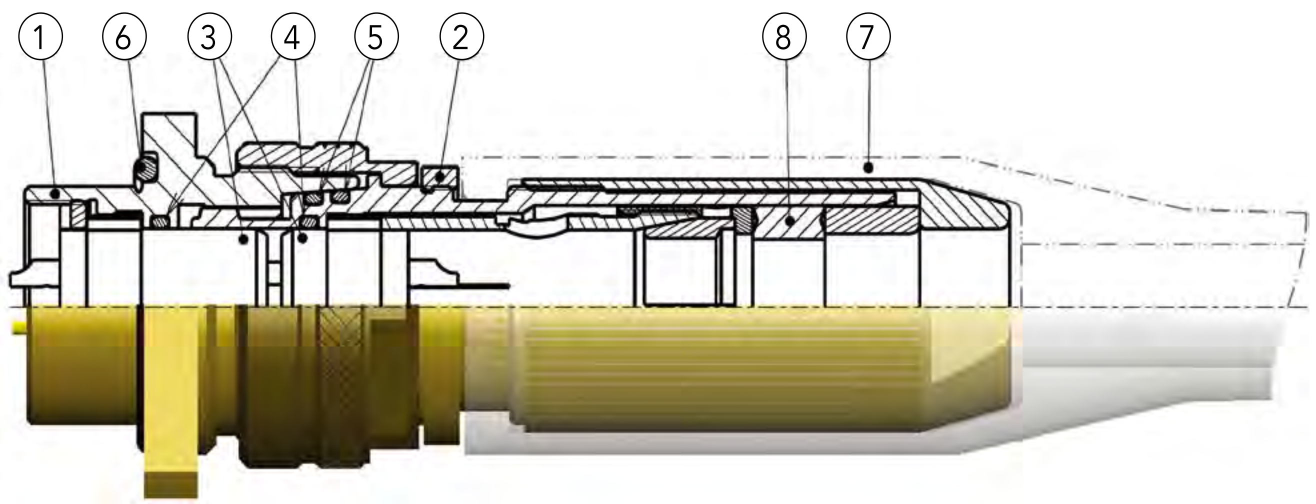
Range overview



*Contact us for more information

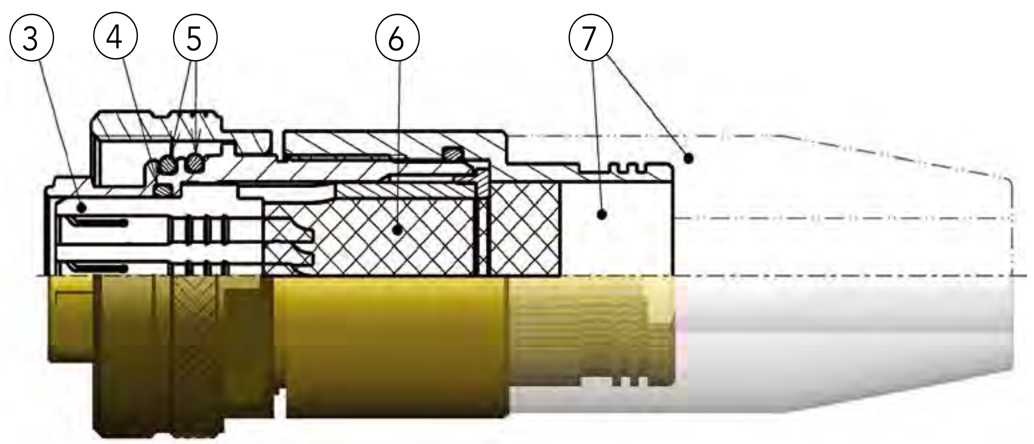
Product description

Standard watertightness: Straight plug + Receptacle (mated)



1. Receptacle
2. Plug
3. Insert with sealed contact
4. Insert/Shell O 'Ring seal
5. Plug/Receptacle taper seat with O'Ring seal
6. Panel/Receptacle O'Ring
7. Removable protective boot
8. Cable outer sheath/Plug watertightness by packing seal

Plug for cable overmolding: FED SA and SB type



3. Insert with sealed contact
4. Insert/Shell O 'Ring seal
5. Plug/Receptacle taper seat with O'Ring seal
6. Poting housing
7. Outer sheath cable/Plug watertightness by customer over molding
8. Backshell/Plug watertightness by O'Ring seal

Description

- Marine connectors
- Screw coupling
- Sealing between plug and receptacles performed by 2 O-rings
- Standard watertightness: Sealing on cable achieved by packing washers
- Plugs for over molding (SA/SB): Sealing on cable is given by overmolding

Technical features

Mechanical

- **Shell:**
  Nickel aluminium bronze
- **Insulator:**
  PTFE (T)
  PCTFE (K)
  Other materials are available upon request (Peek, Silicone, PBTFV)
- **O-rings:**
  Nitrile elastomer
- **Contacts:**
  Brass
- **Contacts plating:**
  Gold over nickel plated
- **Packing washers and Protection boot:**
  Neoprene Elastomer
- **Endurance:**
  500 mating/unmating operations
- **Shock:**
  Static acceleration of 120g on each axis
- **Vibration:**
  From 0,1 to 1 Hz: amplitude = 25 mm
  From 1 to 5 Hz: acceleration = 0.1 g
  From 5 to 22 Hz: amplitude = 1 mm
  From 22 to 50 Hz: acceleration = 2 g
  Duration: 1 hour on each axis

Electrical

- **Voltage rating (Vrms)**

Voltage Category	SOURIAU recommended service voltage (Vrms 50 Hz)	Dielectric Withstanding Voltage (Vrms 50Hz)
Service 0	350	1000
Service 1	600	1500
Service 2	1000	2300
Service 3	1500	3200
Service 4	5000	10000
Service 5	7000	15000

- **Insulation resistance:**
  Unmated connectors : ≥ 10^4 MΩ
  Mated connectors : ≥ $5x10^3$ MΩ on 500 Vcc
- **Shielding:**
  Connectors mated: Resistance between the receptacle plate and the plug's cable braid : ≤ 10 mΩ

- **Current rating and contact resistance:**

Shell size	Contact size	Current rating per contact (A)	Contact resistance (mΩ)
9M 10M 14M 20M 24M	20	7	≤ 4
	16	14	≤ 3
	14	20	≤ 2.5
	12	26	≤ 2
	6	65	≤ 1
	2	115	≤ 0.6
24M	120 MC	600	≤ 0.03
10M 14M	High voltage	14	≤ 3
20M	High voltage	20	≤ 2.5
10M	Coaxial 50Ω	20	≤ 2.5
	Coaxial 75Ω	7	≤ 4
10M	Triaxial 50Ω	7	≤ 4
20M	Coaxial 50Ω		
10M	Triaxial 75Ω	4	≤ 5
20M	Coaxial 75Ω		
14M	Coaxial 50Ω	40	≤ 1.5
	Triaxial 50Ω	26	≤ 2
	Triaxial 75Ω	14	≤ 3

Environmental

- **Operating temperature range:**
  - 20°C to + 70°C

- **Watertightness**
  - Mated:

Type	Standard	SA/SB
Operating pressure	≤ 100 bar	≤ 300 bar
Test	200 bar	Pressure following customer spec.

- Unmated:

Type	PTFE inserts	PCTFE inserts
Operating pressure	30 bar	60 bar(1)
Test pressure	40 bar	75 bar(2)

(1) Size 9M 50 bar
(2) Size 9M 60 bar

- **Salt spray**
  - 10 x (24h + 24h) alternate salt spray according to EN60068-2-11
  - 500h continuous salt spray according to NFC93422

- **Fluids Resistance**
  - Oil, alcohol, petrol, diesel fuel, sea water
  - Various gases (natural, butane, propane, Freon)
  - Various acids (acetic, boric, citric)

Ordering information

Product builder

N°	Criterias	Choices	Pages
1	Wires type and gauge	Minimum contact size	17
2	Number of contact to connect	Contacts layout	18
3	Electrical characteristics	Layout and shell size	13
4	Cable diameters	Size checking	21
5	External pressure	Sealing type	14
6	Unmated pressure	Insert material	14
7	Cable type and construction/Braid termination	Cable clamp set	21
8	General configuration	Shell type	8-9

Recommendations

Standard watertightness M Series connectors

Watertightness is given by a packing-block. Watertightness performances will depend on cable quality:
. Hardness (shore A hardness > 70 is recommended)
. Cylindricity and circularity
. Roughness
. Cable outer diameter tolerance (maximum tolerance of 1 mm on outer diameter is recommended)

Wiring chamber potting operation is necessary for pressure higher than 30 bar.
See page 38 for potting tools.

Overmolded plugs

Watertightness is achieved by resin overmolding. Conductor insulation and jacket material (preferably Neoprene® or Polyurethane) of specified cable determines overmold material specification.
Watertightness is determined by the adhesion of the overmold material to the cable.

M Series connectors part numbers

Basic Series	PCE	M	14M	T	04 12	A	105

Shell type
- **RER:** Jam-nut receptacle
- **REC:** Screws mounting receptacle
- **FED:** Straight plug
- **PCE:** In-line receptacle
- **RECSC:** Screws mounting cable connecting receptacle
- **TER:** Jam-nut feedthrough
- **TEC:** Screws mounting feedthrough

Type of contacts
- **M:** Pin contact
- **F:** Socket contacts
- **1:** Pin/Socket (for TEC and TER feedthroughs only)

Shell size
9M, 10M, 14M, 20M, 24M

Insert material
- **T:** PTFE
- or
- **K:** PCTFE

Contact layouts
See layout tables page 18

Cable clamp code
- **Standard watertightness:** : (nothing for RER, REC, TER & TEC)
- **A**: Without 360° braid termination
- **M**: With 360° braid termination
- **Overmolding**: (nothing for RER, REC, TER & TEC)
- **SA**: Without 360° braid termination
- **SB**: With 360° braid termination

Maximum cable outer diameter (in tenth of mm, adjusted at upper five tenth). Example: For a 9.2mm outer diameter cable, the code is 095.
Cable code for coaxial, tri-axial, high voltage (Please consult us for coding)
Nothing for RER, REC, TER & TEC

Pressure sealing cap part numbers

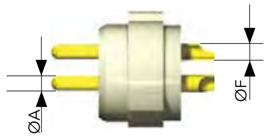
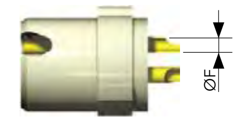
Basic Series	BER	C	14M

Cap type
- **BER:** For receptacles, in-line receptacles and feedthroughs
- **BEF:** For plugs

Cable clamp set
- **C:** With cord
- **-:** Without cord (no mention)

Shell size
9M, 10M, 14M, 20M, 24M

Contacts - Size 2 to 20

Shell size	Contact size	Ø A (mm) Active contact OD	Ø F (mm) Contact Termination OD	Gauge AWG	Section (mm²)	Definition
9M	20	1,02	0,9	26 to 22	0,14 to 0,38	Pin 
9M	16	1,59	1,2	24 to 20	0,21 to 0,60	
10M 14M 20M 24M	20	1,02	0,9	26 to 22	0,14 to 0,38	Socket 
	16	1,59	1,4	22 to 18	0,38 to 0,93	
	14	1,92	1,87	18 to 16	0,93 to 1,34	
	12	2,38	2,3	16 to 14	1,34 to 1,91	
	6	5	6,2	8 to 6	8,98 to 13,4	Pin 
	2	7	9	4 to 2	21,8 to 34,5	Socket 

Contacts - Coaxial, triaxial

Shell size	Contact size	Ø A (mm)	Ø F (mm)	Recommended cable (Please consult us)	
10M	Coaxial 50Ω	1,93	2,4	KX 4 - KX 15 - NFC 93550 RG 213 U - RG 58 CU MIL C 17 F	Pin 
10M	Coaxial 75Ω	1,02	1,5	KX 6A - KX 8 - NF C 93550 RG 59 BU - RG 11 AU MIL C 17 F	
14M	Coaxial 50Ω	3,98	3	KX 13 - NF C 93550 MIL C 17 F - RG 217U(1)	Socket 
10M	Triaxial 50Ω	0,9	1,2	KX 15 - NF C 93550 MIL C 17 F - RG 58 CU(1)	Pin 
20-24M	Coaxial 50Ω				
20-24M	Coaxial 75Ω	0,7	0,8	KX 6A - NF C 93550 MIL C 17 F - RG 59 BU	
14M	Triaxial 50Ω	3	2,6	Depending on the cable clamp accessories, please consult us (1)	Socket 
14M	Triaxial 75Ω	1,59	1,4		

Contact layouts

Size 9M

0416

4#16
Service 2

0720

7#20
Service 1

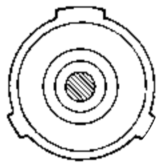
Layout caption

Layout ID for part numbering

Number of contacts #Size
Voltage Service Rating

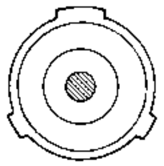
Size 10M

1TX50*



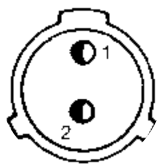
Triax#50Ω
Service 1

1CX50* 1CX75*



1Coax# 50Ω or 75Ω
Service 1

0214



2#14
Service 2

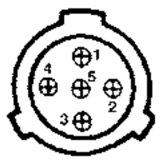
0314

3#14
Service 2

0416

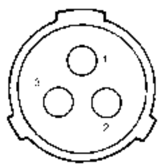
4#16
Service 2

0516



5#16
Service 1

0320

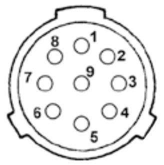


3#20
Service 2

0720

7#20
Service 1

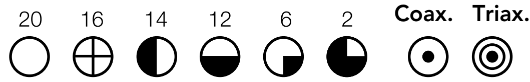
0920



9#20
Service 0

Contact Type

20	16	14	12	6	2	Coax.	Triax.

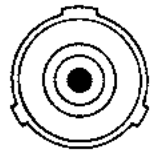


*Please consult us for coax and triax layouts

Contact layouts

Size 14M

1TX50* 1TX75*

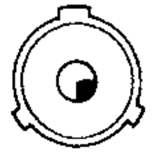


1Triax
50Ω#75
Service 2

1CX50*

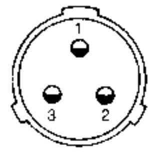
1Coax#50
Service 2

0106



1#06
Service 2

0312



3#12
Service 2

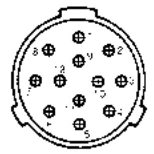
0412

4#12
Service 2

0714

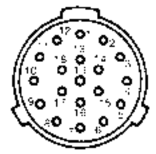
7#14
Service 2

1216



12#16
Service 2

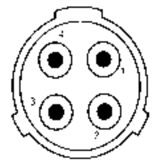
1920



19#20
Service 1

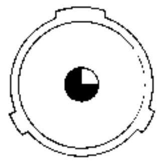
Size 20M

4C50* 4C77*



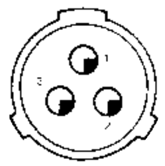
4Coax#50Ω or 75Ω
Service 1

0102



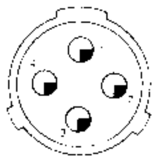
1#02
Service 2

0306



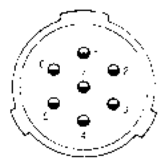
3#06
Service 2

0406



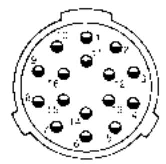
4#06
Service 2

0712



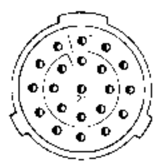
7#12
Service 2

1612



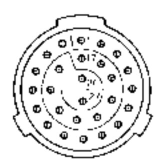
16#12
Service 2

2114



21#14
Service 1

2716

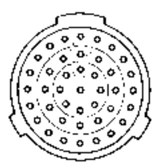


27#16
Service 1

3216

32#16
Service 1

4120

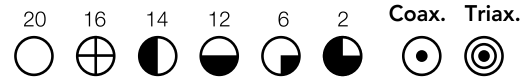


41#20
Service 1

*Please consult us for coax and triax layouts

Contact Type

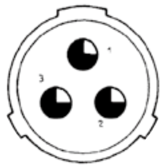
20	16	14	12	6	2	Coax.	Triax.



Contact layouts

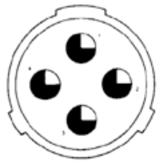
Size 24M

0302



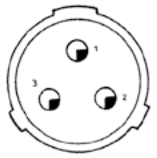
3#02
Service 2

0402



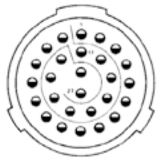
4#02
Service 2

0306



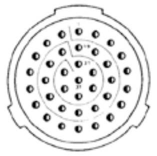
3#06
Service 2

2712



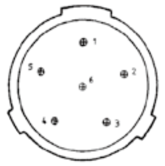
27#12
Service 2

3714



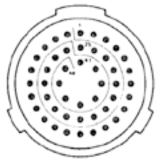
37#14
Service 2

0616



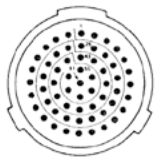
6#16
Service 4

4816



48#16
Service 1

6116



61#16
Service 1

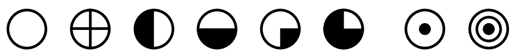
Cable clamp kits - Selection guide

Connectors	Cable Code	Description	Acceptable cable outer diameter				
			9M	10M	14M	20M	24M
Single Watertightness	A	Standard cable clamp without 360° shield termination	4-6.5	5-11	8-16	14-26	20-31
	M	Tapper cable clamp with 360° shield termination	4-6.5	5-10.5	9-16	12-24	18-32
External overmolding	SA	Overmolding backshell without 360° shield termination	< 6.5	< 10.5	< 16.5	< 24.5	< 32
	SB	Overmolding backshell with 360° shield termination	< 6	< 9	< 15	< 17.5	< 26.5

For coaxial, triaxial and high voltage contact layouts, please send us your cable datasheet to define the right cable clamp code

Contact Type

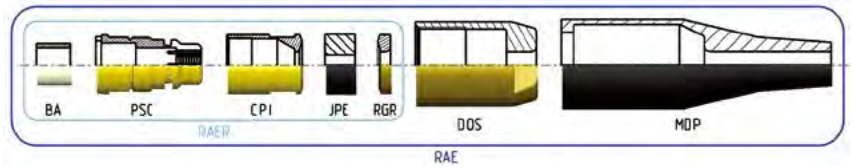
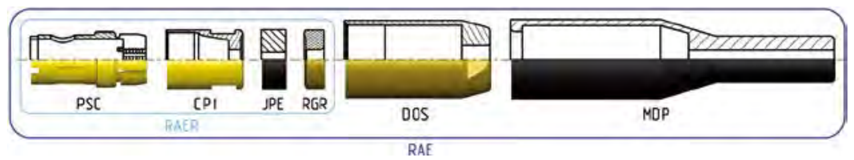
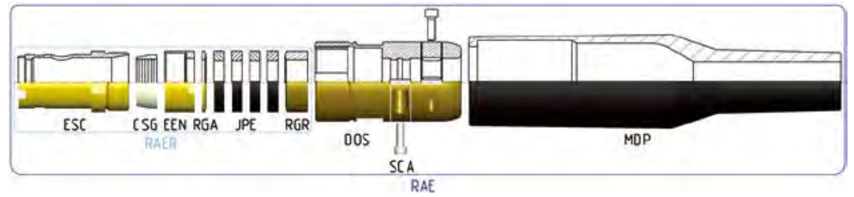
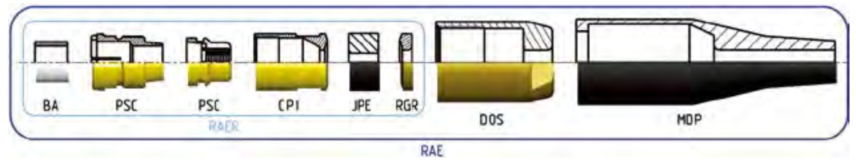
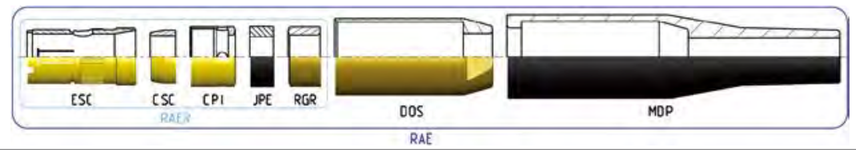
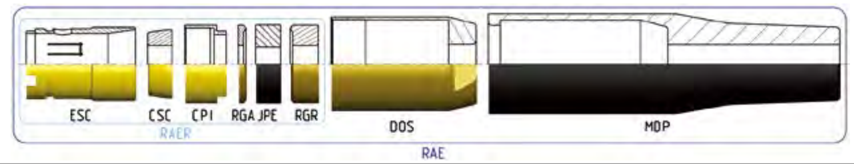
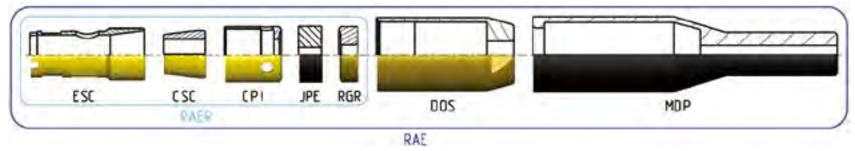
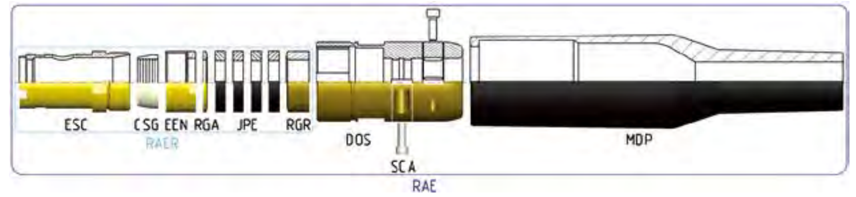
20 16 14 12 6 2 **Coax.** **Triax.**



*Please consult us for coax and triax layouts

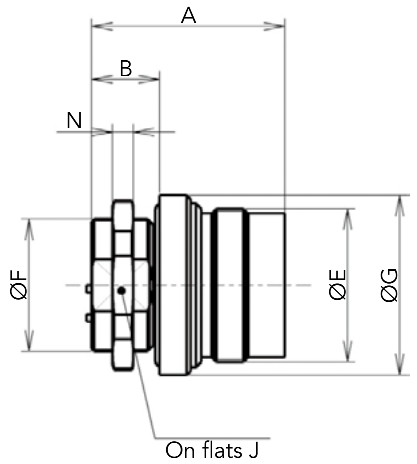
Standard watertightness - Cable clamp kits

BA	Insulating ring	**JPE**	Rubber washer	**EEN**	Spacer nut	**DOS**	Outer sleeve
CPI	Collet clamp	**MDP**	Protective boot	**ESC**	Cabling spacer	**RGA**	Packing washer
CSC	Shielding tapper	**PSC**	Cable collet	**RGR**	Packing block	**SCA**	Half collar (+ screws)

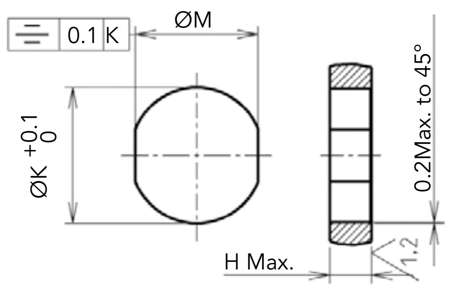
Cable clamp code	Grounding	Size	
A	No	9M	
		10M 14M 20M	
		24M	
M	Yes	9M	
		10M	
		14M	
		20M	
		24M	

Shell dimensions

RER - Jam-nut receptacle, watertight mounting



Panel cut-out



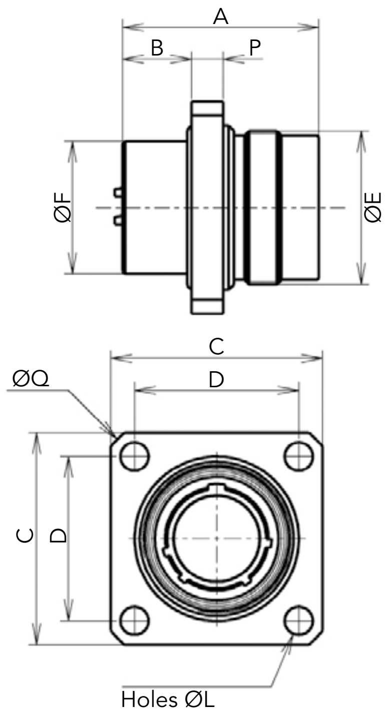
Shell size	9M	10M	14M	20M	24M
A	22	37	37	49,5	58
B	7	14	13	17	20
Ø E (ISO)	M17 x 1	M21 x 1	M29 x 1	M41 x 1	M56 x 1.5
Ø F (ISO)	M13 x 0.7	M18 x 0.75	M25 x 0.75	M36 x 1	M46 x 1.5
Ø G	20	25	34	46	64
H Max.	4	10	9	12	14
On flats J	15	22	30	41	56
Ø K	13.2	18.2	25.2	36.2	46.2
M	12.2	16.2	23.2	33.2	42.2
N	3	4	4	5	6
Average mass (g)*	Consult us	63	110	282	Consult us

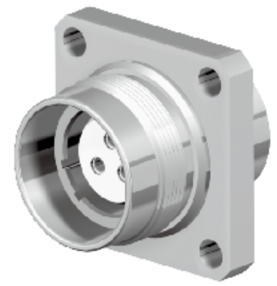
*Average mass estimated by CAD

Note: All dimensions are in millimeters (mm)

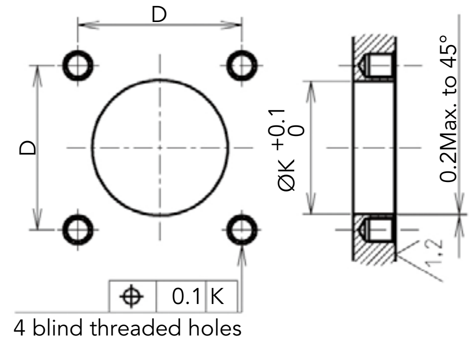
Shell dimensions

REC - Square flange receptacle, watertight mounting





Panel cut-out



Shell size	9M	10M	14M	20M	24M
A	22	37	37	49.5	58
B	6.3	14	13	17	20
C	29	32	40	52	76
D	20	24	31	42	60
Ø E (ISO)	M17 x 1	M21 x 1	M29 x 1	M41 x 1	M56 x 1.5
Ø F	13	18	25	36	46
Ø K	13.2	18.2	25.2	36.2	46.2
Ø L	4.5	4.3	5.3	6.3	8.5
P	4	5	6	8	9
Ø Q Max.	40.5	42.5	53.5	69.5	100.5
R (ISO)	M4	M4	M5	M6	M8
Average mass (g)*	Consult us	78	133	337	739

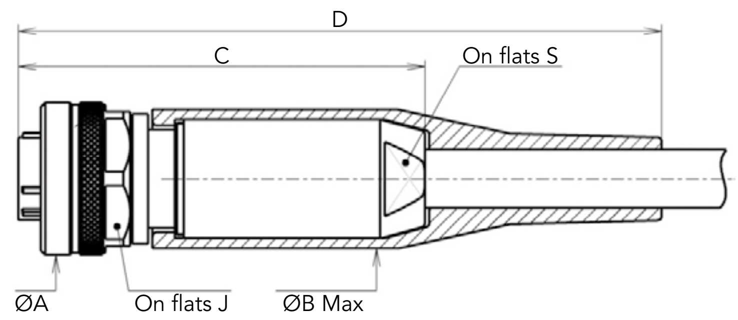
*Average mass estimated by CAD

Note: All dimensions are in millimeters (mm)

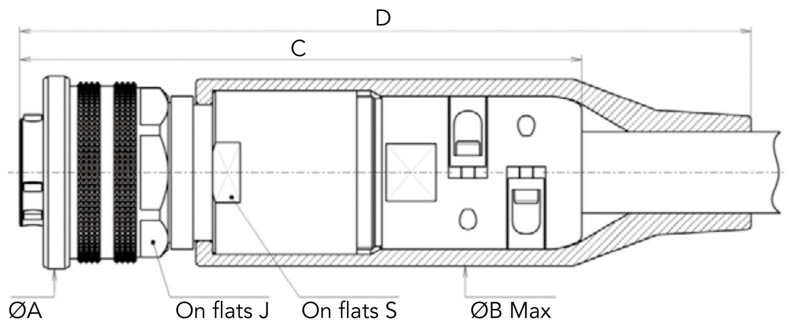
Shell dimensions

FED - Straight plug

Shell size: 9M - 10M - 14M - 20M



Shell size: 24M



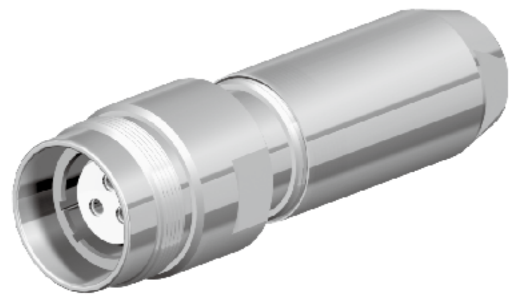
Shell size	9M	10M	14M	20M	24M
Ø A	20	25	34	46.5	68
Ø B Max.	19	23	32	45	66
C	53	73	92	115	205
D	79	110	144	186	315
On flats J	17.46 (11/16″)	22	30	42	54
On flats S	12	16	20	30	54
Average mass (g)*	Consult us	141	334	822	3170

*Average mass estimated by CAD

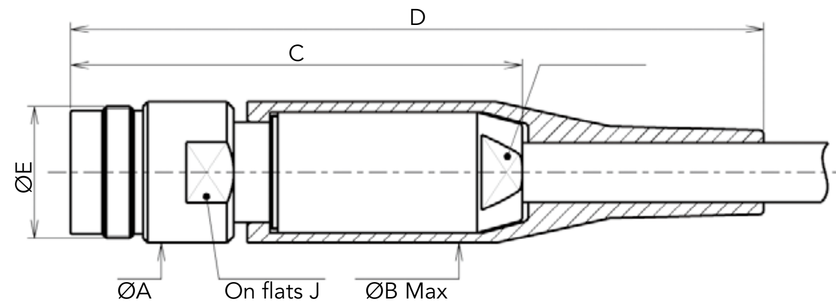
Note: All dimensions are in millimeters (mm)

Shell dimensions

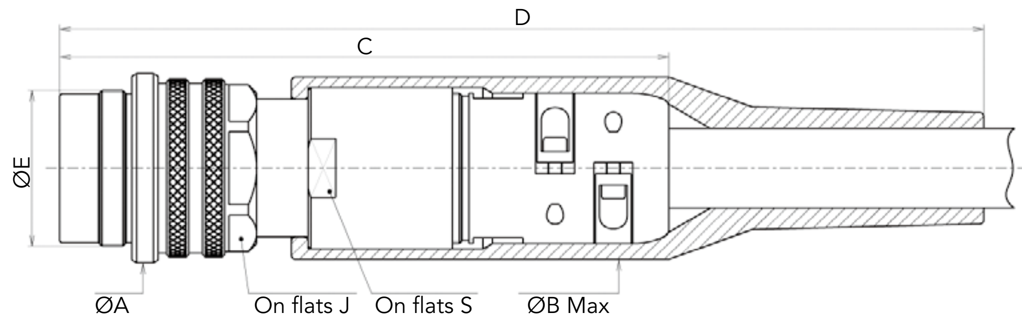
PCE - In-line receptacle



Shell size: 9M - 10M - 14M - 20M



Shell size: 24M



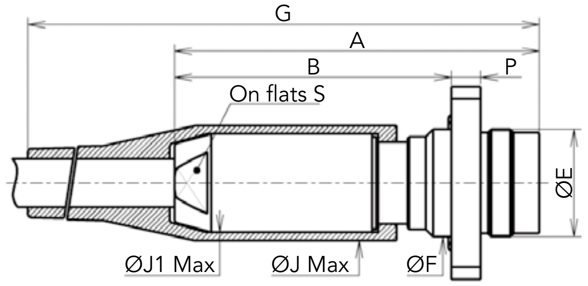
Shell size	9M	10M	14M	20M	24M
Ø A	19	23	31	43	68
Ø B Max.	20	23	32	45	66
C	57	82	100	127	220
D	84	120	153	198	335
Ø E (ISO)	M17 x 1	M21 x 1	M29 x 1	M41 x 1	M56 x 1.5
On flats J	17	20	28	38	54
On flats S	12	16	20	30	54
Average mass (g)*	Consult us	160	359	888	3491

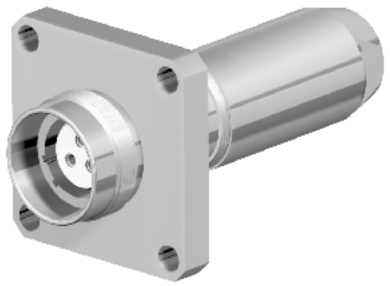
*Average mass estimated by CAD

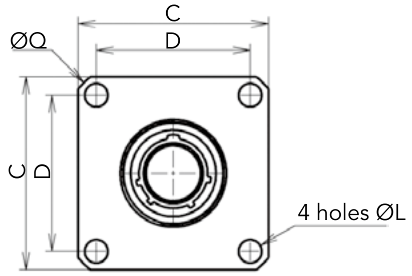
Note: All dimensions are in millimeters (mm)

Shell dimensions

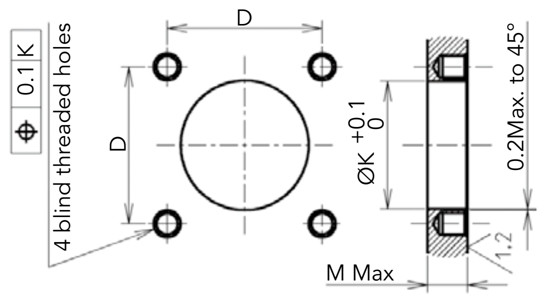
RECSC - Square flange cable connecting receptacle







Panel cut-out



Shell size	9M	10M	14M	20M	24M
A	57	82	100	127	220
B	42	58	76	97	170
C	32	40	52	76	96
D	24	31	42	60	70
Ø E	M17 x 1	M21 x 1	M29 x 1	M41 x 1	M56 x 1.5
Ø F	18	22	29	41	69
G	84	120	153	198	335
H Max.	10	12	12	20	/
Ø J Max.	20	23	32	45	66
Ø J1 Max.	17	20	27	39	54
Ø K	18.2	22.2	29.2	41.2	69.2
Ø L	4.3	5.3	6.3	8.5	12.5
P	4	8	8	9	12
Ø Q Max.	42.5	53.5	69.5	100.5	119.5
R	M4	M5	M6	M8	M12
On flats J	12	16	20	30	54
Average mass (g)*	Consult us	224	462	Consult us	3074

*Average mass estimated by CAD

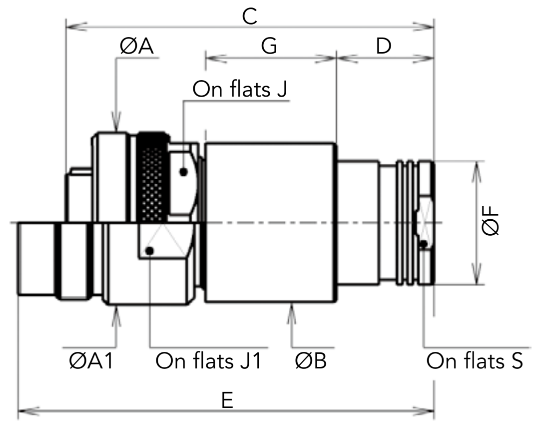
Note: All dimensions are in millimeters (mm)

Shell dimensions

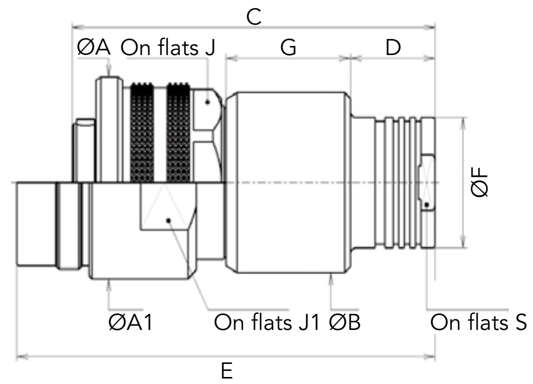
FED Plug and PCE in-line receptacles for cable overmolding - SA and SB versions

FED

PCE



Shell size: 9M - 10M - 14M - 20M



Shell size: 24M

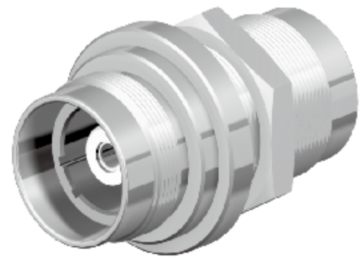
Shell size	9M	10M	14M	20M	24M
Ø A / Ø A1	20/19	25/23	34/31	46/43	68/68
Ø B	17.5	22	30	42	58
C	45	63	73	88	132
D	15.5	15.5	18.5	20.5	30.5
E	49	73	83	100	151
Ø F	14	17.5	23.5	32	42
G	11	20	25	29.5	45
On flats J On flats J1	17.46/17	22/20	30/28	42/38	54/54
S sur plats/On flats S	12	15	21	29	38
Average mass (g)*	Consult us	Consult us	195/220	454/Consult us	1335/1569

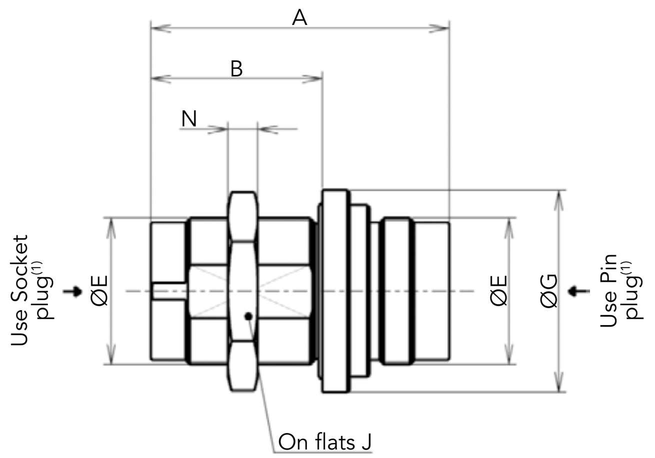
*Average mass estimated by CAD

Note: All dimensions are in millimeters (mm)

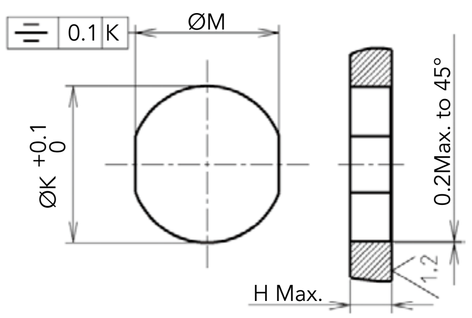
Shell dimensions

TER - Jam-nut feedthrough





Panel cut-out



Shell size	9M	10M	14M	20M	24M
A	50	60	60	82	98
B	34.5	35.5	34.5	47.5	57
Ø E (ISO)	M17 x 1	M21 x 1	M29 x 1	M41 x 1	M56 x 1.5
Ø G	23	28	40	52	70
H Max.	19	16	13	22	23
On flats J	20	24	34	46	63
Ø K	17.2	21.2	29.2	41.2	56.2
M	14.2	19.2	27.2	39.2	50.2
N	4	4	6	5	8
Average mass (g)*	Consult us	113	222	Consult us	Consult us

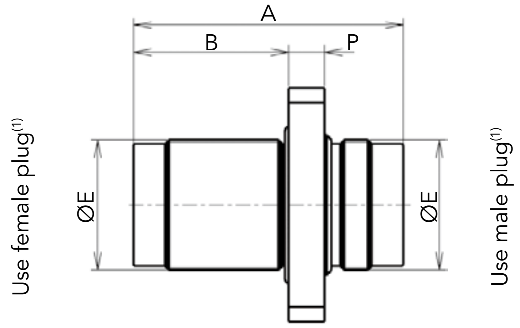
*Average mass estimated by CAD

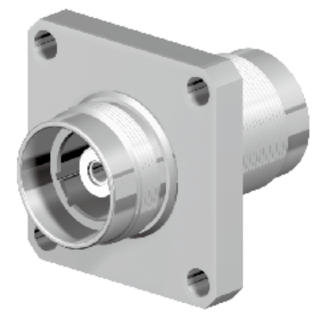
Note: All dimensions are in millimeters (mm)

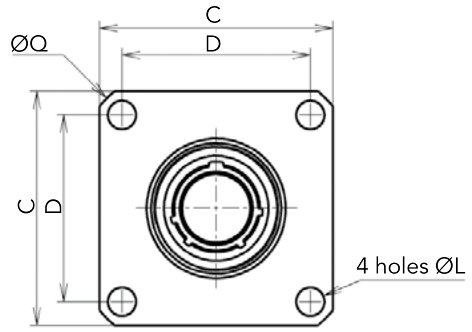
M Series | Standard Range

Shell dimensions

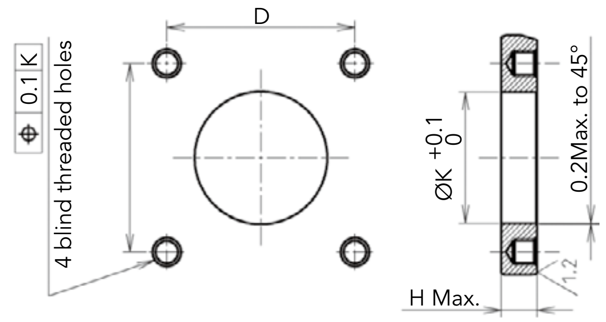
TEC - Square flange feedthrough







Panel cut-out



Shell size	9M	10M	14M	20M	24M
A	50	60	60	82	98
B	34.5	35.5	34.5	47.5	57
C	32	40	52	76	76
D	24	31	42	60	60
Ø E (ISO)	M17 x 1	M21 x 1	M29 x 1	M41 x 1	M56 x 1.5
H Max.	23	20	19	27	31
K	17.2	21.2	29.2	41.2	56.2
Ø L	4.3	5.3	6.3	8.5	8.5
P	4	6	8	9	12
Ø Q Max.	42.5	53.5	69.5	100.5	100.5
R (ISO)	M4	M5	M6	M8	M8
Average mass (g)*	Consult us	Consult us	299	Consult us	Consult us

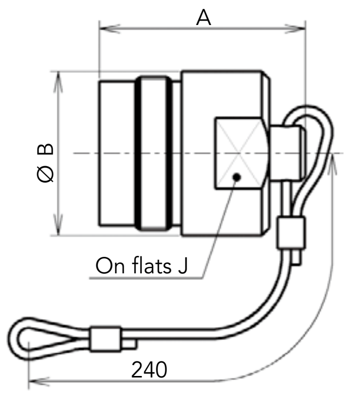
*Average mass estimated by CAD

Note: All dimensions are in millimeters (mm)

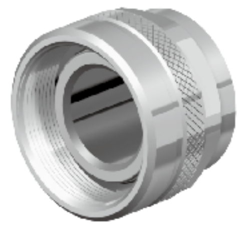
Shell dimensions

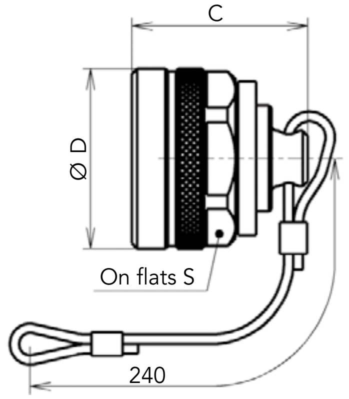
Pressure sealing caps

BEF - Cap for plug



BER - Cap for receptacle

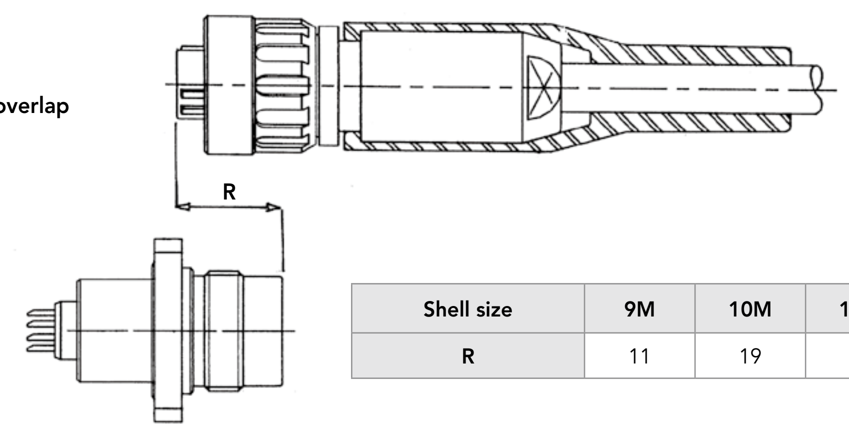




Shell size	9M	10M	14M	20M	24M
A	30	39	40	52.5	71
Ø B	19	23	31	43	64
C	27.5	34	34	47.5	69
Ø D	20	25	34	46.5	68
On flats J	17	20	28	38	54
On flats S	17,46	22	30	42	54

Mated/Unmated connectors

R = Mated shells overlap



Shell size	9M	10M	14M	20M	24M
R	11	19	19	25	32

Note: All dimensions are in millimeters (mm)

Insert + Contacts sub assemblies part numbers

Insert + Contacts Sub Assembly	BIS	14M	T	04 12	M

Shell type:
9M, 10M, 14M, 20M, 24M

Insert material
T: PTFE
K: PCTFE for standard layouts

Contact layouts
See layout tables

Type of contacts
M: Pin contacts
F: Socket contacts

Cable clamp kits part numbers

	RAE	14M	A	100

Kit type: See page 21
RAE: Full cable clamp kit
RAER: Cable clamp kit sub assembly

Shell size:
9M, 10M, 14M, 20M, 24M

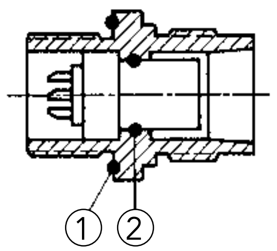
Cable clamp Code
Standard watertightness: (nothing for RER, REC, TER & TEC)
A: Without 360° braid termination
M: With 360° braid termination

Maximum cable outer diameter (in tenth of mm, adjusted at upper five tenth). Example: For a 9.2mm outer diameter cable, the code is 095.
Cable code for coaxial, tri-axial, high voltage & double watertightness (consult us for coding)

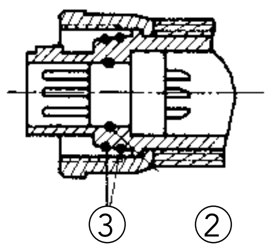
O-rings part numbers

O-ring Type	9M	10M	14M	20M	24M
❶ Panel O-ring (for REC-RER)	09-01	10-01	14-01	20-01	24-01
❷ Insulator/Shell O-ring	09-02	10-02	14-02	20-02	24-02
❸ Taper seat O-rings	09-03	10-03	14-03	20-03	24-03
❹ Panel O-rings (for TEC-TER)	09-04	10-04	14-04	20-04	24-04
❺ Panel O-ring (for RECSC)	10-01	20-02	14-05	20-04	24-05

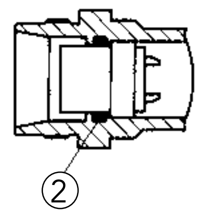
REC-RER Receptacles



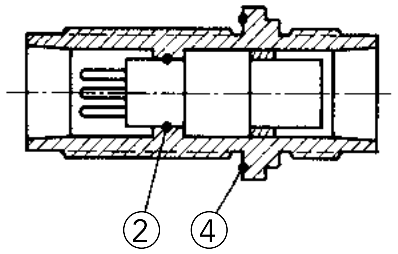
FED Plug



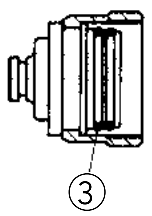
PCE Cable connecting plug



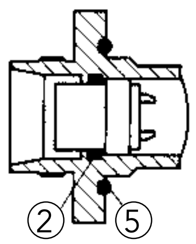
TEC-TER Bulkhead



BER Cap



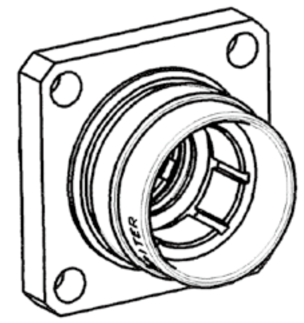
RECSC Square flange in-line receptacle



Tools

Plug wiring tools

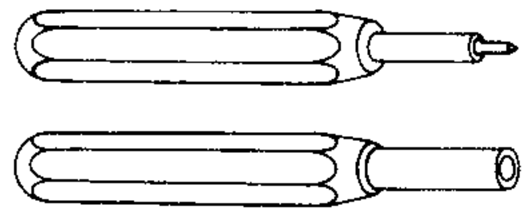
These tools are used to maintain correctly plugs during the final operation of wiring: tightening the tightening sleeve



Plug Size	Tool P/N
9M	MA1W6010B5
10M	MA2W6010B5
14M	MA3W6010B5
20M	MA4W6010B5
24M	MA5W6010B5

Contact assembling tool

The removable contacts are held in the insert by a special nut, which can be screwed or unscrewed, using the tools below

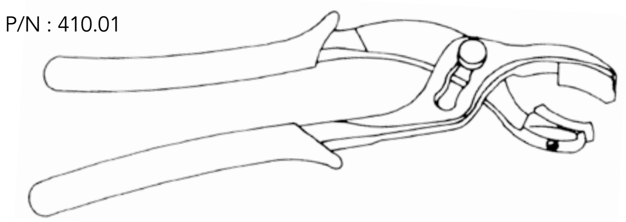


Contact type	Tool P/N
Male size 6	OUT.BMV.20M.16MC
Female size 6	OUT.BFV.20M.16MC
Male size 2	OUT.BMV.20M.35MC
Female size 2	OUT.BFV.20M.35MC
10M triaxial 50 Ω - 75 Ω24/20M coaxial 50 Ω - 75 ΩMale and female	OUT.MC.04

Plastic jaw plier

This tool is used for holding the cable clamp while tightening the sleeve

P/N : 410.01



Potting tool

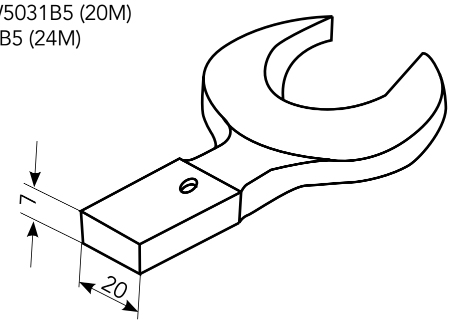
Used to fill with resin cabling spacers

Size	Tool P/N
10M	OUT330 10M
14M	OUT330 14M
20M	OUT330 20M
24M	MA5W4001A9

End wrenches

Used to tighten coupling ring of size 20M or 24M with a torque wrench

P.N : OUT 050W5031B5 (20M)
OUT 050W5003B5 (24M)



The wiring and installation instruction for M Series connectors can be provided upon request.

8810 Series 於水深 3000 公尺下濕式接合使用

Applications

All underwater mateable equipments.

Standards

Description

• The 8810 range is designed to be wet or underwater mated and can be used at depths down to 3000 meters. The metal body shells feature rugged, square cut coupling threads to enhance the 8810's suitability for repeated coupling and uncoupling in severe environmental conditions. Connector front faces can withstand either 150 or 300 bars uncoupled wet pressure. Underwater sealing caps are available for use on connectors power on or for long term immersion.

Characteristics

Mechanical

- Pressure resistance : working pressure (Mated or non mated connectors)
  - Shell sizes 1, 2, 3, 4, 7
    Fitted with cable gland endbell : 300 bar
    Fitted with longitudinally sealed : 300 bar endbell
  - Shell sizes 5, 6
    Fitted with all endbell types : 150 bar
- Endurance 500 mating/unmating operations
- Metal shell* : Nickel aluminum bronze
- Insulators : Molded rubber
- Contacts : Gold plated copper alloy
- Band and buckles stainless steel 316L
- Stainless steel 316L, inconel, monel, titanium, aluminum… available on request

Operational

- Working temperature
  Ambient : -30°C + 70°C
  Subsea : -3°C + 40°C
- Shocks 75 g - 11 ms (3 axis)
  Shell size 1, 2, 3, 4, 7
- Vibrations
  0.1 Hz to 1 Hz (25 mm amplitude peak to peak 50)
  1 Hz to 5 Hz (0.1 g acceleration)
  5 Hz to 22 Hz (1 mm amplitude peak to peak 2)
  22 Hz to 50 Hz (2 g acceleration)
- Underwater explosion shock tests (heavy weight high impact)

  Tested in accordance with,
  Specification MIL-S 901C (NAVY) and HI
  Test procedure n° HT 0458-TP-1 Original issue
  Grade : «A»
  Equipment classification : Hull Mounted external
  Class : «I»
  Test classification : Heavy Weight
  Type : «A»
  Tested for the US Navy (NCSC)

Electrical

Layouts	Maximum current rating per contact (A)	Maximum bundle current capacity per contact (A)
4 cts # 20	7.5	7.5
7 cts # 20	7.5	6.5
12 cts # 20	7.5	5.5
19 cts # 20	7.5	4.5
38 cts # 20	7.5	3.5
4 cts # 16	15	14
12 cts # 16	15	12
37 cts # 16	15	6.5
66 cts # 16	15	5
1 Ø 7 mm	100	100
4 # 8	45	35
1 Ø 18 mm	400	400
4 Ø 10+2#8	150 + 45	150 + 45

Layouts		Contacts sizes	Test voltage (Vrms)	Working voltage in external wet conditions ambient (Vrms)	Working voltage after subsea mating conditions complied (Vrms)
Shell size	Number of contacts				
1	4	# 20	2500	500	220
2	7	# 20	2500	500	220
	4	# 16	2500	500	220
	1	Ø 7 mm	3750	750	750
3	12	# 20	2500	500	220
4	19	# 20	2500	500	220
	12	# 16	2500	500	220
	4	# 8	3750	750	360
5	37	# 16	2500	500	220
	1	Ø 18 mm	7500	1500	1500
6	68	# 16	2500	500	220
	4	Ø 10 mm	3750	750	360
7	38	# 20	2500	500	220

* After 5 mating/demating operations in clear water and suitable lubricate insulator (with silicone grease)

8810 Series

Ordering information

Standard connectors

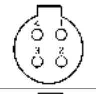
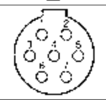
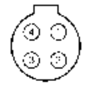
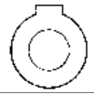
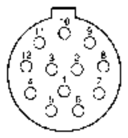
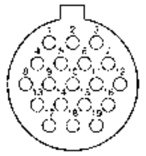
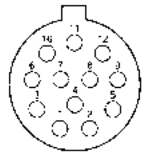
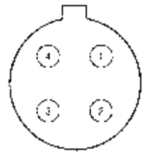
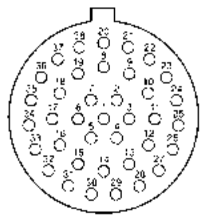
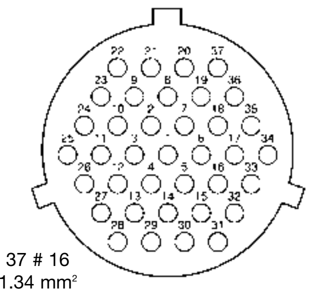
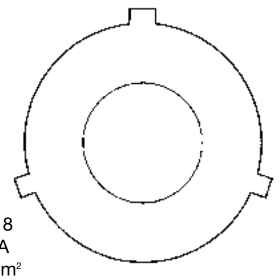
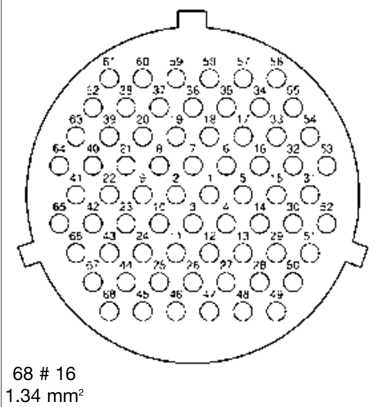
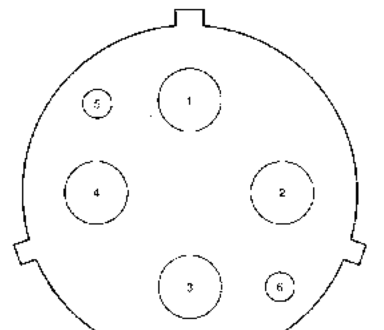
shell size	Nbr. of contacts	plug (36H)	jam nut receptacle (10H)	cable connecting receptacle (11H)
1	4	8810-36H-1-04SA	8810-10H-1-04PA	8810-11H-1-04PA
2	7	8810-36H-2-07SA	8810-10H-2-07PA	8810-11H-2-07PA
2	4	8810-36H-2-04S	8810-10H-2-04P	8810-11H-2-04P
2	1	8810-36H-2-01SA	8810-10H-2-01PA	8810-11H-2-01PA
3	12	8810-36H-3-12SA	8810-10H-3-12PA	8810-11H-3-12PA
4	19	8810-36H-4-19SA	8810-10H-4-19PA	8810-11H-4-19PA
4	12	8810-36H-4-12SA	8810-10H-4-12PA	8810-11H-4-12PA
4	4	8810-36H-4-04SA	8810-10H-4-04PA	8810-11H-4-04PA
7	38	8810-36H-7-38SA	8810-10H-7-38PA	8810-11H-7-38PA
5	37	8810-36H-5-37SA	8810-10H-5-37PA	8810-11H-5-37PA
5	1	8810-36H-5-01SA	8810-10H-5-01PA	8810-11H-5-01PA
6	68	8810-36H-6-68SA	8810-10H-6-68SA	8810-11H-6-68PA
6	4 + 2	8810-36H-6-04SA	8810-10H-6-04PA	8810-11H-6-04PA

Note : Extra keyways x, y, z... are available on special request

Custom design receptacles

shell size	Nbr. of contacts	inverse pressure receptacle (12H)	thrubulkhead receptacle (14H)	square flange receptacle (15H)
1	4	8810-12H-1-04PA	8810-14H-1-04PA	8810-15H-1-04P
2	7	8810-12H-2-07PA	8810-14H-2-07PA	8810-15H-2-07P
2	4	8810-12H-2-04P	8810-14H-2-04PA	8810-15H-2-04P
2	1	8810-12H-2-01PA	8810-14H-2-01PA	8810-15H-2-01P
3	12	8810-12H-3-12PA	8810-14H-3-12PA	8810-15H-3-12P
4	19	8810-12H-4-19PA	8810-14H-4-19PA	8810-15H-4-19P
4	12	8810-12H-4-12P	8810-14H-4-12PA	8810-15H-4-12P
4	4	8810-12H-4-04PA	8810-14H-4-04PA	8810-15H-4-04P
7	38	8810-12H-7-38P	8810-14H-7-38P	8810-15H-7-38PA
5	37	8810-12H-5-37P	8810-14H-5-37PA	8810-15H-5-37P
5	1	8810-12H-5-01P	8810-14H-5-01PA	8810-15H-5-01P
6	68	8810-12H-6-68P	8810-14H-6-68PA	8810-15H-6-68P
6	4 + 2	8810-12H-6-04P	8810-14H-6-04PA	8810-15H-6-04P

Contact layouts (Plug back face view)

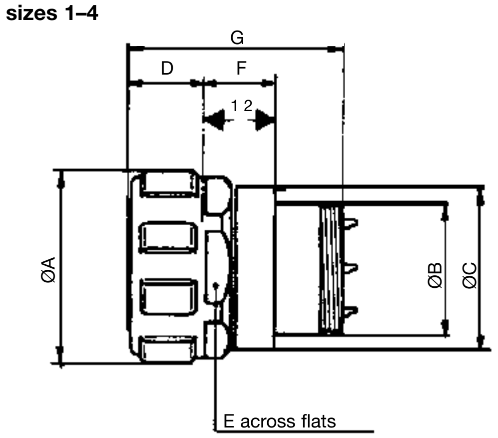
layouts		size 20 contacts	size 16 contacts	power contacts
shell size	number of contacts	contact diameter : 1.0 mm / 0.039 wire size max : 0.93 mm^2 current rating per contact : 7.5A max	contact diameter : 1.57 mm / 0.062 wire size max : 1.34 mm^2 current rating per contact : 15A max.	contact diameter : see below wire size max : see below current rating : see below
1	4	4 # 20 0.93 mm^2 		
2	7 4 1	7 # 20 0.93 mm^2 	4 # 16 1.34 mm^2 	1 Ø 7 100 A 16 mm^2 
3	12	12 # 20 0.93 mm^2 		
4	19 12 4	19 # 20 0.93 mm^2 	12 # 16 1.34 mm^2 	4 # 8 45 A per contact 4 mm^2 
7	38	38 # 20 0.93 mm^2 		
5	37 1		37 # 16 1.34 mm^2 	1 Ø 18 400 A 185 mm^2 
6	68 4		68 # 16 1.34 mm^2 	4 Ø 10 150 A per contact 70 mm^2 2 # 8 45 A 45 mm^2 

8810 Series

Dimensions

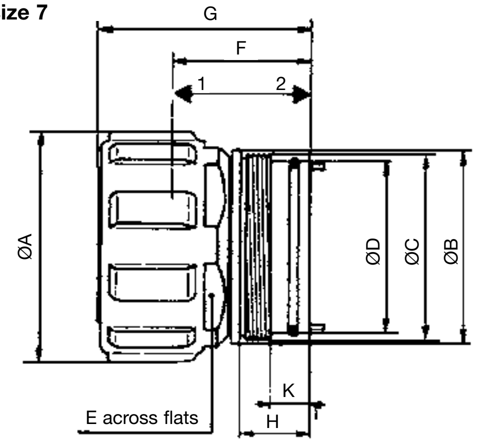
Plugs (series 36H)

shell sizes 1–4



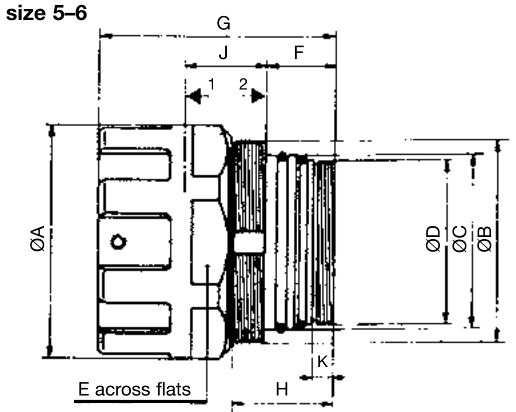
shell size	1	2	3	4
A Max	30.00 1.181	33.50 1.319	39.00 1.535	43.50 1.713
B iso	16.8x0.5	20x0.75	25.5x0.75	30x0.75
C Max	24.20 .953	27.70 1.091	33.20 1.307	37.70 1.484
E Max	26 1.024	29 1.142	34 1.339	38 1.496
D Max	17.30 .681	17.30 .681	18.30 .720	19.30 .760
F Max	16.80 .661	16.80 .661	15.80 .662	14.80 .583
G Max	50.10 1.972	50.10 1.972	50.10 1.972	50.10 1.972

shell size 7



shell size	7
A Max	60.50 2.382
B Max	50.00 1.969
C iso	48x0.75
D	44.2f8 1.74f8
E Max	51.50 2.028
F Max	36.30 1.429
H Max	18.60 .732
G Max	56.00 2.205
K Max	10.70 .421

shell size 5–6

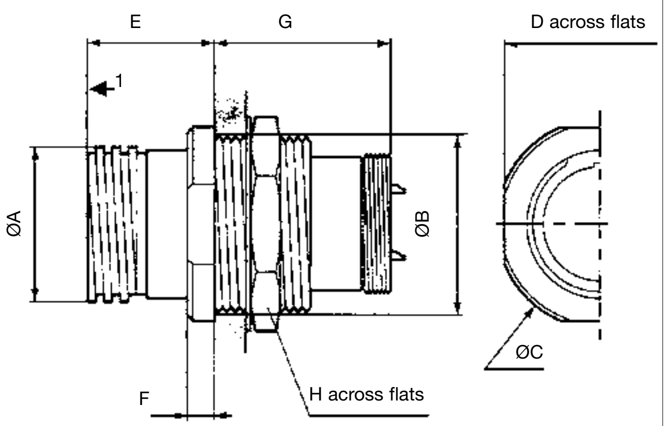


shell size	5	6
A Max	87.30 3.437	110.30 4.343
B iso	74x1.5	96x2
C	62.5 f7 2.46f7	82.5 f8 3.25f8
D iso	58x1.5	77x1.5
E Max	80.00 3.150	100.00 3.937
F Max	32.50 1.280	32.50 1.280
J Max	37.50 1.476	37.50 1.476
G Max	112.50 4.429	112.50 4.429
K Max	10.60 .417	10.60 .417
H Max	48.50 1.909	48.50 1.909

8810 Series

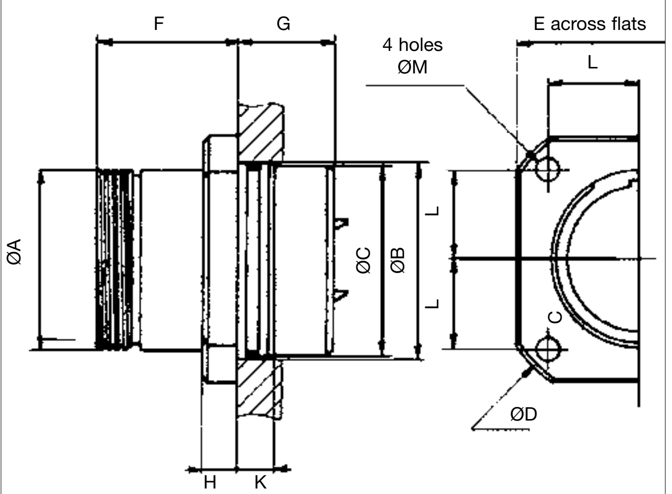
Jam nut receptacles (series 10H)

shell sizes 1–4



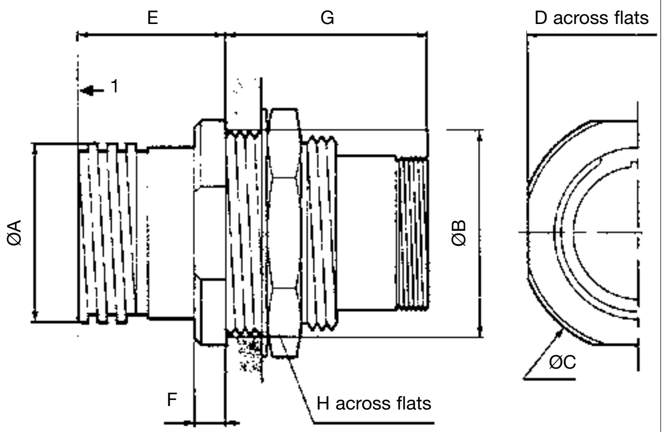
shell size	1	2	3	4
A Max	22.10 .870	25.10 .988	30.10 1.185	34.60 1.362
B iso	23.5x1	26.5x1	32x1	36.5x1
C Max	35.00 1.378	38.50 1.516	44.50 1.752	49.50 1.949
D Max	32.10 1.264	35.10 1.382	41.60 1.638	46.10 1.815
E Max	24.00 .945	24.00 .945	25.00 .984	26.00 1.024
F Max	5.00 .197	5.00 .197	5.00 .197	5.00 .197
G Max	34.50 1.358	34.50 1.358	34.50 1.358	34.50 1.358
H Max	27.00 1.063	30.00 1.181	36.00 1.417	41.00 1.614

shell size 7



shell size	7
A Max	48.00 1.890
B (H8)	51.40 2.024
C	50.60 1.992
D Max	80.00 3.150
E Max	66.00 2.598
F Max	38.00 1.496
G Max	26.00 1.024
H Max	9.00 .354
K Max	9.50 .374
L	24.00 .945
M	5.70 .224

shell size 5–6

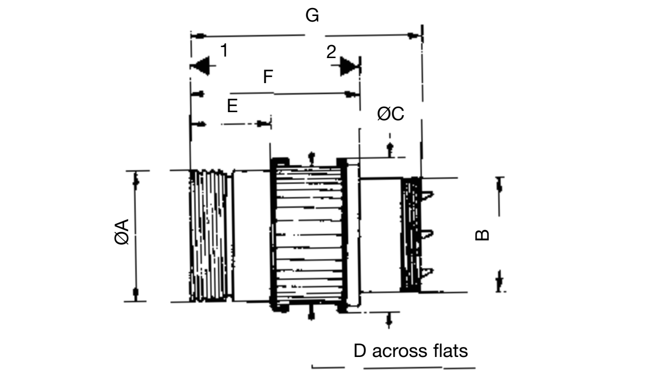


shell size	5	6
A Max	72.00 2.835	93 3.661
B iso	70x2	89x2
C Max	94.00 3.701	125.00 4.921
D Max	85.00 3.346	111.00 4.370
E Max	60.80 2.394	60.80 2.394
F Max	14.50 .571	14.50 .571
G Max	74.00 2.913	74.00 2.913
H Max	80.00 3.150	104.00 4.094

8810 Series

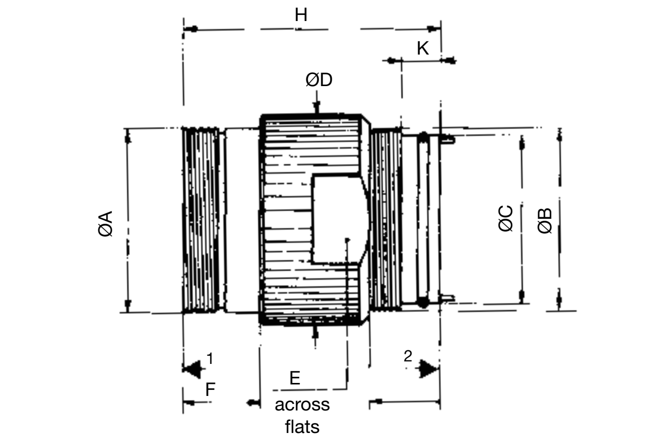
Cable connecting receptacles (series 11H)

shell sizes 1–4



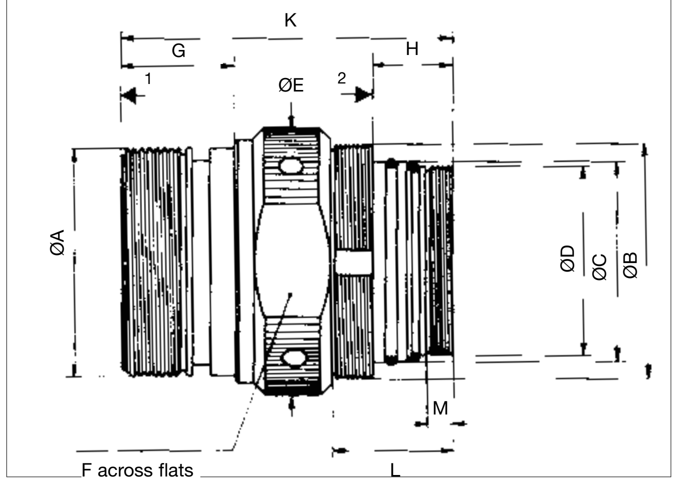
shell size	1	2	3	4
A Max	22.10 .870	25.10 .988	30.10 1.185	34.60 1.362
B iso	16.8x0.5	20x0.75	25.5x0.75	30x0.75
C Max	26.50 1.043	30.00 1.181	35.00 1.378	40.00 1.575
D Max	24.10 .949	27.10 1.067	32.10 1.264	36.10 1.421
E Max	19.00 .748	19.00 .748	20.00 .787	210 .827
F Max	42.10 1.657	42.10 1.657	43.10 1.697	44.10 1.736
G Max	58.10 2.287	58.10 2.287	59.10 2.327	60.10 2.366

shell size 7



shell size	7
A Max	48.10 1.894
B iso	48x0.75
C	44.2f8 1.74f8
D Max	55.50 2.185
E Max	50.00 1.969
F Max	20.70 .815
G Max	18.60 .732
H Max	66.90 2.634
K Max	10.70 .421

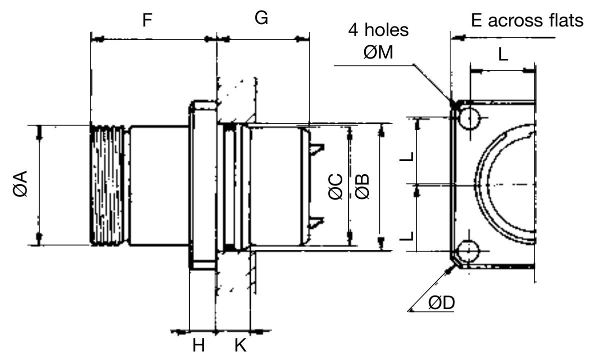
shell size 5–6



shell size	5	6
A Max	72.00 2.835	93.00 3.661
B iso	74x1.5	96x2
C	62.5f7 2.28f7	82.5f8 3.25f8
D iso	58x1.5	77x1.5
E Max	89.10 3.508	110.10 4.335
F Max	80.00 3.150	101.00 3.976
G Max	46.30 1.823	46.30 1.823
H Max	32.50 1.280	32.50 1.280
K Max	135.20 5.323	135.20 5.323
L Max	50.50 1.988	50.50 1.988
M Max	10.60 .417	10.60 .417

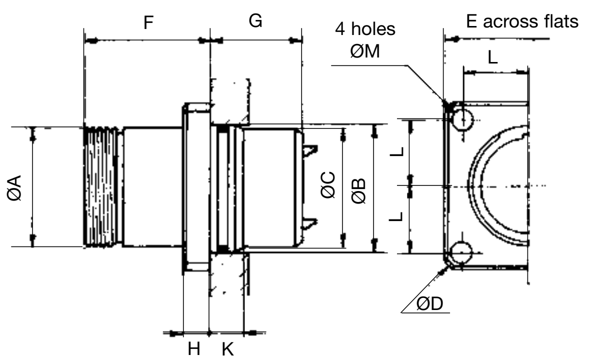
Square flange receptacles (series 15H)

shell sizes 1–4



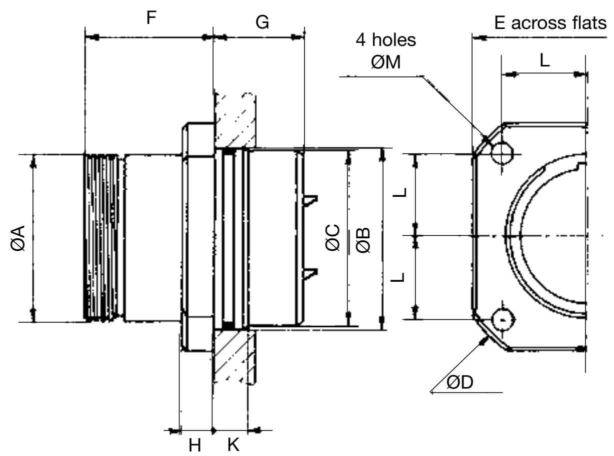
shell size	1	2	3	4
A Max	22.10 .870	25.10 .988	30.10 1.185	34.60 1.362
B (H8)	23.60 .929	26.60 1.047	32.10 1.264	36.60 1.441
C Max	22.90 .902	25.90 1.020	31.30 1.232	35.80 1.409
D Max	49.50 1.949	53.50 2.106	59.60 2.346	64.60 2.543
E Max	36.00 1.417	39.00 1.535	45.00 1.772	49.00 1.929
F Max	34.10 1.343	34.10 1.343	36.10 1.421	37.10 1.461
G Max	24.20 .953	24.20 .953	23.20 .913	23.20 .913
H Max	8.00 .315	8.00 .315	8.00 .315	8.00 .315
K Max	9.50 .374	9.50 .374	9.50 .374	9.50 .374
L Max	13.50 .531	15.00 .591	17.00 .669	19.00 .748
M	4.70 .185	4.70 .185	5.70 .224	5.70 .224

shell size 7



shell size	7
A Max	48.10 1.894
B (H8)	51.40 2.024
C	50.60 1.992
D Max	80.00 3.150
E Max	66.00 2.598
F Max	38.10 1.500
G Max	26.20 1.031
H Max	9.00 .354
K Max	9.50 .374
L	24.00 .945
M	5.70 .224

shell size 5–6

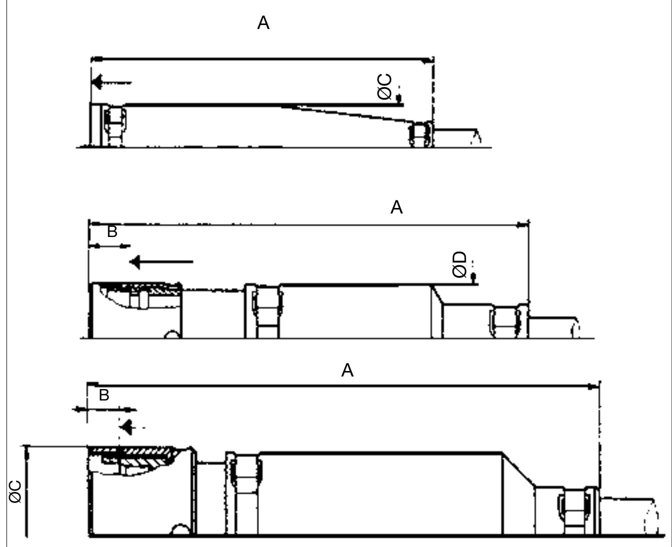


shell size	5	6
A Max	72.00 2.835	93.00 3.661
B (H8)	70.10 2.760	89.10 3.508
C	69.20 2.724	88.20 3.472
D Max	110.00 4.331	138.00 5.433
E Max	86.10 3.390	105.10 4.138
F Max	71.00 2.795	73.10 2.878
G Max	63.40 2.496	61.40 2.417
H Max	15.00 .591	15.00 .591
K Max	19.00 .748	19.00 .748
L	33.00 1.299	40.00 1.575
M	8.70 .343	10.70 .421

8810 Series

Standard endbells

Dimensions



dimensions	shell size			
	1	2	3	4
A Max	105.00 4.134	119.00 4.685	135.00 5.315	149.00 5.866
C Max	26.00 1.024	29.40 1.157	35.70 1.406	40.70 1.602

dimensions	shell size
	7
A Max	210.00 8.268
B Max	18.60 .732
C Max	50.00 1.969

dimensions	shell size	
	5	6
A Max	230.00 9.055	280.00 11.024
B Max	14.90 .587	14.90 .587
C Max	79.00 3.110	99.00 3.898

Ordering information

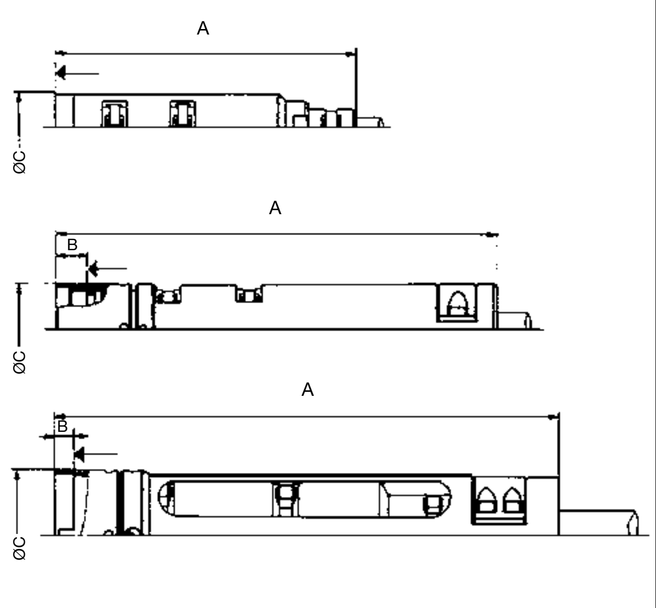
shell size	cable diameter	part number
1	7.8-8.8	8810-13-078-088
1	8.7-9.7	8810-13-087-097
1	9.5-10.5	8810-13-095-105
1	10.5-11.5	8810-13-105-115
2	9.3-10.3	8810-23-093-103
2	10.3-11.3	8810-23-103-113
2	11.0-12.0	8810-23-110-120
2	12.0-13.0	8810-23-120-130
3	9.5-11.0	8810-33-095-110
3	11.0-12.5	8810-33-110-125
3	12.5-14.0	8810-33-125-140
3	14.0-15.5	8810-33-140-155
4	11.2-12.7	8810-43-112-127
4	12.7-14.2	8810-43-127-142
4	14.0-15.5	8810-43-140-155
4	15.5-17.0	8810-43-155-170

In shell size 1 to 7
Custom design end-bells are developed for other cable dimensions, please consult us

shell size	cable diameter	part number
7	18.0-20.0	8810-73-180-200
7	20.0-22.0	8810-73-200-220
7	22.0-24.0	8810-73-220-240
7	24.0-26.0	8810-73-240-260
7	26.0-28.0	8810-73-260-280
5	15.0-20.0	8810-53-150-200
5	20.0-25.0	8810-53-200-250
5	25.0-30.0	8810-53-250-300
5	30.0-35.0	8810-53-30-350
6	22.0-28.0	8810-63-220-280
6	28.0-34.0	8810-63-280-340
6	34.0-40.0	8810-63-340-400
6	40.0-45.0	8810-63-400-450
6	45.0-50.0	8810-63-450-500

Adapters are available to enable next larger shell size clamp to be fitted - Please consult us.

Longitudinally sealed Endbells
Dimensions



dimensions	shell size			
	1	2	3	4
A Max	146.00 5.748	153.00 6.024	160.00 6.299	167.00 6.575
B Max	–	–	–	–
C Max	24.70 .972	28.20 1.110	33.70 1.327	38.20 1.504

dimensions	shell size
	7
A Max	2430 9.567
B Max	17.90 .705
C Max	50.00 1.969

dimensions	shell size	
	5	6
A Max	383.00 15.079	392.00 15.433
B Max	15.00 .591	15.00 .591
C Max	80.10 3.154	90.00 3.898

Ordering information

shell size	cable diameter	part number	
1	7.8-8.8	8810-13-	078-088
1	8.7-9.7	8810-13-	087-097
1	9.5-10.5	8810-13-	095-105
1	10.5-11.5	8810-13-	105-115
2	9.3-10.3	8810-23-	093-103
2	10.3-11.3	8810-23-	103-113
2	11.0-12.0	8810-23-	110-120
2	12.0-13.0	8810-23-	120-130
3	9.5-11.0	8810-33-	095-110
3	11.0-12.5	8810-33-	110-125
3	12.5-14.0	8810-33-	125-140
3	14.0-15.5	8810-33-	140-155
4	11.2-12.7	8810-43-	112-127
4	12.7-14.2	8810-43-	127-142
4	14.0-15.5	8810-43-	140-155
4	15.5-17.0	8810-43-	155-170

insert appropriate contact number - see page contacts layouts.

shell size	cable diameter	part number	
7	18.0-20.0	8810-73-	180-200
7	20.0-22.0	8810-73-	200-220
7	22.0-24.0	8810-73-	220-240
7	24.0-26.0	8810-73-	240-260
7	26.0-28.0	8810-73-	260-280
5	15.0-20.0	8810-53-	150-200
5	20.0-25.0	8810-53-	200-250
5	25.0-30.0	8810-53-	250-300
5	30.0-35.0	8810-53-	30-350
6	22.0-28.0	8810-63-	220-280
6	28.0-34.0	8810-63-	280-340
6	34.0-40.0	8810-63-	340-400
6	40.0-45.0	8810-63-	400-450
6	45.0-50.0	8810-63-	450-500

insert appropriate contact number - see page contacts layouts.

Adapters are available to enable next larger shell size clamp to be fitted

For shell size 1 to 7
Custom design endbells are developed for other cable 0D dimensions, please consult us.
For shell size 4 with a cable 0D >17mm *0.669*, the adapter 8810 6524 has to be used.

Product range extension

Double Watertightness

The solution for the highest safety with double armored cables.

A double watertightness solution:
. Sealing between the cable outer sheath and the backshell thanks to a sealing gland.
. Sealing between the cable inner sheath and the backshell thanks to potting.

Provides an extra sealing protection in case of water ingress due to outer jacket damage

For more information, please consult us

PBOF: Oil Filled Plug and In-line Receptacle

The solution for very deep immersion with oil filled cables.

High pressure withstand:
. Up to 1000 bars
. Dielectric oil filling
. Balances out the pressure difference
. Water cannot enter the plug shell when the cable is damaged

For more information, please consult us

Product range extension

GM Range Larger Backshell Size

Plugs and in-line receptacle with magnified backshells for larger than standard cable mounting.

Size	10GM	14GM	20GM	24GM
Maxi cable OD(mm)	14	19	28,5	40

For more information, please consult us

Optical M Connectors

Watertight up to 100bar for optical or hybrid connectors. Based on three existing shells, 14MO, 20MO and 24MO.

For more information, please consult us

M Series | Range Extension

Product range extension

Size 28

The biggest M Series connector size.

Special layouts:
. Up to 126 contacts
. Coax and hybrid layouts
. High power. Up to 3 x 290A

For more information, please consult us

High Current and High Voltage

High current and high voltage layouts can be available upon request.

High voltage
. Up to 15 000VRMS (Dielectric Withstanding Voltage at 50 Hz)

High current
. Up to 600A with 120 mm2 contacts

For more information, please consult us

SOURIAU

TP Series

Sealed Connectors

水深 300 公尺以下使用

Esterline Connection Technologies

Presentation

The TP Series connectors meet the highest standards of safety for aquatic environment. It is currently used in many applications: vessels, civil construction, diving, heavy industry…

The TP Series feature a large range of shell styles and layouts. Derived from the widely recognized marine bronze M Series, the TP Series are the perfect trade off between high performances and cost efficiency.

Contents

Typical applications

Heavy Industry

Diving

Civil Construction

Geophysics

Water Treatment

Vessels

Features & Benefits

FIELD PROVEN

Used in Aquatic Environment

Oil and gas services: Geophysics, inspection or instrumentation
Water treatment: Pumps, valves, sewage system
Civil construction: Tunnels, dams, buildings
Underwater instrumentation: Buoys, sensors, cameras, lights

ROBUST

Designed for Harsh Environment

Temporary immersion in sea water
Prolonged immersion in freshwater and use in presence of mud, sand…
High resistance to cable pull out or transverse forces
Repairable connectors with removable inserts

PERFOR-MANCES

High Performance Levels

Waterproof down to 300 meters depth
No stress on O-rings by conical coupling
Withstanding 500 mating/unmating cycles

EASY COUPLING

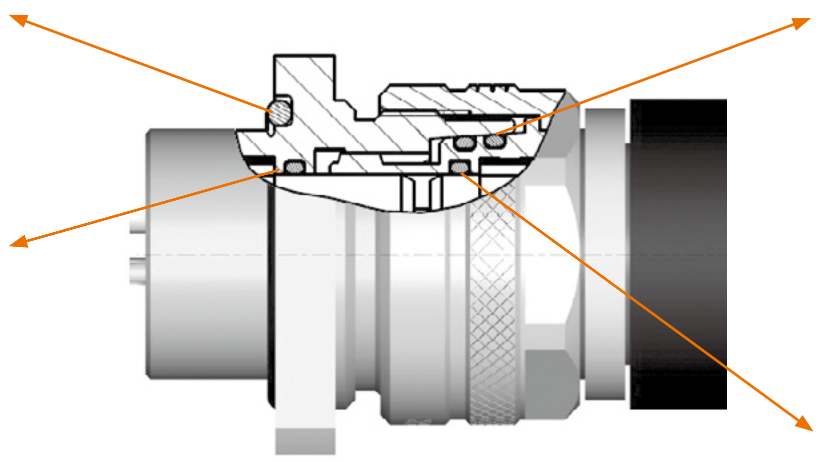
Keying and Easy Coupling

Easy coupling/uncoupling operation even with high density layout
5-key mechanical polarization
Scoop proof to prevent contact damage

Features & Benefits

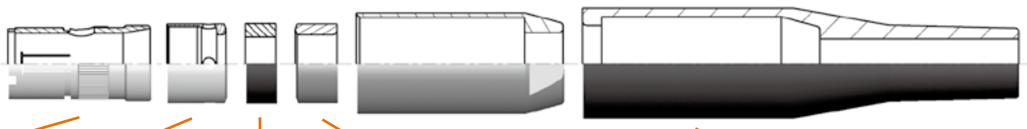
Sealed and reliable connectors

- Field proven « Harpoon » contact technology for contact to insert sealing
- O-ring for insert to shell sealing on both receptacle and plug
- Redundancy with 2 O-rings on plug taper seat
- Conical coupling interface to reduce the stress on O-rings



High performance sealing and mechanical retention

▶ **Perfect sealing on cable jacket** is achieved with the compression of a pressure gland integrated into the plug's backshell. Robust cable clamp ensures the **mechanical retention of the cable.** A removable protective boot is added on the backshell for additional sealing and cable support.



TP Series | Overview

Features & Benefits

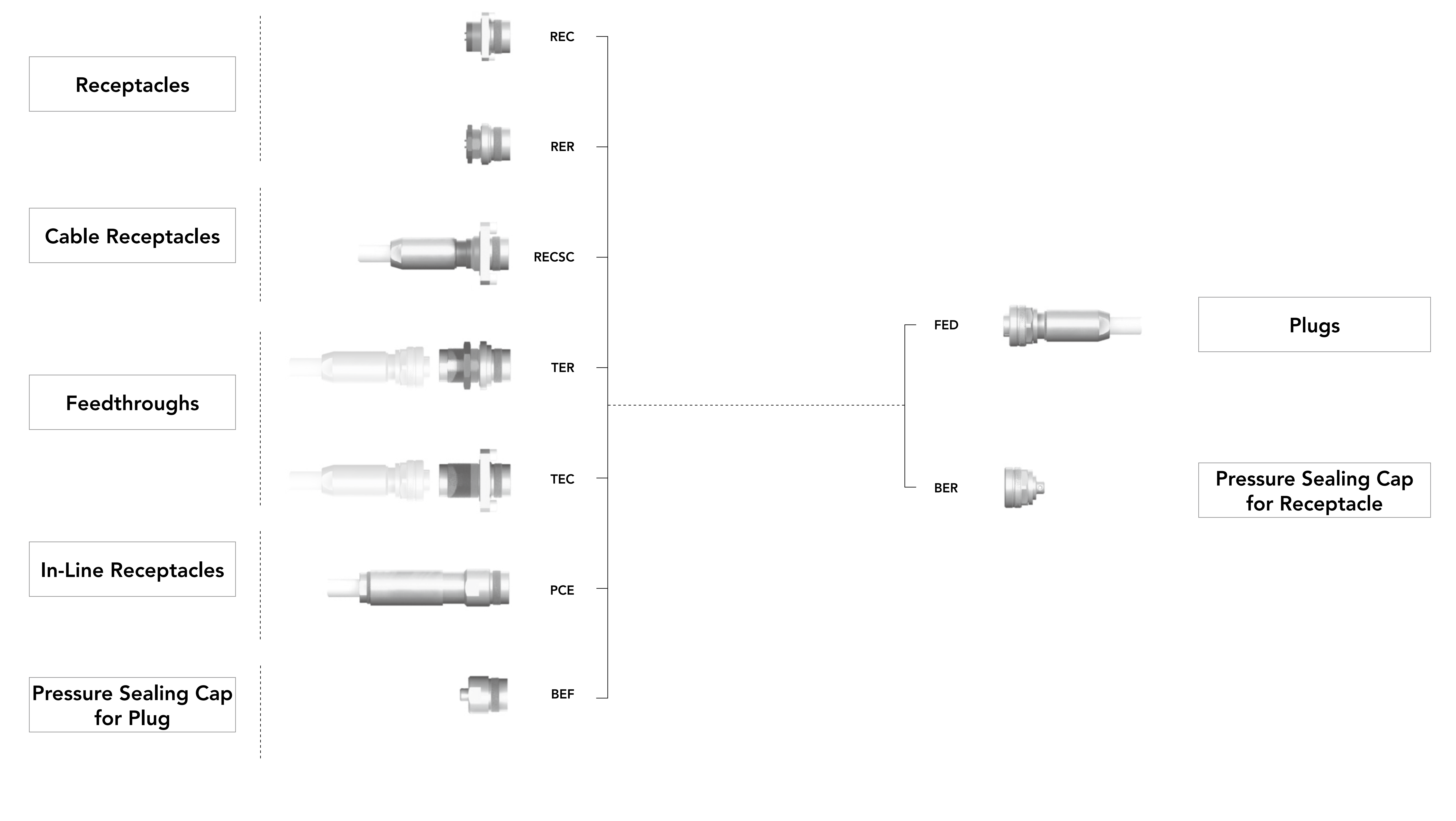
High grade materials

- Shells are made of nickel plated brass specially designed for industry requirements regarding watertight products in harsh environment. This material provides a good corrosion resistance in sea environment, a high electrical conductivity along with good mechanical properties and resistance to biological fouling.
- O-rings are made from Nitrile for excellent fluid compatibility (sea water, mineral oil…) and long durability.
- Contacts are gold over nickel plated brass.
- RoHS compliant. RoHS

Easy wiring and installation

- Scoop proof: No risk of damaging contacts during the coupling operation when using a female plug and a male receptacle.
- Removable insulators: To allow easy wiring and replacement in case of wiring mistakes or servicing.
- Easy mating: Easy coupling operation thanks to the screw coupling and locking even with a high number of contact
- Equipment protection: No coupling mistake thanks to the polarization key.

Range overview



Description

- Sealed connectors
- Screw coupling
- Sealing between plug and receptacles performed by 2 O-rings
- Sealing on cable thanks to packing washer

Technical features

Mechanical

- **Shell:**
  Nickel plated brass
- **Insulator:**
  PA6/6+MOS2 - Nylatron® (N)
  PTFE – Teflon® (T) (on request for reduced water absorption and increased pressure withstand when unmated)
- **O-rings:**
  Nitrile elastomer
- **Contacts:**
  Brass
- **Contacts:**
  Brass with gold over nickel plated
- **Packing washers and Protection boot:**
  Neoprene® Elastomer
- **Endurance:**
  500 mating/unmating operations
- **Shock:**
  Static acceleration of 120g on each axis
- **Vibration:**
  From 1 to 5 Hz: acceleration = 0.1g
  From 5 to 22 Hz: amplitude = 1mm
  From 22 to 50 Hz: acceleration = 2g
  Duration: 1 hour on each axis

Electrical

- **Voltage rating (Vrms)**

Voltage Category	SOURIAU recommended service voltage (Vrms 50 Hz)	Dielectric Withstanding Voltage (Vrms 50Hz)
Service 1	600	1500
Service 2	1000	2300

- **Insulation resistance:**
  Unmated connectors : ≥ 10^4 MΩ
  Mated connectors : ≥ $5x10^3$ MΩ on 500 Vcc
- **Shielding:**
  Connectors mated: Resistance between the receptacle plate and the plug's cable braid : ≤ 10 mΩ

- **Current rating and contact resistance:**

Shell size	Contact size	Current rating per contact (A)	Contact resistance (mΩ)
8TP 10TP 14TP 20TP	20	7	≤ 4
	16	14	≤ 3
	14	20	≤ 2.5
	12	26	≤ 2
	6	65	≤ 1
	2	115	≤ 0.6
10TP	Coaxial 50Ω	20	≤ 2.5
	Coaxial 75Ω	7	≤ 4
10TP	Triaxial 50Ω	7	≤ 4
20TP	Coaxial 50Ω		
10TP	Triaxial 75Ω	4	≤ 5
20TP	Coaxial 75Ω		
14TP	Coaxial 50Ω	40	≤ 1.5
	Triaxial 50Ω	26	≤ 2
	Triaxial 75Ω	14	≤ 3

TP Series | Product Details

Environmental

- **Operating temperature range:**
  - 20°C to + 70°C
- **Watertightness**

Mated	Unmated
30 bar	5 bar

- **Salt spray**
  - 10 x (24h + 24h) alternate salt spray according to EN60068-2-11
  - 500h continuous salt spray according to NFC93422
- **Fluids Resistance**
  - Oil, alcohol, petrol, diesel fuel, sea water
  - Various gases (natural, butane, propane, Freon)
  - Various acids (acetic, boric, citric)

Ordering information

Product builder			
N°	**Criterias**	**Choices**	**Pages**
1	Wires type and gauge	Minimum contact size	57
2	Number of contact to connect	Contacts layout	58
3	Electrical characteristics	Layout and shell size	54
4	Cable diameters	Size checking	57 、60
5	Shell dimensions	Shell type consistency	61

Recommendations

Watertightness of the TP Series connectors

Watertightness is achieved through the use of a packing-block and performance will depend on cable quality:
. Hardness (shore A hardness > 70 is recommended)
. Cylindricity and circularity
. Roughness
. Cable outer diameter tolerance (maximum tolerance of 1 mm on outer diameter is recommended)

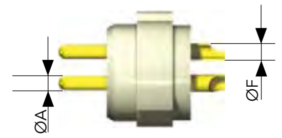
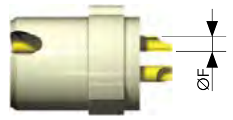
TP Series connectors part numbers

	PCE	M	14TP	N	04 16	U	095
Shell type **RER:** Jam-nut receptacle **REC:** Screws mounting receptacle **FED:** Straight plug **PCE:** In-line receptacle **RECSC:** Screws mounting cable connecting receptacle **TER:** Jam-nut feedthrough **TEC:** Screws mounting feedthrough							
Type of contacts **M:** Pin contact **F:** Socket contacts **1:** Pin/Socket (for TEC and TER feedthroughs only)							
Shell size 8TP 10TP 14TP 20TP							
Insulating material **N:** Nylatron® (PA6/6+MOS2) **T:** Teflon® (PTFE) (Available on request)							
Contact layouts See layout tables page 58-59							
Cable clamp code **U:** Possible braid or armor termination							
Maximum cable outer diameter (in tenth of mm, adjusted at upper five tenth). Example: For a 9.2mm outer diameter cable, the code is 095. **Cable code for coaxial, tri-axial,** (Please consult us) Nothing for RER, REC, TER & TEC							

Pressure sealing cap part numbers

	BER	C	10TP
Cap type **BER:** For receptacles **BEF:** For plugs			
Cord set **C:** With cord **-:** Without cord (no mention)			
Shell size 8TP 10TP 14TP 20TP			

Contacts - Size 2 to 20

Shell size	Contact size	Ø A (mm) Active contact OD	Ø F (mm) Contact Termination OD	Gauge AWG	Section (mm²)	Definition
8TP	20	1,02	0,9	26 to 22	0,14 to 0,38	Pin 
	16	1,59	1,2	24 to 20	0,21 to 0,60	
10TP 14TP 20TP	20	1,02	0,9	26 to 22	0,14 to 0,38	
	16	1,59	1,4	22 to 18	0,38 to 0,93	Socket 
	14	1,92	1,87	18 to 16	0,93 to 1,34	
	12	2,38	2,3	16 to 14	1,34 to 1,91	
	6	5	6,2	8 to 6	8,98 to 13,4	Pin 
	2	7	9	4 to 2	21,8 to 34,5	Socket 

Contacts - Coaxial, triaxial*

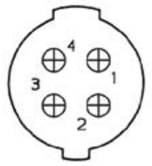
Shell size	Contact size	Ø A (mm) Front of contact	Ø F (mm) Inside the solder bucket	Removable contact	
10TP	Coaxial 50Ω	1,93	2,4	No	Pin 
	Coaxial 75Ω	1,02	1,5		
14TP	Coaxial 50Ω	3,98	3		Socket 
10TP	Triaxial 50Ω	0,9	1,2	Yes	Pin 
20TP	Coaxial 50Ω				
10TP	Triaxial 50Ω	0,7	0,8		Socket 
20TP	Coaxial 75Ω				
14TP	Triaxial 50Ω	3	2,6	No	
	Triaxial 75Ω	1,59	1,4		

* Please consult us with your cable specification

Contact layouts

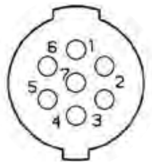
Size 8TP

0416



4#16
Service 2

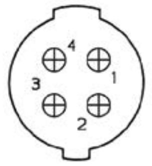
0720



7#20
Service 1

Layout caption

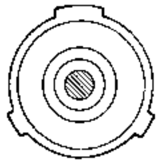
Layout ID for part numbering



Number of contacts #Size
Voltage Service Rating

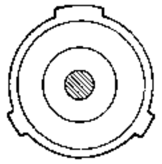
Size 10TP

TX75* TX50*



1TX#75 or 1TX#50
Service 1

1C75* 1C50*



1C#75 or1C#50
Service 1

0214

2#14
Service 2

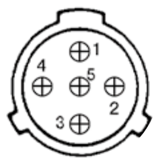
0314

3#14
Service 2

0416

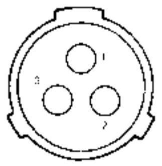
4#16
Service 2

0516



5#16
Service 1

0320



3#20
Service 2

0720

7#20
Service 1

Contact Type

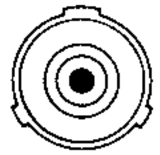
20	16	14	12	6	2	Coax.	Triax.

*Please consult us for coax and triax layouts

Contact layouts

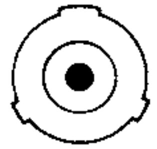
Size 14TP

TX75* TX50*



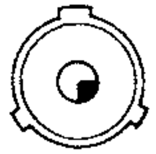
1TX#75 or 1TX#50
Service 2

1C50*



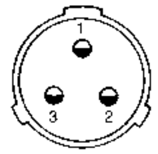
1C#50
Service 2

0106



1#06
Service 2

0312



3#12
Service 2

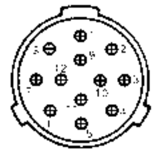
0412

4#12
Service 2

0714

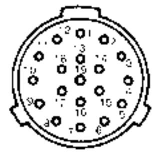
7#14
Service 2

1216



12#16
Service 2

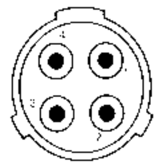
1920



19#20
Service 1

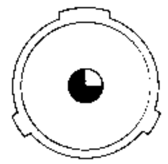
Size 20TP

4C75* 4C50*



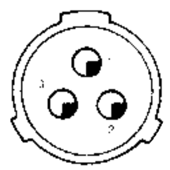
4C#50 or 4C75Ω
Service 1

0102



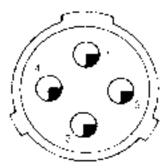
1#02
Service 2

0306



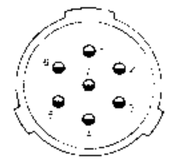
3#06
Service 2

0406



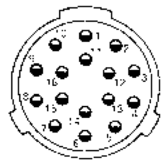
4#06
Service 2

0712



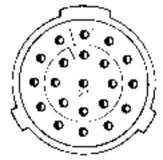
7#12
Service 2

1612



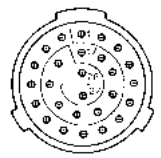
16#12
Service 2

2114



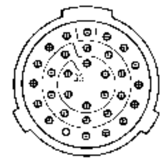
21#14
Service 1

2716



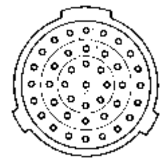
27#16
Service 1

3216



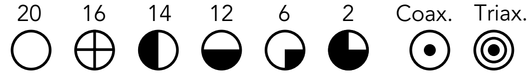
32#16
Service 1

4120



41#20
Service 1

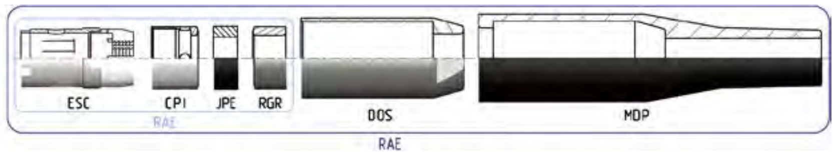
Contact Type



20	16	14	12	6	2	Coax.	Triax.

*Please consult us for coax and triax layouts

Cable clamp kits

Cable clamp code	Grounding	Size	
U	YES	8TP 10TP 14TP 20TP	

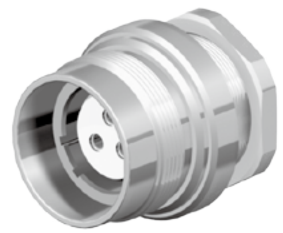
Cable code	Description	Acceptable cable outer diameter			
		8TP	10TP	14TP	20TP
U	Standard cable clamp with braid or armor termination	Ø4 to Ø6,2	Ø5 to Ø11	Ø9 to Ø16	Ø16 to Ø26

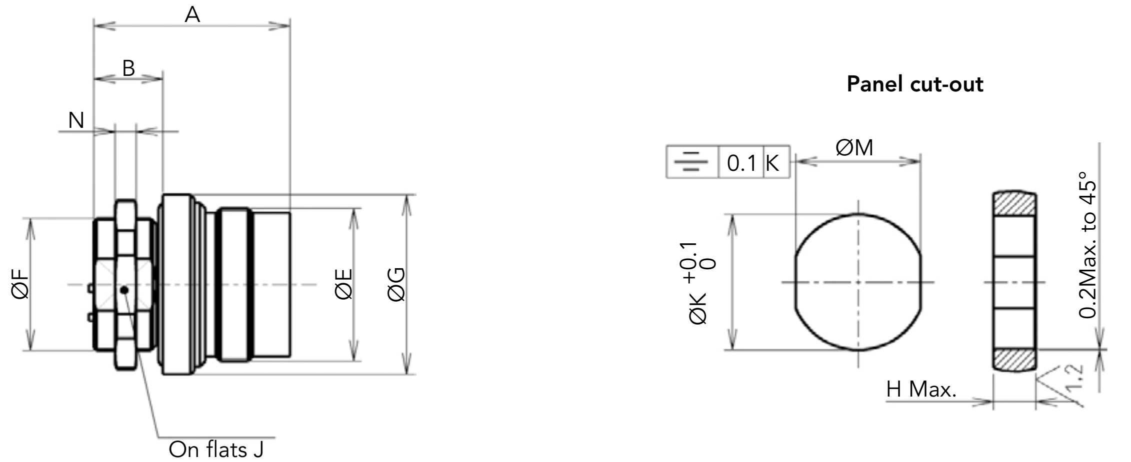
CPI	Collet clamp	RGR	Packing block
ESC	Cabling spacer	JPE	Rubber washer
DOS	Outer sleeve	MDP	Protective boot

Note: All dimensions are in millimeters (mm)

Shell dimensions

RER - Jam-nut receptacle



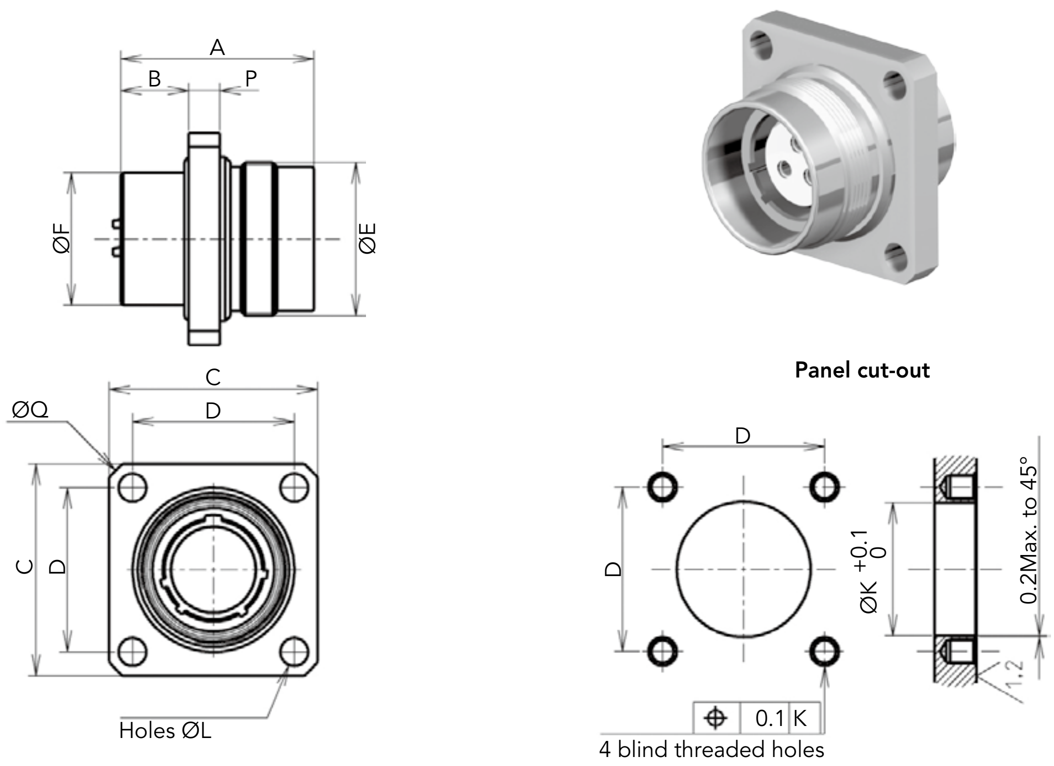


Shell size	8TP	10TP	14TP	20TP
A	23	37	37	49,5
B	8.5	14	13	17
Ø E (ISO)	M17 x 1	M21 x 1	M29 x 1	M41 x 1
Ø F (ISO)	M14 x 0.75	M18 x 0.75	M25 x 0.75	M36 x 1
Ø G	20	25	34	46
H Max.	5	10	9	12
On flats J	17	22	30	41
Ø $K^{+/-0.1}$	14.2	18.2	25.2	36.2
M	13.2	16.2	23.2	33.2
N	3	4	4	5

Note: All dimensions are in millimeters (mm)

Shell dimensions

REC - Square flange receptacle

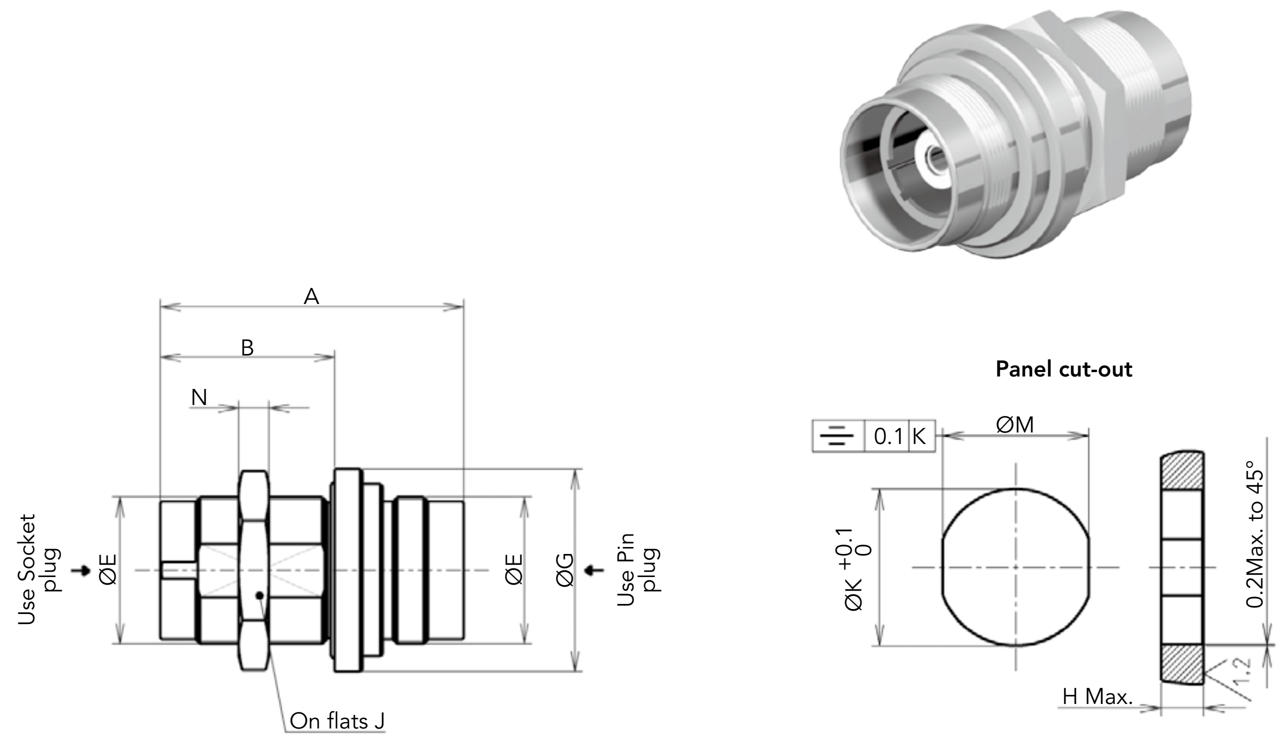


Shell size	8TP	10TP	14TP	20TP
A	23	37	37	49.5
B	4	14	13	17
C	23	32	40	52
D	17.5	24	31	42
Ø E (ISO)	M17 x 1	M21 x 1	M29 x 1	M41 x 1
Ø F	14	18	25	36
Ø $K^{+/-0.1}$	14.2	18.2	25.2	36.2
Ø L	3.2	4.3	5.3	6.3
P	3	5	6	8
Ø Q Max.	31.5	42.5	53.5	70.5
R (ISO)	M3	M4	M5	M6

Note: All dimensions are in millimeters (mm)

Shell dimensions

TER - Jam-nut feedthrough

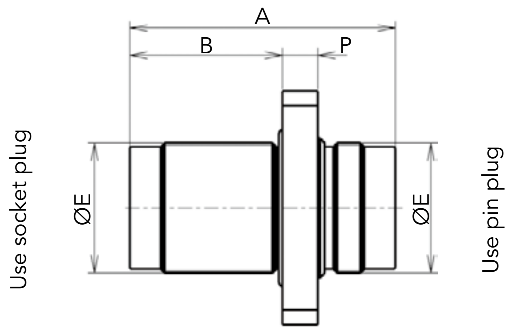


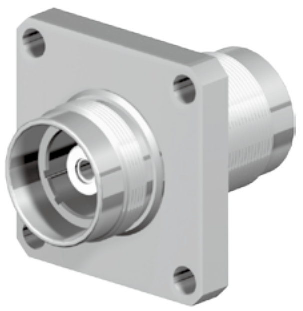
Shell size	8TP	10TP	14TP	20TP
A	50	60	60	82
B	34.5	35.5	34.5	47.5
Ø E (ISO)	M17 x 1	M21 x 1	M29 x 1	M41 x 1
Ø G	23	28	40	52
H Max.	19	16	13	22
On flats J	20	24	34	46
Ø $K^{+/-0.1}$	17.2	21.2	29.2	41.2
M	14.2	19.2	27.2	39.2
N	4	4	6	5

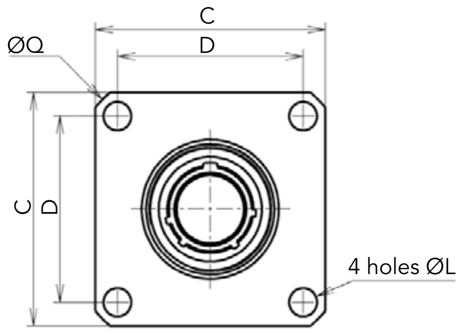
Note: All dimensions are in millimeters (mm)

Shell dimensions

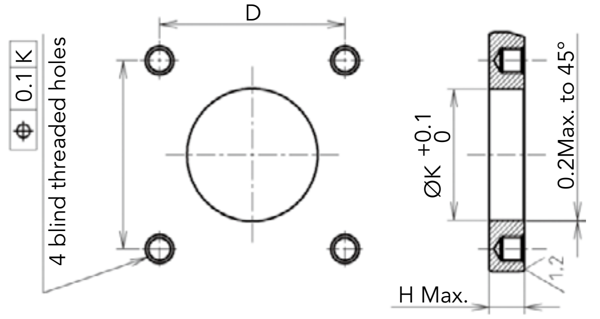
TEC - Square flange feedthrough







Panel cut-out

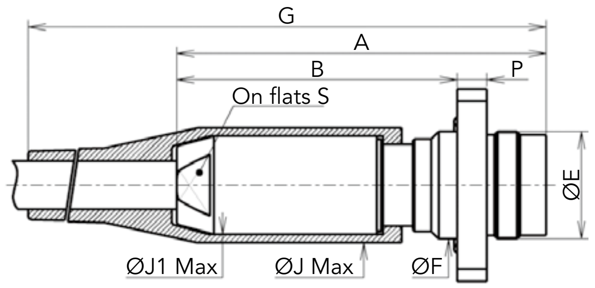


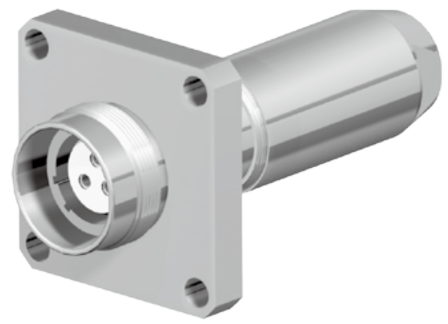
Shell size	8TP	10TP	14TP	20TP
A	50	60	60	82
B	34.5	35.5	34.5	47.5
C	32	40	52	76
D	24	31	42	60
Ø E (ISO)	M17 x 1	M21 x 1	M29 x 1	M41 x 1
H Max.	23	20	19	27
Ø $K^{+/-0.1}$	17.2	21.2	29.2	41.2
Ø L	4.3	5.3	6.3	8.5
P	4	6	8	9
Ø Q Max.	42.5	53.5	70.5	100.5
R (ISO)	M4	M5	M6	M8

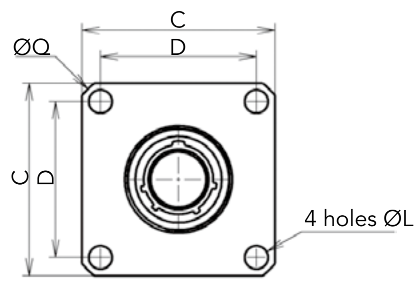
Note: All dimensions are in millimeters (mm)

Shell dimensions

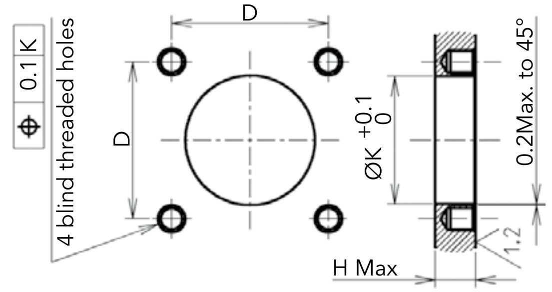
RECSC - Square flange cable connecting receptacle







Panel cut-out

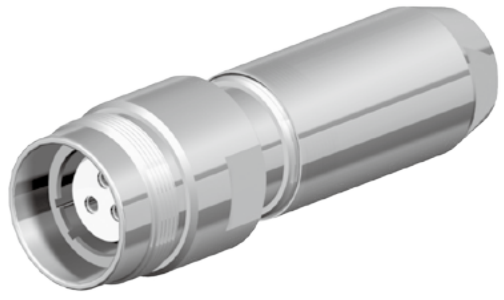


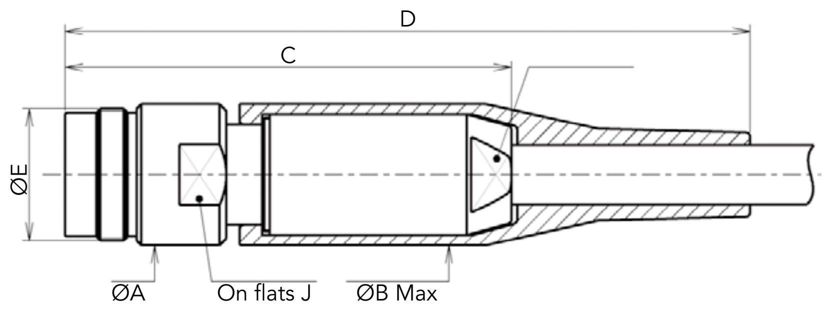
Shell size	8TP	10TP	14TP	20TP
A	57	82	100	126
B	42	58	76	96
C	32	40	52	76
D	24	31	42	60
Ø E	M17 x 1	M21 x 1	M29 x 1	M41 x 1
Ø F	18	22	29	41
G	83	119	153	198
H Max.	10	12	12	20
Ø J Max.	20	23	32	45
Ø J1 Max.	17	20	27	39
Ø $K^{+/-0.1}$	18.2	22.2	29.2	41.2
Ø L	4.3	5.3	6.3	8.5
P	4	8	8	9
Ø Q Max.	42.5	53.5	70.5	100.5
R	M4	M5	M6	M8

Note: All dimensions are in millimeters (mm)

Shell dimensions

PCE - In-line receptacle



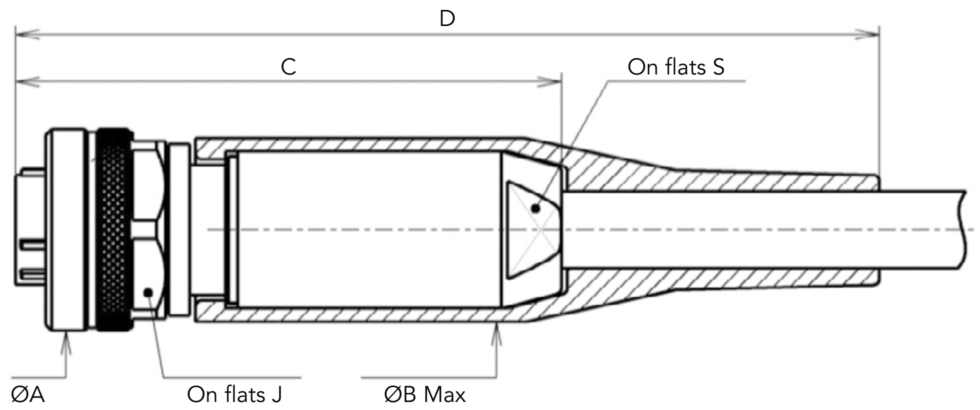


Shell size	8TP	10TP	14TP	20TP
Ø A	19	23	31	43
Ø B Max.	20	23	32	45
C	57	82	100	126
D	83	119	153	198
Ø E (ISO)	M17 x 1	M21 x 1	M29 x 1	M41 x 1
On flats J	17	20	28	38
On flats S	12	16	20	30

Note: All dimensions are in millimeters (mm)

Shell dimensions

FED - Straight plug



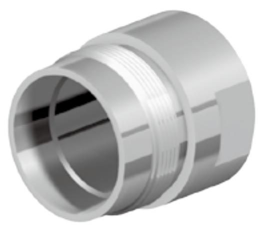
Shell size	8TP	10TP	14TP	20TP
Ø A	20	25	34	46
Ø B Max.	20	23	32	45
C	53	72	90	114
D	79	110	144	186
On flats J	17	22	30	42
On flats S	12	16	20	30

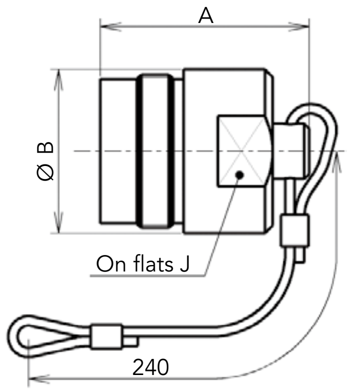
Note: All dimensions are in millimeters (mm)

Shell dimensions

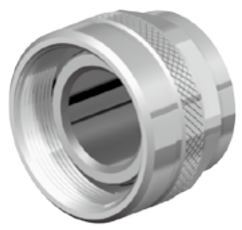
Pressure sealing caps

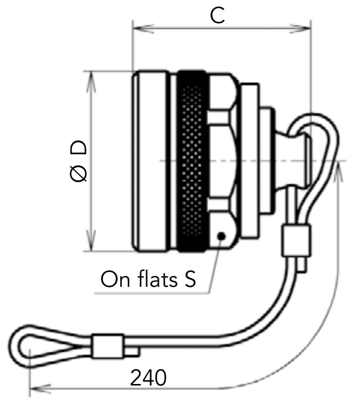
BEF - Cap for plug





BER - Cap for receptacle

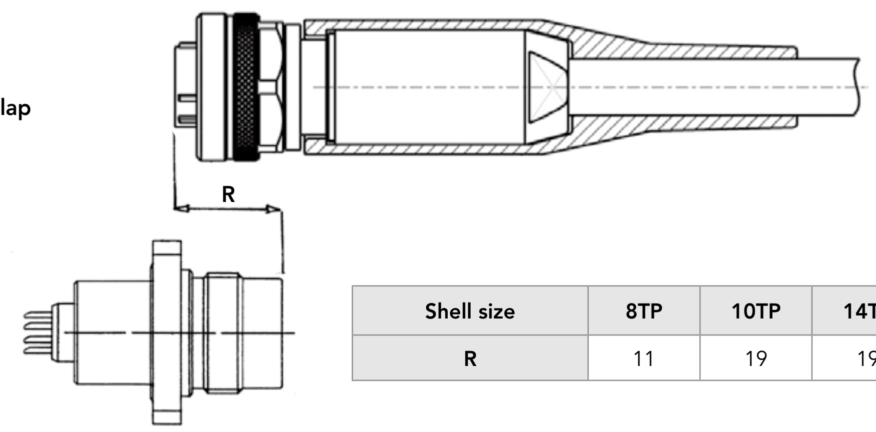




Shell size	8TP	10TP	14TP	20TP
A	30	39	40	51
Ø B	20	25	34	46
C	27	34	34	48.5
Ø D	20	25	34	46
On flats J	17	20	28	38
On flats S	17,46	22	30	42

Mated/Unmated connectors

R = Mated shells overlap



Shell size	8TP	10TP	14TP	20TP
R	11	19	19	25

Note: All dimensions are in millimeters (mm)

Insert + Contacts sub assembly part numbers

Insert + Contacts Sub Assembly	BIS	14TP	N	04 12	M
Shell type: 8TP, 10TP, 14TP, 20TP					
Insert material **N: Nylatron** (PA6/6+MOS2) **T: Teflon** (Available on request)					
Contact layouts See layout tables pages 58-59					
Type of contacts **M:** Male contacts **F:** Female contacts					

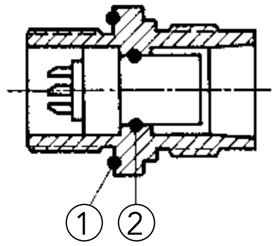
Cable clamp kit part numbers

	RAE	14TP	U	100
Kit type: See page 60 **RAE:** Full cable clamp kit **RAER:** Cable clamp kit sub assembly				
Shell size: 8TP, 10TP, 14TP, 20TP				
Cable clamp **U:** With braid or armor termination				
Maximum cable outer diameter (in tenth of mm, adjusted at upper five tenth). Example: For a 9.2mm outer diameter cable, the code is 095. **Cable code for coaxial, tri-axial** (consult us for coding)				

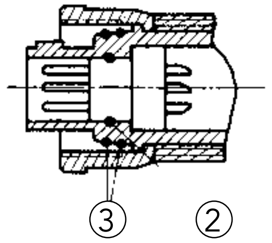
O-ring part numbers

O-ring Type	8TP	10TP	14TP	20TP
❶ Panel O-ring (for REC-RER)	09-01	10-01	14-01	20-01
❷ Insulator/Shell O-ring	09-02	10-02	14-02	20-02
❸ Taper seat O-ring	09-03	10-03	14-03	20-03
❹ Panel O-ring (for TEC-TER)	09-04	10-04	14-04	20-04
❺ Panel O-ring (for RECSC)	10-01	20-02	14-05	20-04

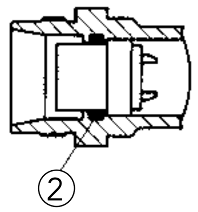
REC-RER Receptacles



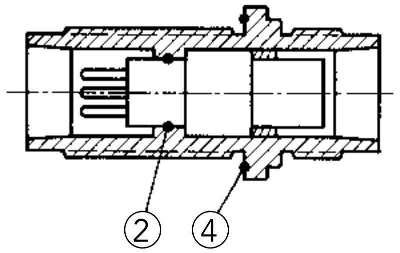
FED Plug



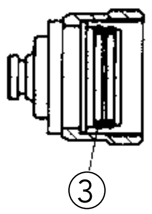
PCE Cable connecting plug



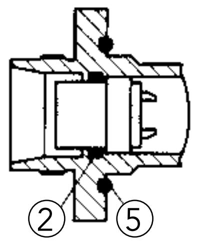
TEC-TER Bulkhead



BER Cap



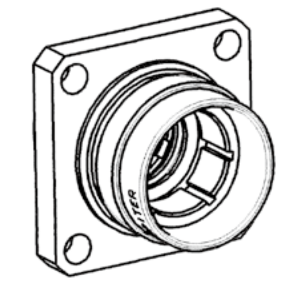
RECSC Square flange in-line receptacle



Tools

Plug wiring tools

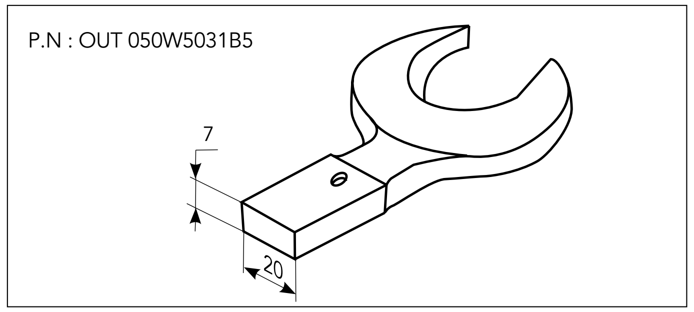
These tools are used to maintain correctly plugs during the final operation of wiring: tightening the tightening sleeve



Plug Size	Tool P/N
8TP	MA1W6010B5
10TP	MA2W6010B5
14TP	MA3W6010B5
20TP	MA4W6010B5

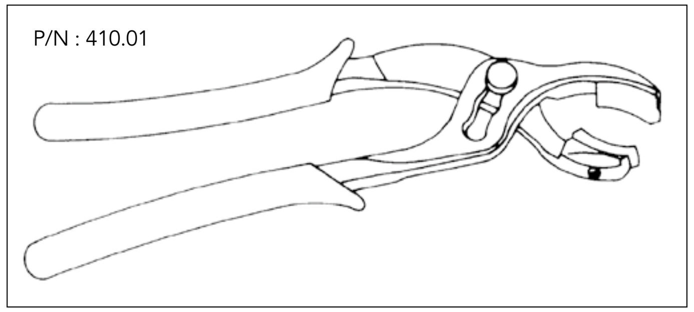
End wrenches

Used to tighten coupling ring of size 20TP with a torque wrench



Plastic jaw plier

This tool is used for holding the cable clamp while tightening the sleeve



Potting tool

Used to fill with resin cabling spacers

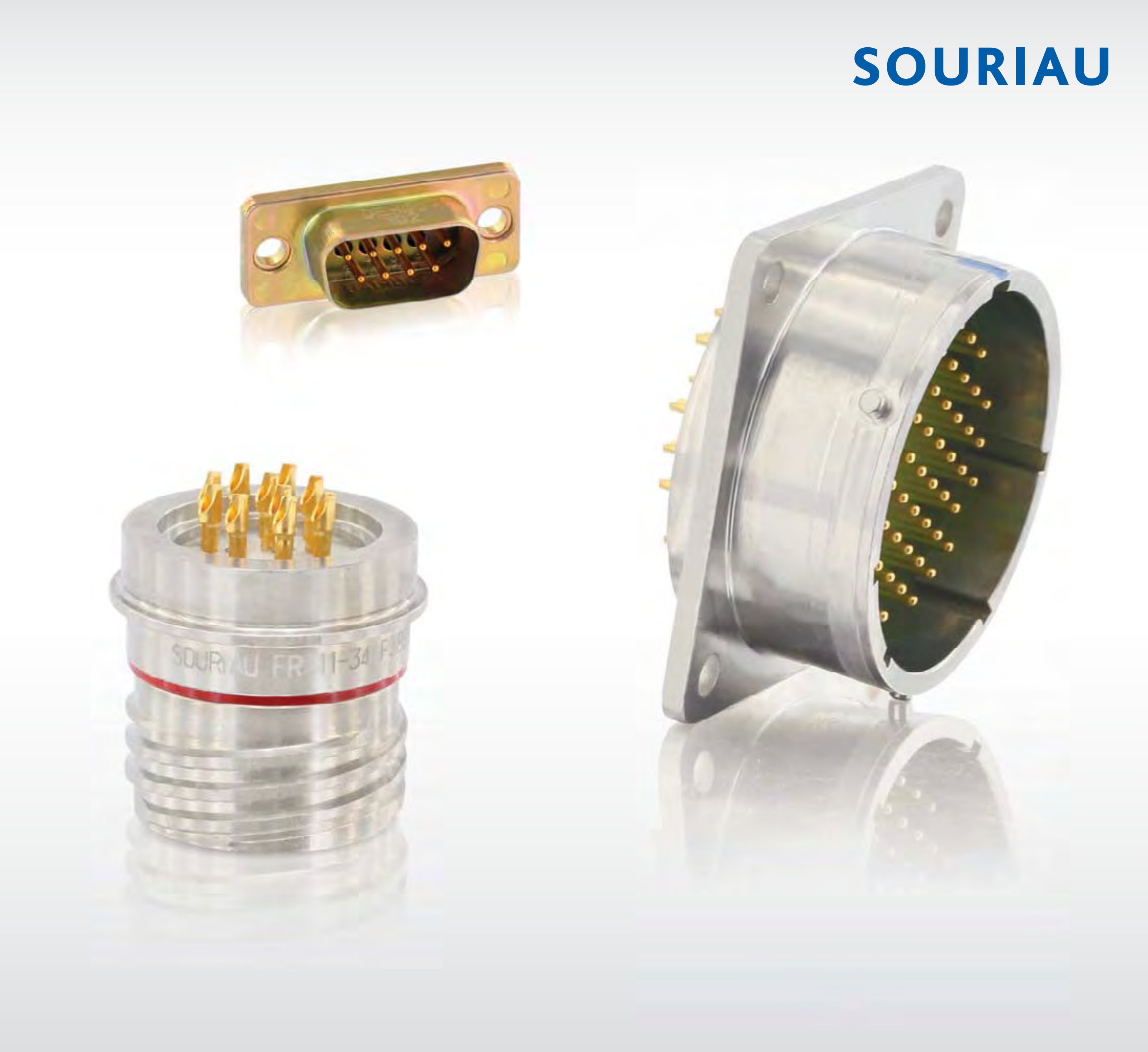
Size	Tool P/N
10TP	OUT330 10M
14TP	OUT330 14M
20TP	OUT330 20M

The wiring and installation instruction for TP Series connectors can be provided upon request.

Note: All dimensions are in millimeters (mm)

HERMETIC

SOURIAU



Hermetic Connectors

High Performance Sealing Solutions

軍規防水氣密連接器

Esterline Connection Technologies

Presentation

Based on glass to metal seal technology, **SOURIAU** offers hermetic connectors to cover applications which require performances that supersede standard watertight connectors capability, such as high pressure, high temperature variations resistance, secured hermetic protection, ...

In addition to the various connector standards on which this technology has been developed, **SOURIAU** supports customers specific needs, from a shell or contact change to more complex and innovative solutions.

This hermetic connectors catalog aims to give an extensive outlook of **SOURIAU**'s offering. After an overall view of the hermetic technology, you will find a detailed description of each connector range specifics features, as well as dimensions and ordering details. The end of the catalog will give you a flavor of some of the various specific extensions. Enjoy the reading!

Contents

Typical applications

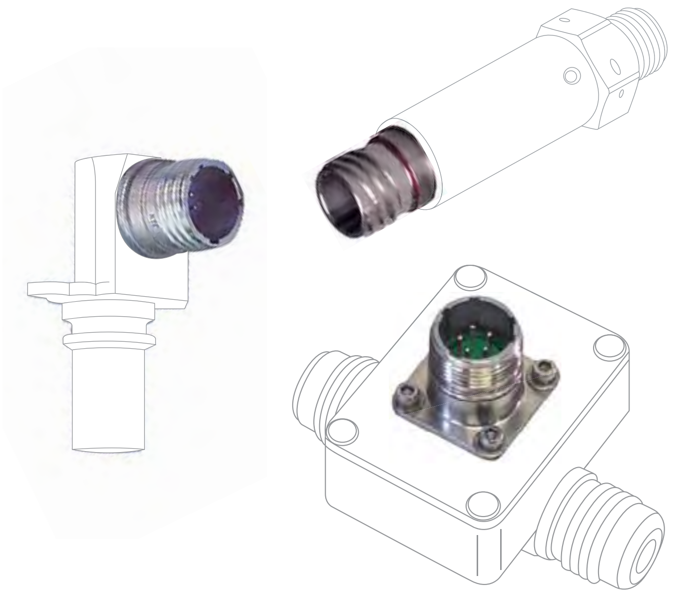
Actuators - Monitoring

Sensors

Valves - Flowmeters

Vacuum Pumps

High-Tech Cameras



Hermetic Connectors | Overview

Features & Benefits

HIGH SEALING

Hermetic connector

Leak rate less than 10^{-7}cm^3/s at 1 bar pressure difference under helium.
Less than 1 cm^3 leaks in 4 months.

SPACE SAVING

Compacity

No need of additional rear accessories.
1/3 shorter than watertight connector equivalent.
Solder mount option for full equipment integration.

LARGE OFFER

Wide range of standards

Large connectors offer available in circular as well as rectangular ranges: EN2997, MIL-C-26482 Series I & II, EN3646, MIL-C-38999, micro38999, D-Sub, ...

CUSTOM SOLUTION

Adapted to specific need

Wide range of custom solutions based on standard definition: specific shell, materials, contact length, grounding, ...

ROHS

Environment friendly

No lead content.

Hermetic Connectors | Overview

Standard glass to metal sealing technologies

Solder contacts on both sides
Compact design
See page 128

Contact grounded on the shell
Integrated grounded function
See page 129

Feedthrough
Easy MRO (Maintenance, Repair and Operations)
See page 127

Thermocouples
Accurate temperature data communication
See page 129

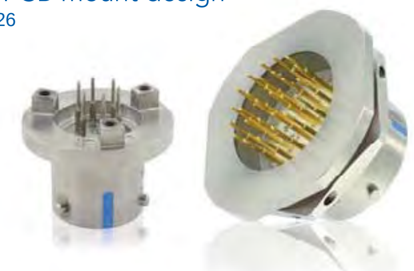
Standard hermetic
Glass to metal sealing

+ Added functions

+ Added functions

Removable crimp contacts
Ideal for fuel immersion
See page 126

PCB contacts / Stand-offs
Robust PCB mount design
See page 126



Rack & panel
Blind mating
See page 127

Titanium
30% weight saving

Hermetic range selector guide

	▶ Standard	▶ Main feature	▶ Material
▶ **851 Series** see p. 80 	MIL-C 26482 Series I	Economic	Steel housing
▶ **8525 Series** see p. 86 	EN3646	Quick and robust bayonet coupling	Passivated stainless steel housing
▶ **8526 Series** see p. 95 	MIL-C 26482 Series II	Quick and robust bayonet coupling	Tin plated steel housing
▶ **8533 Series** see p. 102 	EN2997 / ESC10	High temperature and high vibration (engine conditions)	Passivated stainless steel housing
▶ **8D Series** see p. 110 	MIL-C-38999 Series III	High density	Passivated stainless steel housing
▶ **8STA Series** see p. 119 	Derived from MIL-DTL-38999	Micro-miniature	Passivated stainless steel housing
▶ **D-Sub Series** see p. 122 	MIL-DTL-24308	Rectangular	Tin or cadmium plated steel housing

Standard glass to metal sealing technologies

Capability to Provide Custom Solutions

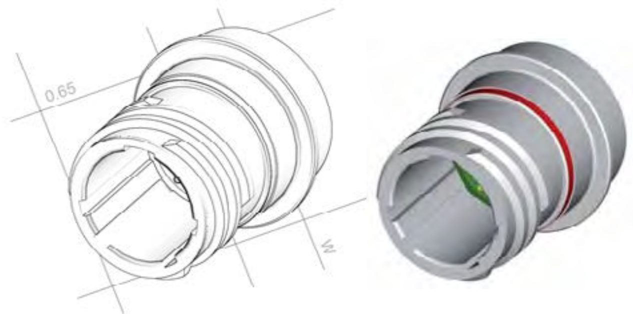
- ▶ **Tight tolerances,**
- ▶ **Specific shells,**
- ▶ **Specific contacts,**
- ▶ **Filtering, ...**

Ex: Custom EN2997

Technical Support

NEW

- ▶ **Souriau engineering team will proactively support your new designs. Contact us!**
- ▶ **Free 3D models available online: www.tracepartsonline.net**



Alternative sealing technologies

Full plastic hermetic

Big volume low weight hermetic

Resin sealed

Flexible low weight hermetic

See page 66

Description

- Bayonet coupling connector
- MIL-DTL-26482 Series I, HE301 compliant and VG95328 qualified
- Glass sealed hermetic:
  . high hermeticity performance
  . compact low profile
- Various mounting styles:
  . compact solder mount receptacle
  . easy to install square flange receptacle
  . easy to replace jam nut receptacle
- Solder cup or PC tail contacts

Technical features

Materials

- **Shell:**
  Steel
- **Plating:**
  Iridescent yellow cadmium
  Nickel
- **Contact:**
  Gold plated ferrous alloy
- **Seal:**
  Fluorocarbon elastomer

Electrical

- **Max current rating per contact:**

Contact size	20	16
Rating (A)	5	10

- **Dielectric withstanding voltage:**

Service	Standard pressure	10 mbar pressure
I	1 500 Vrms	200 Vrms
II	2 300 Vrms	300 Vrms

- **Contact resistance:**
  Size 20 ≤ 30 mΩ
  Size 16 ≤ 14 mΩ

Environmental

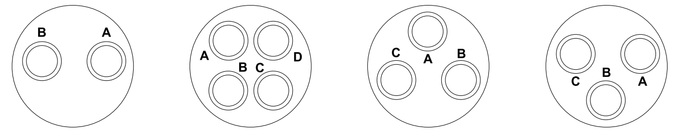
- **Operating temperature:**
  -55°C to +125°C
- **Hermeticity:**
  Leak rate < 1.10^{-7} atm.cm^3/s
  (helium gas test)
- **Salt spray:**
  48 hours min

Contact layouts

Contact #20 (Ø1)
Contact #16 (Ø1.6)

08

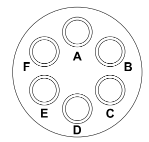
2 | 4 | 33 | 3A



2 #20 Service I | 4 #20 Service I | 3 #20 Service I | 3 #20 Service I

10

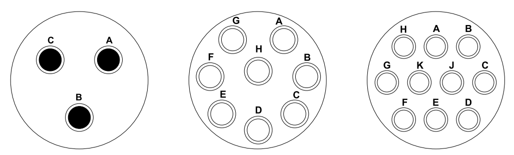
6



6 #20 Service I

12

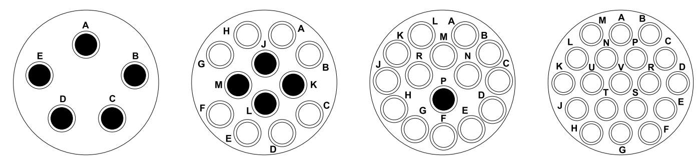
3 | 8 | 10



3 #16 Service II | 8 #20 Service I | 10 #20 Service I

14

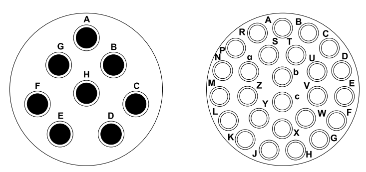
5 | 12 | 15 | 19



5 #16 Service II | 8 #20, 4 #16 Service I | 14 #20, 1 #16 Service I | 19 #20 Service I

16

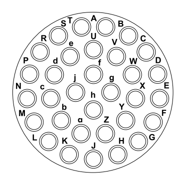
8 | 26



8 #16 Service II | 26 #20 Service I

18

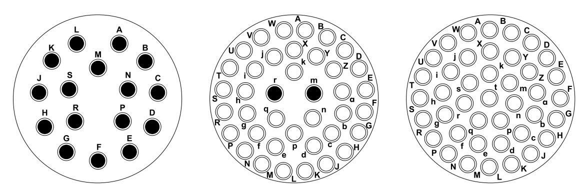
32



32 #20 Service I

20

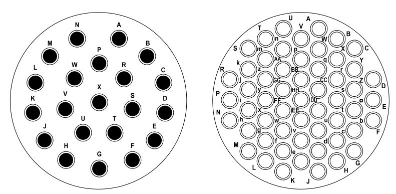
16 | 39 | 41



16 #16 Service II | 37 #20, 2 #16 Service I | 41 #20 Service I

22

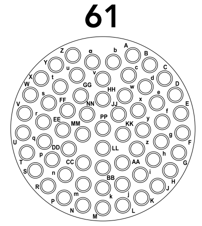
21 | 55



21 #16 Service II | 55 #20 Service I

24

61



61 #20 Service I

Ordering information

SOURIAU part numbers

Basic series	851	02H	18	32	P		50
Shell type: **IH:** Solder mount receptacle **02H:** Square flange receptacle **07H:** Jam nut receptacle		02H					
Shell size: **08, 10, 12, 14, 16, 18, 20, 22, 24**			18				
Contact layout: See previous page				32			
Contact type: **P:** Pin					P		
Orientation: **None:** Normal (N) **W, X, Y, Z** - see page 85							
Mandatory suffix: **50:** Gold plating for contact size 20 and size 16							50
Specification: **None:** Yellow cadmium plating - 02H and 07H only Nickel plated - IH only **44:** Nickel plated - 02H and 07H only							

VG95328 qualified products

Basic series	VG95328	F	18	32	P	N
Shell type: **G:** Solder mount receptacle **P:** Square flange receptacle **F:** Jam nut receptacle		F				
Shell size: **08, 10, 12, 14, 16, 18, 20, 22, 24**			18			
Contact layout: See previous page				32		
Contact type: **P:** Pin					P	
Orientation: **N, W, X, Y, Z** - see page 85						N

Contact layouts (matrix)

Shell size	Layout	Hermetic			Number of contacts	
		851	MIL-DTL-26482G	VG95328	#20	#16
08	8-2	OK	OK		2	
	8-3	Available on request, please consult us			3	
	8-3A	OK		Q	3	
	8-98		OK		3	
	8-33	OK	OK		3	
	8-4	OK	OK		4	
10	10-6	OK	OK	Q	6	
	10-7	Available on request, please consult us			7	
	10-98	Available on request, please consult us			6	
12	12-2	Available on request, please consult us				2
	12-3	OK	OK	Q		3
	12-8	OK	OK		8	
	12-10	OK	OK	Q	10	
	12-14	Available on request, please consult us			14	
14	14-5	OK	OK	Q		5
	14-12	OK	OK	Q	8	4
	14-15	OK	OK	Q	14	1
	14-18	Available on request, please consult us			18	
	14-19	OK	OK	Q	19	

Shell size	Layout	Hermetic			Number of contacts	
		851	MIL-DTL-26482G	VG95328	#20	#16
16	16-8	OK	OK	Q		8
	16-23	Available on request, please consult us			22	1
	16-26	OK	OK	Q	26	
18	18-11	Available on request, please consult us				11
	18-32	OK	OK	Q	32	
	18-30	Available on request, please consult us			29	1
20	20-16	OK	OK	Q		16
	20-24	Available on request, please consult us			24	
	20-25	Available on request, please consult us			25	
	20-27	Available on request, please consult us			27	
	20-39	OK	OK	Q	37	2
	20-41	OK	OK	Q	41	
22	22-21	OK	OK	Q		21
	22-32	Available on request, please consult us			32	
	22-34	Available on request, please consult us			34	
	22-36	Available on request, please consult us			36	
	22-55	OK	OK	Q	55	
24	24-61	OK	OK	Q	61	

OK = SOURIAU's layout
Q = SOURIAU's qualified layout

Cross reference list

SOURIAU	NFC 93422 HE 301B	MIL-DTL-26482G Series I Not QPL
851 02H • • ◦ ◦ P □ 50	HE 301 B 02 H • • ◦ ◦ P □ 3A	-
851 07H • • ◦ ◦ P □ 50	HE 301 B 07 H • • ◦ ◦ P □ 3A	MS 3114 H • • C ◦ ◦ P □
851 IH • • ◦ ◦ P □ 50	HE 301 B 1 H • • ◦ ◦ P □ 3A	MS 3113 H • • C ◦ ◦ P □

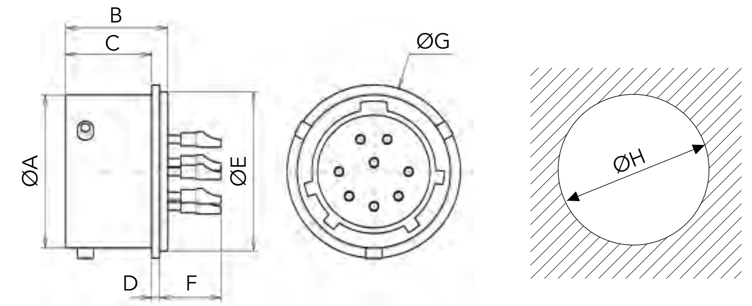
• • Shell size
◦ ◦ Layout
□ Orientation. Empty if orientation N - only for «Souriau», «NFC93422» and «MIL-DTL-26482G Series I»

Maximum connector weights (in grams)

Shell type \ Shell size	8	10	12	14	16	18	20	22	24
Solder mount receptacle (type IH)	7	9	13	17	21	26	32	37	43
Square flange receptacle (type 02H)	10	12	16	21	26	33	41	47	55
Jam nut receptacle (type 07H)	20	25	38	45	52	63	86	96	115

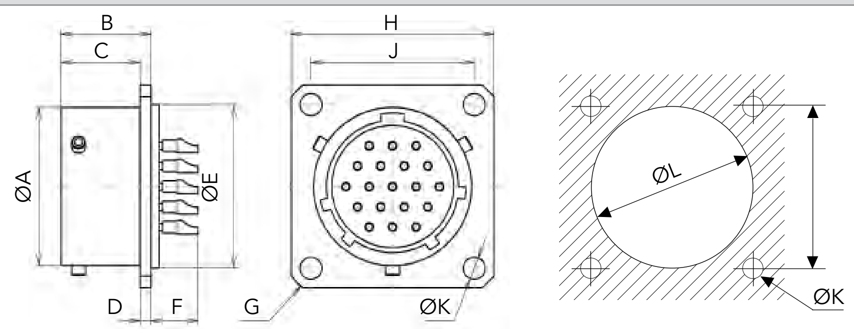
Dimensions

Solder mount receptacle (type IH)



Shell size	A max	B ±0.2	C ±0.2	D ±0.14	E $^{+0.02}_{-0.13}$	F max	G max	H ±0.1
8	12.03	13.84	10.70	0.80	14.27	8.60	16.40	14.70
10	15.01	13.84	10.70	0.80	17.07	8.60	19.40	17.50
12	19.07	13.84	10.70	0.80	19.84	8.60	21.80	20.20
14	22.25	13.84	10.70	0.80	23.01	8.60	25.00	23.40
16	25.42	13.84	10.70	0.80	26.19	8.60	28.10	26.60
18	28.60	13.84	10.70	0.80	29.36	8.60	31.30	29.80
20	31.77	15.42	12.70	0.80	31.75	8.60	33.70	32.10
22	34.95	16.23	12.70	0.80	34.92	8.60	36.90	35.30
24	38.12	17.04	13.10	0.80	38.10	7.80	40.10	38.40

Square flange receptacle (type 02H)

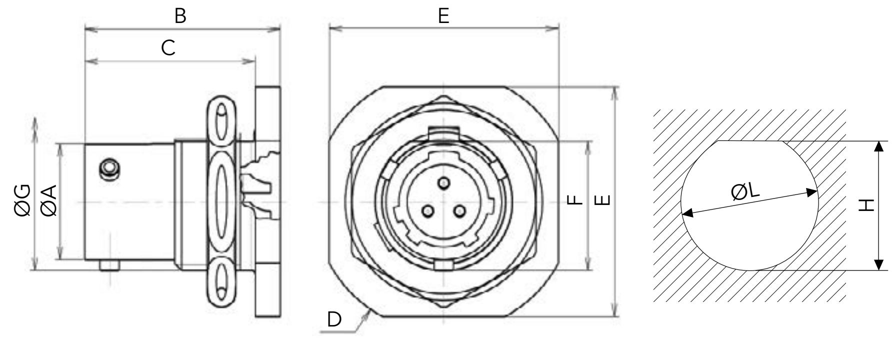


Shell size	A max	B ±0.2	C ±0.2	D ±0.14	E $^{\pm0.02}_{-0.13}$	F max	G max	H max	J	K ±0.1	L min
8	12.03	13.84	11.24	1.55	14.27	7.5	27.09	21.03	15.09	3.15	15.55
10	15.01	13.84	11.24	1.55	17.07	7.5	31.87	24.23	18.26	3.15	18.80
12	19.07	13.84	11.24	1.55	19.84	7.5	35.04	26.59	20.62	3.15	22.15
14	22.25	13.84	11.24	1.55	23.01	7.5	38.22	28.98	23.00	3.15	25.30
16	25.42	13.84	11.24	1.55	26.19	7.5	41.39	31.34	24.61	3.15	28.45
18	28.60	13.84	11.24	1.55	29.36	7.5	44.57	33.73	26.97	3.15	31.65
20	31.77	15.42	12.00	2.36	31.75	7.5	47.74	36.91	29.36	3.15	34.80
22	34.95	16.23	12.00	2.36	34.92	7.5	50.92	40.10	31.75	3.15	38.00
24	38.12	17.04	12.81	2.36	38.10	6.7	55.69	43.27	34.92	3.82	41.20

Note: All dimensions are in millimeters (mm)

Dimensions

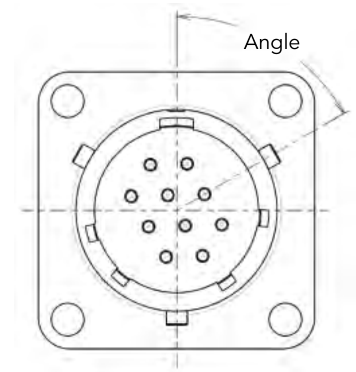
Jam nut receptacle (type 07H)



Shell size	A max	B max	C ±0.25	D max	E max	F ±0.1	G max	H ±0.1	L ±0.1
8	12.03	20.60	17.93	27.37	24.07	13.33	14.26	13.75	14.60
10	15.01	20.60	17.93	30.57	27.22	16.51	17.43	16.95	17.75
12	19.07	20.60	17.93	35.32	32.00	20.63	22.19	21.50	22.50
14	22.25	20.60	17.93	38.50	35.17	23.78	25.36	24.20	25.70
16	25.42	20.60	17.93	41.67	38.35	26.93	28.54	27.35	28.85
18	28.60	20.60	17.93	44.85	41.52	30.10	31.71	30.55	32.05
20	31.77	26.15	22.70	49.62	46.27	33.28	34.89	33.70	35.20
22	34.95	26.15	22.70	52.77	49.47	36.45	38.06	36.90	38.40
24	38.12	26.98	23.54	55.97	52.62	39.63	41.24	40.05	41.55

Orientation

Polarization code



Viewed from receptacle front face.
Insulator rotated inside metal body.

Shell size	Layout	Angle in degrees			
		W	X	Y	Z
8	2	58	122	-	-
	4	45	-	-	-
	33	90	-	-	-
	3A	60	210	-	-
10	6	90	-	-	-
12	3	-	-	180	-
	8	90	112	203	292
	10	60	155	270	295
14	5	40	92	184	273
	12	43	90	-	-
	15	17	110	155	234
	19	30	165	315	-

Shell size	Layout	Angle in degrees			
		W	X	Y	Z
16	8	54	152	180	331
	26	60	-	275	338
18	32	85	138	222	265
20	16	238	318	333	347
	41	45	126	225	-
22	21	16	135	175	349
	55	30	142	226	314
24	61	90	180	270	324

Note: All dimensions are in millimeters (mm)

Description

- Bayonet coupling connector
- EN3646 standard qualified
- Glass sealed hermetic:
  . high hermeticity performance
  . compact low profile
- Various mounting styles:
  . compact solder mount receptacle
  . easy to install square flange receptacle
  . easy to replace jam nut receptacle
- Solder cup or PC tail contacts
- Specific fuel tank version for long term fuel immersion

Technical features

Mechanical

- **Shell:**
  Passivated stainless steel
- **Seals:**
  Silicone elastomer
- **Contact:**
  Gold plated ferrous alloy
- **Endurance:**
  500 mating/unmating operations

Electrical

- **Max current rating per contact:**

Contact size	20	16	12
Rating (A)	5	10	17

- **Dielectric withstanding voltage:**

Service	Sea level	21 000 m
I	1 500 Vrms	375 Vrms
II	2 300 Vrms	500 Vrms

- **Shell continuity:**
  ≤ 50 mΩ
- **Contact resistance at rated current:**
  Maximum initial contact resistance at ambient temperature

Contact size	20	16	12
Resistance mΩ	12	8	5

Environmental

- **Operating temperature:**
  -55°C to 200°C
- **Hermeticity:**
  Leak rate < 1.10^{-7} atm.cm^3/s
  (helium gas test)
- **Salt spray:**
  48 hours min. as per EN3646

Contact layouts

Contact #20
Contact #16
Contact #12

8

B3A	B33
3#20 Service I	3#20 Service I

10

B06
6#20 Service I

12

B03	B08	B10
3#16 Service II	8#20 Service I	10#20 Service I

14

B04	B05	B12	B15	B19
4#12 Service I	5#16 Service II	8#20 4#16 Service I	14#20 1#16 Service I	19#20 Service I

16

B08	B21	B23	B26
8#16 Service II	16#20 5#16 Service I	22#20 1#16 Service I	26#20 Service I

18

B08	B11	B32
8#12 Service I	11#16 Service I	32#20 Service I

20

B16	B34	B39	B41
16#16 Service II	26#20 8#16 Service I	37#20 2#16 Service I	41#20 Service I

22

B12	B21	B41	B55
12#12 Service I	21#16 Service II	27#20 14#16 Service I	55#20 Service I

24

B19	B31	B61
19#12 Service II	31#16 Service I	61#20 Service I

Contact layouts (matrix)

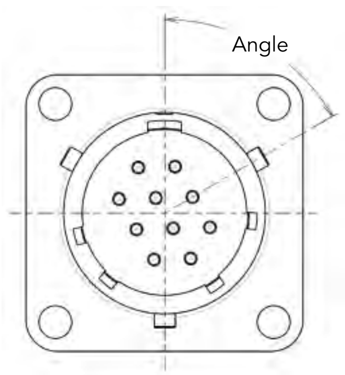
Shell size	Layout	Hermetic 8525	Hermetic EN3646	8525 spec. 002	8525 spec. 022	8525 spec. A76	Number of contacts #20	#16	#12
08	8B3A	OK	Q	OK	OK		3		
	8B33	OK	Q	OK			3		
10	10B6	OK	Q	OK			6		
12	12B3	OK	Q	OK				3	
	12B8	Available on request, please consult us					8		
	12B10	OK	Q	OK	OK	OK	10		
14	14B4	OK	Q	OK	OK				4
	14B5	OK	Q	OK				5	
	14B12	OK	Q	OK			8	4	
	14B15	OK	Q	OK			14	1	
	14B19	OK	Q	OK	OK	OK	19		
16	16B8	OK	Q	OK				8	
	16B21	OK	Q	OK			16	5	
	16B23	Available on request, please consult us					22	1	
	16B26	OK	Q	OK	OK		26		
18	18B8	OK	Q	OK					8
	18B11	Available on request, please consult us						11	
	18B32	OK	Q	OK			32		

Shell size	Layout	Hermetic 8525	Hermetic EN3646	8525 spec. 002	8525 spec. 022	8525 spec. A76	Number of contacts #20	#16	#12
20	20B16	OK	Q	OK				16	
	20B34	Available on request, please consult us					26	8	
	20B39	OK		OK			37	2	
	20B41	OK	Q	OK	OK	OK	41		
22	22B12	Available on request, please consult us							12
	22B21	OK	Q	OK				21	
	22B41	OK	Q	OK			27	14	
	22B55	OK	Q	OK	OK		55		
24	24B19	Available on request, please consult us							19
	24B31	Available on request, please consult us						31	
	24B61	OK	Q	OK			61		

OK = SOURIAU's layout
Q = SOURIAU's qualified layout

Orientation

Polarization code



Viewed from receptacle front face.
Insulator rotated inside metal body.

Shell size	Layout	N	W	X	Y	Z
08	B3A	0	60	210	-	-
	B33	0	90	-	-	-
10	B6	0	90	-	-	-
12	B3	0	140	220	180	-
	B10	0	60	155	270	295
14	B4	0	45	-	-	-
	B5	0	40	92	184	273
	B12	0	43	90	-	-
	B15	0	17	110	155	234
	B19	0	30	165	315	-

Shell size	Layout	N	W	X	Y	Z
16	B8	0	54	152	180	331
	B21	0	-	-	-	-
	B26	0	60	-	275	338
18	B8	0	180	-	-	-
	B32	0	85	138	222	265
20	B16	0	238	318	333	347
	B39	0	63	144	252	333
	B41	0	45	126	225	-
22	B21	0	16	135	175	349
	B41	0	39	135	264	-
	B55	0	30	142	226	314
24	B61	0	90	180	270	324

Ordering information

SOURIAU part numbers

Basic series	8525	IH	18B32	P	N	H

Shell type:
- **IH:** Solder mount receptacle
- **02H:** Square flange receptacle
- **07H:** Jam nut receptacle

Contact layout:
See page 87

Contact type:
- **P:** Pin

Orientation:
- **N, W, X, Y, Z** - see page 88

Mandatory suffix:
- **H:** Hermetic

Specification (see previous page for available layouts)**:**
- **None:** Standard hermetic version
- **002:** Large flange - 02H version only
- **005:** Short PC tail contacts - see page 94
- **022:** Fuel tank version
- **275:** Long PC tail contacts - see page 94
- **A73:** Tin plating on contacts rear side and gold plating on contacts front side
- **A76:** Fuel tank version with crimp contacts - Jam nut only

EN3646 qualified products

Basic series	EN3646	Y	0	08	03	M	N

Mandatory suffix:
- **Y:** Hermetic

Shell type:
- **0:** Square flange receptacle
- **1:** Solder mount receptacle
- **7:** Jam nut receptacle

Shell size:
- **08, 10, 12, 14, 16, 18, 20, 22, 24**

Contact layout:
See page 87

Contact type:
- **M:** Pin

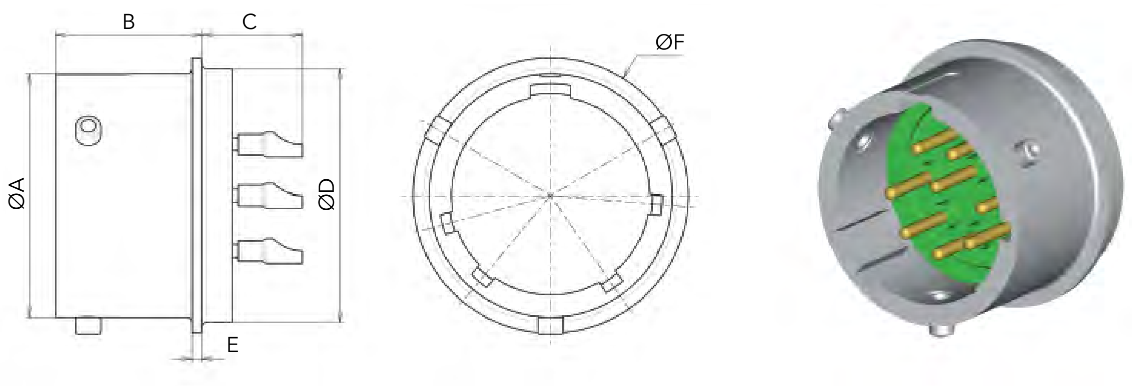
Orientation:
- **N, W, X, Y, Z** - see page 22

Maximum connector weights (in grams)

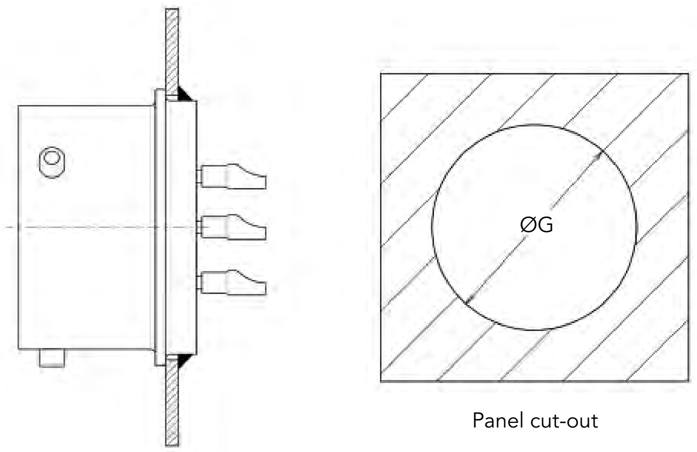
Shell type \ Shell size	8	10	12	14	16	18	20	22	24
Solder mount receptacle (type IH)	7	9	13	17	21	26	32	37	43
Square flange receptacle (type 02H)	10	12	16	21	26	33	41	47	55
Large square flange receptacle (type 02H spec. 002)	16	18	24	29	34	40	56	60	70
Jam nut receptacle (type 07H)	20	25	38	45	52	63	86	96	115

Dimensions

Solder mount receptacle (type IH)



Shell size	A max	B $^{\pm 0.5}$	C max	D $^{+0.02}_{-0.13}$	E $^{\pm 0.14}$	F max	G $^{+0,25}_{0}$
8	12.02	11.5	10	14.27	0.8	16.1	14.79
10	14.99	11.5	10	17.07	0.8	19.3	17.59
12	19.05	11.5	10	19.84	0.8	21.7	20.36
14	22.23	11.5	10	23.01	0.8	24.9	23.53
16	25.4	11.5	10	26.19	0.8	28.1	26.71
18	28.58	11.5	10	29.36	0.8	31.2	29.88
20	31.75	13.5	10	31.75	0.8	33.8	32.27
22	34.93	13.5	11	34.92	0.8	36.8	35.42
24	38.1	13.9	11	38.1	0.8	40	38.60

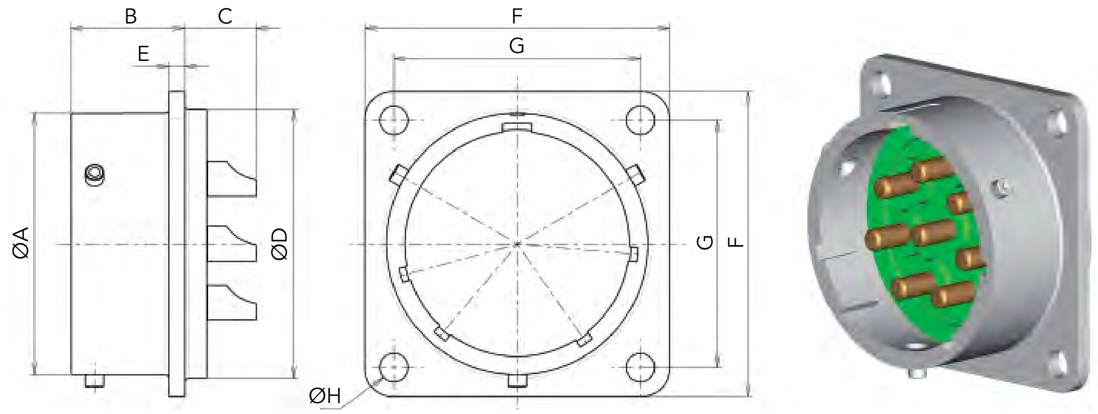


Panel cut-out

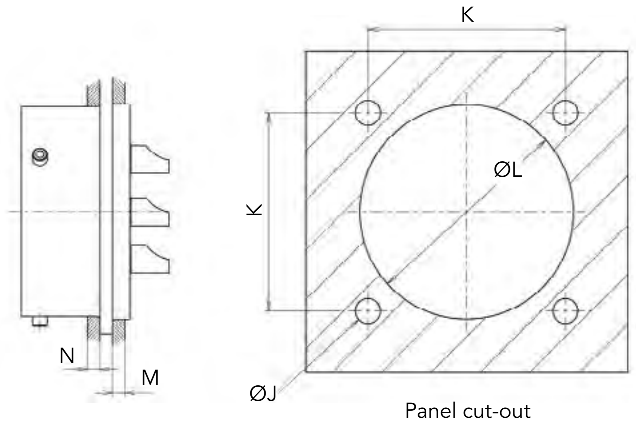
Note: All dimensions are in millimeters (mm)

Dimensions

Square flange receptacle (type 02H)



Shell size	A max	B $^{\pm 0.55}$	C max	D $^{+0}_{-0.3}$	E	F max	G	H $^{\pm 0.15}$	J $^{\pm 0.15}$	K	L $^{+0}_{-0.3}$	M	N max
8	12.02	12.65	8.4	14.3	$1.63^{\pm 0.28}$	21.03	15.1	3.15	3.15	15.1	14.79	3.5	2.3
10	14.99	12.65	8.4	17.1	$1.63^{\pm 0.28}$	24.23	18.26	3.15	3.15	18.26	17.59	3.5	2.3
12	19.05	12.65	8.4	19.9	$1.63^{\pm 0.28}$	26.59	20.62	3.15	3.15	20.62	20.36	3.5	2.3
14	22.23	12.65	8.4	23.05	$1.63^{\pm 0.28}$	28.98	23.01	3.15	3.15	23.01	23.53	3.5	2.3
16	25.4	12.65	8.4	26.25	$1.63^{\pm 0.28}$	31.34	24.61	3.15	3.15	24.61	26.71	3.5	2.3
18	28.58	12.65	8.4	29.4	$1.63^{\pm 0.28}$	33.73	26.97	3.15	3.15	26.97	29.88	3.5	2.3
20	31.75	14.25	9.6	31.8	$1.93^{\pm 0.58}$	36.91	29.36	3.15	3.15	29.36	32.27	3.5	5.4
22	34.93	14.25	9.6	35	$1.93^{\pm 0.58}$	40.1	31.75	3.15	3.15	31.75	35.42	3.5	5.4
24	38.1	15.05	9.6	38.2	$1.93^{\pm 0.58}$	43.27	34.92	3.73	3.73	34.92	38.60	3.5	5.4

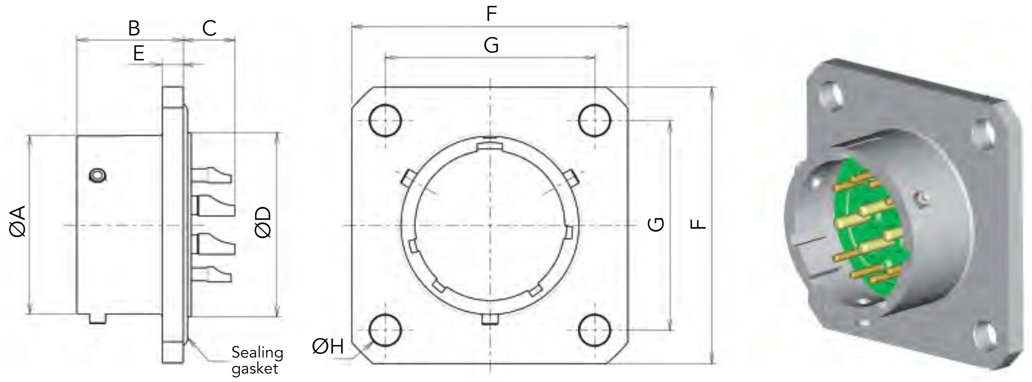


Panel cut-out

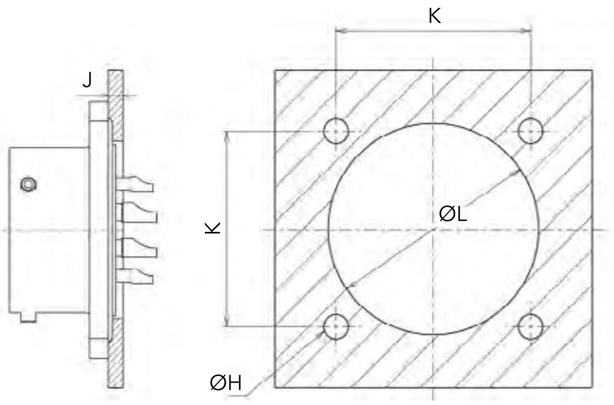
Note: All dimensions are in millimeters (mm)

Dimensions

Large square flange receptacle (type 02H spec. 002)



Shell size	A max	B max	C		D max	E max	F max	G	H	J	K	L $^{+0}_{-0.3}$
			#20	#12/#16								
8	12.02	13.14	6.8	-	14.27	2.6	26.4	18.1	3.8	3.5	18.1	14.79
10	14.99	13.14	6.8	-	17.06	2.6	28.9	20.62	3.8	3.5	20.62	17.59
12	19.05	13.14	6.8	7.1	19.83	2.6	32.1	23.82	3.8	3.5	23.82	20.36
14	22.23	13.14	6.8	7.1	23.01	2.6	34.5	26.18	3.8	3.5	26.18	23.53
16	25.4	13.14	6.8	7.1	26.18	2.6	36.8	28.57	3.8	3.5	28.57	26.71
18	28.58	13.14	6.8	7.1	29.36	2.6	38.8	30.55	3.8	3.5	30.55	29.88
20	31.75	15.84	6	6.3	31.74	3.4	42.8	32.94	3.8	3.5	32.94	32.27
22	34.93	15.84	6	6.3	34.92	3.4	44.8	34.92	3.8	3.5	34.92	35.42
24	38.1	16.64	5.2	5.5	38.09	3.4	47.9	38.1	3.8	3.5	38.1	38.60

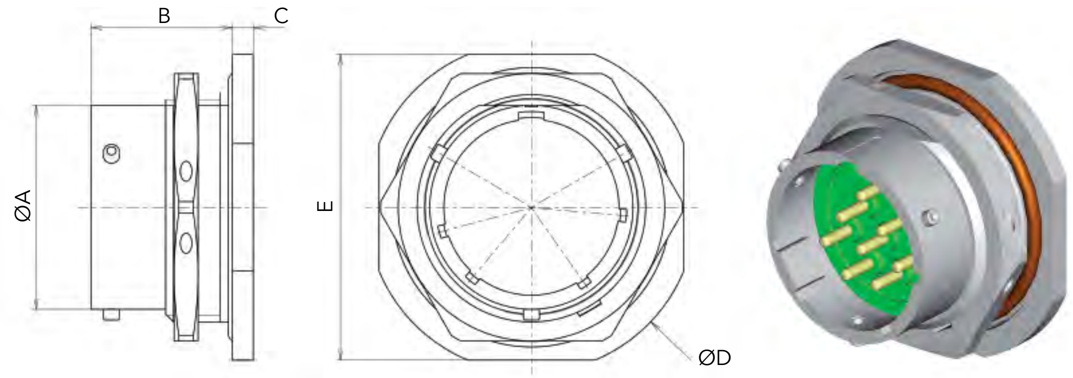


Panel cut-out

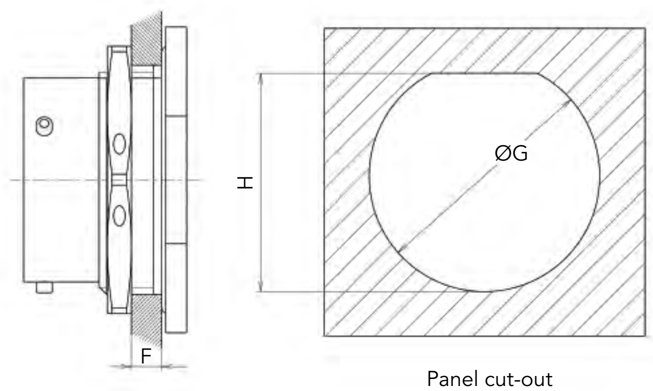
Note: All dimensions are in millimeters (mm)

Dimensions

Jam nut receptacle (type 07H)



Shell size	A max	B max	C $^{\pm0.05}$	D max	E $^{\pm0.25}$	F		G $^{+0.25}_{-0}$	H $^{+0.25}_{-0}$
						min	max		
8	12.02	18.34	2.4	27.37	23.82	1.57	4.75	14.4	13.48
10	14.99	18.34	2.4	30.57	26.97	1.57	4.75	17.58	16.66
12	19.05	18.34	2.4	35.32	31.75	1.57	4.75	22.6	20.8
14	22.23	18.34	2.4	38.5	34.92	1.57	4.75	25.52	23.95
16	25.4	18.34	2.4	41.67	38.1	1.57	4.75	28.7	27.1
18	28.58	18.34	2.4	44.85	41.27	1.57	4.75	31.87	30.27
20	31.75	23.12	3.2	49.62	46.02	1.57	6.35	35.05	33.45
22	34.93	23.12	3.2	52.77	49.22	1.57	6.35	38.22	36.62
24	38.1	23.95	3.2	55.97	52.37	1.57	5.56	41.4	39.8

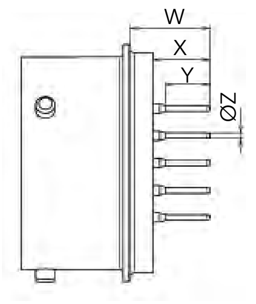


Panel cut-out

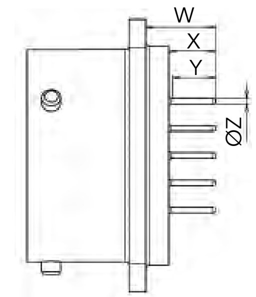
Note: All dimensions are in millimeters (mm)

Contact variations

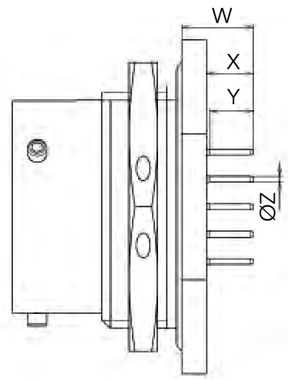
Contact variations summary



Type IH: Solder mount receptacle



Type 02H: Square flange receptacle



Type 07H: Jam nut receptacle

Type of contact	Specification	Shell type	Contact size	W Max	X Min	Y Min	Ø Z Max
Short PCB contact	005	IH	20	9.1	4.55	4.5	0.65
		02H	20	8.4	3.35	4.5	0.65
		07H	20	8.05	3.75	4.5	0.65
Long PCB contact	275	IH	20	13.87	8.5	6	0.65
		02H	20	12.9	7.3	6	0.65
		07H	20	12	7.7	6	0.65

Note: for other contact length, please consult us.

Gaskets & O'rings

Shell size	Gasket for receptacle Type 0 (not delivered with connector)		O ring for receptacle Type 7 (delivered with connector)	
	Part number	Material	Part number	Material
08	85251431	Fluorosilicone	AS3582-016	Silicone
10	85251432	Fluorosilicone	AS3582-018	Silicone
12	85251433	Fluorosilicone	AS3582-021	Silicone
14	85251434	Fluorosilicone	AS3582-023	Silicone
16	85251435	Fluorosilicone	AS3582-025	Silicone
18	85251436	Fluorosilicone	AS3582-027	Silicone
20	85251437	Fluorosilicone	AS3582-029	Silicone
22	85251438	Fluorosilicone	AS3582-030	Silicone
24	85251439	Fluorosilicone	AS3582-031	Silicone

Note: All dimensions are in millimeters (mm)

Description

- Bayonet coupling connector
- Derivated from HE312 standard
  Qualified per MIL-C 26482 Series 2 standard and PAN 6432
- Glass sealed hermetic:
  . high hermeticity performance
  . compact low profile
- Various mounting styles:
  . compact solder mount receptacle
  . easy to install square flange receptacle
  . easy to replace jam nut receptacle
- Solder cup or PC tail contacts
- Specific fuel tank version for long term fuel immersion

Technical features

Mechanical

- **Shell:**
  RoHS mat tin over nickel plated steel
- **Seals:**
  Silicone elastomer
- **Contact:**
  Gold plated ferrous alloy
- **Endurance:**
  500 mating/unmating operations

Electrical

- **Max current rating per contact:**

Contact size	20	16	12
Rating (A)	5	10	17

- **Dielectric withstanding voltage:**

Service	Sea level	21 000 m
I	1 500 Vrms	375 Vrms
II	2 300 Vrms	500 Vrms

- **Shell continuity:**
  ≤ 50 mΩ
- **Contact resistance at rated current:**
  Maximum initial contact resistance at ambient temperature

Contact size	20	16	12
Resistance mΩ	12	8	5

- **Insulation resistance:**
  ≥ 5000 MΩ at 500 Vdc

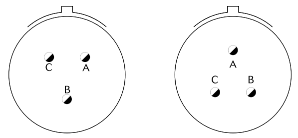
Environmental

- **Operating temperature:**
  -55°C to 200°C
- **Hermeticity:**
  Leak rate < 1.10^{-7} atm.cm^3/s
  (helium gas test)
- **Salt spray:**
  48 hours

Contact layouts

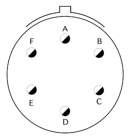
Contact #20
Contact #16
Contact #12

8



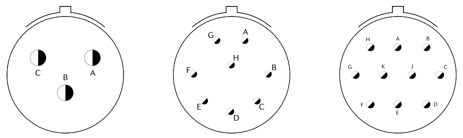
3A or 98*	3#20	Service I
33	3#20	Service I

10



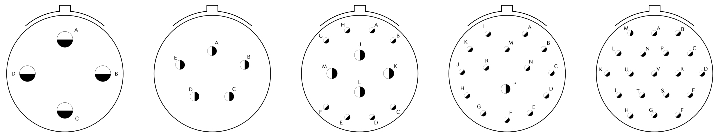
06**	6#20	Service I

12



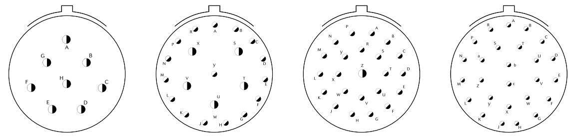
03**	3#16	Service II
08**	8#20	Service I
10	10#20	Service I

14



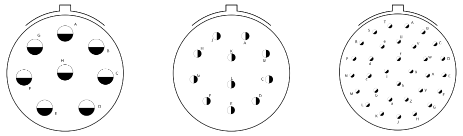
04**	4#12	Service I
05**	5#16	Service II
12	8#20 4#16	Service I
15	14#20 1#16	Service I
19	19#20	Service I

16



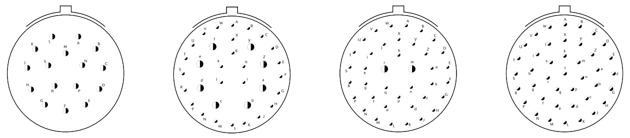
08**	8#16	Service II
21	16#20 5#16	Service I
23	22#20 1#16	Service I
26	26#20	Service I

18



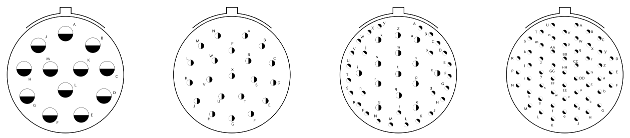
08**	8#12	Service I
11	11#16	Service I
32	32#20	Service I

20



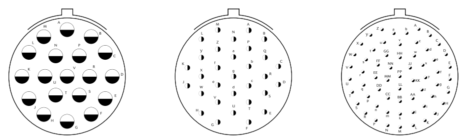
16	16#16	Service II
34	26#20 8#16	Service I
39	37#20 2#16	Service I
41	41#20	Service I

22



12	12#12	Service I
21	21#16	Service II
41	27#20 14#16	Service I
55	55#20	Service I

24



19	19#12	Service II
31	31#16	Service I
61	61#20	Service I

* 3A for 8526 part numbering / 98 for MS part numbering.
** Remove digit "0" for MS part numbering.

Contact layouts (matrix)

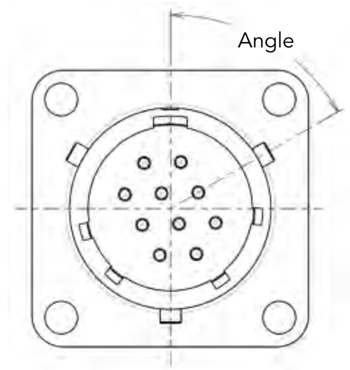
Shell size	Layout	Hermetic 8526	MIL-C 26482 G	PAN 6432	Number of contacts #20	#16	#12
08	83A	OK		Q	3		
	898	OK		Q	3		
	833	OK	Q	Q	3		
10	106	OK	Q	Q	6		
12	123	OK	Q	Q		3	
	128	Available on request, please consult us			8		
	1210	OK	Q	Q	10		
14	144	OK		Q			4
	145	OK	Q	Q		5	
	1412	OK	Q	Q	8	4	
	1415	OK	Q		14	1	
	1419	OK	Q	Q	19		
16	168	OK	Q	Q		8	
	1621	OK			16	5	
	1623	Available on request, please consult us			22	1	
	1626	OK	Q	Q	26		
18	188	OK		Q			8
	1811			Q		11	
	1832	OK	Q	Q	32		

Shell size	Layout	Hermetic 8526	MIL-C 26482 G	PAN 6432	Number of contacts #20	#16	#12
20	2016	OK	Q	Q		16	
	2034	Available on request, please consult us			26	8	
	2039	OK			37	2	
	2041	OK	Q	Q	41		
22	2212	Available on request, please consult us					12
	2221	OK	Q	Q		21	
	2241	OK	Q	Q	27	14	
	2255	OK	Q	Q	55		
24	2419			Q			19
	2431			Q		31	
	2461	OK	Q	Q	61		

OK = SOURIAU's layout
Q = SOURIAU's qualified layout

Orientation

Polarization code



Viewed from receptacle front face.
Insulator rotated inside metal body.

Shell size	Layout	N	W	X	Y	Z
08	B3A	0	60	210	-	-
	B33	0	90	-	-	-
10	B6	0	90	-	-	-
12	B3	0	140	220	180	-
	B10	0	60	155	270	295
14	B4	0	45	-	-	-
	B5	0	40	92	184	273
	B12	0	43	90	-	-
	B15	0	17	110	155	234
	B19	0	30	165	315	-

Shell size	Layout	N	W	X	Y	Z
16	B8	0	54	152	180	331
	B21	0	-	-	-	-
	B26	0	60	-	275	338
18	B8	0	180	-	-	-
	B32	0	85	138	222	265
20	B16	0	238	318	333	347
	B39	0	63	144	252	333
	B41	0	45	126	225	-
22	B21	0	16	135	175	349
	B41	0	39	135	264	-
	B55	0	30	142	226	314
24	B61	0	90	180	270	324

Ordering information

SOURIAU part numbers

Basic series	8526	2H	10	06	P	N
Shell type: **1H:** Solder mount hermetic receptacle **2H:** Square flange hermetic receptacle **7H:** Jam nut hermetic receptacle		2H				
Shell size: **08, 10, 12, 14, 16, 18, 20, 22, 24**			10			
Contact layout: See page 96				06		
Contact type: **P:** Pin					P	
Orientation: **N, W, X, Y, Z** - see previous page						N

MS qualified products

Basic series	MS	3440H	10	C	6	P	
Shell type: **3440H:** Square flange hermetic receptacle **3443H:** Solder mount hermetic receptacle **3449H:** Jam nut hermetic receptacle		3440H					
Shell size: **08, 10, 12, 14, 16, 18, 20, 22, 24**			10				
Materials and terminal: **C:** Steel, solder bucket				C			
Contact layout: See page 96					6		
Contact type: **P:** Pin						P	
Orientation: **None:** Normal (N) **W, X, Y, Z** - see previous page							

Cross reference list

Receptacle type	SOURIAU	HE312
Solder mount	8526 1H • • • • P □	HE312 1H • • • • P □ 2
Square flange	8526 2H • • • • P □	HE312 2H • • • • P □ 2
Jam nut	8526 7H • • • • P □	HE312 7H • • • • P □ 2

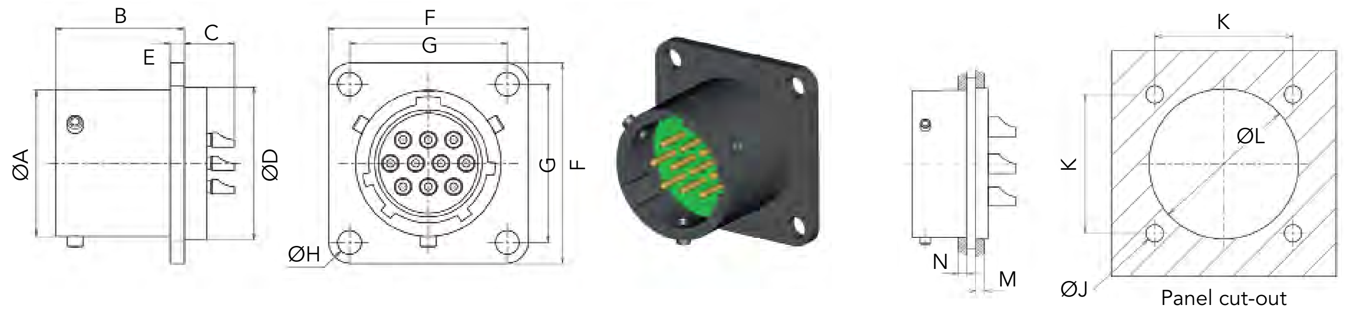
• • • • Shell size & layout □ Orientation

Dimensions

Solder mount receptacle (type 1H)

Shell size	ØA max	B ±0.3	C max	ØD +0 -0.15	E ±0.15	F max	ØG ±0.1
8	12.04	15.8	6.9	14.3	0.89	16.08	14.48
10	15.01	15.8	6.9	17.09	0.89	19.25	17.27
12	19.08	15.8	6.9	19.86	0.89	21.64	20.04
14	22.25	15.8	6.9	23.04	0.89	24.82	23.22
16	25.43	15.8	6.9	26.21	0.89	27.99	26.39
18	28.6	15.8	6.9	29.39	0.89	31.14	29.57
20	31.78	17.37	6.9	31.78	0.89	33.53	31.95
22	34.95	17.37	6.9	34.95	0.89	36.73	35.13
24	38.13	17.37	6.9	38.13	0.89	39.93	38.3

Square flange receptacle (type 2H)

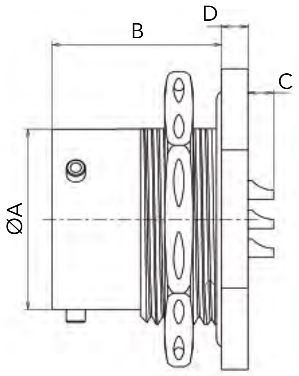


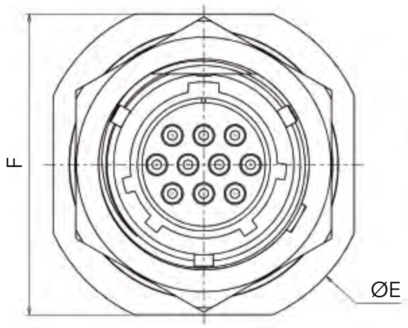
Shell size	ØA max	B ±0.15	C max	ØD +0 -0.15	E ±0.1	F max	G	ØH ±0.15	ØJ ±0.15	K	ØL ±0.1	M max	N max
8	12.04	16.79	7.1	14.3	1.86	21.03	15.09	3.05	3.05	15.09	14.48	3.15	3
10	15.01	16.79	7.1	17.09	1.86	24.23	18.26	3.05	3.05	18.26	17.27	3.15	3
12	19.08	16.79	7.1	19.86	1.86	26.59	20.62	3.05	3.05	20.62	20.04	3.15	3
14	22.25	16.79	7.1	23.04	1.86	28.98	23.01	3.05	3.05	23.01	23.22	3.15	3
16	25.43	16.79	7.1	26.21	1.86	31.34	24.61	3.05	3.05	24.61	26.39	3.15	3
18	28.6	16.79	7.1	29.39	1.86	33.73	26.97	3.05	3.05	26.97	29.57	3.15	3
20	31.78	18.78	6.7	31.78	2.27	36.91	29.36	3.05	3.05	29.36	31.95	3.15	5.4
22	34.95	18.78	6.7	34.95	2.27	40.08	31.75	3.05	3.05	31.75	35.13	3.15	5.4
24	38.13	18.78	6.7	38.13	2.27	43.26	34.93	3.73	3.73	34.93	38.3	3.15	5.4

Note: All dimensions are in millimeters (mm)

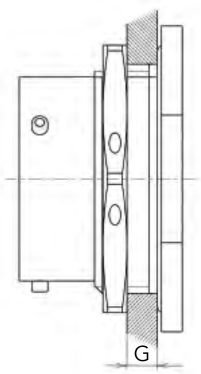
Dimensions

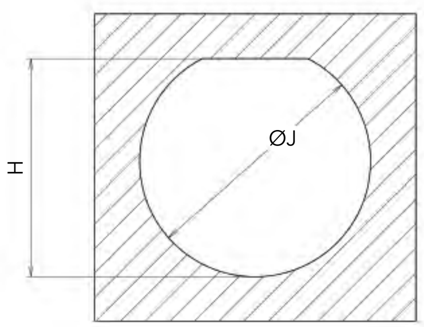
Jam nut receptacle (type 7H)





Shell size	ØA max	B max	C max	D $^{+0}_{-0.1}$	ØE max	F max	G min	G max	H	ØJ $^{\pm 0.1}$
8	12.04	17.96	3.2	2.8	27.38	24.23	1.57	4.75	13.61	14.53
10	15.01	17.96	3.2	2.8	30.56	27.38	1.57	4.75	16.79	17.7
12	19.08	17.96	3.2	2.8	35.33	32.16	1.57	4.75	20.93	22.73
14	22.25	17.96	3.2	2.8	38.51	35.33	1.57	4.75	24.08	25.65
16	25.43	17.96	3.2	2.8	41.68	38.51	1.57	4.75	27.23	28.83
18	28.6	17.96	3.2	2.8	44.86	41.68	1.57	4.75	30.4	32
20	31.78	19.61	2.45	3.6	49.63	46.43	1.57	6.35	33.58	35.18
22	34.95	19.61	2.45	3.6	52.78	49.63	1.57	6.35	36.75	38.35
24	38.13	20.4	1.7	3.7	55.96	52.78	1.57	6.35	39.93	41.35





Panel cut-out

Note: All dimensions are in millimeters (mm)

Maximum connector weights (in grams)

Shell type \ Shell size	8	10	12	14	16	18	20	22	24
Solder mount receptacle (type 1)	7.5	10.6	15	19	23.3	29.4	31	41	46.7
Square flange receptacle (type 2)	11	13.6	18	23	28.3	36.4	42	49	57
Jam nut receptacle (type 7)	20	25	38	44	51.5	62	85	94	116

Gaskets & O'rings

Shell size	Gasket for receptacle Type 0 (not delivered with connector)		O ring for receptacle Type 7 (delivered with connector)	
	Part number	Material	Part number	Material
08	85251431	Fluorosilicone	AS3582-016	Silicone
10	85251432	Fluorosilicone	AS3582-018	Silicone
12	85251433	Fluorosilicone	AS3582-021	Silicone
14	85251434	Fluorosilicone	AS3582-023	Silicone
16	85251435	Fluorosilicone	AS3582-025	Silicone
18	85251436	Fluorosilicone	AS3582-027	Silicone
20	85251437	Fluorosilicone	AS3582-029	Silicone
22	85251438	Fluorosilicone	AS3582-030	Silicone
24	85251439	Fluorosilicone	AS3582-031	Silicone

Description

- Thread coupling connector
- EN2997 and ESC10 qualified connector
- High temperature and high vibration resistance (engine environment)
- Glass sealed hermetic:
  . high hermeticity performance
  . compact low profile
- Various mounting styles:
  . compact solder mount receptacle
  . easy to install square flange receptacle
  . easy to replace jam nut receptacle
- Fully interchangeable with MIL 83723 hermetic connectors
- 230V qualified versions where higher voltage is used to reduce cable weight
- Solder cup or PC tail contacts
- Specific fuel tank version for long term fuel immersion

Technical features

Mechanical

- **Shell:**
  Passivated Stainless steel
- **Seals:**
  Silicone elastomer
- **Contact:**
  Ferrous alloy
- **Contact plating:**
  Gold
- **Endurance:**
  500 mating/unmating operations

Electrical

- **Max current rating per contact:**

Contact size	20	16	12	6
Rating (A)	5	10	17	46

- **Dielectric withstanding voltage:**

Altitude	Service I
Sea level	1500 Vrms
15 000 m	600 Vrms
21 000 m	400 Vrms
33 000 m	200 Vrms

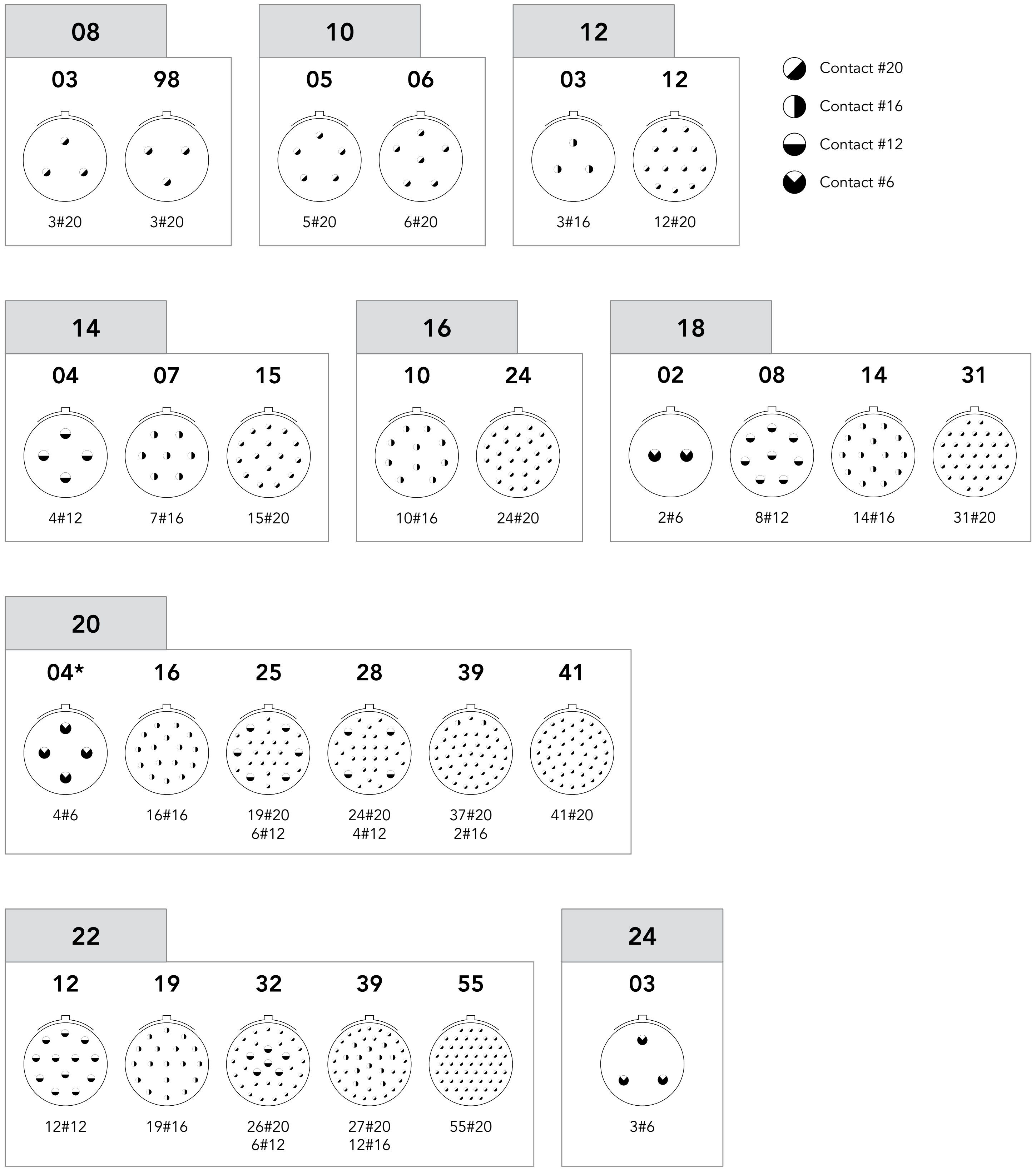
- **Contact resistance at rated current:**
  Maximum initial contact resistance at ambiant temperature

Contact size	20	16	12	6
Resistance mΩ	12	8.5	5	2

Environmental

- **Operating temperature:**
  Class Y : -65°C to 200°C
  Class YE : -65°C to 260°C cyclic
- **Hermeticity:**
  Leak rate < 1.10^{-7} atm.cm^3/s
  (helium gas test)
- **Salt spray:**
  500 hours

Contact layouts



* ABS Power correspondance.

Contact layouts (matrix)

Shell size	Layout	8533 hermetic	EN2997 hermetic	ESC10 hermetic	8533 spec. 22	Number of contacts #22D	#20	#16	#12	#6
08	08-03	OK	Q	Q	OK		3			
	08-06	Available on request, please consult us				6				
	08-98	OK	Q	Q			3			
10	10-05	OK	Q	Q			5			
	10-06	OK	Q		OK		6			
	10-12	Available on request, please consult us				12				
12	12-03	OK	Q	Q				3		
	12-12	OK	Q	Q	OK		12			
	12-21	Available on request, please consult us				21				
14	14-04	OK	Q	Q					4	
	14-07	OK	Q	Q	OK			7		
	14-15	OK	Q	Q			15			
16	16-10	OK	Q	Q				10		
	16-24	OK	Q	Q			24			
18	18-02	Available on request, please consult us								2
	18-08	Available on request, please consult us							8	
	18-14	Available on request, please consult us						14		
	18-31	OK	Q	Q			31			
20	20-04	OK								4
	20-16	Available on request, please consult us						16		
	20-25	Available on request, please consult us					19		6	
	20-28	Available on request, please consult us					24		4	
	20-39	Available on request, please consult us					37	2		
	20-41	OK	Q	Q	OK		41			
22	22-12	Available on request, please consult us							12	
	22-19	Available on request, please consult us						19		
	22-32	Available on request, please consult us					26		6	
	22-39	Available on request, please consult us					27	12		
	22-55	OK	Q	Q			55			
24	24-03	OK								3

OK = SOURIAU's layout
Q = SOURIAU's qualified layout

Connector weights (in grams)

Shell size	Square flange receptacle	Jam nut receptacle	Solder mount receptacle
08	18	29	15
10	24	37	21
12	31	50	31
14	40	58	35
16	49	72	46
18	54	79	51
20	62	87	59
22	77	108	73
24	88	122	86

Cross reference list

SOURIAU	MIL 83723
85332Y • • • • P □	M83723/88Y • • • • □
85337Y • • • • P □	M83723/89Y • • • • □
85331Y • • • • P □	M83723/90Y • • • • □

• • • • Shell size & layout □ Orientation

Ordering information

SOURIAU part numbers

Basic series 8533 1 Y 10 05 P N

Shell type:
- **1:** Solder mount receptacle
- **2:** Square flange receptacle
- **7:** Jam nut receptacle

Class:
- **Y:** 200°C
- **YE:** 260°C

Shell size: 08 - 10 - 12 - 14 - 16 - 18 - 20 - 22

Contact layout: See page 103

P: Pin contacts

Orientation: N - 6 - 7 - 8 - 9 - T - V - Y (see page 43)

Specification (other specification: see page 42)**:**
- **None:** Standard hermetic version (solder cup) - except for layout 20-04 and 24-03
- **112:** Standard hermetic version (solder cup) - for layout 20-04 and 24-03 only
- **22:** Fuel tank version (solder cup)
- **600:** 230V qualified connector, delivered with contacts (layouts 12-03, 14-04, 14-07 & 20-04 - orientation T & V)
- **A73:** Tin plating on contacts rear side and gold plating on contacts front side

EN2997 qualified products

Basic series EN 2997 Y 0 08 03 M N

Class:
- **Y:** 200°C
- **YE:** 260°C

Shell type:
- **0:** Square flange receptacle
- **1:** Solder mount receptable
- **7:** Jam nut receptable

Shell size: 08 - 10 - 12 - 14 - 16 - 18 - 20 - 22

Contact layout: See page 103

P: Pin contacts

Orientation: N - 6 - 7 - 8 - 9 - Y (see page 43)

ESC10 qualified products

Basic series ESC 10 YE 1 08 03 P N 0

Class:
- **YE:** 260°C

Shell type:
- **1:** Solder mount receptacle
- **2:** Square flange receptacle
- **3:** Jam nut receptable

Shell size: 08 - 10 - 12 - 14 - 16 - 18 - 20 - 22

Contact layout: See page 103

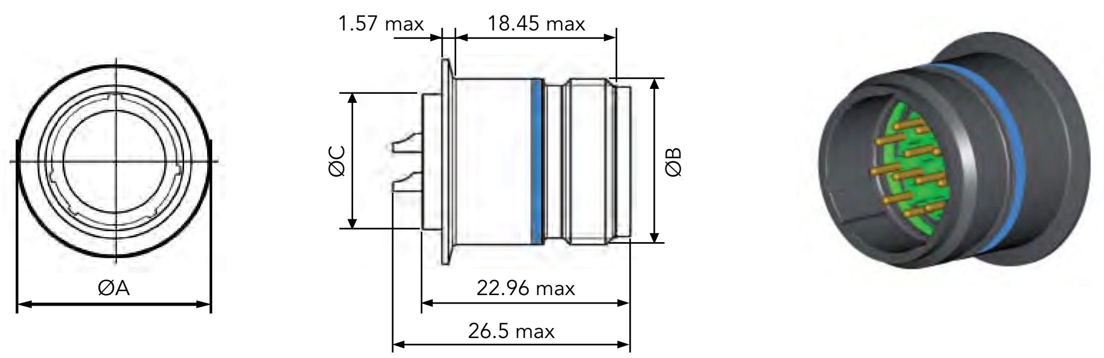
P: Pin contacts

Orientation: N - 6 - 7 - 8 - 9 - Y (see page 43)

Contact termination:
- **0:** Solder cup contacts
- **B:** Eyelet contacts

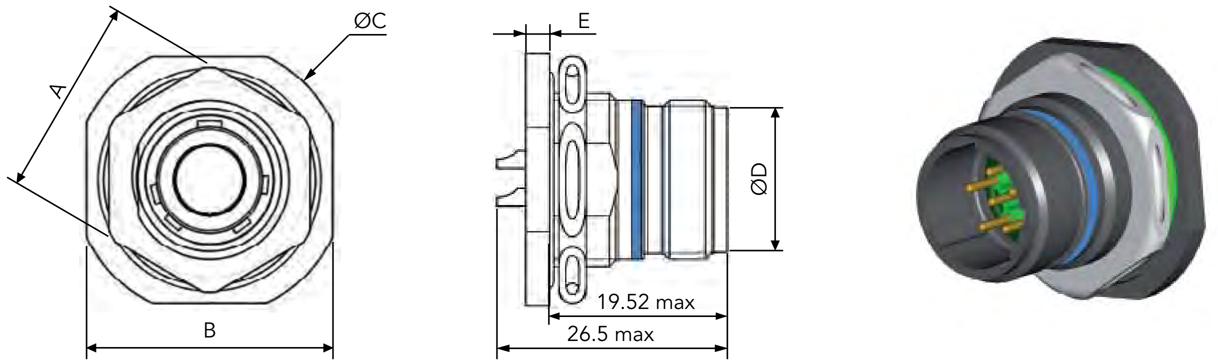
Dimensions

Solder mount hermetic receptacle (Class Y & YE)



Shell size	8	10	12	14	16	18	20	22	24
ØA Max	18.36	21.59	26.80	27.94	30.99	34.39	37.34	40.64	43.68
ØB Max	14.29	17.46	22.22	23.81	26.99	30.16	33.34	36.51	39.69
ØC Max	12.70	14.27	19.05	20.62	23.80	26.97	30.15	33.32	36.50

Jam nut hermetic receptacle (Class Y & YE)

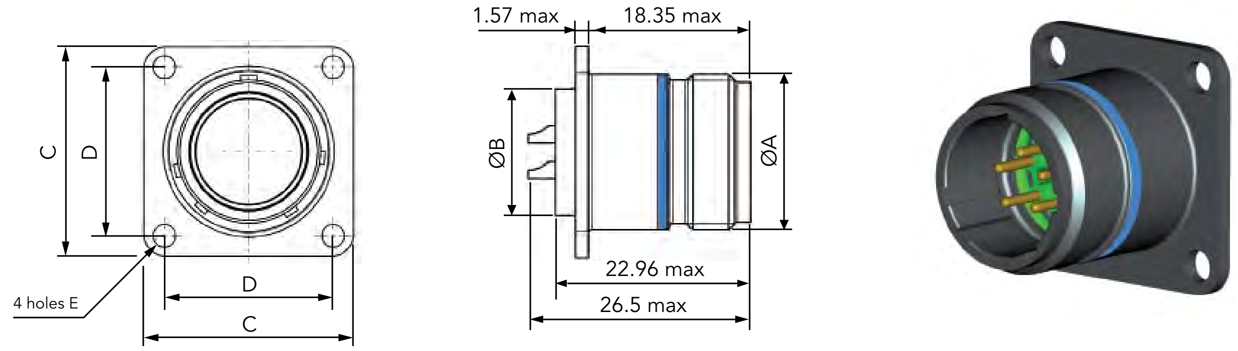


Shell size	8	10	12	14	16	18	20	22	24
A Max	21.06	24.23	29.01	30.61	33.76	36.96	40.11	43.31	46.46
B Max	24.89	28.04	32.79	35.33	38.51	41.68	44.86	49.63	52.81
ØC Max	27.38	30.28	35.05	38.51	41.68	44.86	49.63	52.78	55.42
ØD Max	14.29	17.46	22.22	23.81	26.99	30.16	33.34	36.51	39.69
E Max	3.48							3.76	
Tightening torque of attachement nut Torque in N.m$^{\pm 10\%}$	7	10	12	15	18	22	25	27	29

Note: All dimensions are in millimeters (mm)

Dimensions

Square flange hermetic receptacle (Class Y & YE)



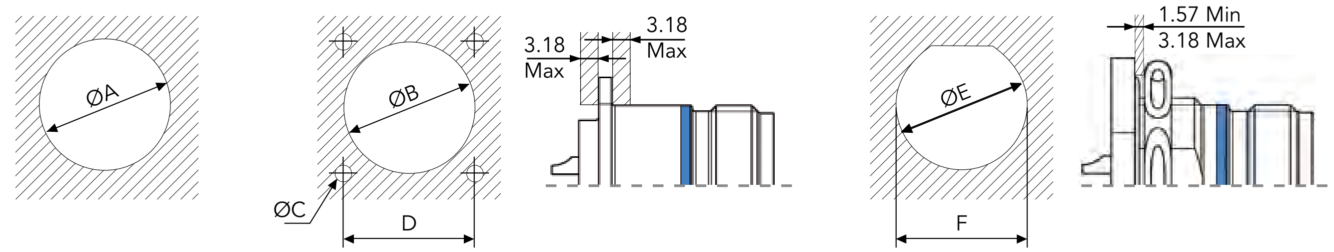
Shell size	8	10	12	14	16	18	20	22	24
Ø A Max	14.27	17.67	22.22	23.77	26.97	30.15	33.32	36.49	39.67
Ø B Max	12.70	14.27	19.05	20.62	23.80	26.97	30.15	33.82	36.50
C Max	20.75	23.93	26.32	28.71	31.88	34.24	36.63	39.80	43.36
D	15.09	18.26	20.62	23.01	24.61	26.97	29.36	31.75	34.92
E Max	3.30								3.91

Panel cut out

Type 1
Solder mount receptacle

Type 2
Square flange receptacle

Type 7
Jam nut receptacle

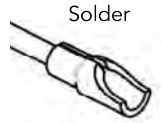
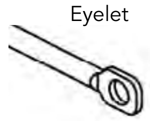


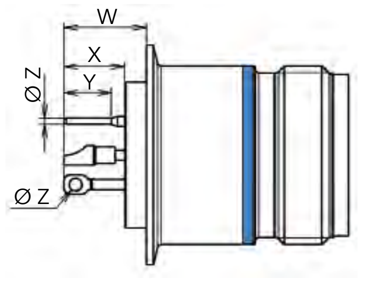
Shell size	8	10	12	14	16	18	20	22	24	28
ØA Min	12.96	14.53	19.30	20.88	24.05	27.23	30.40	33.58	36.75	-
B min	15.8	18.7	23.4	24.9	28.3	31.1	34.5	37.5	40.6	48
C	3.2								3.8	
D	15.09	18.26	20.62	23.01	24.61	26.97	39.36	31.75	34.92	39.67
E	16.00	19.17	23.92	25.52	28.70	31.87	35.05	38.22	41.40	-
F	15.24	18.41	23.16	24.76	27.94	30.99	34.16	37.33	40.51	-

Note: All dimensions are in millimeters (mm)

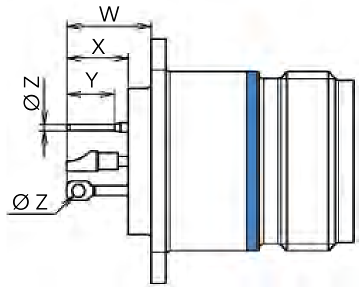
Contact variations

Contact variations summary

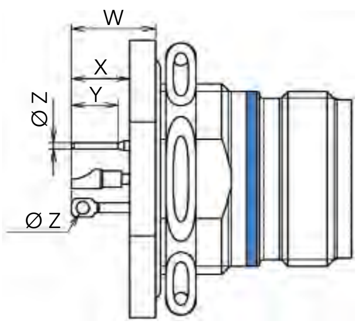
Contact variations		
Solder	Eyelet	PCB
		



Type 1: Solder mount receptacle



Type 2: Square flange receptacle



Type 7: Jam nut receptacle

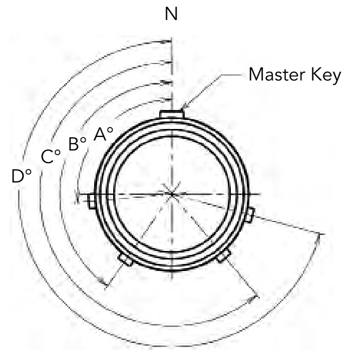
Type of contact	Specification	Contact size	W Max	X Min	Y Min	Ø Z Max	Designation
PCB contacts	05	20	8.78	4.78	4.50	0.65	PCB contact
	118	20	10.88	6.88	6.25	0.65	Long PCB contact
Eyelet contacts	105	20	6.98	2.98	$4.05^{\pm 0.2}$	$1.25^{0}_{-0.15}$	Eyelet contact
Solder cup contacts	Without specification or specification 22	20-16-12	7.78	2.98	-	-	Standard Solder cup contact
	112	6	9.03	5.13	-	-	
	62	20-16-12	7.78	2.98	-	-	Solder cup contact tin plated on rear part

Note: for other contact length, please consult us.

Note: All dimensions are in millimeters (mm)

Orientation

Orientation



Front face view of receptacle

Shell size	Angles	N	6	7	8	9	T	V	Y
08	A° B° C° D°	105 140 215 265	102 132 248 320	80 118 230 312	35 140 205 275	64 155 234 304	-	-	-
10	A° B° C° D°	105 140 215 265	102 132 248 320	80 118 230 312	35 140 205 275	64 155 234 304	-	-	25 115 220 270
12 & 14	A° B° C° D°	105 140 215 265	18 149 192 259	92 152 222 342	84 152 204 334	24 135 199 240	55 145 228 280	50 156 218 290	98 152 268 338
20	A° B° C° D°	105 140 215 265	18 149 192 259	92 152 222 342	84 152 204 334	24 135 199 240	45 160 210 300	60 165 235 285	98 152 268 338
16, 18, 22 & 24	A° B° C° D°	105 140 215 265	18 149 192 259	92 152 222 342	84 152 204 334	24 135 199 240	-	-	98 152 268 338

Gaskets & O'rings

Shell size	Gasket for square flange receptacle (not delivered with connector)		O'ring for jam nut receptacle 200°C Class (delivered with connector)		O'ring for jam nut receptacle 260°C Class (delivered with connector)	
	Part number	Material	Part number	Material	Part number	Material
08	85251431	Fluorosilicone	8530455	Silicone	85227654	Silicone THT
10	85251432	Fluorosilicone	85300795	Silicone	85227655	Silicone THT
12	85251433	Fluorosilicone	8530458	Silicone	85227656	Silicone THT
14	85251434	Fluorosilicone	8530796	Silicone	85227632	Silicone THT
16	85251435	Fluorosilicone	8530797	Silicone	85227657	Silicone THT
18	85251436	Fluorosilicone	8530798	Silicone	85227658	Silicone THT
20	85251437	Fluorosilicone	85301548	Silicone	85227927	Silicone THT
22	85251438	Fluorosilicone	8530800	Silicone	85227659	Silicone THT

Description

- Thread coupling connector
- MIL-DTL-38999 Series III qualified EN3645 compliant
- Glass sealed hermetic:
  . high hermeticity perfomance
  . compact low profile
- Various mounting styles:
  . compact solder mount receptacle
  . easy to install square flange receptacle
  . easy to replace jam nut receptacle
- Signal and power contacts - up to size #4
- Special fuel tank versions for long term fuel immersion
- 230V qualified versions where higher voltage is used to reduce cable weight
- Solder cup, PC tail or eyelet contacts

Technical features

Mechanical

- **Shell:**
  Class Y: passivated stainless steel
  Class N: nickel plated stainless steel
- **Seals:**
  Silicone elastomer
- **Contact:**
  Gold plated ferrous alloy
- **Endurance:**
  500 mating/unmating operations

Electrical

- **Max current rating per contact:**

Contact size	22D	20	16	12	8	4
Rating (A)	3	5	10	17	33	60

- **Dielectric withstanding voltage:**

Service	Sea level	30 000 m
M	1 300 Vrms	800 Vrms
I	1 800 Vrms	1 000 Vrms
II	2 300 Vrms	1 000 Vrms

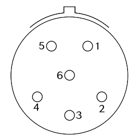
- **Insulation resistance:**
  5000 MΩ (under 500 Vdc)

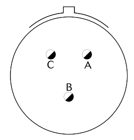
Environmental

- **Operating temperature:**
  -65°C to 200°C
- **Hermeticity:**
  Leak rate < 1.10^{-7} atm.cm³/s
  (helium gas test)
- **Salt spray:**
  Class Y: 500 hours
  Class N: 48 hours

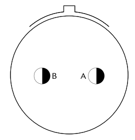
Contact layouts

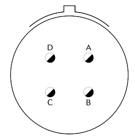
09 / A

35

6#22D
Service M

98

3#20
Service I

11 / B

02

2#16
Service I

04

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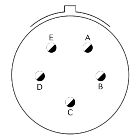
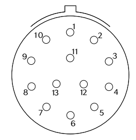
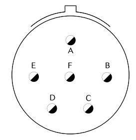
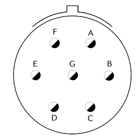
Service I

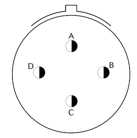
05

5#20
Service I

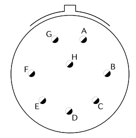
35

13#22D
Service M

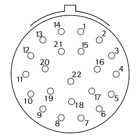
98

6#20
Service I

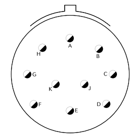
99

7#20
Service I

13 / C

04

4#16
Service I

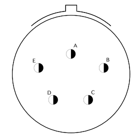
08

8#20
Service I

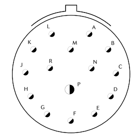
35

22#22D
Service M

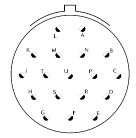
98

10#20
Service I

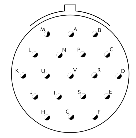
Contact #22D
Contact #20
Contact #16
Contact #12
Contact #8 Power

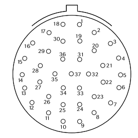
15 / D

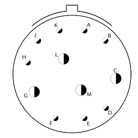
05

5#16
Service II

15

1#16, 14#20
Service I

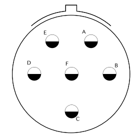
18

18#20
Service I

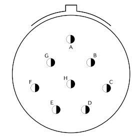
19

19#20
Service I

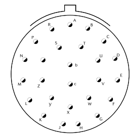
35

37#22D
Service M

97

4#16, 8#20
Service I

17 / E

06

6#12
Service I

08

8#16
Service II

26

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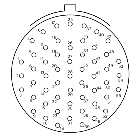
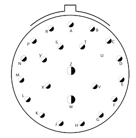
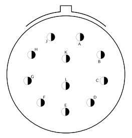
Service I

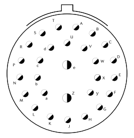
35

55#22D
Service M

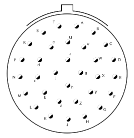
99

2#16, 21#20
Service I

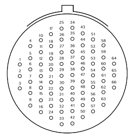
Contact layouts

19 / F

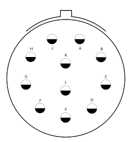
11

11#16
Service II

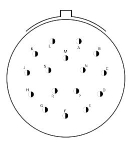
28

26#20, 2#16
Service I

32

32#20
Service I

35

66#22D
Service M

21 / G

11

11#12
Service I

16

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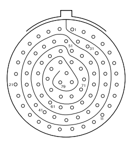
Service II

35

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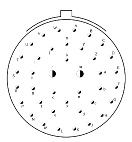
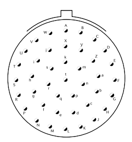
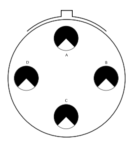
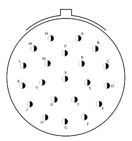
Service M

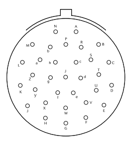
39

2#16, 37#20
Service I

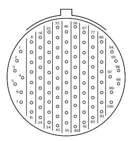
41

41#20
Service I

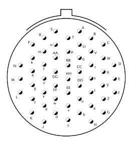
48

4#8 Power
Service I

23 / H

21

21#16
Service II

32

32#20
Service I

35

100#22D
Service M

53

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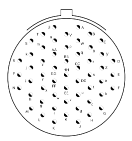
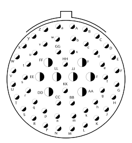
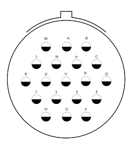
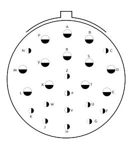
Service I

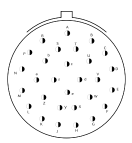
55

55#20
Service I

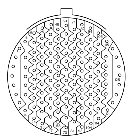
25 / J

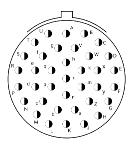
04

48#20, 8#16
Service I

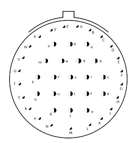
19

19#12
Service I

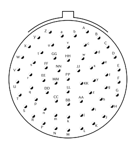
24

12#16, 12#12
Service I

29

29#16
Service I

35

128#22D
Service M

37

37#16
Service II

43

23#20, 20#16
Service I

61

61#20
Service I

Contact layouts (matrix)

Shell size	Layout	D38999 QPL	8D type 21 Spec. 600*	8D Spec. 022*	8D Spec. 840 & 850*	8D Spec. A76*	Number of contacts					
							#22D	#20	#16	#12	#8	#4
09 / A	09-35	Q		OK	OK		6					
	09-98	Q		OK	OK			3				
11 / B	11-02	Q			OK				2			
	11-04	Q			OK			4				
	11-05	Q			OK			5				
	11-12	OK		Available on request, please consult us						1		
	11-22	OK		Available on request, please consult us			4					
	11-35	Q		OK	OK	OK	13					
	11-98	Q			OK			6				
	11-99	Q		OK	OK			7				
13 / C	13-03	OK		Available on request, please consult us					3			
	13-04	Q	OK		OK				4			
	13-08	Q			OK			8				
	13-26	OK		Available on request, please consult us			6			2		
	13-35	Q		OK	OK		22					
	13-98	Q			OK			10				
15 / D	15-05	Q		Available on request, please consult us					5			
	15-15	Q		Available on request, please consult us				14	1			
	15-18	Q			OK			18				
	15-19	Q		OK	OK			19				
	15-35	Q		OK	OK	OK	37					
	15-97	Q		Available on request, please consult us				8	4			
17 / E	17-06	Q	OK	OK						6		
	17-08	Q	OK		OK				8			
	17-20	OK		Available on request, please consult us			16			4		
	17-26	Q			OK			26				
	17-35	Q		OK	OK	OK	55					
	17-99	Q		Available on request, please consult us				21	2			
19 / F	19-11	Q		Available on request, please consult us					11			
	19-28	Q		Available on request, please consult us				26	2			
	19-32	Q		Available on request, please consult us				32				
	19-35	Q			OK		66					
21 / G	21-11	Q								11		
	21-16	Q		Available on request, please consult us					16			
	21-35	Q		OK	OK		79					
	21-39	Q		Available on request, please consult us				37	2			
	21-41	Q			OK			41				
	21-48	OK	OK								4	
	21-59	OK		Available on request, please consult us			55			4		
23 / H	23-21	Q			OK				21			
	23-32	Q		Available on request, please consult us				32				
	23-35	Q			OK		100					
	23-53	Q			OK			53				
	23-54	OK		Available on request, please consult us			40		9	4		
	23-55	Q			OK			55				
25 / J	25-04	Q			OK			48	8			
	25-19	Q								19		
	25-24	Q		Available on request, please consult us					12	12		
	25-29	Q			OK				29			
	25-35	Q		Available on request, please consult us			128					
	25-37	Q		Available on request, please consult us					37			
	25-43	Q		Available on request, please consult us				23	20			
	25-44	OK		Available on request, please consult us					4			4
	25-61	Q		Available on request, please consult us				61				

OK = SOURIAU's layout
Q = SOURIAU's qualified layout
* see next page for specifications details

Connector part numbers

MIL-DTL-38999 part number

Basic Series	D38999	21	Y	A	35	P	N

Shell style:
- **21:** Square flange receptacle
- **23:** Jam nut receptacle
- **25:** Solder mount receptacle
- **27:** Weld mount receptacle

Class:
- **Y:** Passivated stainless steel
- **N:** Nickel plated stainless steel

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

Contact layout:
See pages 111 & 112

Contact type:
- **P:** Male solder cup
- **C:** Male PC tail contacts
- **X:** Male eyelet contacts

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

SOURIAU part number

Basic Series	8D	0	Y	13	35	P	N	022

Shell style:
- **0:** Square flange receptacle
- **1:** Solder mount receptacle
- **4:** Weld mount receptacle
- **7:** Jam nut receptacle

Class:
- **Y:** Passivated stainless steel
- **N:** Nickel plated stainless steel

Shell size:
09, 11, 13, 15, 17, 19, 21, 23, 25

Contact layout:
See pages 111 & 112

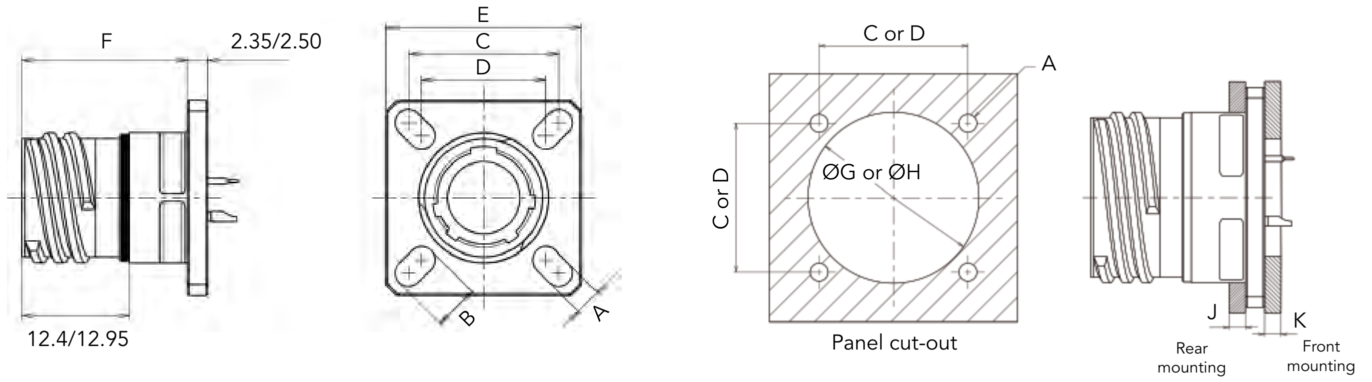
Contact type:
- **P:** Male solder cup
- **C:** Male PC tail contacts
- **X:** Male eyelet contacts

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

Specification:
- **022:** Fuel tank version
- **840:** Short PCB contact
- **850:** Long PCB contact
- **600:** 230V qualified connector (layouts 13-04, 17-06, 17-08 & 21-48 - orientation T & V)
- **A73:** Tin plating on contacts rear side and gold plating on contacts front side
- **A76:** Fuel tank version with crimp removable contacts - Jam nut only

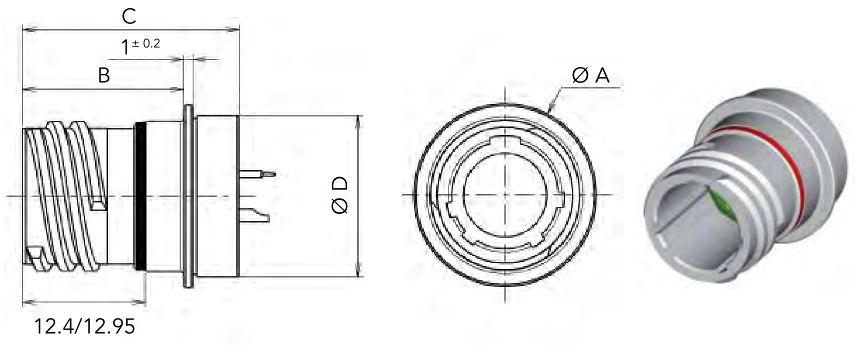
Dimensions

Square flange receptacle (type 21)



Shell size	A ± 0.20	B ± 0.20	C	D	E ± 0.30	F max	ØG Front mounting	ØH Rear mounting	J max	K max
A (9)	3.25	5.49	18.26	15.09	23.80	20.40	13.11	16.66	2.5	3.2
B (11)		4.93	20.62	18.26	26.20		15.88	20.22		
C (13)			23.01	20.62	28.60		19.05	23.42		
D (15)		4.39	24.61	23.01	31.00		23.01	26.59		
E (17)		4.93	26.97	24.61	33.30		25.81	30.96		
F (19)			29.36	26.97	36.50		28.98	32.94		
G (21)			31.75	29.36	39.70		32.16	36.12		
H (23)	3.91	6.15	34.93	31.75	42.90		34.93	39.29		
J (25)			38.10	34.93	46.00		37.69	42.47		

Solder mounting receptacle (type 25)

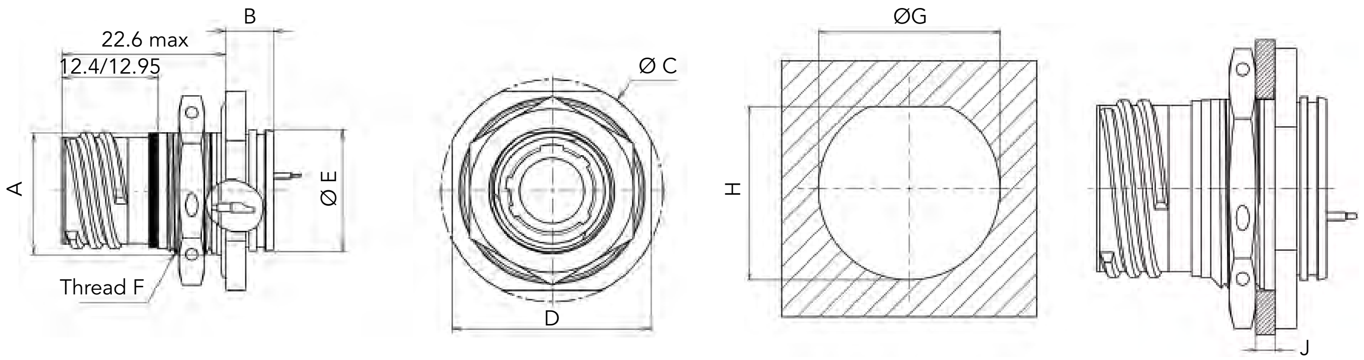


Shell size	Ø A max	B max	C max	D max
A (9)	19.40	17.20	23.80	17.10
B (11)	21.80			19.90
C (13)	24.90			23.10
D (15)	28.10			26.20
E (17)	31.30			29.40
F (19)	33.60			31.80
G (21)	36.80			35.00
H (23)	40.00		24.60	38.20
J (25)	43.20			41.30

Note: All dimensions are in millimeters (mm)

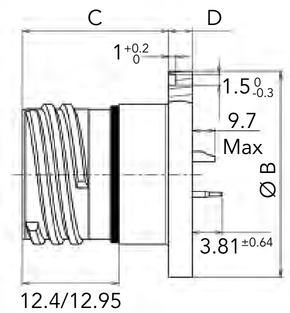
Dimensions

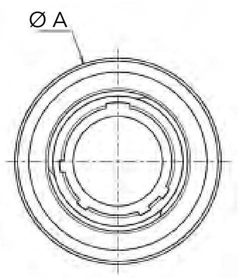
Jam nut receptacle (type 23)



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

Weld mounting receptacle (type 27)





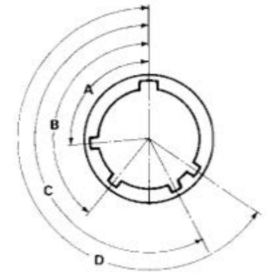
Shell size	Ø A $^{+0.3}_{-0}$	Ø B $^{\pm 0.3}$	C max	D $^{\pm 0.2}$
A (9)	24.70	23.90	23.20	3.20
B (11)	27.80	27.00		
C (13)	31.00	30.20		
D (15)	34.20	33.40		
E (17)	36.40	35.60		
F (19)	40.10	39.30		
G (21)	43.70	42.90		
H (23)	47.90	47.10	24.00	4.00
J (25)	50.10	49.30		

Note: All dimensions are in millimeters (mm)

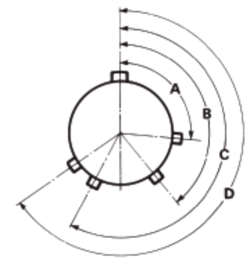
Orientations

Orientations

Viewed from front face of receptacle



Viewed from front face of plug



Shell size	Angles	N	A	B	C	D	E	T	V
9 (A)	A° B° C° D°	105 140 215 265	102 132 248 320	80 118 230 312	35 140 205 275	64 155 234 304	91 131 197 240	-	-
11 (B) 15 (D)	A° B° C° D°	95 141 208 236	113 156 182 292	90 145 195 252	53 156 220 255	119 146 176 298	51 141 184 242	-	-
13 (C)	A° B° C° D°	95 141 208 236	113 156 182 292	90 145 195 252	53 156 220 255	119 146 176 298	51 141 184 242	70 136 218 261	75 138 224 268
17 (E) 21 (G)	A° B° C° D°	80 142 196 293	135 170 200 310	49 169 200 244	66 140 200 257	62 145 180 280	79 153 197 272	58 162 188 316	85 150 191 307
19 (F) 23 (H) 25 (J)	A° B° C° D°	80 142 196 293	135 170 200 310	49 169 200 244	66 140 200 257	62 145 180 280	79 153 197 272	-	-

Maximum connector weight (in grams)

Shell size	Square flange receptacle	Jam nut receptacle	Solder mount receptacle
09 (A)	23	39	21
11 (B)	28	53	25
13 (C)	35	63	31
15 (D)	41	73	38
17 (E)	57	92	53
19 (F)	60	106	55
21 (G)	65	118	57
23 (H)	75	132	68
25 (J)	91	154	83

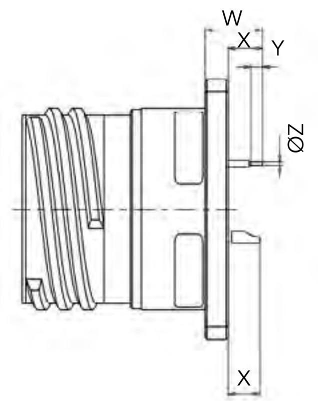
Gaskets & O'rings

Shell size	Gasket for receptacle Type 0 (not delivered with connector)		O ring for receptacle Type 7 (delivered with connector)	
	Part number	Material	Part number	Material
09 (A)	85995541	Fluorosilicone	AS3582-019	Silicone
11 (B)	85995542	Fluorosilicone	AS3582-022	Silicone
13 (C)	85995543	Fluorosilicone	AS3582-024	Silicone
15 (D)	85995544	Fluorosilicone	AS3582-026	Silicone
17 (E)	85995545	Fluorosilicone	AS3582-028	Silicone
19 (F)	85995546	Fluorosilicone	AS3582-128	Silicone
21 (G)	85995547	Fluorosilicone	AS3582-130	Silicone
23 (H)	85995548	Fluorosilicone	AS3582-132	Silicone
25 (J)	85995549	Fluorosilicone	AS3582-134	Silicone

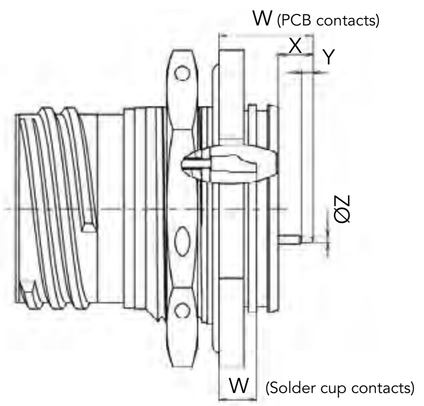
Note: All dimensions are in millimeters (mm)

Contact variations

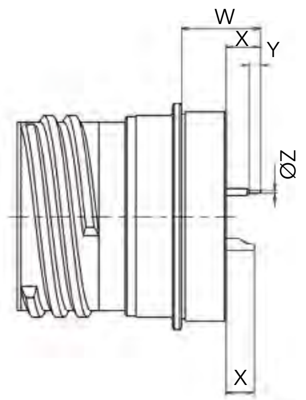
Contact variations summary



Type 21: Square flange receptacle



Type 23: Jam nut receptacle

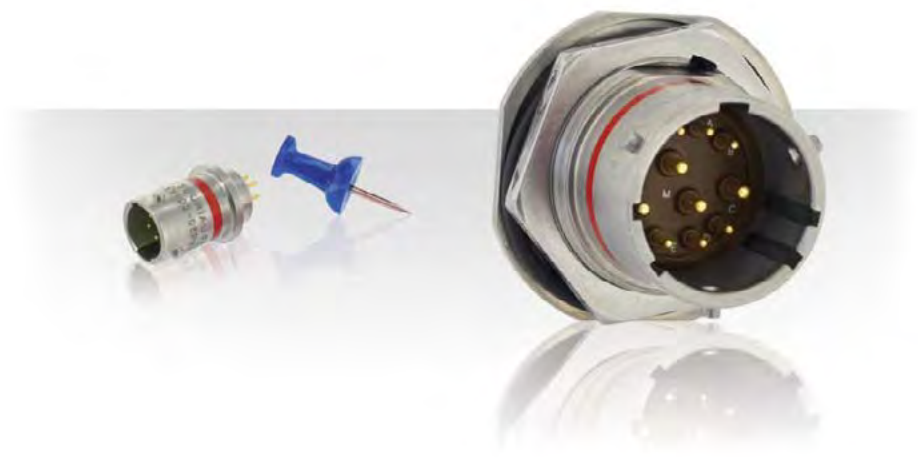


Type 25: Solder mount receptacle

Type of contact	Specification	Type of shell	Contact size	W max	X min	Y min	ØZ max
Solder cup (P)	WF (F38999)	21	20 & 22	N/A	3.45	N/A	N/A
		23	20 & 22	4.5	N/A	N/A	N/A
		25	20 & 22	N/A	2.3	N/A	N/A
PCB (C)	WF (F38999)	21	16	6.65	3.45	N/A	N/A
			20			0.89	0.71
			22			0.89	0.38
		23	16	11.5	3.3	N/A	N/A
			20			0.89	0.71
			22			0.89	0.38
		25	16	10.75	3.4	N/A	N/A
			20	12.15		0.89	0.71
			22	13.55		0.89	0.38
	840 (8D)	21	20	8.05	4.85	4.5	0.62
			22	7.32	4.12	3.82	0.53
		23	20	11.8	3.6	4.5	0.62
			22	10.6	2.4	5.75	0.53
		25	20	10.15	3.7	4.5	0.62
			22	9.42	2.97	3.82	0.53
	850 (8D)	21	20	13	9.8	6	0.62
			22	10.69	7.49	7.35	0.53
		23	20	15.3	7.1	6.25	0.62
			22	16.2	8	9.25	0.45
		25	20	15.1	8.65	6	0.62
			22	12.79	6.34	7.35	0.53

Note: for other contact length, please consult us.

Note: All dimensions are in millimeters (mm)



Description

- Bayonet coupling connector
- Micro miniature connector based on MIL-DTL-38999 standard
- Glass sealed hermetic:
  . high hermeticity performance
  . compact low profile
- Various mounting styles:
  . compact solder mount receptacle
  . easy to replace jam nut receptacle
- Solder cup or PC tail contacts
- Specific fuel tank version for long term fuel immersion

* 另有雙向穿艙式連接器，參閱 P127

Technical features

Mechanical

- **Shell:** Stainless steel
- **Shell plating:** Passivated
- **Insulator:** Glass bead
- **Contact:** Nickel iron
- **Contact plating:** Gold
- **Endurance:** 500 mating cycles

Electrical

- **Test voltage:**
  Service I: 1800V
  Service M: 1300V
- **Contact resistance:** 2 mΩ
- **Insulation resitance:**
  ≥ 5000MΩ (at 500Vdc)
- **Contact rating:**
  Size 16: 10 A
  Size 20: 5 A
  Size 22D: 3 A
  Size 26: 1.8 A

Environmental

- **Operating temperature:**
  -55°C to +175°C
- **Sealing mated connectors:**
  IP67 (1 meter for 30 min minimum)
- **Salt spray:** 48 hours
- **Hermeticity:**
  Leak rate < 1.10^{-7} atm.cm^3/s
  (helium gas test)

Ordering information

Basic series	8STA	1	Y	02	05	P	N	A73

Shell type
1: Solder flange
7: Jam nut receptacle

Class
Y: Hermetic version

Shell size: 02, 04, 06, 08, 10, 12, 14

Contact layout: See next page for available layouts

Type of contact
C: Male PC tail contacts
P: Male solder cup contacts

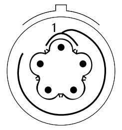
Orientation
N: Red / **A:** Yellow / **B:** Blue / **C:** Orange / **D:** Green

Specification (mandatory)
022: Fuel immersible version
A73: Tin plating on contacts rear side and gold plating on contacts front side

Contact layouts (viewed from front face of male insulator)

02

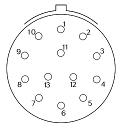
05



5#26
Service R

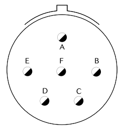
10

35

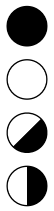


13 #22D
Service M

98



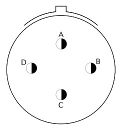
6 #20
Service I



Contact #26
Contact #22D
Contact #20
Contact #16

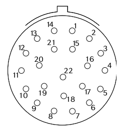
12

04



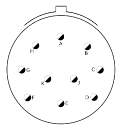
4 #16
Service I

35



22 #22D
Service M

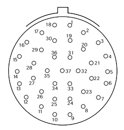
98



10 #20
Service I

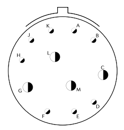
14

35



37 #22D
Service M

97



4 #16, 8 #20
Service I

Contact layouts (matrix)

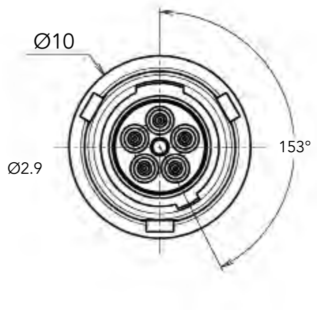
Shell size	Layout	Hermetic 8STA	Number of contacts			
			#26	#22D	#20	#16
02	02-05	OK	5			
	02-35	Available on request, please consult us		3		
04	04-05	Available on request, please consult us	5			
	04-06	Available on request, please consult us	6			
	04-35	Available on request, please consult us		3		
06	06-05	Available on request, please consult us	5			
	06-09	Available on request, please consult us	9			
	06-35	Available on request, please consult us		5		
08	08-12	Available on request, please consult us	12			
	08-35	Available on request, please consult us		6		
	08-98	Available on request, please consult us			3	
10	10-02	Available on request, please consult us				2
	10-04	Available on request, please consult us			4	
	10-05	Available on request, please consult us			5	
	10-22	Available on request, please consult us		4		
	10-26	Available on request, please consult us	26			
	10-35	OK		13		
	10-98	OK			6	

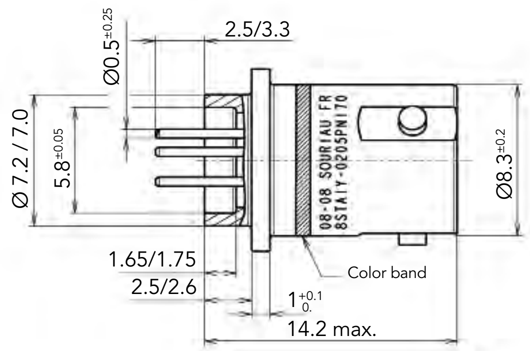
Shell size	Layout	Hermetic 8STA	Number of contacts				
			#26	#22D	#20	#16	#12
12	12-03	Available on request, please consult us				3	
	12-04	OK				4	
	12-08	Available on request, please consult us			8		
	12-26	Available on request, please consult us		6			2
	12-35	OK		22			
	12-43	Available on request, please consult us	43				
	12-98	OK			10		
14	14-05	Available on request, please consult us				5	
	14-15	Available on request, please consult us			14	1	
	14-18	Available on request, please consult us			18		
	14-19	Available on request, please consult us			19		
	14-35	OK		37			
	14-68	Available on request, please consult us	68				
	14-97	OK			8	4	

OK = SOURIAU's layout

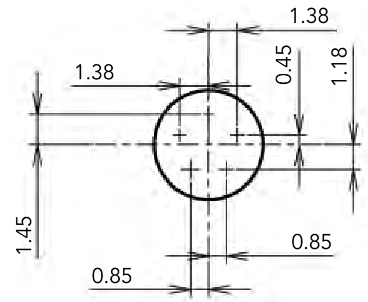
Dimensions

Solder flange receptacle - size 02



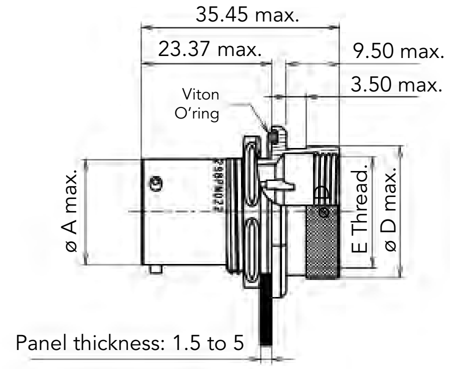


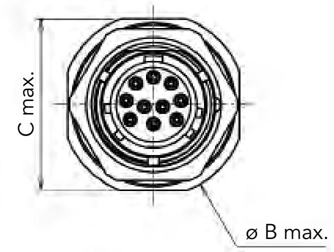
PCB layout



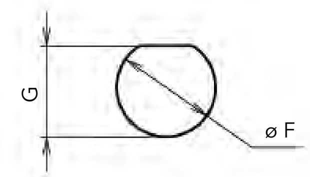
Please consult us for other shell sizes.

Jam nut receptacle - sizes 10 to 14





Panel cut out



Shell size	ø A max.	ø B max.	C max.	ø D max.	E Thread	Panel cut out	
						ø F ±0.10	G ±0.20
10	15.04	28.40	25.95	20.50	M18 x 1	17.70	16.80
12	19.09	33.00	30.75	23.67	M21 x 1	22.70	20.90
14	22.26	36.30	33.85	26.84	M24 x 1	25.70	24.10

Please consult us for other shell sizes.

Note: All dimensions are in millimeters (mm)

Description

- Rackable/screw coupling connector
- MIL C 24308 C compliant
- High density D-Sub interface
- Glass sealed hermetic
- 2 fixing types:
  . Fast and interchangeable screw mounting
  . Hermetic solder mounting
- Solder cup or PC tail contacts
- Large shell plating type:
  . Gold
  . Tin
  . Cadmium

Technical features

Mechanical

- **Shell:**
  Steel
- **Shell plating:**
  Cadmium, gold, bright tin lead, mat RoHS tin
- **Contact:**
  Ferrous alloy
- **Contact plating:**
  Gold, mat tin
- **Endurance:**
  500 mating/unmating operations

Electrical

- **Contact rating:**
  5A max
- **Test voltage:**
  750 Vrms (max Vrms/50Hz)
- **Insultaion resistance:**
  ≥ 5000 MΩ
- **Contact resistance:**
  ≤ 14 mΩ

Environmental

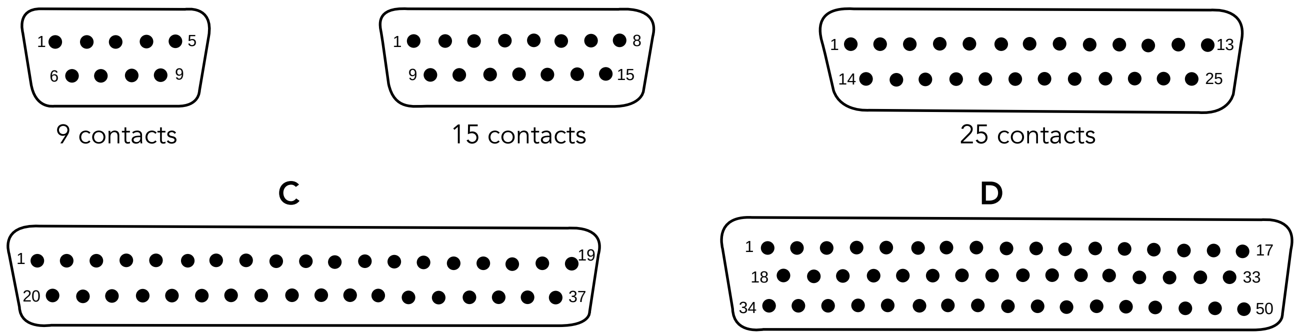
- **Operating temperature:**
  -55°C to 125°C
- **Hermeticity:**
  Leak rate < 1.04.10^{-5} atm.cm^3/s
  (helium gas test)
- **Salt spray:**
  48 hours (cadmium)
  24 hours (tin)

Hermetic Connectors | D-Sub Series

Contact layouts

Viewed from front face of male insulator. Contacts are individually numbered on both side of insulator.

E A B



9 contacts 15 contacts 25 contacts

C D

37 contacts 50 contacts

Ordering information

Basic Series	D	E	H	09	P	002
Shell size: **E, A, B, C, D**		●				
Class: **H:** Hermetic			●			
Number of contacts: **09** (E), **15** (A), **25** (B), **37** (C), **50** (D)				●		
Contact type: **P:** Pin					●	
Specification:						●

Shell plating	Contacts plating	Solder mounting – with locking stub: Solder bucket	Solder mounting – with locking stub: Straight PCB contact	Solder mounting – without locking stub: Solder bucket	Solder mounting – without locking stub: Straight PCB contact	Screw mounting: Solder bucket	Screw mounting: Straight PCB contact
Cadmium	Gold	**006**	**008**	**002**	**004**	**102**	**104**
Tin lead	Gold	**005**	**010**	**007**	**016**	**107**	**116**
Mat tin	Mat tin	-	**009**	-	-	-	-
	Gold	-	-	-	**026**	-	-
Gold	Gold	-	-	-	-	**122**	**124**

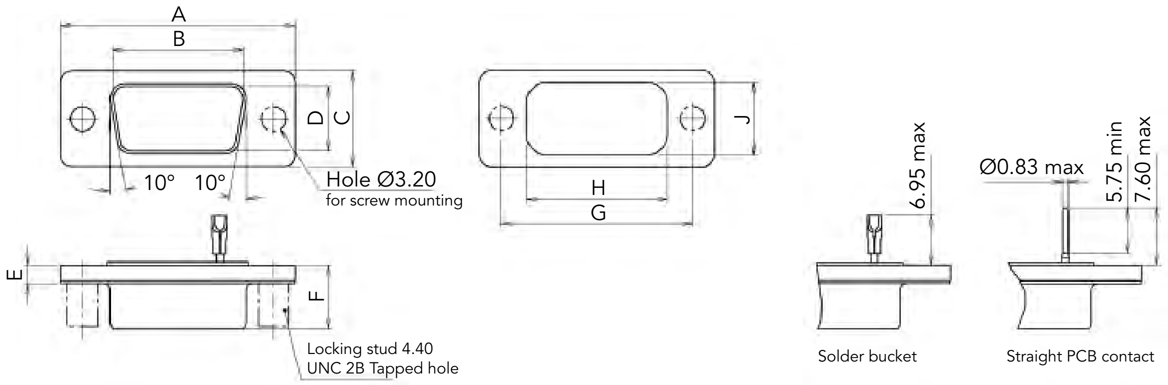
Cross reference list

SOURIAU	M24308 (not QPL)
DEH09P005	M24308/9-1
DAH15P005	M24308/9-2
DBH25P005	M24308/9-3
DCH37P005	M24308/9-4
DDH50P005	M24308/9-5

SOURIAU	M24308 (not QPL)
DEH09P007	M24308/9-11
DAH15P007	M24308/9-12
DBH25P007	M24308/9-13
DCH37P007	M24308/9-14
DDH50P007	M24308/9-15

Dimensions

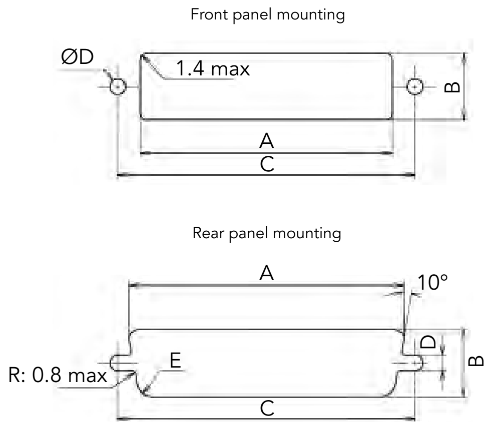
D-Sub hermetic



Shell size	A $^{0/+0.30}$	B	C $^{0/+0.30}$	D	E $^{+0.10}_{-0.20}$	F max	G screw mounting	H $^{\pm0.20}$	J $^{\pm0.20}$
E	30.80	16.94	12.54	8.41	2.50	8.65	24.99	18.40	9.40
A	39.14	25.27					33.32	23.70	
B	53.03	39.00					47.04	37.56	
C	69.29	55.45			2.70		63.50	53.97	
D	66.92	52.86	15.36	11.10			61.11	50.80	12.70

Panel cut-out

Screw mounting

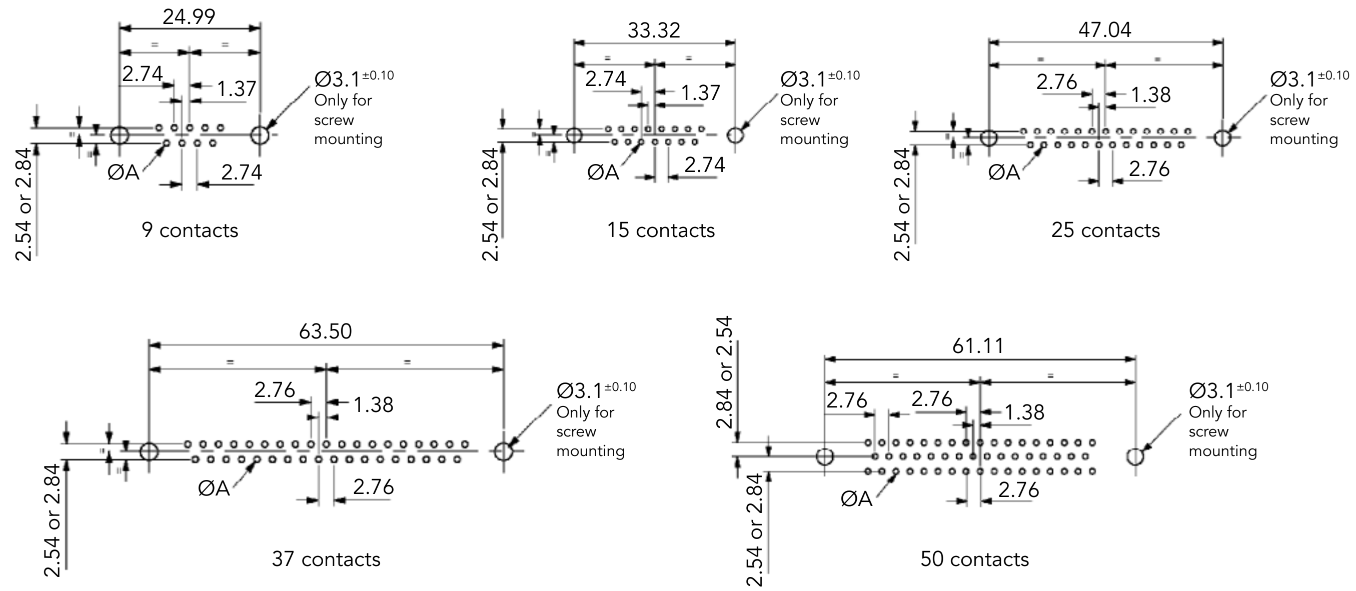


Shell size	Mounting type	A $^{\pm0.1}$	B $^{\pm0.1}$	C $^{\pm0.1}$	D $^{\pm0.05}$ only for screw mounting	E $^{\pm0.1}$
E	Front	18.80	9.90	24.99	3.20	-
	Rear	20.50	11.40			3.30
A	Front	24.10	9.90	33.32	3.20	-
	Rear	28.80	11.40			3.30
B	Front	37.90	9.90	47.04	3.20	-
	Rear	42.50	11.40			3.30
C	Front	54.30	9.90	63.50	3.20	-
	Rear	59.10	11.40			3.30
D	Front	51.20	13.20	61.11	3.20	-
	Rear	56.30	14.10			3.30

Note: All dimensions are in millimeters (mm)

PCB drilling

PCB contact version



Alternative sealing technologies

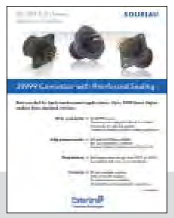
Resin Sealed Connector

Connector with reinforced sealing. Resin sealed for harsh environment applications. Up to 1000 times higher sealing than standard version.

Wide availability:
. All 38999 layouts.
. Aluminum, including RoHS Black Zinc Nickel.
. Composite for ultra low weight.
. Titanium or stainless steel for outdoor application.

Temperature:
. Fast temperature change: from -55°C to 125°C.
. Compatible with wave or iron soldering.

Large contacts offer:
. PC tail or solder contacts.
. Male or female contacts.
. Tin plated version available.
. Shoulderless contact available, consult us.



See «8LT, 8ST & 8D Series - Reinforced Sealing» datasheet on www.souriau.com

Standard glass to metal sealing technologies

Removable Crimp Contacts

A technology combining crimp contacts superiority with glass to metal perfect sealing

High hermetic performance:
. Glass to metal sealing: leakage of less than 10^{-9} atm.cm^3/s.

Removable crimp contacts:
. RoHS: no lead used.
. Long lifetime: superior to solder cup contacts in kerosene immersion.
. Easy MRO: contact replacement.

Long term fuel immersion materials:
. Performances guaranteed for minimum 90,000 hours in fuel immersion.

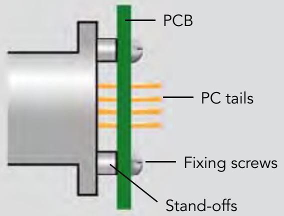
Wide Availability:
. EN3646 (Airbus Qualified Products).
. EN2997, EN3645, MIL-DTL-38999.

See «MIL-DTL-38999, EN3646, EN2997 Fuel Tank Connector» datasheet on www.souriau.com

Hermetic Receptacles with Stand-offs

Easy and robust PCB mount feature for hermetic receptacles.

User friendly - easy to assemble:
. 3 fixing screws.
. No need of additional PCB fixing tool when soldering the contacts.



Adapted to harsh environment:
. Stand-offs directly machined into the connector.
. Excellent grounding of the PCB to the connector shell through the stand-offs.
. Excellent vibration and shock resistance: PC tail to PCB stresses are eliminated by the stand-offs.

Compact:
. Hermetic receptacle compact design maintained with a profile smaller than the double flange version.

See «Hermetic Receptacles with Stand-offs» datasheet on www.souriau.com

Standard glass to metal sealing technologies

8LT27 Rack & Panel Hermetic Connector

Rack & panel glass sealed receptacle. Combine the easy use of blind mateable connectors to excellent hermeticity.

Blind connection:
. Per HE308 standard.
. Fixed receptacle to the float mounting plug: just push to connect... and release to disconnect!
. Superior misalignment allowances:

High pressure performance:
. Glass to metal sealing receptacle
. Helium leakage of less than 10^{-7} atm.cm^3/s.
. Pressure resistance.

See «8LT27 Series - Hermetic Connectors» datasheet on www.souriau.com

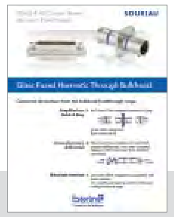
Hermetic Feedthrough

Glass fused hermetic through bulkhead. Connector derivatives from the bulkhead feed-through range.

Simplified use. Quick and easy:
. Each face of the receptacle mates to a plug.
. Quick cable integration.
. Easy maintenance.

Secured pressure differential:
. Glass fused insert enables it to resist high pressure differences, even when unmated.
. Leakage 1,000 times lower than standard connectors.

Male/male interface:
. Each side of the receptacle is populated with male contacts.
. For male/female options, see the reinforced sealing bulkhead range.



See «Hermetic Feed-through» datasheet on www.souriau.com

Standard glass to metal sealing technologies

Hermetic Compact Connector Metallized

AM89 Series Servo Control Connector. Shielded and space saving receptacle with hermetic performance.

High density solution:
. 4 contacts #20 in standard.
. Other arrangements available on request.

High hermeticity:
. Glass to metal sealing technology.
. Leak rate <1.10^{-7} atm.cm^3/s.
. Housing made of stainless steel.

Compact solution:
. Oval flange solution.

Large range of applications:
. Suitable for primary and secondary actuators.

See «AM89 Receptacle - Hermetic Connectors» datasheet on www.souriau.com

Solder Contacts on Both Sides of Bulkhead

8STA connector designed for high vibration environment. Wire soldered on both sides of the feed-through: no plugs needed.

Cost and space saving:
. Adapted to space-constrained area.
. No plugs necessary.

Easy to solder:
. Contacts fully tin plated.
. Different contact sizes available.

High performance sealing:
. <1.10^{-7} atm.cm^3/s.

Heat shrink boot version:
. AM44 connector with specific shell:

See «8STA Series Hermetic Feed-through» datasheet on www.souriau.com

Hermetic Connectors | Range Extension

Standard glass to metal sealing technologies

Contact Grounded on the Shell

Hermetic connector with one or several contacts directly grounded on the shell.

Time saving:
. No specific wiring operation required.

Quality control:
. Grounding operation done in controled conditions.

Compact:
. No additional pigtail needed.

Thermocouple

Hermetic connector with Kp/Kn contacts for integration into thermocouple sensors.

Standard interface:
. Solution compatible with EN2997, MIL-DTL-38999, MIL-DTL-26482 and EN3646 standards.

High hermeticity:
. Leak rate < 1.10^{-7} atm.cm^3/s (helium gas test).

Easy integration into thermocouple sensors:
. Same conductive materials used as thermocouple sensors.
. Solder flange with specific dimensions available.
. Housing available in 304L, 316L and other materials on request.

RoHS Compliant

MSH/MPH series

Connectors for navy applications and heavy duty industries

推薦海軍使用之防水連接器

SOURIAU
Connection Technology

SOURIAU

Connectors and interconnect systems for harsh environments

The company designs, manufactures and markets high performance interconnect solutions for severe environments from industrial broadline and universal ranges to complex system with integrated functions: filtering, high speed data transmission, hermetic seal, separation mechanism, remote handling, underwater mating, ...

Industrial

Aeronautical

Equipment & system

The dedicated end markets for SOURIAU's products are aeronautical, defense-space and industrial.

Railway
Geophysics
Manufacturing environment
Instrumentation
Automation & process

Civil & military aircraft
Helicopter
Weapon delivery system
Avionics

Military marine
Communications
Satellites
Launcher & missile

SOURIAU was established in 1917 and has been created by successive acquisitions of the industrial, aeronautical, defense and space activities of SOURIAU, JUPITER and BURNDY.

The Group's products are engineered and manufactured in the USA and Dominican Republic, Europe and Morocco, Japan and India, and sold by a worldwide sales and marketing organization, and in addition to SOURIAU's offices, a large network of licensed distributors and agents.

SOURIAU complies with most of national and international Quality Assurance Standards, production unit with ISO 14001.

Quality Certificate Management System
ISO 9001

Environment Certificate Management System
ISO 14001

Quality Certificate Management System
Aeronautic Industry : EN 9100

Applications

The highly robust design of MSH/MPH series makes them particularly suited for naval and heavy-duty industry applications.

Navy

- upper decks
- radars
- monitoring and power supply racks
- platform
- armament systems

Offshore industry

- platform
- gas or petrol exploitation
- heavy plant
- power units

Ground-based armament

- power supply units
- shelters
- communications networks
- artillery
- radars

Rail transport

- inter-carriage connections
- power supply racks
- trackside beacons
- power supply units

Heavy duty industry

- steel industry
- shipbuilding
- petrochemicals
- power industry
- mining

Construction industry

- cranes
- heavy plant
- tunneling machines
- concreting
- power supply units

Contents

Introduction

MSH and MPH series cylindrical connectors comply with environmental tests of French standard NFC 93422 and satisfy the requirements of marine specification 538c AGB/T. They are listed in GAM T1 and MAT 6840005.

- **Two series are available:**

Series	Shell	Remarks
MSH	Treated aluminium alloy	HALOGEN free
MPH	Bronze	HALOGEN free

These series are available with 8 shell sizes and large variety of layouts including signal, power and RF contacts.

NEW

- **New Cadmium Free plating available for MSH series:**
  - MSH Aluminium shells plated with Tin over nickel to be compliant with ROHS requiremer

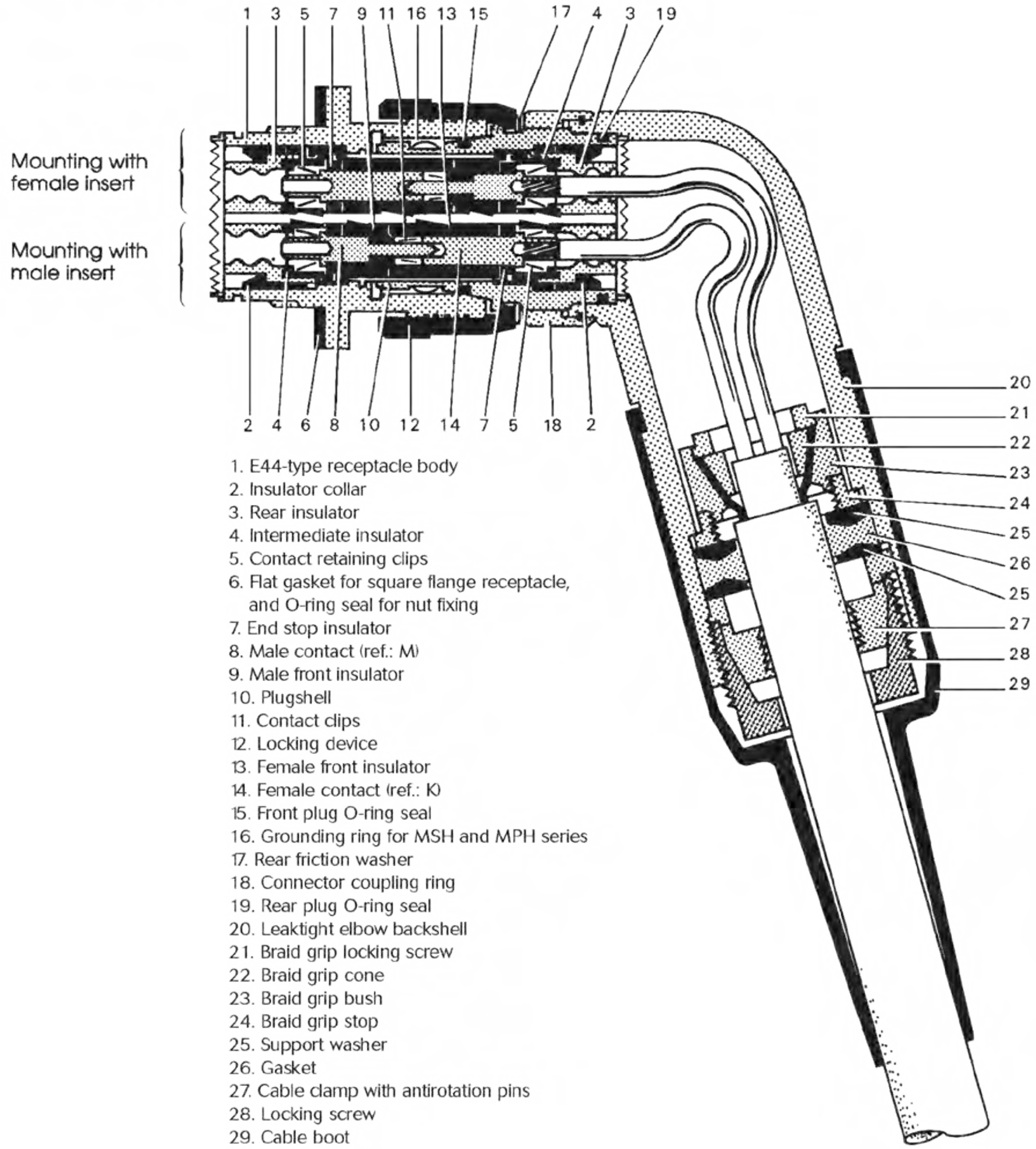
RoHS Compliant

Features and benefits

The very ruggedized design of MSH/MPH series brings the following benefits :

	Features	Benefits
Mechanical	• Square threaded screw coupling (plug on receptacle). • Conical coupling interface.	• High vibration and shock withstanding. • Suitable for Harsh Environment application (railways, mining, public works...).
	• Special cone-design on backshell for cable braid retention.	• Extreme resistance to pull out or transverse forces on cable (80 kg).
	• 5 key mechanical polarisation. • Scoop proof shells.	• Reliable and safe mating.
Environmental	• Oring sealing between plug and receptacle. • Packing seal on backshell to cable interface. • Cable boot on backshell interface.	• High performance sealing: - permanent IP68, - Permanent water immersion up to 2 meters, - Compliance with main Marine and Heavy Industries cable.
	• Tin plated Aluminium or Marine bronze shells	• High corrosion resistance (salt spray, sea water, sand, dust, hydrocarbons fluids...). • RoHS compliant.
Electrical	• Dismountable crimp contacts.	• Easy wiring.
	• Growding ring on plug side.	• EMI/RFI/protection.

Description



1. E44-type receptacle body
2. Insulator collar
3. Rear insulator
4. Intermediate insulator
5. Contact retaining clips
6. Flat gasket for square flange receptacle, and O-ring seal for nut fixing
7. End stop insulator
8. Male contact (ref.: M)
9. Male front insulator
10. Plugshell
11. Contact clips
12. Locking device
13. Female front insulator
14. Female contact (ref.: K)
15. Front plug O-ring seal
16. Grounding ring for MSH and MPH series
17. Rear friction washer
18. Connector coupling ring
19. Rear plug O-ring seal
20. Leaktight elbow backshell
21. Braid grip locking screw
22. Braid grip cone
23. Braid grip bush
24. Braid grip stop
25. Support washer
26. Gasket
27. Cable clamp with antirotation pins
28. Locking screw
29. Cable boot

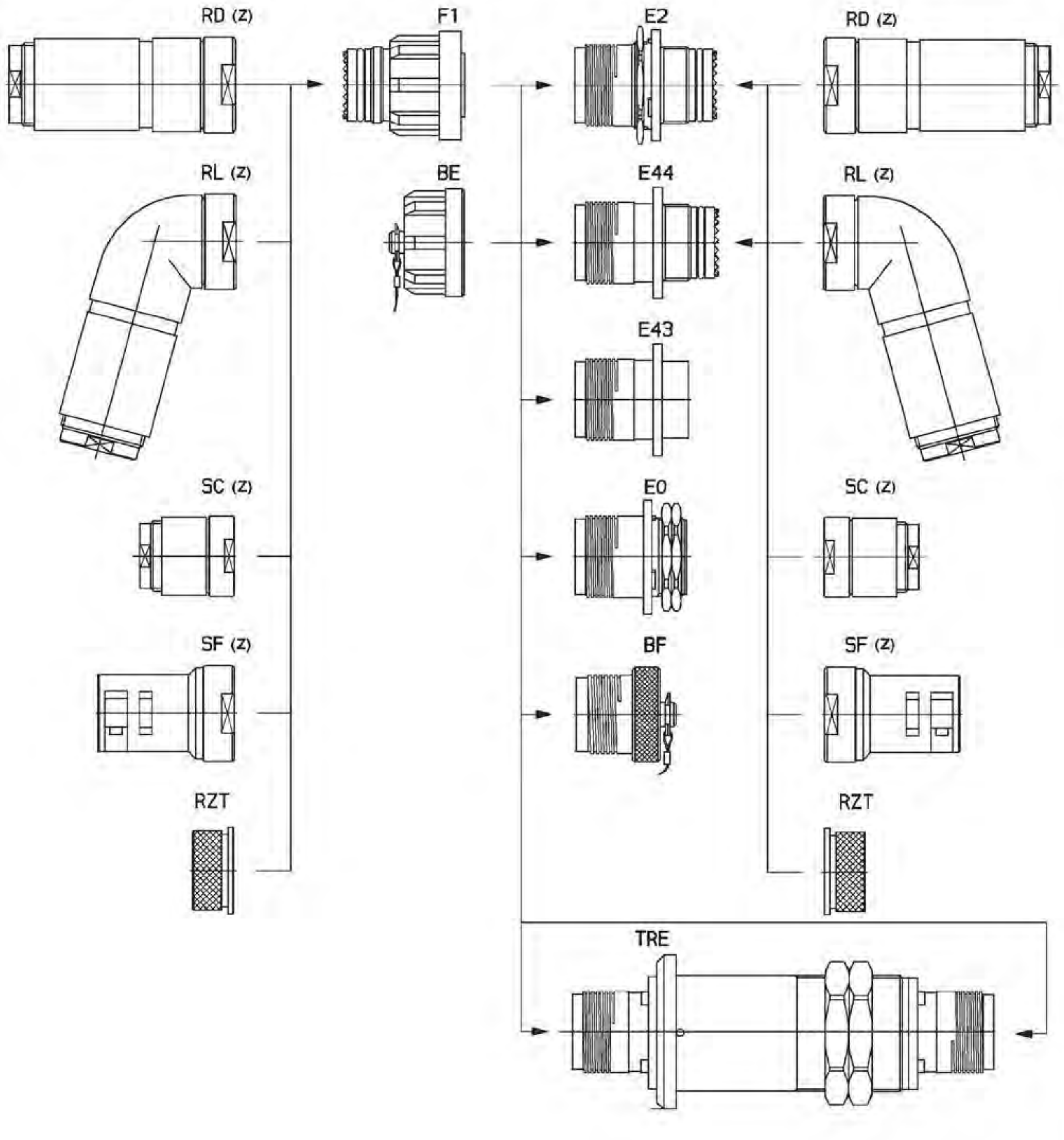
• Eight shell sizes, numbered 16-17-18-20-22-24-26-28.
•Assembly and removal of push-on contacts into the insulator via the rear of the shell.
• Assembly and removal of screw contacts via the rear of the insulator.

• Leaktight sealing caps for plugs and receptacles.
• Watertightness of shells and accessories via O-ring seals (15 and 19).
• Seal with the cable via cable gland-type elastomer seal (26).

• Cable held at 3 levels: cable clamp (27 and 28), cable gland (25 and 26), braid grip (21, 22, 23 and 24).
• Cable boot (29) for limiting the radius of curvature of the cable on leaving the connector.

General configuration

For single or multi-contact signal, coaxial and power layouts with pins of less than 8 mm diameter.



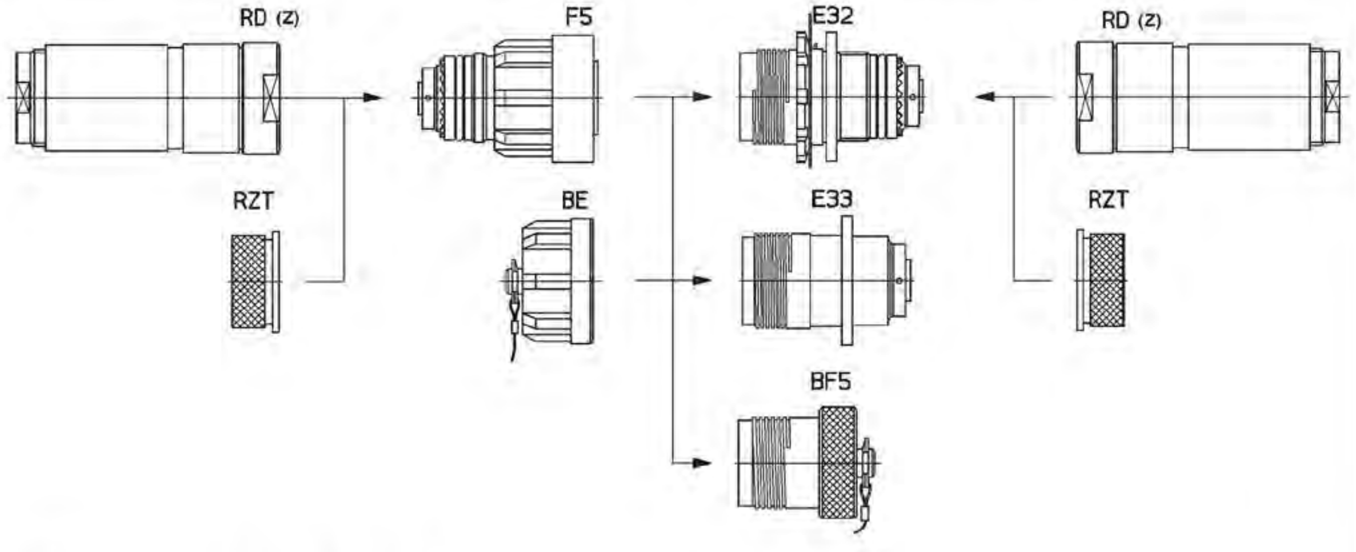
To order accessory only : add Z suffix to the P/N.

See glossary page 9.

MSH/MPH series

Single contact connectors configuration

For single contact power layouts with pins between 10 mm and 25 mm in diameter.



To order accessory only : add Z suffix to the P/N.

Glossary

Series		MSH			MPH		
	Shell type						
Standard shell	Plug	FZ		F1	FZ		F1
	Receptacle, front axial nut		E2			E2	
	Receptacle, 4-screw fixing		E44			E44	
	Receptacle, no accessory options, 4-screw fixing		E43			E43	
	Receptacle, no accessory options, rear axial nut		E0			E0	
	Bulkhead		TRE			-	
	Plug sealing cap		BF			BF	
	Plug sealing cap with eyelet lanyard		BFC			BFC	
	Receptacle sealing cap		BE			BE	
	Receptacle sealing cap with ring lanyard		BEB(A)			BEB(A)	
	Receptacle sealing cap with eyelet lanyard		BEC			BEC	
(A) For E2-type receptacle.							
Long shell power single contact	Plug			F5			F5
	Receptacle, front axial nut			E32			E32
	Receptacle, 4-screw fixing	(6)		E33			E33
	Plug sealing cap			BF5			BF5
	Plug sealing cap with lanyard			BF5C			BF5C
Accessories(1)							
Leaktight straight backshell		RD(3)					
Leaktight elbow backshell(2)		RL(3)					
Non-leaktight cable clamp(2)		SC(3)					
Non-leaktight wire grip(2)		SF(3)					
Thread mask backshell		RZT					

MSH/MPH series

Characteristics

Mechanical

- **Shells**
  - Series MSH: aluminum alloy.
  - Protection:
    - Tin plated on nickel underlayer;
      Nickel: 10 µm
      Tin: 35 µm.
  - or cadmium plated bichromated-treated on nickel under layer (standard)
- Series MPH: marine bronze.

- **Seal and cable boot**
  - Elastomer.

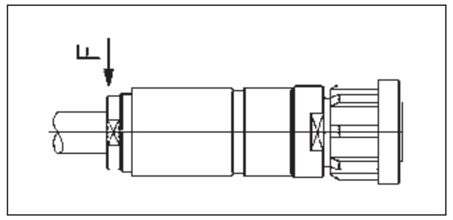
- **Flexible insulation, front and rear**
  - Silicone elastomer.

- **Rigid insulation**
  - Polyoxy phenylene reinforced PPOm.

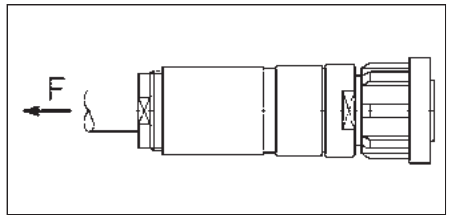
- **Contacts**
  - Copper or copper alloy.
  - Protection : gold plating on nickel for contacts ≤ ∅ 8.
  - Silver on nickel for contacts > ∅ 8.

- **Mechanical endurance**
  - 200 to 500 locking/unlocking cycles (depending on size).

- **Charge in cantilever: ≤ 800 N**



- **Cable pulling: ≤ 800 N**



- **Free fall:** 2,5 m
  - Trampling: ≤ 80 kg.

Electrical

- **Withstand voltage:**
  At normal pressure
  1500 V between contacts size 20,
  2500 V for the other contacts.

- **Insulation resistance:**
  - Cabled plug : ≥ 10^4 MΩ
  - Cabled receptacle : ≥10^4 MΩ
  - Coupled connectors : ≥5.10^3 MΩ

- **Metallization Resistance:**
  On coupled connectors between the receptacle plate and rear of plugshell : ≤ ≤ 2.5 mΩ

Environmental

- **Operating temperature:**
  -55°C to +125°C.

- **Immersion resistance:**
  - 0.2 bars, serie MSH - 2 bars, serie MPH.

- **Impact:**
  100 g - 11 ms - 2 impacts/direction/ axes.

- **Vibrations:**
  - 0.35 mm during 1 h - sweep from 5 to 55 Hz on the 3 axis.

- **Salt spray:**
  - Series MSH: 6 x 48 h cycles.
  - Series MPH: 20 x 48 h cycles.

- **Humid heat:** 56 days at 40°C.

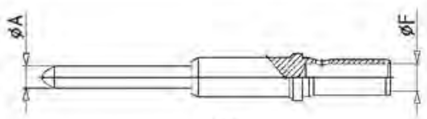
- **Resistance to liquids:**
  - Kerosene, JP4, 35A, 3515 - oronire and skydrol 508/A.

- **NBC Protection:** Resistant to decontaminating agents.

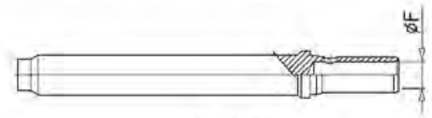
MSH/MPH series

Contacts

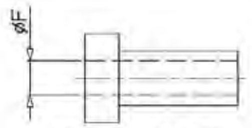
Crimp contacts



Pin



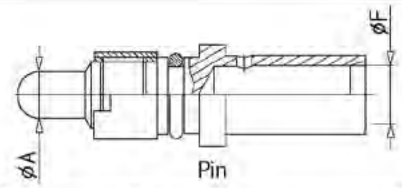
Socket



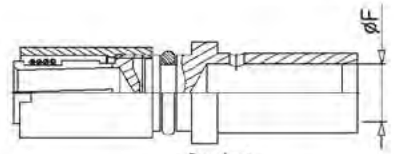
Reducing sleeve

Type	Size	Part number	Max. current A	Contact resistance mΩ	Permissible cables Section mm²	Permissible cables AWG gage	Ø A contact	Ø F barrel
Male	20	M-20-MS	7	≤ 2	0,38 to 0,93	22 to 18	1,6	1,35
Female		K-20-MS						
Male	16	M-16-MS	13	≤ 1,5	0,93 to 1,91	18 to 14	1,6	2.00
Female		K-16-MS						
Male	12	M-12-MS	20	≤ 1,2	1,91 t o3,18	14 to 12	2,4	2,55
Female		K-12-MS						
Reducing sleeves	20	MKMS-20-28			0,1 to 0,15	28 to 26		0,65
		MKMS-20-24			0,21 to 0,38	24 to 22		0,95
	16	MKMS-16-26			0,15 to 0,6	26 to 20		1.2
		MKMS-12-22			0,1 to 0,38	28 to 22		0.9
	12	MKMS-12-18			0,38 to 0,93	22 to 18		1,40
		MKMS-12-16			0,6 to 1,34	20 to 16		1,70

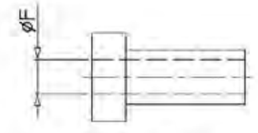
Power crimp contacts



Pin



Socket

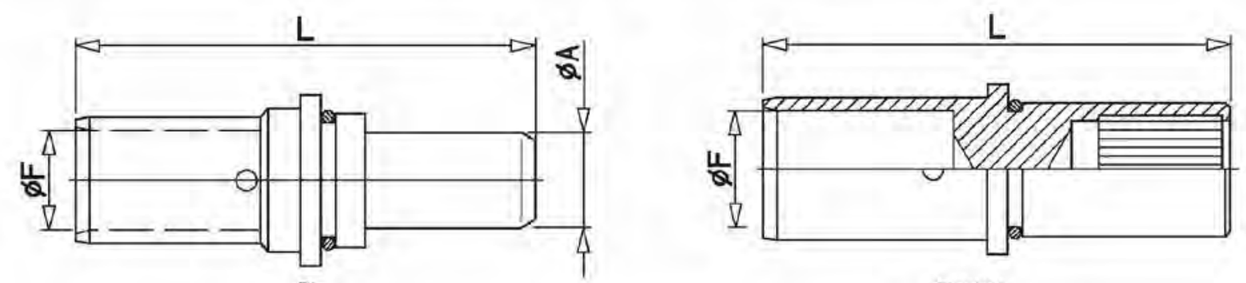


Reducing sleeve

Type	Size	Part number	Max. current A	Contact resistance mΩ	Permissible cables Section mm² Flexible	Permissible cables Section mm² Extra flexible	Ø A contact	Ø F barrel
Male	8	M-8-MS	45	≤ 1	5,15 to 10	3,18 to 6	3,6	4,4
Female		K-8-MS						
Male	6	M-6-MS	75	≤ 0,8	10	6	4,6	5
Female		K-6-MS						
Male	6E	M-6E-MS			16	10		5.5
Female		K-6E-MS						
Male	25C	M-25C-MS	120	≤ 0,5	25	16	6,7	7,7
Female		K-25C-MS						
Male	25CE	M-25CE-MS			35	25		9
Female		K-25CE-MS						
Male	50MC	M-MS-50MC	170	≤ 0,3	50	40	8	10,3
Female		K-MS-50MC						
Reducing sleeve	8	MK-MS-8-12			3,18 to 5,15			3,4

Contacts

Power single crimp contact



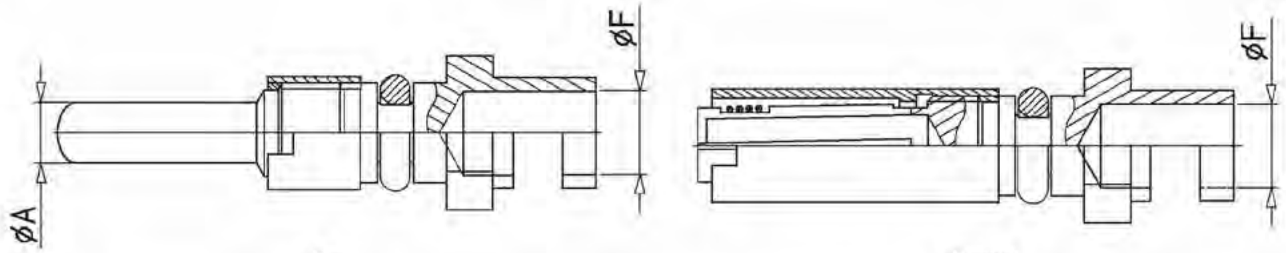
Pin Socket

Type	Size	Part number	Max. current A	Contact resistance mΩ	Permissible cables Section mm²		Ø A contact	Ø F barrel	L Max
					Flexible	Extra flexible			
Male	50C	M-50C-MS	235	≤ 0,08	50	45	10	10,8	65
Female		K-50C-MS							66
Male	50CE	M-50CE-MS			60	50		11,8	65
Female		K-50CE-MS							66
Male	70C	M-70C-MS	291		70	60		12,5	65
Female		K-70C-MS							66
Male	70CE	M-70CE-MS			95	70		14,5	65
Female		K-70CE-MS							66
Male	95C	M-95C-MS	352	≤ 0,05	95	70	14	14,5	68
Female		K-95C-MS							66
Male	95CE	M-95CE-MS			120	95		17	68
Female		K-95CE-MS							69
Male	185C	M-185C-MS	535	≤ 0,03	185	150	18	20,5	70
Female		K-185C-MS							71
Male	185CE	M-185CE-MS			240	185		23	70
Female		K-185CE-MS							71
Male	300C	M-300C-MS	723	≤ 0,02	300	240	25	26	80
Female		K-300C-MS							81
Male	300CE	M-300CE-MS			350	300		28	80
Female		K-300CE-MS							81

MSH/MPH series

Contacts

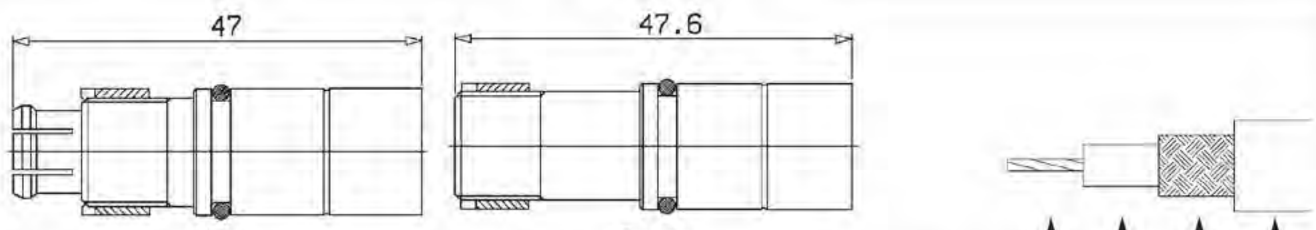
Power solder contacts



Pin Socket

Type	Size	Part number	Max. current A	Contact resistance mΩ	Permissible cables Section mm²	Ø A contact	Ø F barrel
Male	6MC	M-MS-6MC	27	≤ 1	5,94 Max.	2,8	3,4
Female		K-MS-6MC					
Male	10MC	M-MS-10MC	45	≤ 1	10,5 Max.	3,6	5
Female		K-MS-10MC					
Male	16MC	M-MS-16MC	65	≤ 0,8	15,62 Max.	4,6	6
Female		K-MS-16MC					
Male	25MC	M-MS-25MC	90	≤ 0,8	24,62 Max.	5,7	7,8
Female		K-MS-25MC					
Male	35MC	M-MS-35MC	120	≤ 0,5	34,67 Max.	6,7	9
Female		K-MS-35MC					

Watertight coaxial contacts

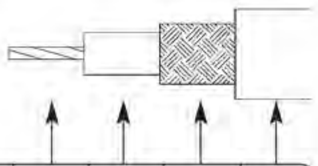


Male Female

Male part number	Female part number	Impedance Ω	Withstand voltage, Sea level Vrms 50 Hz	Max Current A	Insulation resistance MΩ	Contact resistance MΩ	Part number of permissible cables			∅ A max.	∅ B max.	∅ C max.	∅ D max.
							MIL C17	NFC 93.550	Marine 599a TQL/TR				
CM-50A-MSH	CK-50A-MSH	50	2500	12	> 5000	≤ 3	/	/	50MSB	1,9	7,6	8,6	11
CM-75A-MSH	CK-75A-MSH	75	2700	5		≤ 4	/	/	75MSB	1			

Contacts

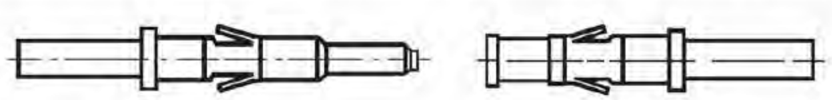
Standard - watertight - coaxial contacts

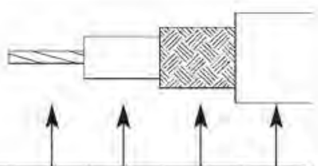


Male part number	Female part number	Impedance Ω	Withstand voltage, Sea level Vrms 50 Hz	Max Current A	Insulation resistance MΩ	Contact resistance MΩ	Part number of permissible cables: MIL C17	NFC 93.550	Marine 599a TQL/TR	Ø A max.	Ø B max.	Ø C max.	Ø D max.
CM-501-MS	CK-501-MS	50	1200	4	> 5000	≤ 5	RG58 RG122	KX2(1) KX15	50PPN	1,1	3,1	4,1	6,5
CM-502-MS	CK-502-MS						RG174 RG316	KX3 KX22	50RPN 50RT		1,6	2,2	2,7
CM-507-MS	CK-507-MS						RG178	KX21			1,6	1,7	2,1
CM-508-MS	CK-508-MS						RG223 RG142	KX23	50PSB		3,1	4,3	6,5
CM-751-MS	CK-751-MS	75	1500	2,5	> 5000	≤ 8	RG59 RG140 RG302	KX6 KX25	75PPN 75PD	0,7	3,8	4,6	6,5
CM-752-MS	CK-752-MS						RG179				1,7	2,3	2,7
CM-758-MS	CK-758-MS								75PSB		3,8	4,8	6,5
OBT-CM-MS	OBT-CK-MS	Sealing plug											

(1) Withdrawn from spécification NFC93550; replaced by KX15.

Miniature - non-watertight - coaxial contacts

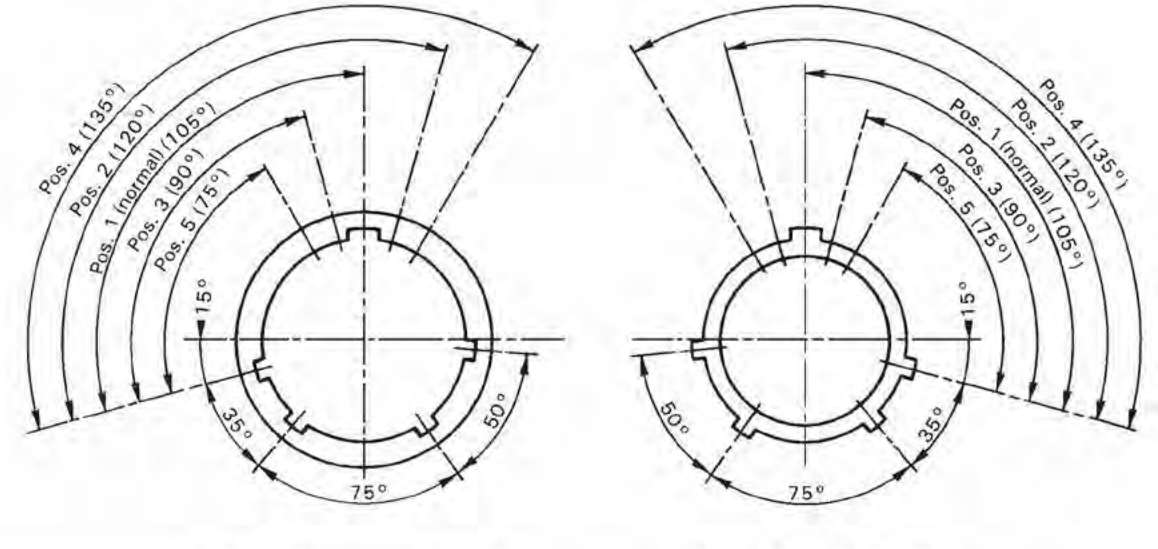




Male part number	Female part number	Impedance Ω	Withstand voltage, Sea level Vrms 50 Hz	Max Current A	Insulation resistance MΩ	Contact resistance MΩ	Part number of permissible cables: MIL C17	NFC 93.550	Marine 599a TQL/TR	Ø A max.	Ø B max.	Ø C max.	Ø D max.
CM-511-MS(1)	CK-511-MS(1)	50	600	2	> 5000	≤12	RG178	KX21		0,3	0,9	1,7	2
CM-512-MS(1)	CK-512-MS(1)						RG174 RG316	KX3 KX22	50RPN 50RT	0,5	1,6	2,2	2,8
CM-521-MS(2)	CK-521-MS(2)						RG178 RG174 RG316	KX21 KX3 KX22	50RPN 50RT	0,5	1,6	2,2	2,8

(1) "RADIALL" crimp contacts. (2) "RAYCHEM" thermo-soldering contacts.

Polarization keys



Cable code

Cable code \ Shell size	16	17	18	20	22	24	26	28
A0			22,2 to 23,1		29,2 to 30,2		34 to 35,4	
A	14,5 to 16	17,5 to 19	20,5 to 22,2	25,5 to 27	27,5 to 29,2	30,5 to 32	32,5 to 34	40,5 to 42
A1	13 to 14,5	17 to 17,5	19 to 20,5	24 to 25,5	26 to 27,5	29 to 30,5	31 to 32,5	39 to 40,5
B	12 to 13	15 to 16	17,5 to 19	22,5 to 24	24,5 to 26	27,5 to 29	29,5 to 31	37,5 to 39
B1	11 to 12	14 to 15	16 to 17,5	21 to 22,5	23 to 24,5	26 to 27,5	28 to 29,5	36 to 37,5
C	10 to 11	13 to 14	14,5 to 16	19,5 to 21	21,5 to 23	24,5 to 26	26,5 to 28	34,5 to 36
C1	9 to 10	12 to 13	13 to 14,5	18 to 19,5	20 to 21,5	23 to 24,5	25 to 26,5	33 to 34,5
D	8 to 9	11 to 12	12 to 13	16,5 to 18	18,5 to 20	21,5 to 23	23,5 to 25	31,5 to 33
D1	7 to 8	10 to 11	11 to 12	15 to 16,5	17 to 18,5	20 to 21,5	22 to 23,5	30 to 31,5
E	6 to 7	9 to 10	10 to 11	13,5 to 15	15,5 to 17	18,5 to 20	20,5 to 22	28,5 to 30
E1	5 to 6	8 to 9	9 to 10	12 to 13,5	14 to 15,5	17 to 18,5	19 to 20,5	27 to 28,5
F		7 to 8	8 to 9	10,5 to 12	12,5 to 14	15,5 to 17	17,5 to 19	25,5 to 27
F1		6 to 7	7 to 8	9 to 10,5	11 to 12,5	14 to 15,5	16 to 17,5	24 to 25,5
G								22,5 to 24
G1								21 to 22,5

References

Series	MSH	MPH	E2	RL	M	22	MSH MPH	37-20	RST	A1	T	P3	A

Standard shell – Shell type	MSH	MPH
Plug	FZ | F1	FZ | F1
Receptacle, front axial nut	E2	E2
Receptacle, 4-screw fixing	E44	E44
Receptacle, no accessory options, 4-screw fixing	E43	E43
Receptacle, no accessory options, rear axial nut	E0	E0
Bulkhead	TRE	-
Plug sealing cap	BF	BF
Plug sealing cap with eyelet lanyard	BFC	BFC
Receptacle sealing cap	BE	BE
Receptacle sealing cap with ring lanyard	BEB(A)	BEB(A)
Receptacle sealing cap with eyelet lanyard	BEC	BEC

(A) For E2-type receptacle.

Long shell power single contact	MSH	MPH
Plug	(6) F5	F5
Receptacle, front axial nut	(6) E32	E32
Receptacle, 4-screw fixing	(6) E33	E33 (6)
Plug sealing cap	(6) BF5	BF5
Plug sealing cap with lanyard	(6) BF5C	BF5C

Accessories(1)	
Leaktight straight backshell	RD(3)
Leaktight elbow backshell(2)	RL(3)
Non-leaktight cable clamp(2)	SC(3)
Non-leaktight wire grip(2)	SF(3)
Thread mask backshell	RZT
Insulation type(6)	
Male	M
Female	K
Shell size	
16-17-18-20-22-24-26-28	XX
Connector series	
MSH connectors / MPH connectors – Halogen free	XXX
Contact layout(6)	
Number/size of contact see § layout	XX-XX
Braid grip(1) (for RD and RL)	
With braid grip	RST
Without braid grip	Y
With braid grip power single contact	PST
Cable code(1) (for RD, RL and SC)	
A to E1 see § cable codes	XX
Cable boot(1)(for RD and RL)	
With cable boot	T
Without cable boot (no mention)	-
Polarization key(6)	
Normal P1 Other position P2-P3-P4-P5 see § polarization key	PX
Surface treatment	
Tin plated(7)	A
Cadmium-plated bichromate-treated	-
Olive drab	014

(1) Leave a blank if the connector has no accessories - (2) Cannot be fitted to long single-contact power shell - (3) Add Z to the part number for accessory orders only - (4) Do not use with contacts Ø A > 3,6 - (5) Leave a blank for accessories only or sealing caps - (6) Consult us for availability.

(7) New plating in compliance with ROHS legislation.

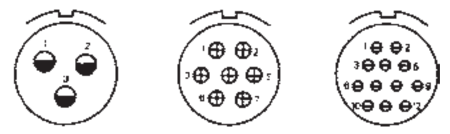
Contact layouts (standard shell)

Viewed from male connectors mating (The main polarization key is shown in the "normal" position).

16

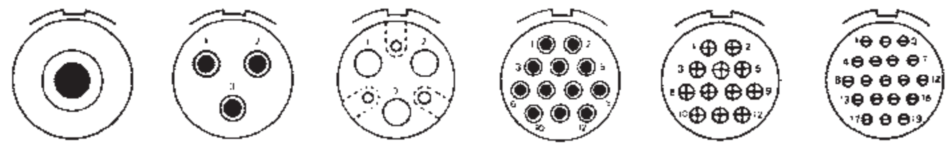
1	3	3	7
1#16 MC	3#16	3#20	7#20

17



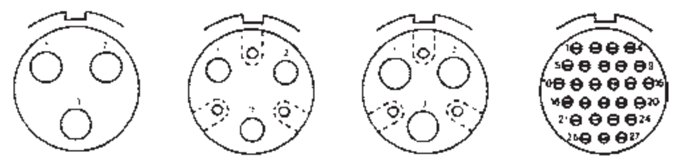
3	7	12
3#12	7#16	12#20

18



1	3	3	12	12	19
1-C50A 1-C75A	3-C501(1) 3-C502 3-C507 3-C508 (50 Ω) 3-C751 3-C752 3-C758 (75 Ω)	3#6 MC 3#8 3#10 MC	12-C50(2) Without contacts 12-C511 12 C512 12 C5	12#16	19#20

20



3	3	3	27
3#6 3#6E	3#8 3#6 MC 3#10 MC	3#16 MC	27#20

Legend

Grounding contacts — Standard AGB/T 538 — Non standard

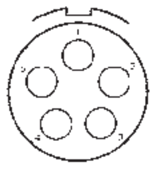
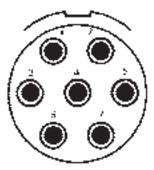
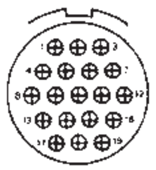
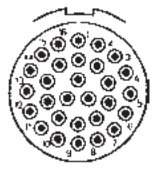
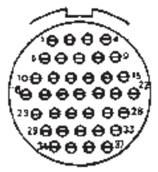
Note : Do not use insulators with contacts from Ø A > 3,6 in plugs fitted with an elbow backshell RL (2)

(1) See § Standard coaxial contacts - (2) See § Miniature coaxial contacts

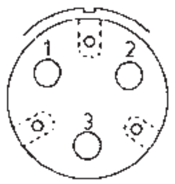
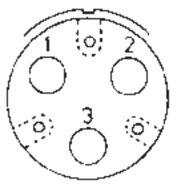
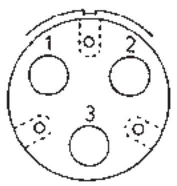
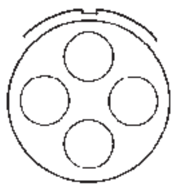
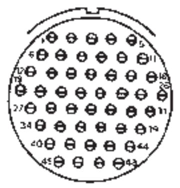
Contact layouts (standard shell)

Viewed from male connectors mating (The main polarization key is shown in the “normal” position).

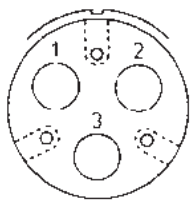
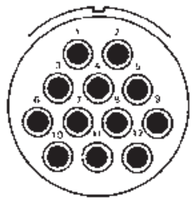
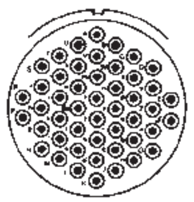
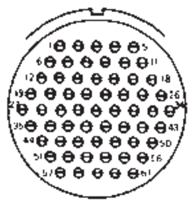
22

2	5	7	19	29	37
					
2#25 MC	5#10 MC 5#8	7-C501[1] 7-C502 7-C507 7-C508 (50 Ω) 7-C751 7-C752 7-C 758 (75 Ω)	19#16	29-C50[2] without contacts 29-C511 29-C512	37#20

24

3	3	3	4	48
				
3#8 3#6 MC 3#10 MC	3#16 MC 3#6 3#6E	3#25 MC	4#10 MC 4#8	48#20

26

3	12	48	61
			
3#35 MC 3#25C 3#25CE	12-C501[1] 12-C502 12-C507 12-C508 (50 Ω) 12-C751 12-C752 12-C758 (75 Ω)	48-C50[2] without contacts 48-C511 48-C512	61#20

Grounding contacts — Standard AGB/T 538 — Non standard

Note : Do not use insulators with contacts from Ø A > 3,6 in plugs fitted with an elbow backshell RL (z)

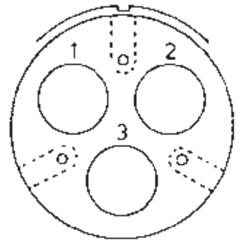
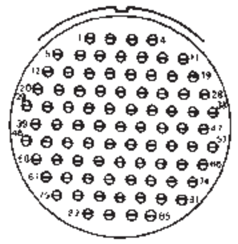
(1) See § Standard coaxial contacts - (2) See § Miniature coaxial contacts

MSH/MPH series

Contact layouts (standard shell)

Viewed from male connectors mating (The main polarization key is shown in the “normal” position).

28

3	85
	
3#50 MC	85#20

Grounding contacts

Note : Do not use insulators with contacts from Ø A > 3,6 in plugs fitted with an elbow backshell RL (z).

Power single contact layouts (long shell)

20

1	1
	
1#50C 1#50CE	1#70C 1#70CE

22

1

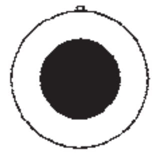
1#95C 1#95CE

26

1

1#185C 1#185CE

28

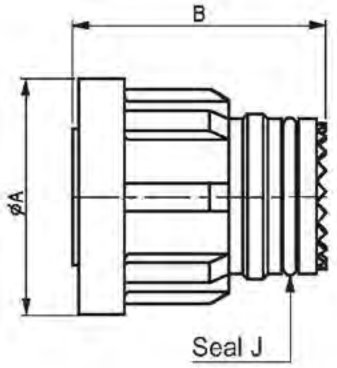
1

1#300C 1#300CE

Note : Do not use elbow backshell RL(z) or cable-clamp SC (z) or wire-grip SF(z) with these layouts.

Standard AGB/T 538 — Non standard

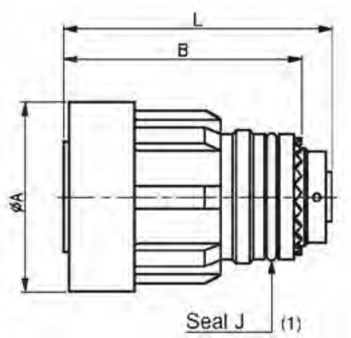
Dimensions

Standard plugs: FZ or F1



Shell size	Ø A	B	"J" seal	Internal seal (coupling)
16	35	53	Ø 1,78 x 18,77	Ø 1,78 x 17,17
17	39	53	Ø 1,78 x 21,95	Ø 1,78 x 20,35
18	43	53	Ø 1,78 x 26,70	Ø 1,78 x 25,12
20	48	53	Ø 1,78 x 29,87	Ø 1,78 x 28,30
22	52	53	Ø 1,78 x 33,05	Ø 1,78 x 31,47
24	56	53	Ø 1,78 x 34,65	Ø 1,78 x 34,65
26	59	53	Ø 1,80 x 37,40	Ø 1,80 x 37,40
28	74	53,5	Ø 1,78 x 50,52	Ø 1,78 x 50,52

Power single contact plug: F5



(1) See standard (plug)

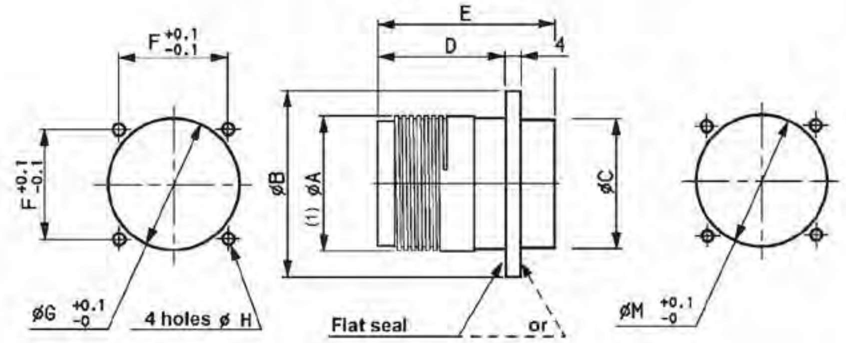
Size	Ø A	B	L maxi
20	48	61	70
22	52	61	72
26	59	61	74
28	74	61,5	84

MSH/MPH series

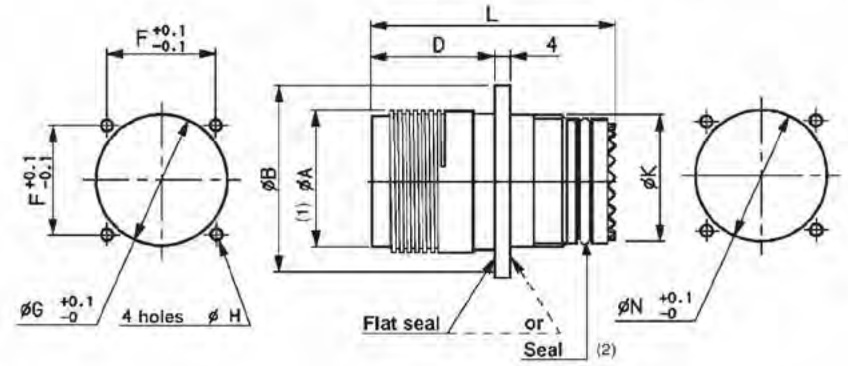
Dimensions

Standard receptacle E43 - E44

E43



E44

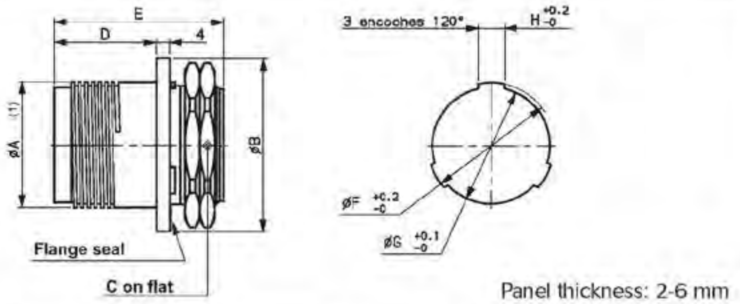


(1) For thread pitch values, see bulkheads table.
(2) For "J" seal dimensions, see plugs F1 and FZ table.

Shell Size	(1) Ø A Max	Ø B	Ø C Max	D	E	F	Ø G	Ø H	Ø K Max	L	Ø M	Ø N
16	26,1	38	25,1	33,5	46,5	22	26,2	3,2	24,3	70	25,2	24,4
17	30,1	45	30,2	33,5	46,5	27	30,2	3,2	27,8	70	30,3	27,9
18	34,4	46	33,6	33,5	46,5	28	34,5	3,2	32,3	66,5	33,7	32,4
20	37,4	49	36,4	33,5	46,5	30	37,5	3,2	35,3	70	36,5	35,4
22	41,5	53	40,6	33,5	46,5	33	41,6	3,2	38,3	70	40,7	38,4
24	44,4	56	43,5	33,5	46,5	35	44,5	3,2	41,8	70	43,6	41,9
26	47,2	59	46,3	33,5	46,5	37	47,3	3,2	44,8	70	46,4	44,9
28	62,5	78	59,8	34	50	48,5	62,6	5,2	58,3	70,5	59,9	58,4

Dimensions

Standard receptacle E0

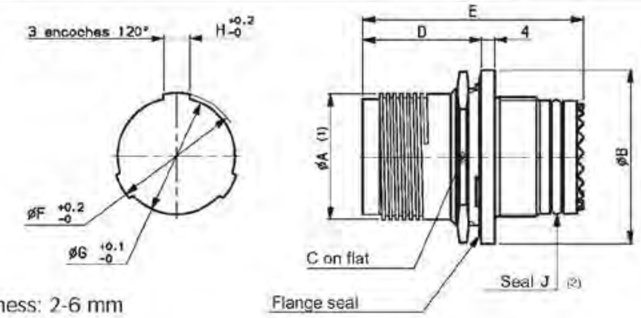


Panel thickness: 2-6 mm

(1) For thread pitch values, see bulkhead table.

Shell Size	Ø A Max	Ø B	C	D	E	Ø F +0,1 0	Ø G +0,1 0	Ø H +0,2 0	Flange seal
16	26,1	38	32	27,5	46	27	25	6	ø 2,62 x 29,82
17	30,1	42	36	27,5	46	30	28	6	ø 2,62 x 32,99
18	34,4	46	40	27,5	46	34	32	6	ø 2,62 x 36,17
20	37,4	49	44	27,5	46	38	36	6	ø 2,62 x 40,95
22	41,5	53	47	27,5	46	41	39	6	ø 2,62 x 42,52
24	44,4	56	52	27,5	46	45	43	6	ø 2,62 x 47,29
26	47,2	59	55	27,5	46	48	46	6	ø 2,62 x 50,47
28	62,5	74	67	28	48,5	59	57	6	ø 3,00 x 62,00

Standard receptacle E2



Panel thickness: 2-6 mm

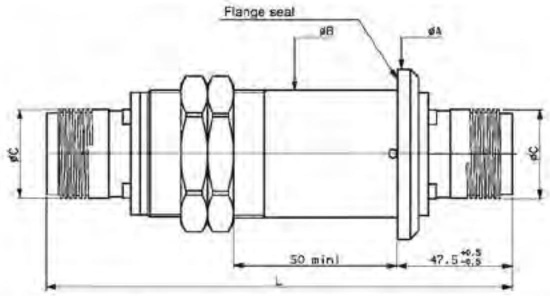
(1) For thread pitch values, see bulkhead table.
(2) For "J" seal dimensions, see plug F1 and FZ table.

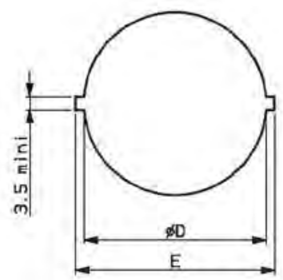
Shell Size	Ø A Max	Ø B	C	D	E	Ø F +0,1 0	Ø G +0,1 0	Ø H +0,2 0	Flange seal
16	26,1	41	36	33,5	60	30	28	6	ø 2,62 x 32,99
17	30,1	45	40	33,5	60	34	32	6	ø 2,62 x 36,17
18	34,4	49	44	33,5	60	38	36	6	ø 2,62 x 40,95
20	37,4	52	47	33,5	60	41	39	6	ø 2,62 x 42,52
22	41,5	56	52	33,5	60	45	43	6	ø 2,62 x 47,29
24	44,4	59	55	33,5	60	48	46	6	ø 2,62 x 50,47
26	47,2	62	58	33,5	60	52	50	6	ø 2,62 x 53,64
28	62,5	78	73	34	60	67	65	6	ø 2,62 x 67,95

MSH/MPH series

Dimensions

Standard bulckhead TRE

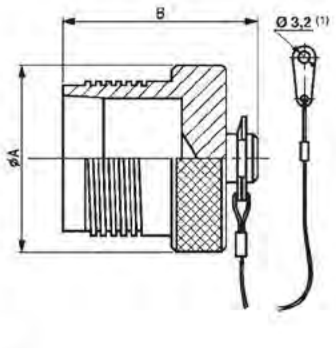


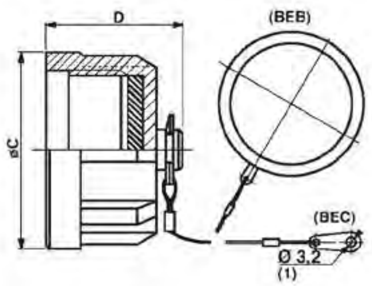


Shell Size	Ø A	Ø B	Ø C max.	Pitch P	Ø D +0,1 0	Ø E +0,2 0	Flange seal	L(1)
16	56	40	26,1	2	40,2	44,5	Ø 3,00 x 46,00	190-240
17	63	47	30,1	2	47,2	51,5	Ø 3,00 x 53,10	180
18	64	48	34,4	2	48,2	52,5	Ø 2,00 x 54,00	180-190-220
20	67	51	37,4	2	51,2	55,5	Ø 2,80 x 57,00	180-220
22	71	55	41,5	2	55,2	59,5	Ø 2,40 x 61,60	180
24	74	58	44,4	2	58,2	62,5	Ø 2,40 x 64,60	180
26	77	61	47,2	2	61,2	65,5	Ø 2,50 x 67,00	180
28	96	80	62,5	3	80,2	84,5	Ø 2,50 x 87,20	240

(1) Please consult us regarding references other length.

Standard sealing caps BF and BE





Ref. BF (without lanyard).
Ref. BFC (with eyelet lanyard).
Note : lanyard lenght : 280 mm.

Example of sealing cap part number :
BFC 18 MS.

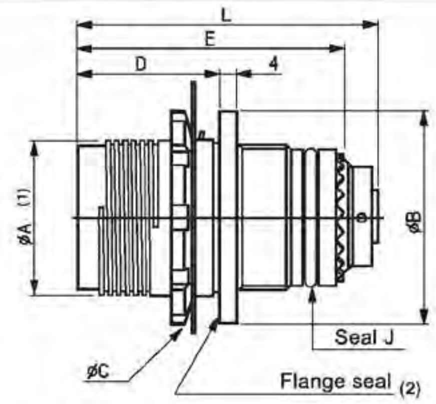
(1) Except size 28 : Ø 5,2.

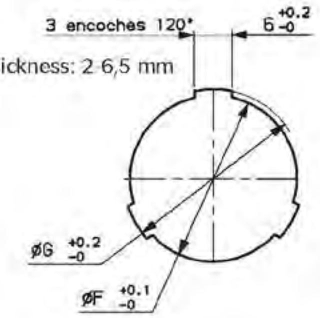
Ref. BE (without lanyard)
Ref . BEC (with eyelet lanyard)
Ref. BEB (with ring lanyard for receptacle E2)

Shell size	16	17	18	20	22	24	26	28
Ø A	33	37	41	46	50	54	57	72
B	43	43	43	43	43	43	43	43
Ø C	35	39	43	48	52	56	59	74
D	36	36	36	36	36	36	36	36

Dimensions

Power single contact receptacle E32





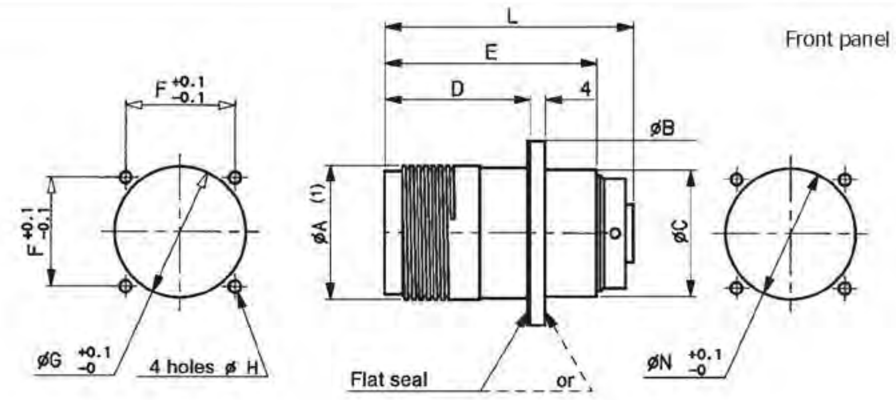
Panel thickness: 2-6,5 mm

Shell size	Ø A	Ø B	Ø C	D	E	Ø F	Ø G	L Max.
20	37,5	51	53	42,5	68	39	41	73,5
22	41,5	55	57	42,5	68	43	45	76,5
26	47	62	64	42,5	68	50	52	78,5
28	62,5	77	79	43,5	68,5	65	67	88,5

Power single contact receptacle E33

Rear panel mounting.
Thickness: 4 maxi.

Front panel mounting.



Consult us for availability.

(1) For thread pitch values, see bulkhead table.
(2) For "J" seal dimensions, see table for plugs F1 and FZ.

Size	Ø A max.	Ø B	Ø C max.	D	E	F	Ø G	Ø H	L Max.	Ø N
20	37,4	49	36,4	41,5	78	30	37,5	3,2	73,5	36,5
22	41,5	53	40,6	41,5	78	33	41,6	3,2	76,5	40,7
26	47,2	59	46,3	41,5	78	37	47,3	3,2	78,5	46,4
28	62,5	78	59,8	42	78	48,5	62,6	5,2	88,5	59,9

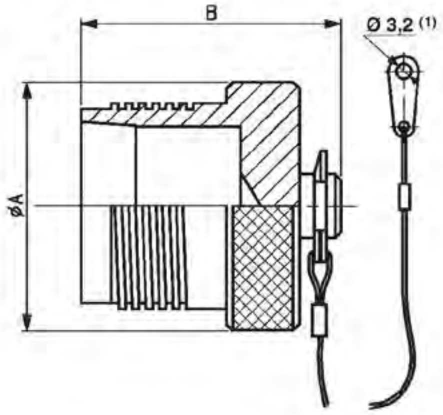
MSH/MPH series

Dimensions

Power single contact plug sealing cap BF5

Example of part number: BF5 18 MSH

- Shell
- Series



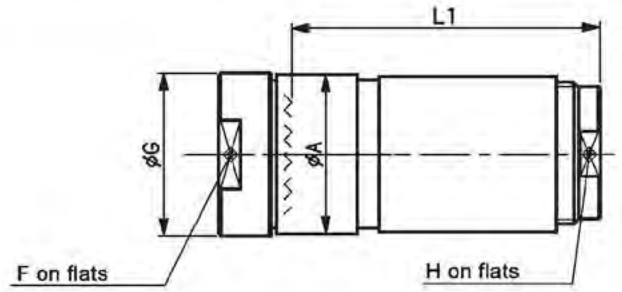
Note: Single contact power receptacles use standard receptacle sealing caps.

Reference BF5 (without lanyard)
Reference BF5C (with lanyard)

(1) Except size 28 : Ø 5,2.

Shell size	20	22	26	28
ØA	46	50	57	72
B	51	51	51	51

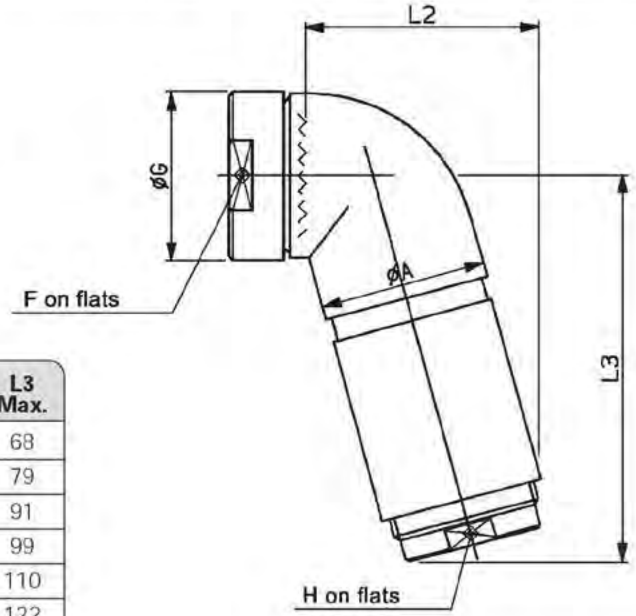
Straight watertight backshell RDZ



Shell size	F over flat	Ø G	H over flat	Ø A	L1 Max.
16	27	31	21	30	55
17	30	35	24	34	65
18	35	39	28	38	77
20	40	44	33	43	82
22	42	47	35	46	92
24	46	50	38	50	104
26	48	54	40	53	112
28	62	68	52	68	134

Dimensions

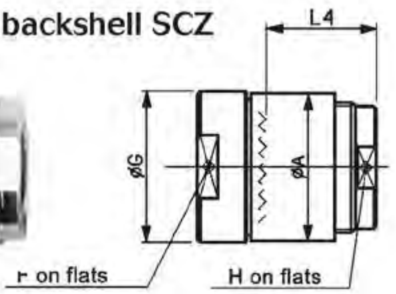
Elbow watertight backshell RLZ



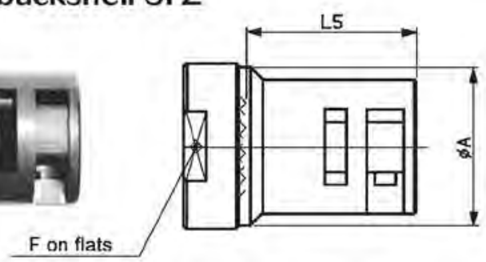
Shell size	F over flat	∅ G	H over flat	∅ A	L2 Max.	L3 Max.
16	27	31	21	30	36	68
17	30	35	24	34	42	79
18	35	39	28	38	50	91
20	40	44	33	43	59	99
22	42	47	35	46	64	110
24	46	50	38	50	73	122
26	48	54	40	53	77	130
28	62	68	52	68	96	157

Backshells

Cable clamp backshell SCZ

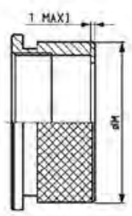


Wire grip backshell SFZ



Thread mask connection RZT

(Please consult us regarding supply of thermoretractable sleeve).

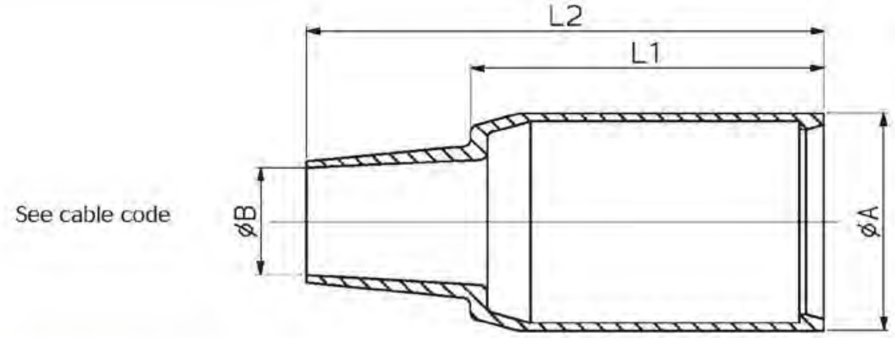


Shell size	L4 Max.	L5 Max.	∅ M
16	26	35	28
17	31	37	32,5
18	31	38	36
20	31	39	41
22	31	40	43
24	39	33	47
26	39	40	50
28	58	36	64

MSH/MPH series

Spare parts

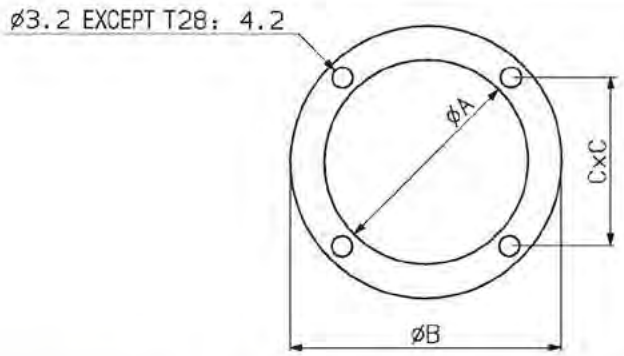
Cable boot T



Example of part number:	T	18	MSH	A1
Cable boot	T			
Shell size		18		
Series see & part number			MSH	
Cable code (A to E1) see & cable code				A1

Shell size	16	17	18	20	22	24	26	28
∅ A	30	34	38	43	46	50	53	68
∅ B min.	7	10	11	15	17	20	22	27
∅ B max.	16	19	22	27	29	32	34	42
L1	48	57	65	69	76	83	89	99
L2	90	105	120	126	140	150	160	180

Receptacle gasket



Example of part number:	RE	18	MSH	2
Receptacle part	RE			
Shell size		18		
Series see & part number			MSH	
Gasket order number				2

Shell size	16	17	18	20	22	24	26	28
∅ A	25	30	33,5	36	40,5	43,5	46	60
∅ B	37,8	45	46	49	53	56	59	78
C	22	27	28	30	33	35	37	48

Tools

Installation of contacts 12, 16 and 20

Contact type	Crimping tool	Turret	Installation and removal		Removal tool	
			Standardized plastic	Metal	Female	Male
20	BUCHANAN M 22520/1-01	M22520/MS JUPITER	MS 27534-20	OUT MB DB 20	OUT DB 16/20 K	OUT DB 16/20 M
16			MS 27534-16	OUT MB DB 16		
12			MS 27534-12	OUT MB DB 12	OUT DB 12 K	OUT DB 12 M

Installation of power contacts (multi)

Contact type	Crimping tool	Positioner or dies	Locking wrench	
			Male	Female
M K 8 MS	BUCHANAN TGV 300	Positionneur JAT 1810 G	OUT DBV M 10 MC	OUT DBV K 10 MC
M K 6 MS	MACATRACTION TR 461 N	MECATRACTION ELS 460	OUT DBVM 16 MC	OUT DBV K 16 MC
M K 6 EMS				
M K MS 6 MC	Soldering type		OUT DBVM 6 MC	OUT DBV K 6 MC
M K MS 10 MC			OUT DBVM 10 MC	OUT DBV K 10 MC
M K MS 16 MC			OUT DBVM 16 MC	OUT DBV K 16 MC
M K MS 25 MC			OUT DBVM 25 MC	OUT DBV K 25 MC
M K MS 35 MC			OUT DBVM 35 MC	OUT DBV K 35 MC
M K MS 50 MC	MECATRACTION TR 461 N	MECATRACTION TN 50-460	OUT DBVM 50 MC	OUT DBV K50 MC
M K 25 C-MS		MECATRACTION TN 25-460	OUT DBVM 35 MC	OUT DBV K 35 MC
M K 25 CE-MS		MECATRACTION TN 35-460	OUT DBVM 35 MC	OUT DBV K 35 MC

MSH/MPH series

Tools

Installation of single power contacts

Contact type	Nominal section	Crimping tool	Dies	Pin wrench
M K 50 C MS	50 mm²	MECATRACTION TR 1461	TN 50-460 MECATRACTION	
M K 50 CEMS	60 mm²		TN 60-460 MECATRACTION	DIN 1810 B
M K 70 C MS	70 mm²		TN 70-460 MECATRACTION	25-28
M K 70 CEMS	95 mm²		TN 95-20	
M K 95 C MS	95 mm²		TN 95-20	DIN 1810 B
M K 95 CEMS	120 mm²		TN 120-20	30-32
M K 185 C MS	185 mm²		TN 185-20	DIN 1810 B
M K 185 CEMS	240 mm²		TN 240-20	34-36
M K 300 C MS	300 mm²	Pump + jack Mécatraction V20	TN 300-20	DIN 1810 B
M K 300 CEMS	300 mm²		TN 300-20	45-50

Installation of screw coaxial contacts

Contact type	Crimping tool	Dies	Locking wrench
CM 50A MSH	BUCHANAN	BUCHANAN	
CK 50A MSH	M 22520 / 5-01	M 22520 / 5-21	JUPITER
CM 75A MSH	or	or	OUT DBCX MSH
CK 75A MSH	M 22910 / 7-01	M 22910 / 7-24	

Tools

Installation of standard coaxial contacts



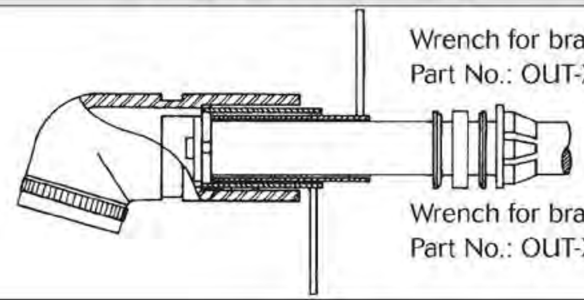
Contact type	Crimping tool	Dies	Removal
CM 50 * MS	BUCHANAN	BUCHANAN	
CK 50 * MS	M 22520 / 5-01	M 22520 / 5-45B	JUPITER
CM 75 * MS	or	or	OUT DBCX MSH
CK 75 * MS	M 22910 / 7-01	M 22910 / 7-18	

Installation of miniature coaxial contacts



Contact type	Central contact	External contact	Removal
CM 511 MS CM 512 MS	Pince BUCHANAN M 22520 / 2-01	Pince BUCHANAN M 22520 / 4-01	JUPITER
CK 511 MS CK 512 MS	+ Positioner M 22520 / 2-04	+ Positioner M 22520 / 4-02	OUT DBMNCX
CM 521 MS CK 521 MS	Please consult us		

Clamping of braid grip



Wrench for braid grip bush.
Part No.: OUT-XX MS 17[1]

Wrench for braid grip stop.
Part No.: OUT-XX MS 19[1]

(1) XX = Connector size

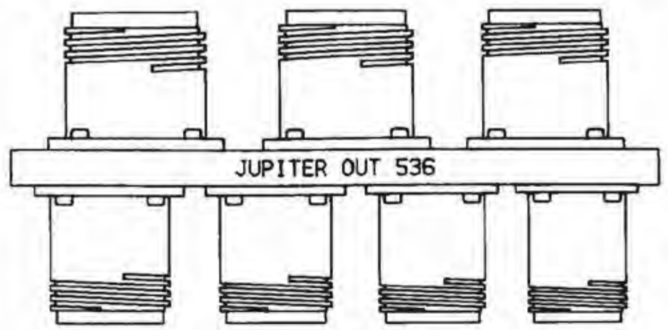
MSH/MPH series

Tools

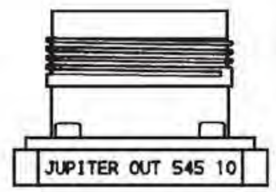
Tightening of plug locking nut

Manual tightening Part No. 771.20.42
Tightening using torque wrench Part No. OUT 522/20.42
(FACOM R305D or J305D).

Tightening support receptacle

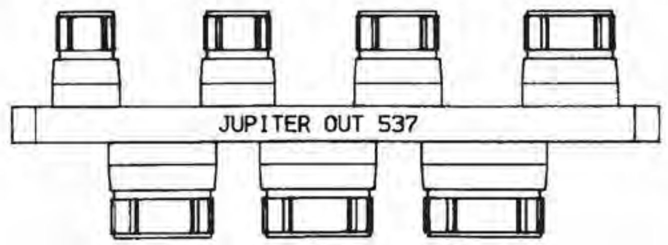


Size 16 to 26 - Réf.: OUT 536

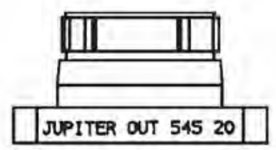


Size 28 - Réf.: OUT 545-10

Tightening support plug



Réf.: OUT 537



Réf.: OUT 545-20

Tightening torques (mN)

Shell size	16	17	18	20	22	24	26	28
Plug locking device coupling	10	13	16	18	18	20	22	25
Receptacle and bulkhead nuts	14	16	18	20	20	22	24	30

Wiring instructions gage 12, 16 and 20 contact connectors

- Use the crimping tool and positioner specified. Adjust the positioner to the wire gage.
- Strip the wire to 7 mm.
- Insert the stripped end of the wire, placing the insulator against the rear of the contact. Check that the conductor is visible through the contact sight hole.
- Fully open the crimping tool.
- Insert the contact and the wire into the crimping tool.
- Fully close the crimping tool, and allow it to open.
- Check that the contact is correctly crimped. The wire must be visible through the contact sight hole, and the wire insulator must be up against the rear of the contact.

For crimping of coaxial contacts, depending on the cables used, see the technical instructions supplied with each delivery of MS coaxial connectors.

Stripping

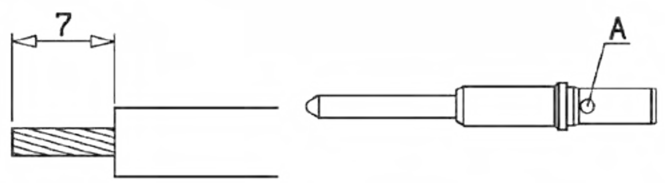


Fig. 1

A = "Sight hole" for checking the presence of the conductor before and after crimping.

Installing and removing crimped contacts

- The use of plastic tools is recommended.
- The use of mechanical tools requires special care to avoid.

Plastic tools

Installation:
- Insert the wire into the channel on the plastic tool.
- Slide the tool along the wire to the stop on the contac shoulder. Keep the wire taut so that the tool remains against the contact.
- Insert the contact into the housing from the rear of the connector, and push the tool in as far as it will go, until the contact locks.
- Remove the tool.
- Pull gently on the wire to check that the contact is firmly attached.

Removal:
- Insert the wire into the channel on the plastic tool.
- Slide the tool along the wire so that it enters the connector insulator and comes to a stop against the rear contact shoulder.
- Remove the tool and the contact at the same time.
- If there is any resistance before freeing the contact, move the tool backwards, without removing it altogether, turn it slightly, and put it back in.

Metal contacts

Installation

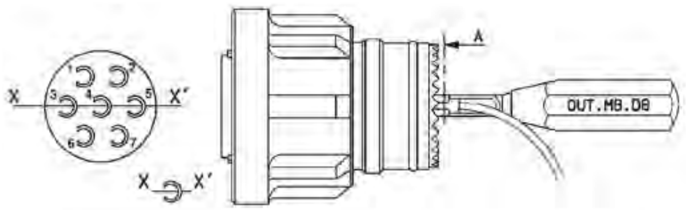


Fig. 2

Insert the contacts into the insulator from the rear by pushing them in using tool OUT-MB-DB, with the part number corresponding to the gage of the contact used (fig. 5). This tool must be aligned such that its XX axis is parallel with the marking on the insulator (fig. 2).
It is recommended that the assembly tool be lubricated before each use.

- If slight resistance encountered, do not force the tool, but check that it is perpendicular to the plane of the insulator.
- **Never turn the tool in the insulator.**

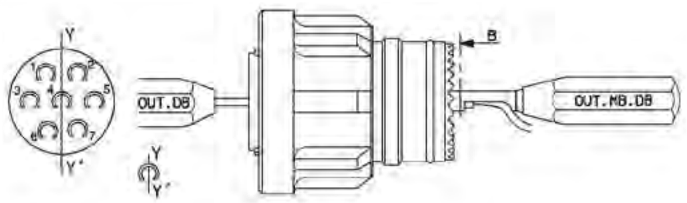


Fig. 3

Insert the tool OUT.MB.DB appropriate to the contact gage from the rear, aligned such that its YY axis is perpendicular to the marking on the insulator (fig. 5), in order to free the contact. Once this tool is in place, with its opening always pointing down in relation to the number, push the contact out using the corresponding OUT.DB tool.

Note : the same care should be taken as with installation of contacts.

Cable stripping

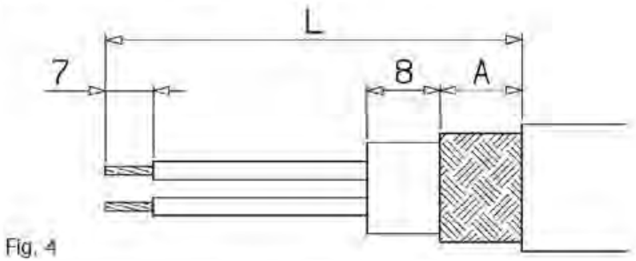


Fig. 4

Shell size	16	17	18	20	22	24	26	28
a	10	10	10	10	10	10	13	15
Straight backshell L	56	61	71	76	84	89	96	96
Elbow backshell L	79	94	109	119	134	144	154	169

Assembly

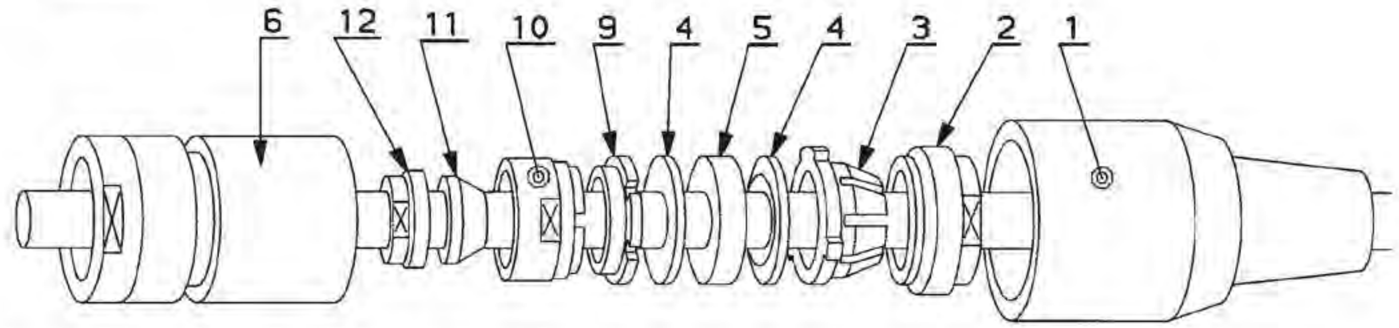


Fig. 5

Thread the following onto the wire, in the order shown in fig.2:
- the cable boot (1)
- the locking screw (2)
- the crimping tool (3)
- the support washer (4)
- the sealing washer (5)
- the front support washer (4)
- the slotted nut (9)
- the grip bush (10)

Strip the cable in accordance with the table above and fig.4.

Move the braid aside, and slide the cone (11) under the braid.
Bring the grip bush (10) up to the cone (11) and firmly tighten the screw (12) into the grip bush (10).

Crimp the contacts to the end of the conductor wires. Before each crimping (or each soldering in the case of soldering contacts), check that the conductor wire is clearly visible in the sight hole (Fig. 1).

Insert the cable into the connector, having taken care to bundle the contacts using adhesive tape or another suitable system.

- Insert the contacts in accordance with the procedure described above.
- Move the connector forward, and tighten the nut, checking that the toothing is functioning correctly (position elbow connectors according to direction; nuttorque following table here after).

It is advisable to fit the plug to a dummy receptacle for all screw and nut tightening operations.

Connecting nut torque

Shell size	16	17	18	20	22	24	26	28
Torque (mN)	10	13	16	20	22	25	28	30

Recommended connectors for Marine halogen free cables

"Marine" standards	Number of pairs	Core Ø approx.	Core Section (mm²)	Ø (mm) over: Leaktight sheath	Ø (mm) over: Armor	Ø (mm) over: External sheath	Connector size	Layout	Cable code
(1)	3	0,75	0,34	10,5	12,5	14,5	16	7 x 20	A1
	7	0,75	0,34	14,1	16,1	18,5	18	19 x 20	B
	13	0,75	0,34	19	20,8	24	20	27 x 20	A1
	18	0,75	0,34	22	24	27	22	37 x 20	A1
	28	0,75	0,34	26,6	28,6	32	26	61 x 20	A1
	1	1,07	0,75	6,3	8,6	10,5	16	3 x 20	C
	3	1,07	0,75	11,2	13	15,2	16	7 x 20	A
	7	1,07	0,75	15,3	17,1	20,3	18	19 x 20	A1
	13	1,07	0,75	20,7	22,5	25,7	22	37 x 20	B
	18	1,07	0,75	24,3	26,1	29,7	24	48 x 20	A1
	28	1,07	0,75	29,5	31,3	34,9	28	85 x 20	C
In these connectors, all shielding is linked to a single pin.									
(1)	3	0,75	0,34	10,5	12,5	14,5	17	12 x 20	B1
	7	0,75	0,34	14,1	16,1	18,5	20	27 x 20	C1
	13	0,75	0,34	19	20,8	24	24	48 x 20	C1
	18	0,75	0,34	22	24	27	26	61 x 20	C
	28	0,75	0,34	26,6	28,6	32	28	85 x 20	D
	1	1,07	0,75	6,3	8,6	10,5	16	3 x 20	C
	3	1,07	0,75	11,2	13	15,2	17	12 x 20	B
	7	1,07	0,75	15,3	17,1	20,3	20	27 x 20	C
	13	1,07	0,75	20,7	22,5	25,7	24	48 x 20	C
	18	1,07	0,75	24,3	26,1	29,7	26	61 x 20	B
	28	1,07	0,75	29,5	31,3	34,9	28	85 x 20	C
In these connectors, each shielding is linked to a different pin.									
(2)	3	0,75	0,34	8,5	10,5	12,5	16	7 x 20	B
	7	0,75	0,34	11	13	15	18	19 x 20	C
	13	0,75	0,34	15,1	17,1	19,5	20	27 x 20	C
	18	0,75	0,34	17	19	22,5	22	37 x 20	C
	28	0,75	0,34	21	23	26	26	61 x 20	C1
	3	1,07	0,75	9,5	11,1	14	16	7 x 20	A1
	7	1,07	0,75	12,6	14,2	17,5	18	19 x 20	B1
	13	1,07	0,75	16,9	18,5	22,5	20	27 x 20	B1
	18	1,07	0,75	19,4	21	24,5	22	37 x 20	B
	28	1,07	0,75	23,4	25	29,5	26	61 x 20	B1

(1) 6145DJ - Multipair cables (armored, shielded pairs) 250 MZH.
(2) 6145DJ - Multipair cables (armored, non-shielded pairs) 250 MZH.

欲選用船艦專用低煙無毒電纜
請洽佳昭公司備有有齊全資料

Recommended connectors for Marine halogen free cables

"Marine" standards	Number of pairs	Core Ø approx.	Core Section (mm²)	Ø (mm) over: Leaktight sheath	Ø (mm) over: Armor	Ø (mm) over: External sheath	Connector size	Layout	Cable code
(3)	3	0,75	0,34	6,2	8,2	10,2	16	3 x 20	C
	7	0,75	0,34	7.8	9,8	11,8	16	7 x 20	B1
	12	0,75	0,34	9,5	11,6	14	17	12 x 20	B1
	19	0,75	0,34	10,9	12,7	15,3	18	19 x 20	C1
	27	0,75	0,34	13	14,8	18	20	27 x 20	
	37	0,75	0,34	15	17	20	22	37 x 20	
	48	0,75	0,34	16,5	18,5	21,5	24	48 x 20	D
	61	0,75	0,34	18,5	20,5	23,5	26	61 x 20	D
	3	1,07	0,75	6,9	8.7	10,9	16	3 x 20	B
	5	1,07	0,75	8,1	10,1	12,3	16	5 x 20	A1
	7	1,07	0,75	8,5	10,3	12,9	16	7 x 20	A1
	12	1,07	0,75	11,1	12,9	15,5	17	12 x 20	A1
	19	1,07	0,75	12,8	14,6	17,8	18	19 x 20	A1
	27	1,07	0,75	15,4	17,2	20,4	20	27 x 20	B
	37	1,07	0,75	17	18,8	22	22	37 x 20	B1
	48	1,07	0,75	18,9	20,7	23,9	24	48 x 20	B1
	61	1,07	0,75	20,7	22,5	25,7	25	61 x 20	B1
(4)	3	0,75	0,34	5,2	7,2	9,2	16	3 x 20	C1
	7	0,75	0,34	6,8	8,8	10,8	16	7 x 20	C
	12	0,75	0,34	8,6	10,6	13	17	12 x 20	C
	19	0,75	0,34	10,1	11,9	14,5	18	19 x 20	C1
	27	0,75	0,34	12,5	14,5	17,5	20	27 x 20	D
	37	0,75	0,34	14	16	19	22	37 x 20	D
	48	0,75	0,34	15,5	17,5	20,5	24	48 x 20	D1
	61	0,75	0,34	17,5	19,5	22,5	26	61 x 20	D1
	3	1,07	0,75	6,1	7,9	10,1	16	3 x 20	B1
	5	1,07	0,75	7,5	9,3	11,5	16	5 x 20	B
	7	1,07	0,75	7,7	9,5	12,1	16	7 x 20	A1
	12	1,07	0,75	10,3	12,1	14,7	17	12 x 20	A1
	19	1,07	0,75	12	13,8	17	18	19 x 20	B
	27	1,07	0,75	14,6	16,4	19,6	20	27 x 20	B1
	37	1,07	0,75	16,2	18	21,2	22	37 x 20	B1
	48	1,07	0,75	18,1	19,9	23,1	24	48 x 20	C
	61	1,07	0,75	19,9	21,7	24,9	25	61 x 20	C
(5)	3	1,07	0,75	-	-	8,5	16	3 x 20	D
	7	1,07	0,75	-	-	10	16	7 x 20	C
	12	1,07	0,75	-	-	12,5	17	12 x 20	C1
(6)	3	1,5	1,4	9,2	11,2	13,6	16	3 x 16	A1
	3	2	2,5	10,3	12,3	14,7	17	3 x 12	B1
	3	2,5	4	11,4	13,4	15,8	17	3 x 12	B
	3	3,1	5,9	13,7	15,7	18,1	20	3 x 6 MC	C1
	3	4,3	10,2	17,6	19,6	22,6	20	3 x 10 MC	B
	3	5,2	16,1	19,7	21,7	24,7	20	3 x 16 MC	A1
	3	6,7	27,2	23	25	28	24	3 x 25 MC	B
	3	7,7	34,9	23,3	25,3	28,3	26	3 x 35 MC	B1
	3	9,4	49,6	27,5	29,5	32,5	28	3 x 50 MC	D
	3	10,7	68	31,8	33,8	37,2	28	3 x 50 MC	B1
(7)	1	5,2	16,1	10,2	12,2	14,6	16	1-6E	A
	1	9,4	49,6	15	17	20	20	1-50C	C
	1	10,7	68	16,7	18,7	21,7	20	1-70C	B1
	1	12,5	92	19	21	24	22	1-95C	B1
	1	14,4	122	21,4	23,4	26,4	22	1-95CE	A1
	1	17,6	183	25,4	27,4	30,4	26	1-185C	B
	1	23,2	316	31,3	33,3	36,7	28	1-300C	B1

(3) 6145DJ - Multiconductor cables (armored, shielded) - (4) 6145DJ - Multiconductor cables (armored, non-shielded) - (5) 6145DJ - Multiconductor cables (non-armored, non-shielded) - (6) 6145DK - 3-conductor cables (armored) - (7) 6145DK - 1-conductor cable (armored)

Dimensions

Recommended connectors for marine coaxial cables

MN 6145 CA : Normal coaxial and multicoaxial cables

Coaxial					Cable Ø					
Number	Impedance Ω	Ø of central conductor (mm)	Ø over insulation (mm)	Ø over ext. sheath (mm)	Over leaktight sheath (mm)	Over armor (mm)	over ext. sheath (mm)	Series size	Layout	Cable code
3	50	0,9	2,95	5,2	15,9	17,5	20,5	18	3 x C 50	A
7	50	0,9	2,95	5,2	20,4	22	25	22	7 x C 50	B
12	50	0,9	2,95	5,2	25,9	27,5	30,5	26	12 x C 50	B
3	75	0,6	3,7	6,1	18,4	20	23	22	7 x C 75	A0
7	75	0,6	3,7	6,1	23,4	25	28	22	7 x C 75	A
7	50	0,48	1,5	3	13,4	15	18	22	7 x C 50	D1
12	50	0,48	1,5	3	16,9	18,5	21,5	26	12 x C 50	D 1

Specific connectors and accessories

The following products were manufactured by our design offices to meet the specific requirements of some connector users. Please consult us for further details.

- Minibus series - volume CAT 380 A650
- Impedance adapter caps - volume CAT 380 A550
- Bus series - volume CAT 380 A600
- Modules for passive shunts - volume CAT 380 A500

Option	Use	Specification
MSO	Aluminium connector for fibre-optic cable	593-TQL/TR of STCAN
MPO	Bronze connector for fibre-optic cable	593-TQL/TR of STCAN
MPF	Bronze connector for fire-resistant flexible or rigid cable (AGB/T/200°)	MAT 684 - 0004
Double water-tighness elbows	Aluminium shell, halogen free Bronze shell, halogen free	MAT 684 - 0005

Please note that we are also able to carry out other specific studies - consult us for détails.

MSH/MPH series

Product offering

Souriau's global offer includes 5 product lines to meet marine / oceanography markets requirements and very severe industry environments.

Subsea and marine conditions

3 basic families of products for deep immersion and shallow water applications.

M
nickel aluminium bronze
> 2.000 m
(2850 PSI)

TP
brass
300 m
(425 PSI)

U
stainless steel
300 m
(425 PSI)

Saline and hostile weather conditions

2 basic families of products for surface and wet applications.

MSH / MPH

JVS

nickel aluminium bronze
4 m (6 PSI)

UTO SERIES

SOURIAU

Robust Metal & Shielded Connector

其他防水連接器

Esterline Connection Technologies

Features & Benefits

WATER PROOF

IP68/69K Dynamic Mated

Ideal for outdoor and indoor dynamic applications requiring continuous underwater immersion, routine pressure washing and dust protection.

SIGNAL INTEGRITY

EMI Shielded

65 dB at 100 Mhz: Qualified and compatible to be used in electromagnetic radiation areas and ensures proper signal integrity and transmission.

CORROSION RESISTANT

Salt Spray 48 & 96 hours

Designed to withstand climate ingress and exposure to salt spray or corrosive atmospheres while still maintaining mechanical and electrical functionality.

QUICK MATING

1/3 Bayonet Coupling

With only 1/3 twist of the bayonet coupling system, connectors are mated with audible "click" and tactile feel to confirm proper mating. This mating features eliminates connection uncertainty and reduces time and labor during installation.

COST SAVINGS

Mixed Power & Signal Layouts

Power supply and signal transmission can be combined in a unique interconnect solution to reduce system complexity and minimize component/installation costs.

SOURIAU

Waterproof Plastic Connectors

Esterline Connection Technologies

Features & Benefits

WATER PROOF

IP68/69K Dynamic Mated & Unmated

Ideal for outdoor and indoor dynamic applications requiring continuous underwater immersion, routine pressure washing and dust protection.

UV RESISTANT

No Degradation Over Time

No mechanical deterioration or important color variation after 5 years of exposure in natural environment (equivalent exposure to sun and moisture as per ISO4892) and F1 rated per UL 746C.

UL/IEC COMPLIANT

Qualified & Certified

In accordance with:
- UL 1977 - Certificate ECBT2, File number: E169916
- CSA C22.2 n°182.3 - Certificate ECBT8, File number: E169916.

QUICK MATING

1/3 Bayonet Coupling

With only 1/3 twist of the bayonet coupling system, connectors are mated with audible "click" and tactile feel to confirm proper mating. This mating feature eliminates connection uncertainty and reduces time and labor during installation.

COST SAVINGS

Mixed Power & Signal Layouts

Power supply and signal transmission can be combined in a unique interconnect solution to reduce system complexity and minimize component and installation costs.

SOURIAU

Hermetic Connectors for Aerospace Sensors

Esterline
Connection Technologies

SOURIAU

Hermetics Connectors for Sensors, Transducers and Switches

Typical Applications

SOURIAU designs connectors for critical systems in the harshest environments.
Major sensor manufacturers trust SOURIAU's expertise and industrial excellence.

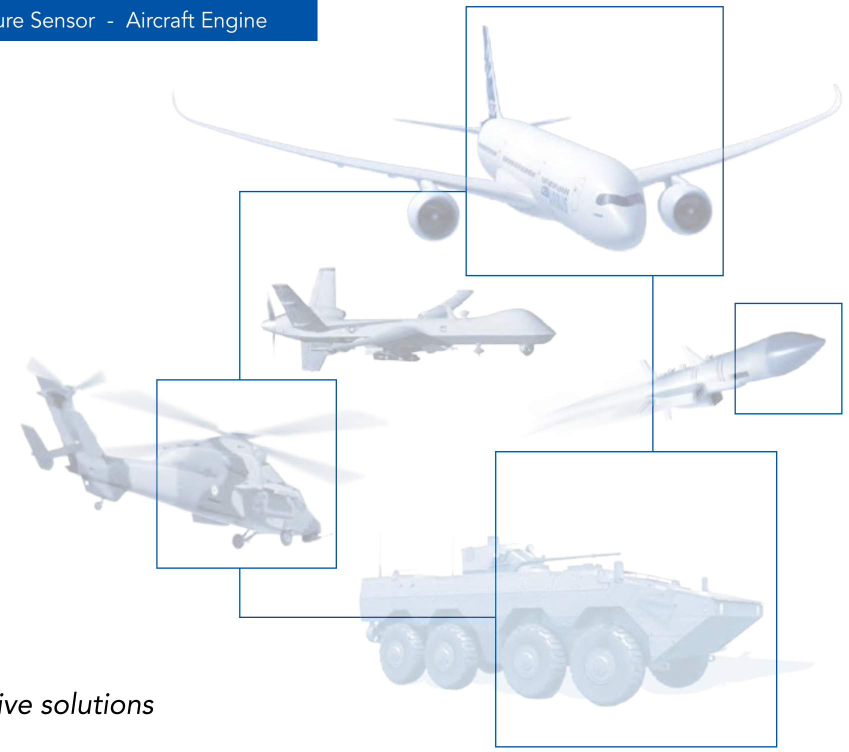
High Temperature Sensor - Breaking System

Level Dectection & Measurement - Fuel System

Mass Flow Sensor - Cabin Conditionning

Temperature Sensor - Aircraft Engine

Oil Pressure Sensor - Hydraulic System



SOURIAU *support your design with innovative solutions*

Hermetics Connectors for Sensors, Transducers and Switches

Passivated Stainless Steel Hermetic Connectors with Glass Seal

HERMETIC
Leak rate
<10^{-7} atm.cm³/s

EXTREM TEMPE-RATURE
Up to +260°C
& down to -65°C

CORROSION RESISTANT
500h salt spray

SOURIAU Connectors for Hermetics Sensors

MIL-SPEC Standard

EN2997/ESC/MIL-DTL 83723
8533 Series

MIL-DTL 38999 Serie I, II, III
8LT, 8T, 8D Series

MIL-DTL 26482
8525 Series

Custom

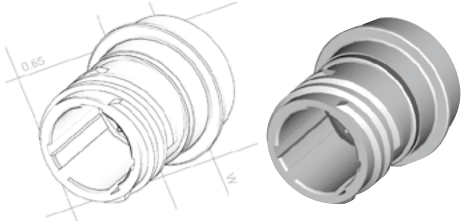
Capability to Provide Custom Solutions

- Tight tolerances
- Thermocouple contacts
- EMI-RFI filtering
- Miniature
- Optical
- PC Tail and eyelet contacts

Ex: Custom 8525

Technical Support

3D models available on www.tracepartsonline.net
The SOURIAU engineering team will quickly support your new designs.
Contact us!

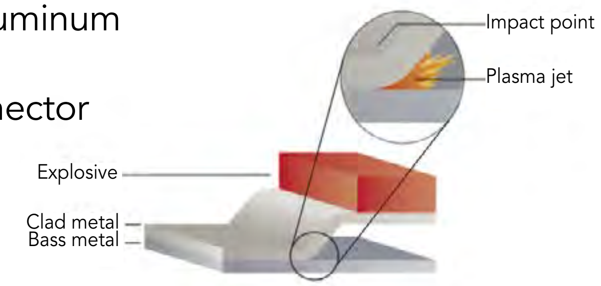


Additional Capability

PA&E, a US based subsidiary of SOURIAU, has a unique expertise in high rehability hermetic connectors and microelectonic-packaging.

Technologies Xtreme Hermetics [Lower leak rates of $1x10^{-9}$cc/s]

- Ceramic sealing
- Explosion bonding: joining dissimilar metal (like aluminum and stainless steel) at the atomic level.
  Breaks down the constraints of a single metal connector construction, without sacrificing reliability
- Laser welding
- Vacuum brazing



Products

- Lightweight hermetic DC connectors in aluminum or titanium shells with highly conductive copper contacts
- Custom integrated hermetic electronic packaging for harsh environment applications

For non hermetic standard or custom connectors. ***Contact us!***

SOURIAU
www.souriau.com

contactmilaero@souriau.com

Esterline
Connection Technologies

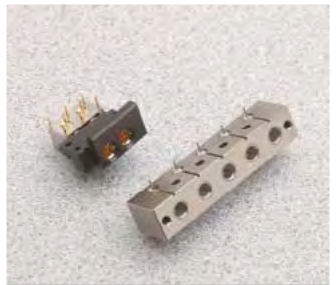
Hermetically sealed options

Souriau RF connectors can be designed to be one level of customization from standard or completely engineered to meet your performance and custom mounting needs. Souriau specializes in designing high performance products that have the following characteristics:

- ★ Hybrid interfaces
- ★ Extensive qualification testing
- ★ Adverse environment operation
- ★ Altitude moisture resistance
- ★ Surface Mount
- ★ Custom mounting
- ★ High performance
- ★ High density
- ★ Blind mating
- ★ Specialized cable connectors
- ★ Semi-rigid cable connectors
- ★ High power requirements
- ★ Compliant Pins


Signal Treatment Options


Blind Mate Options


Gang Mount Capabilities


Fully Customized Solutions


7/16 DIN


Power Contact Solutions

Souriau custom RF connectors are based on the following standard interfaces:


N Type


BNC


SMA


SMB


MCX


MMCX


DIN


TNC

- ★ ISO 9000/9001 and D19000 certified
- ★ Vertically integrated manufacturing capabilities
- ★ CNC Machining
  - – Conventional
  - – Swiss
- ★ Injection molding
- ★ Complete assembly
- ★ Prototyping
- ★ Certified test lab
- ★ Customized engineered solutions
- ★ High frequency performance
  - – Up to 27 GHz
- ★ Hermetically sealed options
- ★ Standard interfaces
- ★ Characterized cord sets
- ★ Cable, board and panel mount configurations available

公司簡介

佳昭企業有限公司 (Nearson Enterprise Corp.) 創立於 1989 年 7 月，主要供應航太及軍規等級的產品，包含電子、電機、高頻微波、零組件及特殊材料，用於衛星、飛機、飛彈、雷達及船艦使用。
佳昭公司除了代理世界知名集團的高科技產品，如 :API 集團、AXON 集團、COBHAM 集團、Esterline 集團、MOOG 集團等 ...... 也擁有研發設計天線能力，亦能承攬系統之整合規劃。

佳昭公司代理產品簡述如下

API 集團：
M/A Com MAL--- RF module；TR limiter；TR module；W/G protector；EW
收發模組；微波模組；導波管保護器；電戰系統

Axon 集團：'
Axon Cable SA --- Wire & Cable；Micro-D & Nano-D；Space Prod.
各式電纜 -- 超細、防火、防水、極軟；太空等級電纜組件；特殊接頭

Cobham Defense 集團：
Air Precision --- Slip-Ring 滑環
Atlantic Microwave --- Antenna 各式天線
Atlantic Positioning --- Positioners 定位器；旋轉台
Chelton Defense --- Soldier System 軍士戰場通訊指揮系統
Continental Microwave --- Waveguide Prod. 各式導波管產品
Kevlin --- Rotary Joint；Pedestal Systems 旋轉耦合器；載台系統
Nurad Tech. --- Radomes；Antenna 雷達罩；鼻錐罩；天線
Remec Defense & Space --- RF Components 微波零組件；太空等級組件

Esterline 集團：
Souriau --- 陸、海、空、水底、太空、電廠及飛彈用之各式連接器
Sunbank --- 背夾器、連接器配件

Moog 集團：
Quickset --- Pan & Tilt；Tripod 旋轉台；三角架

佳昭企業於美國姐妹公司 (Nearson Inc.) 為天線專業的研發、設計、製造公司，詳請參考 www.nearson.com，我們樂意為您設計專屬的天線產品。
若有其他規格需求請洽佳昭公司。

SUNBANK

佳昭企業有限公司
NEARSON ENTERPRISE CORP.

Backshells, Conduits, Caps and Accessories

SUNBANK provides a large variety of interconnect solutions to vector and secure the cable routing. We would like to present hereby some of the major ones.

Backshells

- Large termination types: strain relief, banding platform with or without heat shrink boot, EMI/RFI shielding.
- Various Standards: MIL-DTL-38999, M28840, BACC10, AS85049, ABS1361, ABS1358, etc.
- Various materials and platings. Circular and rectangular.

Flexible conduits

- Repairable and static/dynamic cable routing.
- Wire protection from mechanical and chemical stresses.
- Metallic braided shielding that coats the flexible conduit for an excellent EMI/RFI protection.

Protective caps

- Protect from dust and moisture unmated bayonnet and screw coupling connectors.
- Various platings available.
- Qualified to fit on MIL-DTL-38999, MIL C 5015 and MIL 83723 among many other connectors.

Accessories

- Shield termination band tighten the braid on the backshell and ensures excellent shielding continuity.
- Shield support ring.
- Transition accessories provide a robust fan out on the harness in multiple direction.

8811
Low frequency hybrid (FO + Elec) connector

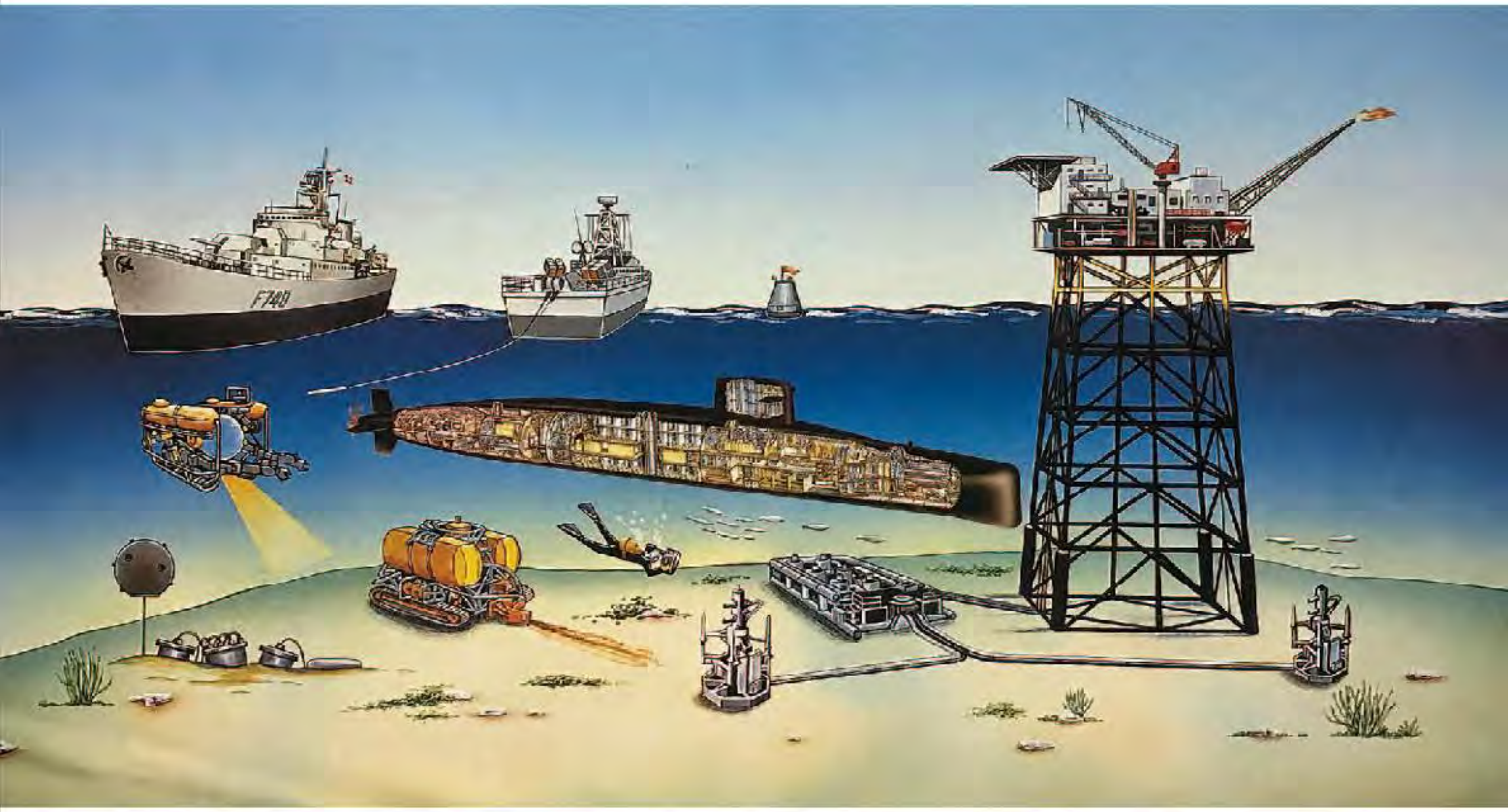
8818
Electrical connector for wire guided torpedo equipment

MS
Muitipin, coax, power and fibre optics screw coupling connectors

JVS
Nickel aluminium bronze housing, CECC specifications derived from MIL-C-38999 series Ⅲ

Harnessing Overmoulding
Umbilical terminations, hoses assemblies, cable spilcing and any other solutions

Custom Designed
Hermetic glass fused & ceramic



佳昭企業有限公司
NEARSON ENTERPRISE CORP.

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· http://www.nearson.com.tw