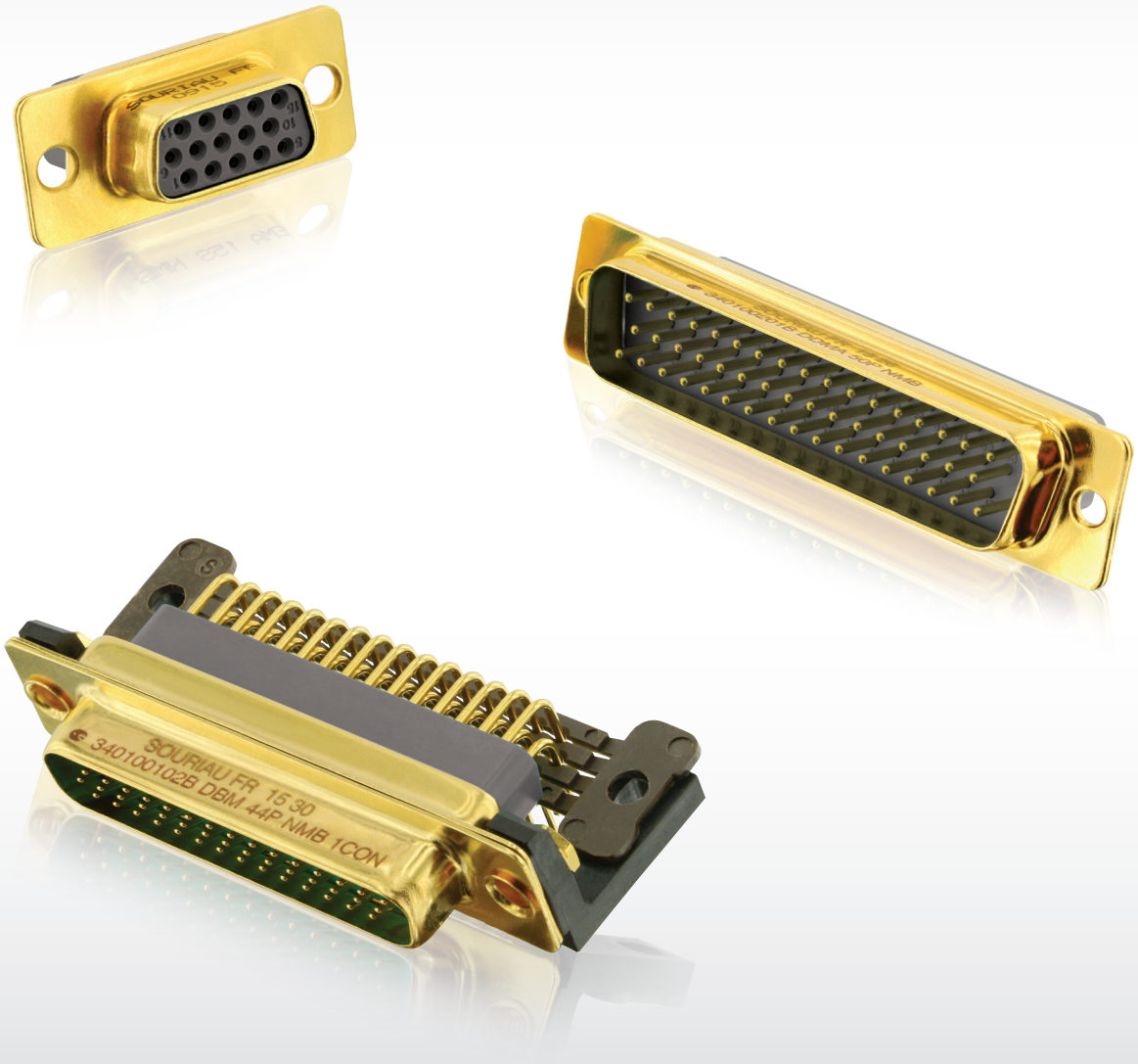
SPACE GRADE D-SUB



Space Grade D-Sub Connectors

Selector Guide

SOURIAU
Connection Technologies

Typical applications

Satellite

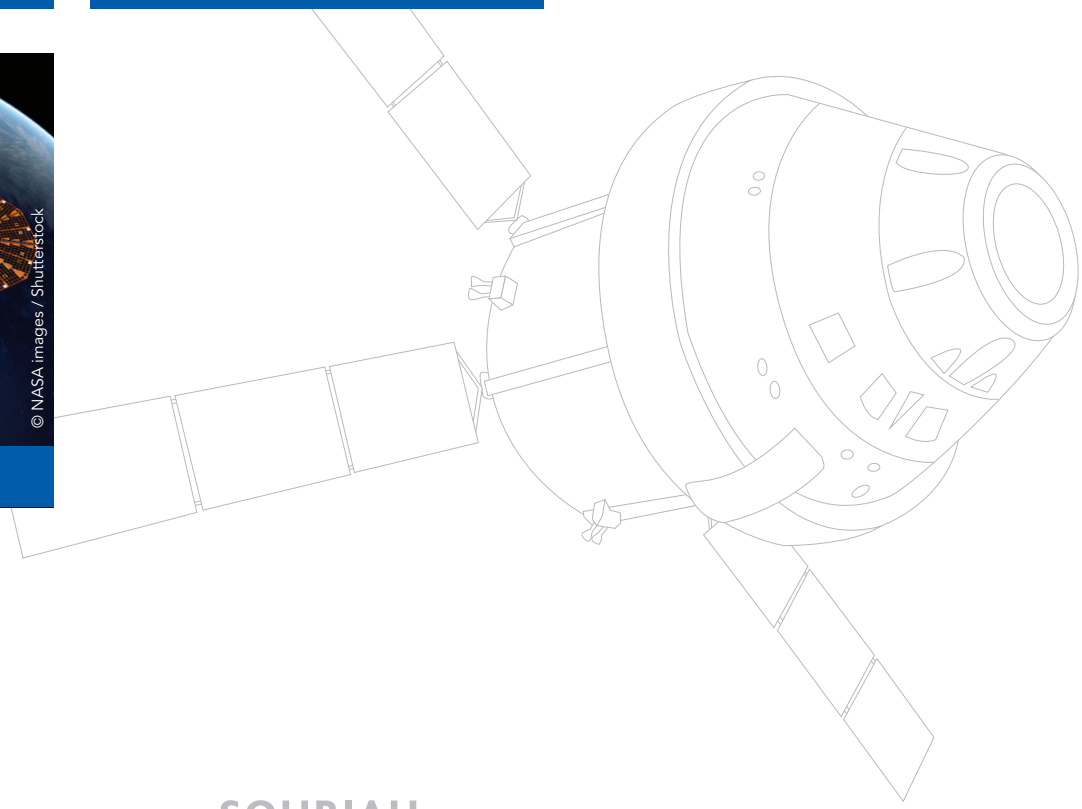
Space Station

Launcher

Spacecraft

Space Mission

Transfer Vehicule



Features & Benefits

RELIABILITY

Successful space heritage

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

QPL

Listed by space agencies

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

NON MAGNETIC
NON OUTGASSING

Space environment compatible

Low residual magnetism ≤ 200 Gamma "NMB".
Rigorous material selection, process and qualification to optimize the non-outgassing performance.

OPTIMIZED SIZE AND WEIGHT

Compact solution

Rectangular shape to save space on panel.
Lightweight design.

LARGE OFFER

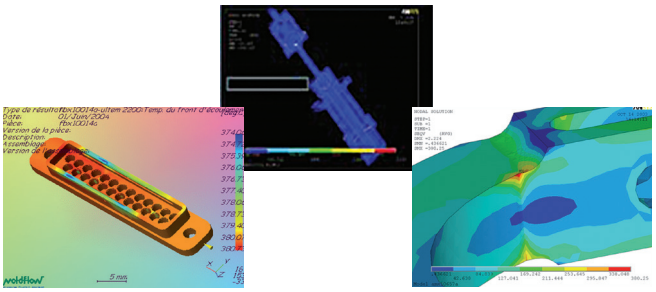
Broad range

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

Thanks to more than 50 years of experience in the space industry, we have accumulated a very rich know-how to support our customers.
This expertise goes from product definition to solution validation and stringent production processes, to follow our motto: *reliable people, reliable solutions!*

Product definition

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

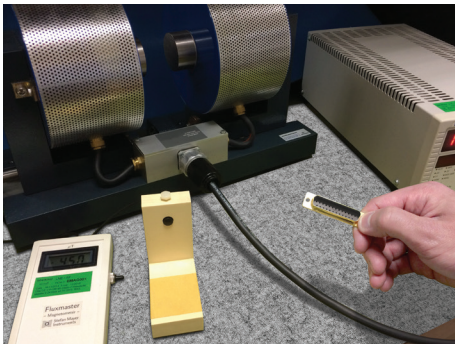


Stress and heat dissipation analysis

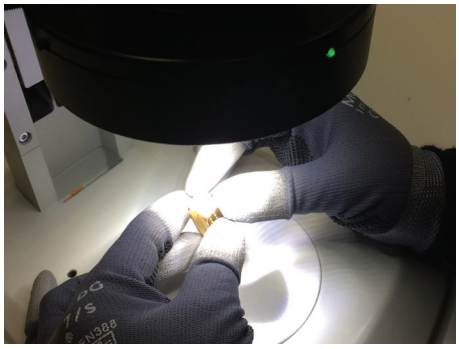
Validation & qualification

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

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



Residual magnetism and magnetic permeability measurement



Binocular controls

Production processes

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

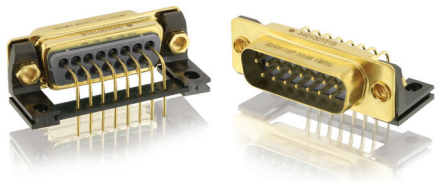
Clean Room handling

Space Grade D-Sub Series | Range Presentation

CONNECTORS

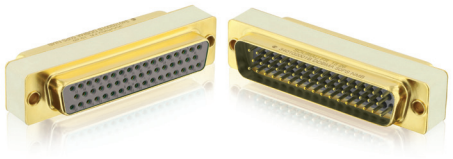
CABLE CONNECTORS

- Contact termination
  - Rear removable crimp contacts
  - Solder bucket contacts
  - Wire wrap contacts
- Grommet version available
- Mounting options
  - Fixed mounting
  - Floating mounting
  - Clinch nuts



PC TAIL CONNECTORS

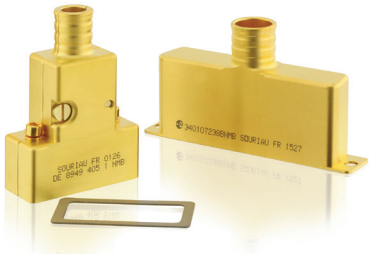
- Contact termination
  - Straight or 90° PC tails
- Mounting options
  - Fixed mounting
  - Clinch nuts
  - Brackets
  - Brittle drilled bar...



SAVER CONNECTORS

- QPL connectors
- Used to protect the flight equipment connectors from multiple test matings

ACCESSORIES



BACKSHELLS

- EMI/RFI shielded version
- Lightweight version
- Cable clamp
- Shorting can
- Castellated backshell

SCREW LOCKS

- Male and female versions
- Brass or stainless steel

DUST CAPS

- Antistatic dust caps

Quality assurance testing

- Qualification
  - The ESA/ESCC D-Sub non-magnetic connectors are qualified to specification 3401
  - MIL and GSFC QPL
- Production control
  - Visual (100%)
  - Insulation resistance (100%)
  - Contact retention (100%)
  - Dimensional (by sampling)
  - Dielectric withstanding voltage (100%)
  - Female contact capability (100%)
- Final production tests
  - Visual (100%)
  - Intermateability
  - Dimensional (by sampling)
- Lot acceptance tests
  - ESA/ESCC 3401 Chart IV qualified
  - Periodic requalification through ESCC 3401 Chart V
  - MIL-DTL-24308 qualification and periodic tests

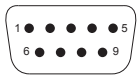
Space Grade D-Sub Series | Insert Layouts

5 Shell Sizes

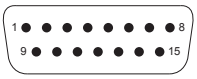
26 Layouts (mixed, HD, ...)

Data and Power

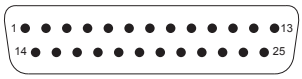
STANDARD DENSITY LAYOUTS - #20 CONTACTS



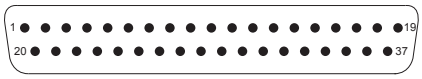
SIZE E - 9 contacts



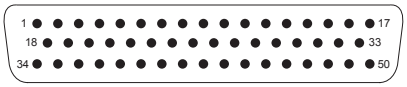
SIZE A - 15 contacts



SIZE B - 25 contacts

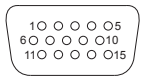


SIZE C - 37 contacts

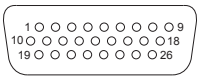


SIZE D - 50 contacts

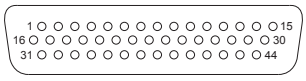
HIGH DENSITY LAYOUTS - #22 CONTACTS



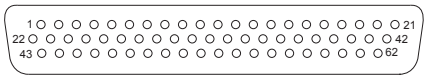
SIZE E - 15 contacts



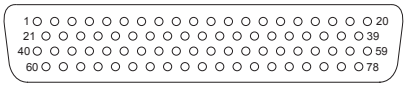
SIZE A - 26 contacts



SIZE B - 44 contacts



SIZE C - 62 contacts

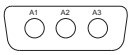


SIZE D - 78 contacts

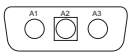
MIXED LAYOUTS - #20 (SIGNAL) AND #8 (COAX, TWINAX, POWER) CONTACTS

5W1 - 4#20, 1#8

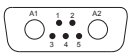
SIZE E



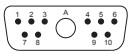
3W3 - 3#8



3WK3 - 3#8

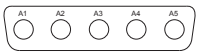


7W2 - 5#20, 2#8

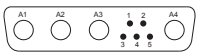


11W1 - 10#20, 1#8

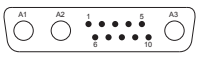
SIZE A



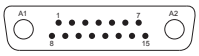
5W5 - 5#8



9W4 - 5#20, 4#8



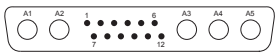
13W3 - 10#20, 3#8



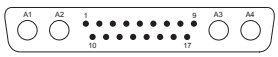
17W2 - 15#20, 2#8

SIZE B

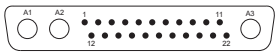
8W8 - 8#8



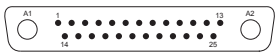
17W5 - 12#20, 5#8



21WA4 - 17#20, 4#8

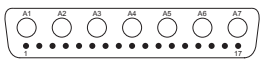


25W3 - 22#20, 3#8

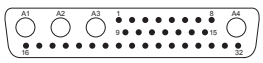


27W2 - 25#20, 2#8

SIZE C

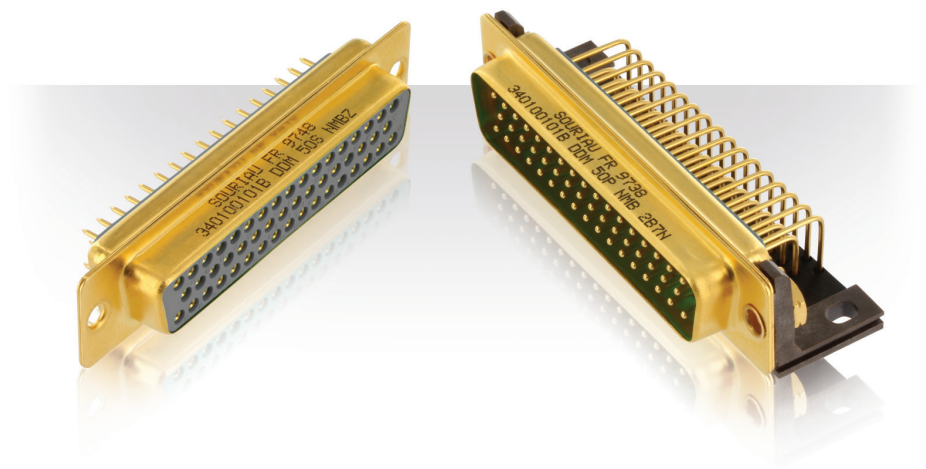


24W7 - 17#20, 7#8



36W4 - 32#20, 4#8

SIZE D



Description

- Qualified on MIL-DTL-24308 class M
- Qualified by ESA against ESA/ESCC 3401 specifications
- Qualified by NASA against GSFC specifications
- Signal, power, twinax and coax layouts available using non-magnetic shell materials
- Cable, PC tail and saver connectors available
- Comprehensive range of accessories available

Technical features

Material

- **Shell:** Brass
- **Shell plating:**
  1.27 micron gold to meet MIL/NASA
  0.7 micron gold to meet ESA
- **Insulator:**
  Glass-fibre filled diallylphthalate resin
  Thermoplastic material
- **Outgassing:**
  according to ECSS-Q-70-02A
  TML<1%; CVCM<0.1%
- **Contacts retaining clip:**
  Beryllium copper
- **Contacts:**
  Copper Alloy
  . 3401/005 /040 & /021: 1.27 microns gold mini over 1 micron copper mini
  . 3401/004 : 2.54 microns gold mini over 1 micron copper mini
- **Accessories:**
  Brass, 0.7 micron gold mini over 1 micron copper mini

Mechanical

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

- **Endurance:** 500 mating cycles
- **Shock:** 50g with an 11ms duration pulse
- **Vibration:** 20g
- **Contact retention:** 40N

Electrical

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

- **Working voltage** (sea level /50Hz):

#20 contacts	300 Vrms
#22 contacts	250 Vrms
Power and straight coax	250 Vrms
90° coax/twinax	200 Vrms

- **Dielectric withstanding voltage**
  (at sea level/33000 m):

#20 contacts	1250/200 Vrms
#22 contacts	1250/200 Vrms
Power and straight coax	1000/100 Vrms
90° coax/twinax	800/100 Vrms

- **Rated current:**

#20 and coax (center)	7.5A
#22 PC tail	3A
#20 crimp (AWG 26/28)	3A
#22 crimp	5A
Power (wire size #8)	40A
Power (wire size #10)	30A
Power (wire size #12)	20A
Power (wire size #14)	15A
Power (wire size #16)	10A

- **Contact resistance Rcr max.**
  (at rated current):

#20 (under 7.5A)	5mΩ
#22 PC tail (under 3A)	10mΩ
#22 crimp (under 5A)	5mΩ
#20 crimp AWG 26/28 (under 3A)	5mΩ
#20 crimp (under 7.5A)	5mΩ
Coax (see rated current charac.)	7mΩ
Power (see rated current charac.)	7mΩ

- **Contact resistance Rcl max.**
  (low level current, under 10 mA):

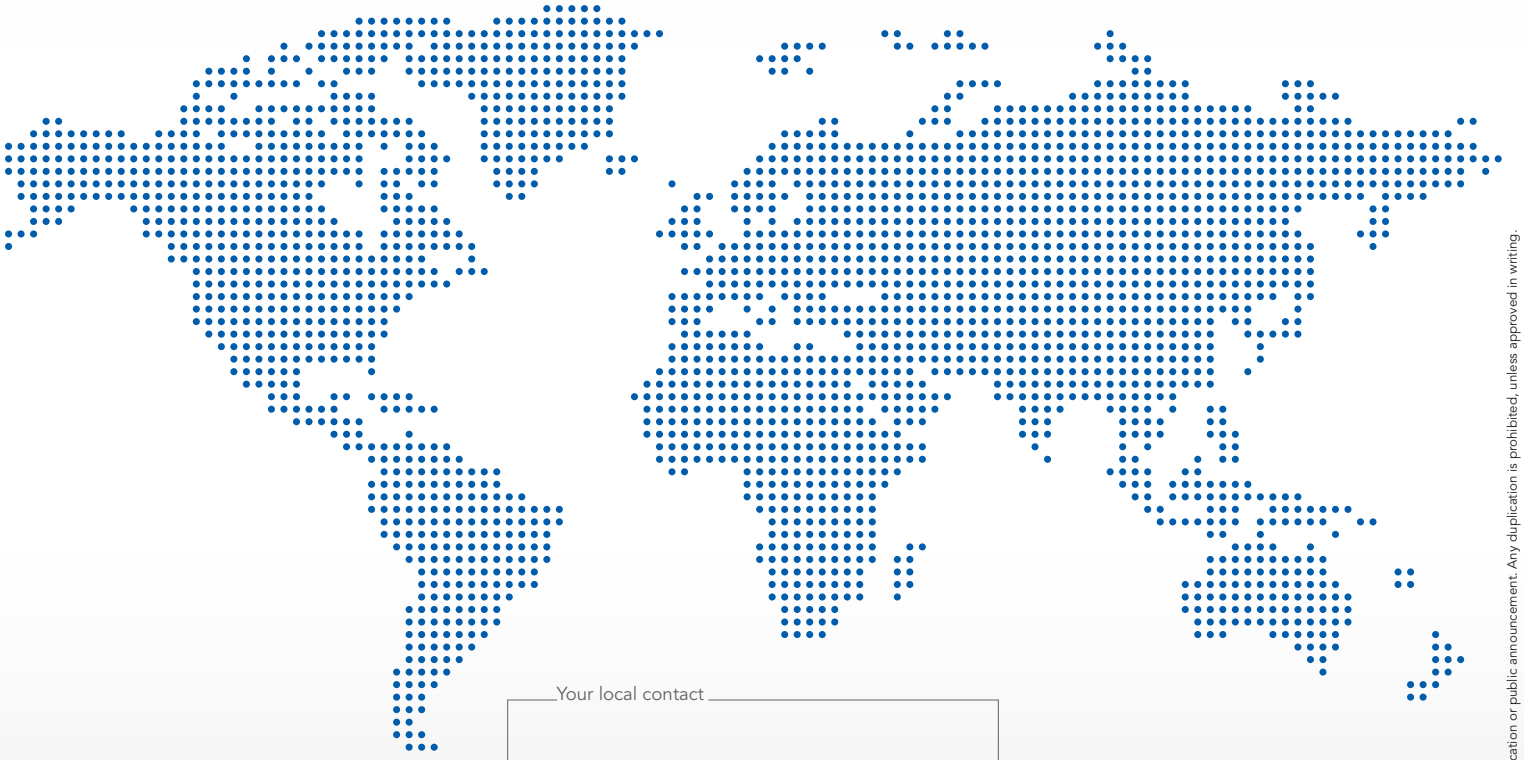
#20 contacts	6mΩ
#22 contacts	6mΩ
Coax (center and outer)	8.5mΩ
Power	2.5mΩ

Environmental

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

- **Operating temperature:** -55°C to +125°C
- **Storage temperature:** 1000h/125°C
- **Thermal shock:** from -55°C to +125°C
- **Damp heat:** 10 cycles 24h
- **Vacuum test (125°C/24h):** 10^{-6} Torr

Reliable People, Reliable Solutions



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www.souriau.com
technical.emear@souriau.com (Europe - Asia - Africa)
technical.americas@souriau.com (North America)

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