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ג'טל (אלקטרוניקה)

- נוסדה בשנת 1985 בתל אביב.
- מייסד – יואל כהן (מנכ"ל).
- מיקום – האורזים 2 נתניה.
- כמות עובדים – 4
- מייצגים מגוון חברות בתעשייה:



לקוחות מרכזיים



**Nissan
Aviation Ltd**





- 50 שנות ניסיון
- קונצ'רן צרפתי
- מפעלים בכל רחבי הגלובוס
 - צרפת, ארה"ב, הודו, סין, מקסיקו, הונגריה, לטביה ועוד!
- מיוצגים על ידי ניסן מעל 35 שנה
- מעל 3000 עובדים

תחומי עיסוק - Axon

Space



Aeronautics



Energy



Military



Automotive

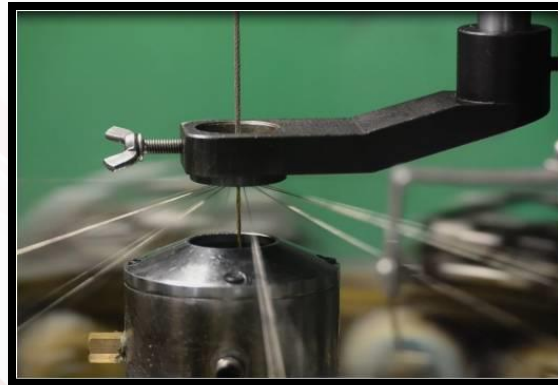


Medical



Production

From Conductor to full Assembly



Axon's Wires & Cables



CONDUCTORS MATERIALS

- Own conductors manufacture
- A wide range
 - single strand
 - multi-stranded
 - precision conductors
 - composite conductors
- **Product range**
 - **SPC** : silver plated copper
 - **TPC** : tin plated copper
 - **SCA** : silver plated copper alloy
 - **CuBe** : silver plated copper beryllium alloy
 - **SHT** : silver plated tin copper alloy
 - **Axalu** : silver plated aluminium



CONDUCTORS

Silver plating



MATERIALS

Copper
Aluminium
Alloys

PLATING

Silver
Tin
Nickel
Gold

PLATING
(electrolysis, bath)

DRAWING

ANNEALING

STRANDING

CONDUCTOR

INSULATION

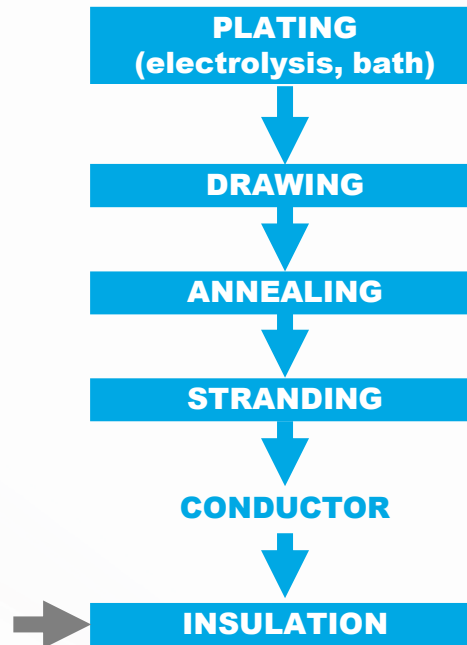


Tin plating



Gold plating

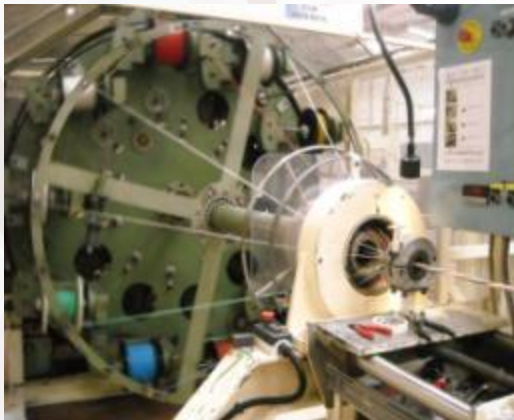
Wire Insulation



	FEP	PFA	PU	PTFE	Polyimide	Poliax (halogen free)	Cross-linked ETFE
Temperature (°C)	-90 à +200	-90 à +200	-40 à +80	-90 à +200	-80 à +200	-90 à +130	-90 à +180
Applications	AERO & space	AERO & space	Ground	All	Space	Naval	AERO & space

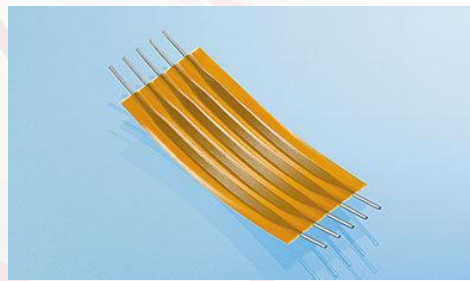
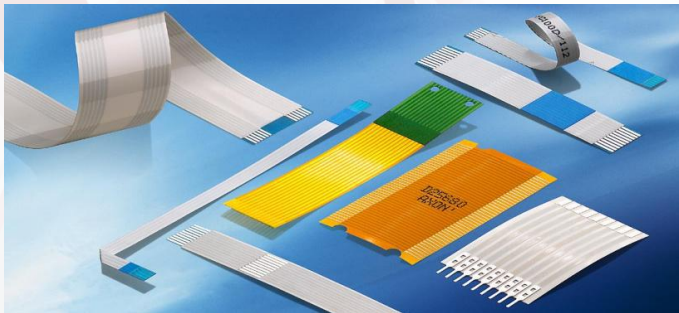
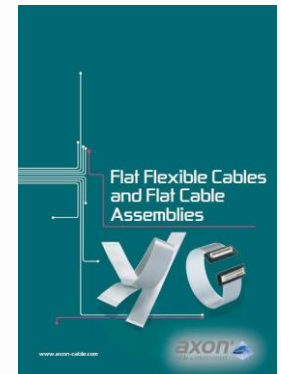
Expertise in Cables

- COMPOSITE CABLES
 - Multi-elements
 - Adapted construction to the need
 - Shielding, optimisation
 - Outer Jacket (Materials chosen per application)



FFC

- Flat cables for connection between PCB'S.
- Low cost interconnection.
- Flat or round conductors.
- “Build It yourself” from the catalog.



FFC

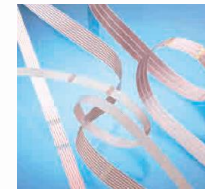
FFC- Flat Flexible Cables: AXOJUMP™



Flat Cables with round pins: AXOSTRIP™



Bulk Flat Flexible Cables: FLEXLINK™

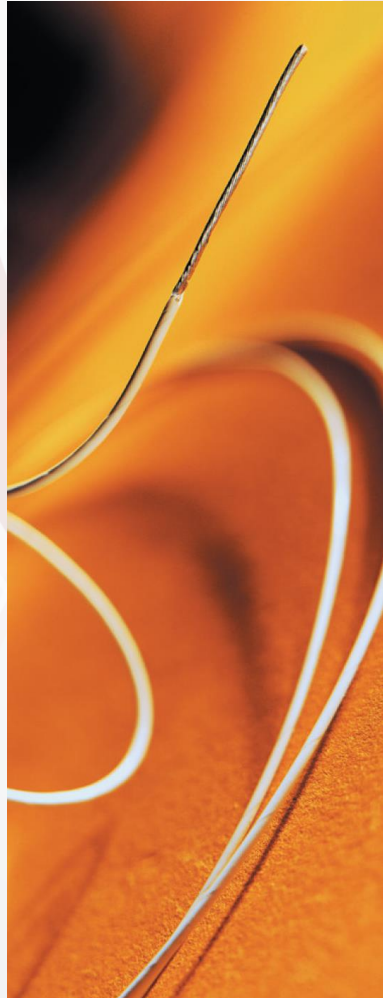


FDC- Flat Display Connections: AXOLINK™



Flat Display Connections for High Speed (LVDS) and Ultra High Speed (UHS) transmission: FDC 100®

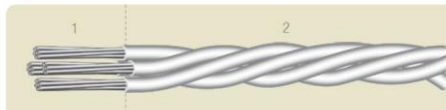
High flexible wires



- Silver Plated Copper (Alloy) conductor
- • AWG22 – AWG34
- • Highly stranded conductor
- • Insulation : FEP
- • Temperature range : -60°C to +150°C
- • Voltage rating : 200 Vac
- • High flexlife
- • Severe operating conditions in limited spaces

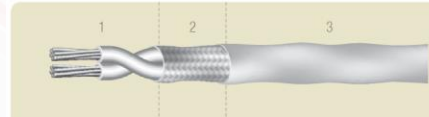
TYPE 4 FW xx/xx

Insulation: FEP
 Operating temperature: -60°C to +150°C
 Voltage rating: 200 Vac
 Standard colours (Stock) : white for FW 22/41 to FW 34/50,
 black or white for FW 26/44,
 Other colours on request, see colour code page 3.



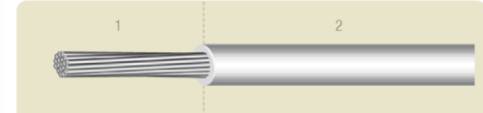
TYPE LFW xx/xx STK2

Insulation: FEP
 Operating temperature: -60°C to +150°C
 Voltage rating: 200 Vac
 Standard colours (Stock) : white for FW 22/41 to FW 34/50,
 black or white for FW 26/44,
 Other colours on request, see colour code page 3.



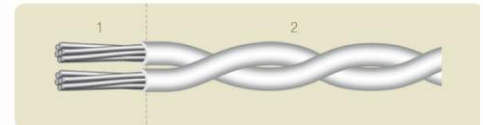
TYPE FW xx/xx

Insulation: FEP
 Operating temperature: -60°C to +150°C
 Voltage rating: 200 Vac
 Standard colours (Stock) : white for FW 22/41 to FW 34/50,
 black or white for FW 26/44,
 Other colours on request, see colour code page 3.



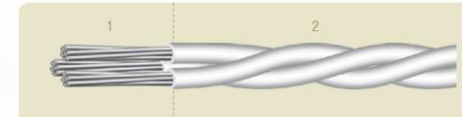
TYPE 2 LFW xx/xx

Insulation: FEP
 Operating temperature: -60°C to +150°C
 Voltage rating: 200 Vac
 Standard colours: see colour code page 3.



TYPE 3 FW xx/xx

Insulation: FEP
 Operating temperature: -60°C to +150°C
 Voltage rating: 200 Vac
 Standard colours (Stock) : white for FW 22/41 to FW 34/50,
 black or white for FW 26/44,
 Other colours on request, see colour code page 3.



Wire and Cable

Flexforce

axon' axon

Ultra flexible conductors

High cross section area

High current carrying capacity : 1000 Amp

High temperature resistance : 150°C

Voltage rating : 600 V A.C.

Mechanical resistance (abrasion, cut-through...)

Chemical resistance to engine fluids

Flame retardant material

Halogen free

Light weight CCA conductors

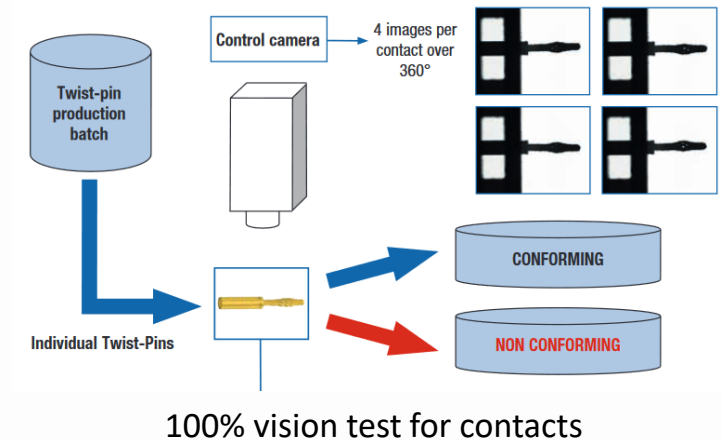


Axon's Connectors & Harnesses



Axon': connector manufacturer

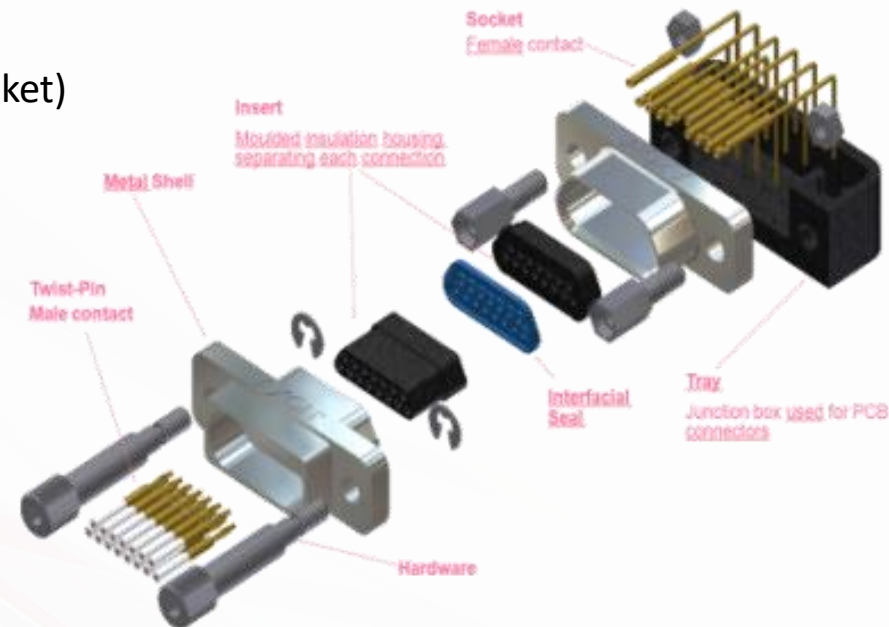
- Fully vertically integrated
 - Connector Design
 - Components machining
 - Components Plating
 - Components Molding
 - Components assembling
 - Cables/wires manufacturing
 - In-house test capability



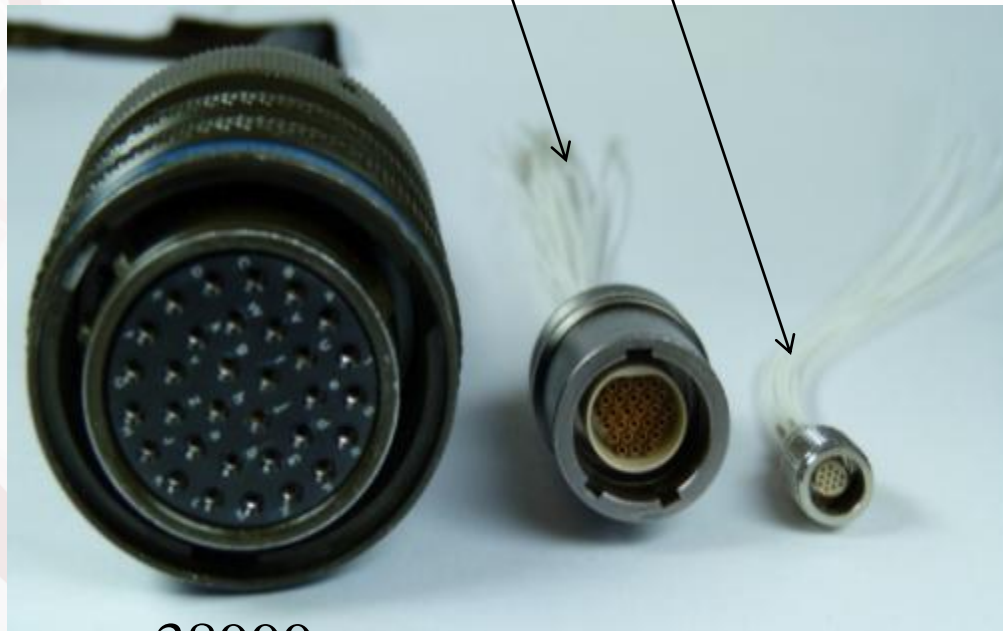
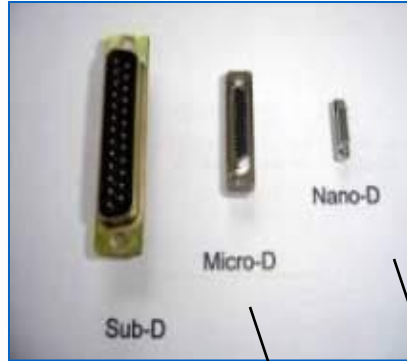
Plating bath

Micro-D Connectors

- Thanks to vertical integration
 - Design & Rapid prototyping (3D printing, 3D machining...)
 - Connectors
 - Molded and machined Inserts
 - Shells
 - Contacts (Twist Pin)
 - Sealing (interfacial sealing, orings, gasket)
 - Plating
 - Dust caps
 - ...
 - Backshells
 - Tests and qualification



From 38999 to circular microD & NanoD



38999

TWIST-PIN CONTACT

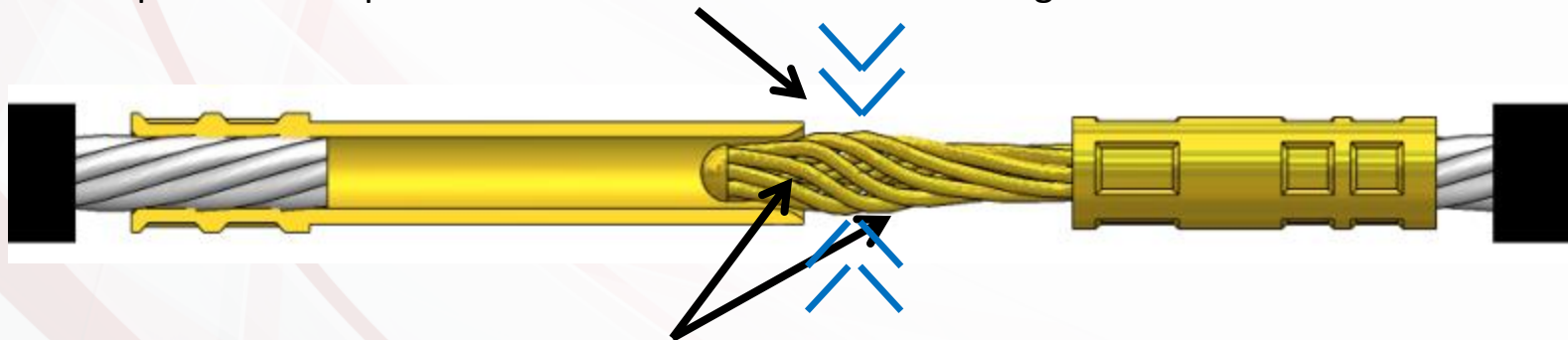
→ Made up of 10 strands of beryllium-copper and copper alloy twisted together, welded and bumped

MicroD

NanoD



Bump area is compressed inside the socket contact during insertion



Both socket contact chamfer and twist-pin hemispherical radius contribute to ensuring adequate insertion even in case of misalignment

Special Plating Line

- **100% Axon design**
- **A large number of plating baths**

Chemical degreasing

Electrolytic degreasing

Chemical etching

Activation

Zincate coating

TopCoat coating

Electroless Ni plating

Ni plating

Cu plating

Zn-Ni plating

Ag strike

Ag plating

Au plating



Zinc Nickel process

- Operating range
 - Electroless Nickel (20 μm)
 - Zinc Nickel (10 μm)
 - Black passivation
 - Sealer
- Salt spray resistance = 500h
- Contact resistance : 15 m Ω
- Black matt finish
- Passivation without Cr VI
- RoHS compliant



After
500h



Micro D range



- MicroD connectors
 - Plastic and Metal shell
 - Up to 120 ways
 - Pigtails, solder cup and PCB (CBR, BS, 0.075" or 0.100")
- Characteristics
 - 1.27 mm (0.05") pitch
 - 3A per contact
 - Standard Micro-D
⇒ MIL-STD 83513 (US std)
 - ROHS compliant
 - ITAR free

MICRO-D STANDARD RANGE

- Plastic shell from 9 way to 51 way.

- 9 to 37 way \Rightarrow 2 rows.
- 51 way \Rightarrow 3 rows.

- Metal shell from 9 way to 120 way.

- 100 & 120 way \Rightarrow 4 rows.

\Rightarrow COLOR CODING AVAILABLE ON PIGTAIL FOR CABLING FACILITIES.

\Rightarrow STANDARD PLASTIC AND STANDARD METAL SHELL ARE NOT COMPATIBLE DUE TO THE HEIGHT



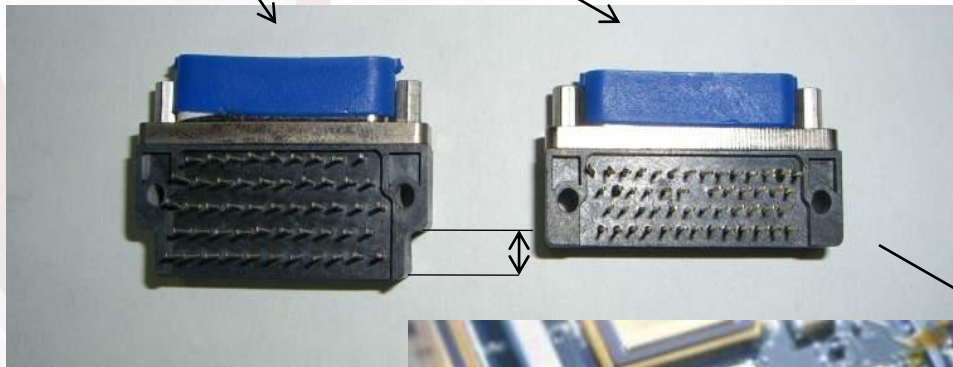
PCB Micro-D

Available in two pitches and two configurations for microD

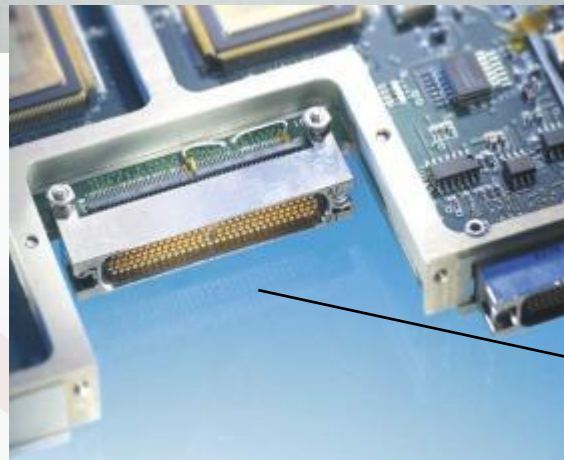
- Vertical mount and right angle mount
- Pitch 0.100" and 0.075" for the PCB layout



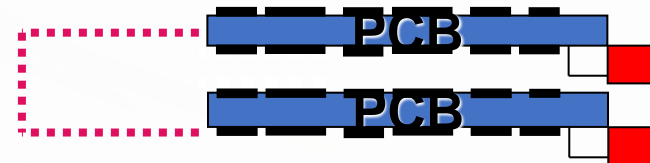
Surface mount Technology (Edge)



Surface Mount



16mm

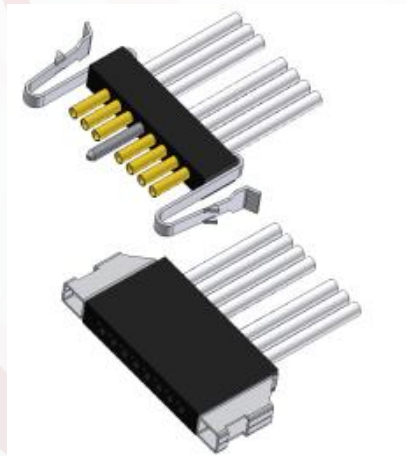
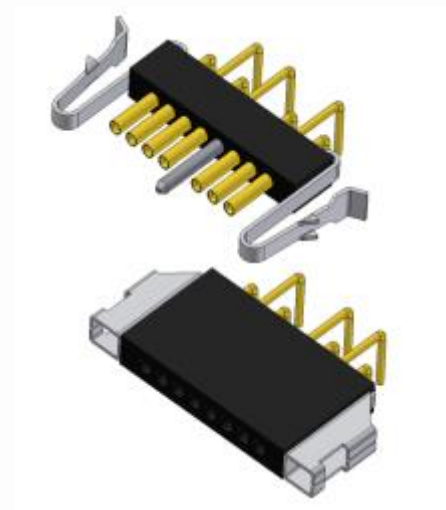


11mm



MICROSTRIP CONNECTORS

- Pigtails and PCB connectors
- Pitch 0.050"
- Available in several versions
 - ✓ Straight
 - ✓ Right angle
 - ✓ Single or double row



- Available in several dimensions
 - ✓ 7 way
 - ✓ 10 way
 - ✓ 13 way
- Hardware options:
 - ✓ Polarization by guide pin
 - ✓ Latched retention

COMBO μ D CONNECTOR RANGE

Main electrical characteristics

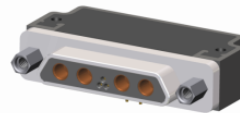
- Available with **coaxial contacts**

50 ohms

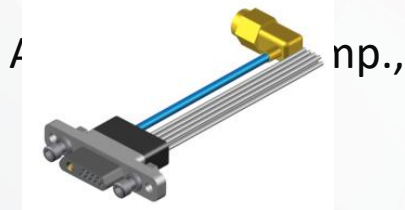
75 ohms



Up to 11GHz



- And with **power contacts**



np.,



AWG16







Up to 20A



HERMETIC MICRO-D CONNECTORS

Hermetic connectors : AXON' Technologies

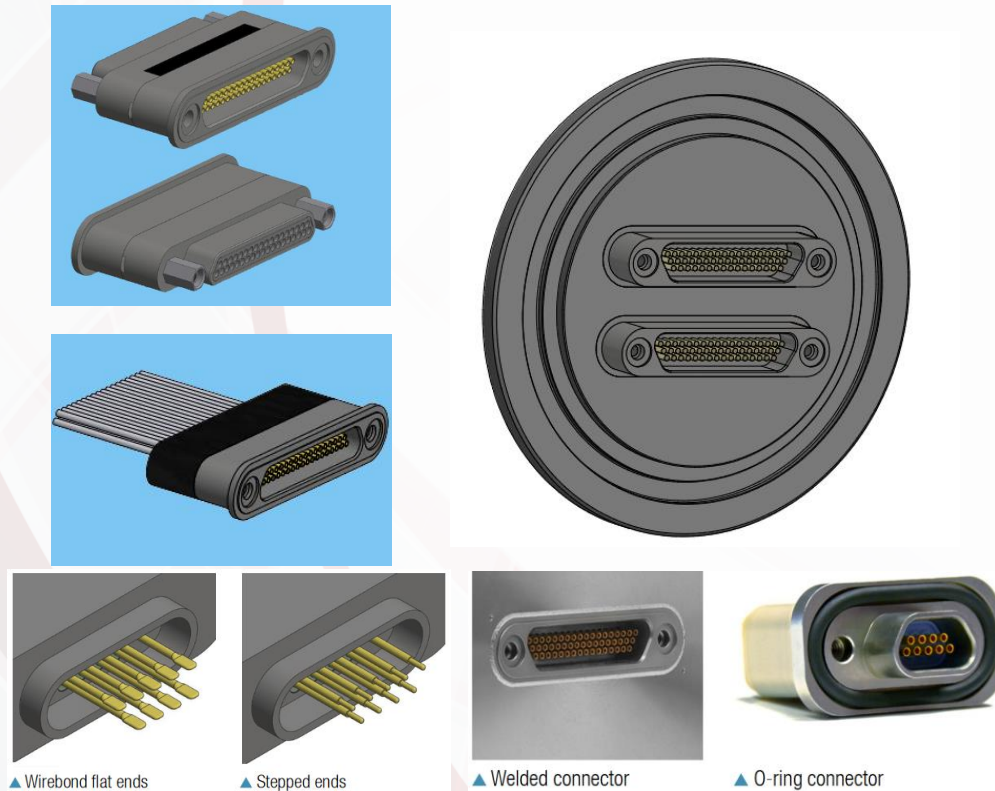
	MIL-DTL-83513*	AXON' Waterproof Encapsulant	AXON' Hermetic Encapsulant	AXON' Glass-to-Metal Seal
				
1.E ⁻⁰⁰	↑ MOST FORMS OF INGRESS POSSIBLE ↓	↑	↑	↑
1.E ⁻⁰¹				
1.E ⁻⁰²				
1.E ⁻⁰³		↑ SOME MOISTURE INGRESS ↓	↑	↑
1.E ⁻⁰⁴				
1.E ⁻⁰⁵			↑ HERMETIC SEAL ↓	↑
1.E ⁻⁰⁶				
1.E ⁻⁰⁷				↑ VACUUM SEAL ↓
1.E ⁻⁰⁸				
1.E ⁻⁰⁹				
1.E ⁻¹⁰				
1.E ⁻¹¹				
Max. leak rate	1.10 ⁻² mbar.l.s ⁻¹	1.10 ⁻³ mbar.l.s ⁻¹	1.10 ⁻⁶ mbar.l.s ⁻¹	1.10 ⁻¹¹ mbar.l.s ⁻¹
Service temp. range	-25°C / 175°C	-40°C / 125°C	-40°C / 125°C	-55°C / 200°C
Current rating	3 A max	3 A max	3 A max	1 A max
	MIL-DTL-83513*	AXON' Waterproof Encapsulant	AXON' Hermetic Encapsulant	AXON' Glass-to-Metal Seal

LEAK FLOW [mbar.l/s or atm.cm³.s⁻¹]

For other operating performances please refer to MIL-DTL-83513

* - With or without seal depending on the environment

Hermax: hermetic connector



- Hermax connectors
 - Glass to metal seal
 - Up to 51 ways
 - Stainless steel 304L shell
 - Laser weldable or Gasket mount
 - Pigtails, solder cup and PCB (CBR, BS, 0.075" or 0.100")
- Characteristics
 - 1.27 mm (0.05") pitch
 - 3A per contact
 - Leak rate < up to $1 \cdot 10^{-11}$ mbar.L/s
 - -55°C to 150°C
 - Standard Micro-D
 - ⇒ MIL-STD 83513 (US std)
 - ROHS compliant
 - ITAR free

New nanoD connectors

- Extreme Miniaturisation
 - Twist pin contact
 - 1 Amp continuous contact
 - 9/15/25/37/51 ways
 - Pigtails
 - PCB Connectors BS, CBR, SMV, SMH
 - 1 & 2 rows
 - EMI Pigtails with backshells
 - IR 5000Mohms/100VDC

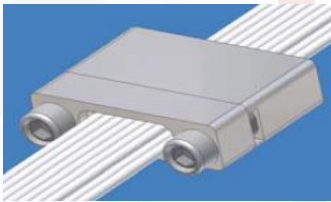


Micro D **NanoD**
Twist Pin contacts



Nano D range

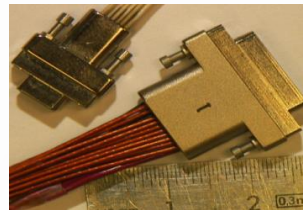
- Inline connector



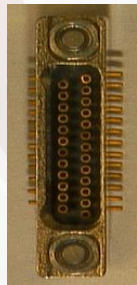
Pigtail Male /Pigtail Female



Jumper Male/Male



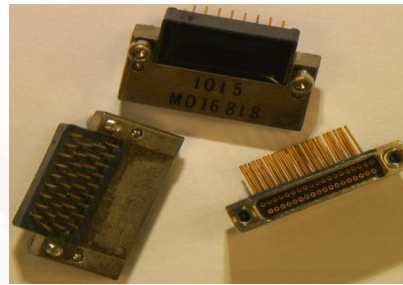
Pigtail with backshell:
EMI range



SMV female connector



BS female connector

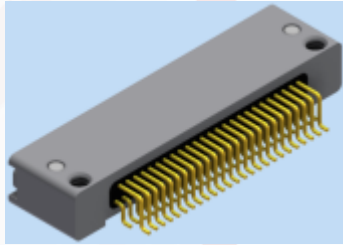


CBR female connector

- NanoD connectors:
 - For cables : Pigtail, Jumper, EMI range → Male and female
 - For PCB : BS, CBR, SMV, SMH → Male and Female
 - 1 and 2 rows
- Characteristics
 - Extreme miniaturisation
 - 0.635mm (.025") contact spacing
 - High reliability twist pin contacts
 - Rated for 1 A.
 - Standard Nano-D
⇒ MIL-STD 32139 (US std)
 - ROHS compliant
 - ITAR free

New nanoD connectors

- SMV & SMH Surface mount horizontal & vertical



- CBR Plug

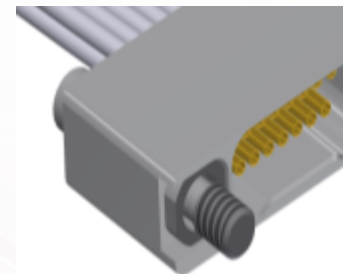


- 1 row connector



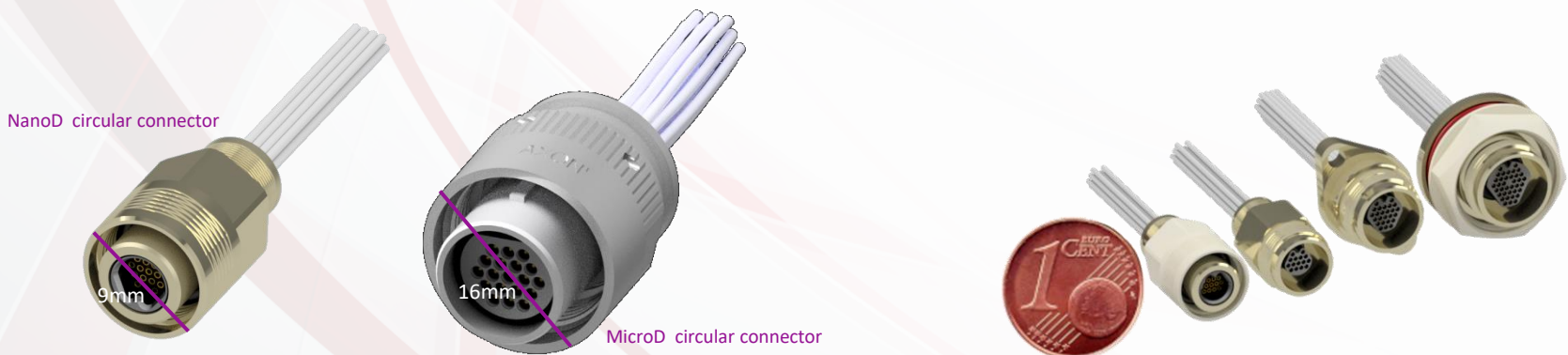
- Hermetic

- Jackscrew for socket connectors



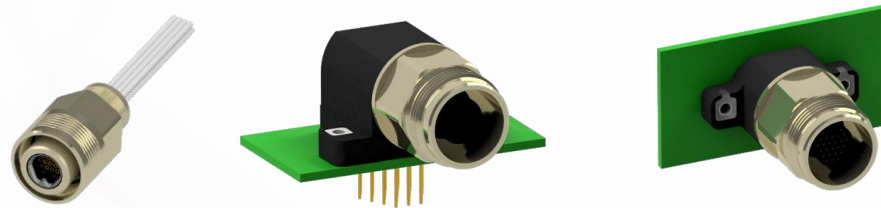
Circular Nano D

- Circular Connector with a NanoD pitch : 0.635mm
 - ➔ Miniaturization :- Ø9mm for nanoD 15 ways
 - Ø16mm for microD 19ways
 - ➔ Fast mating and fixing : threaded coupling



Circular Nano D

- 3 sizes : 15, 25, 37ways like rectangular connector
- Pigtail and PCB connector (CBR and BS) configurations



- Shells styles



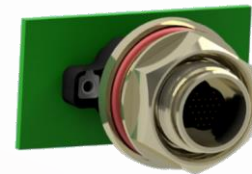
In-line shell without funnel



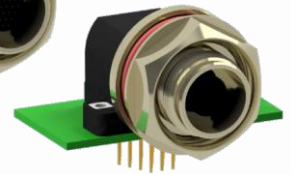
In-line shell with funnel



Oval panel mount shell



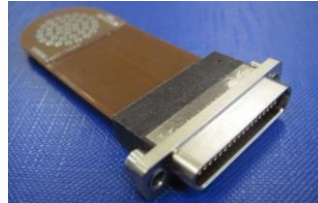
Jam Nut
panel mount shell



Custom connector based on micro/nano D range

Flexible PCB terminated on Micro-D connectors

- Custom backshell
- Custom overmould



MicroD shell integrated in electric box

Integration of circular Micro-D in customer mechanical parts



With high EMI performance (80dB @ 1GHz).
Special MicroD, EMI improved on all connection.



Combo 80nD + 4µD contacts



Right angle wires exit



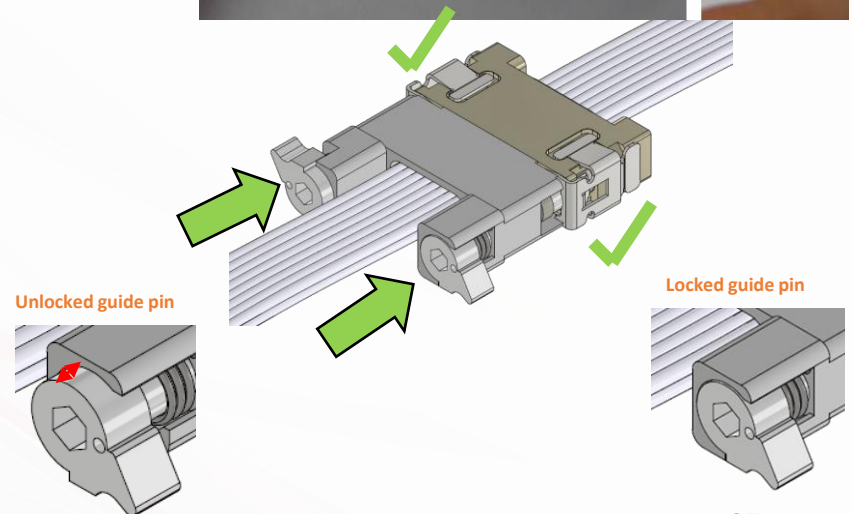
Custom hermetic nano D connector

Custom size circular Micro-D

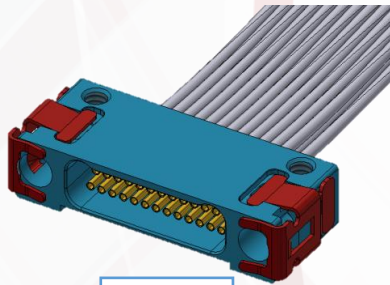


Fast Lock Nano-D Connectors

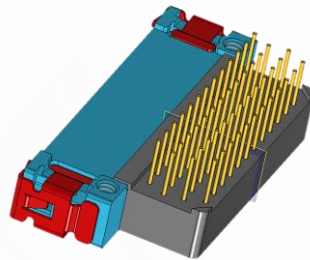
- On Standard NanoD connectors MIL32139
 - Some screws can be lost during delivery
 - **Meticulous task for mating**
 - Side by side action
 - Big tightening tool
- On Nano-D Fast-lock
 - No more screw for locking
 - Guide-pins to improve the mating sequence
 - Fast integration



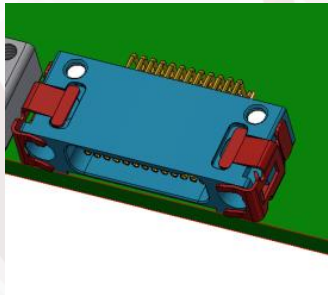
Fast Lock Nano-D Connectors



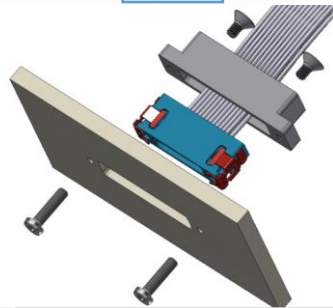
Pigtail



CBR



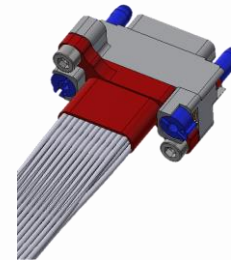
SMH



Pigtail panel mount

Socket connector

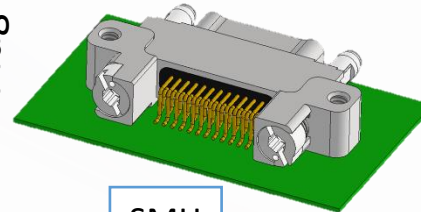
Plug connector



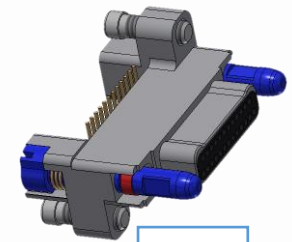
Pigtail EMI



Pigtail

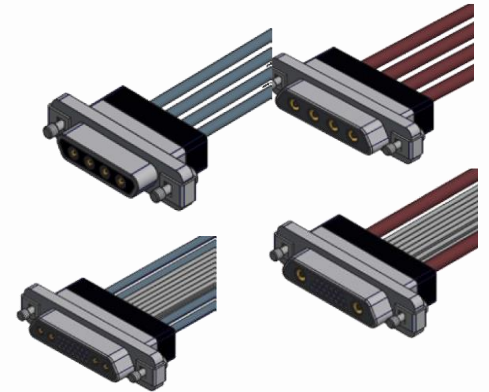


SMH



SMV

NESTY CONNECTORS



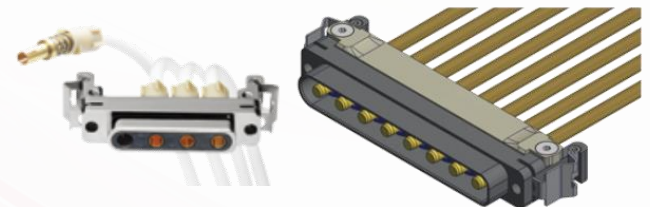
Our current range:

- **MDCA Combo connectors**

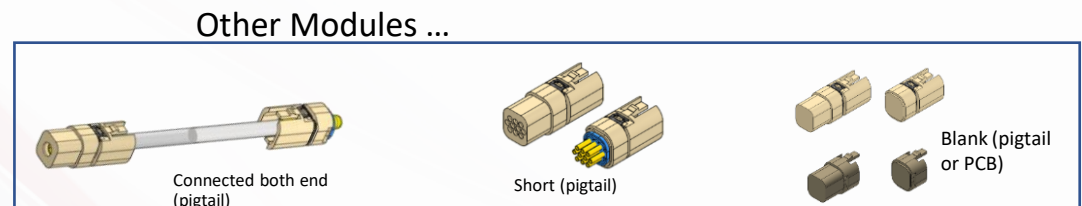
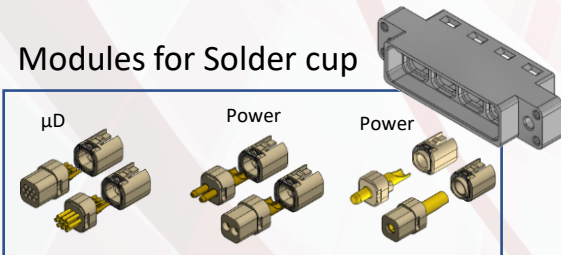
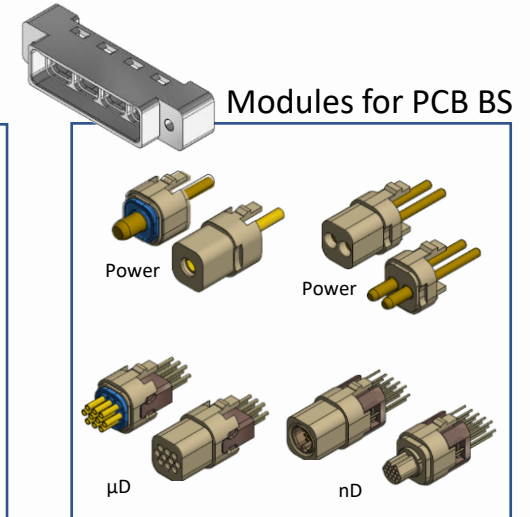
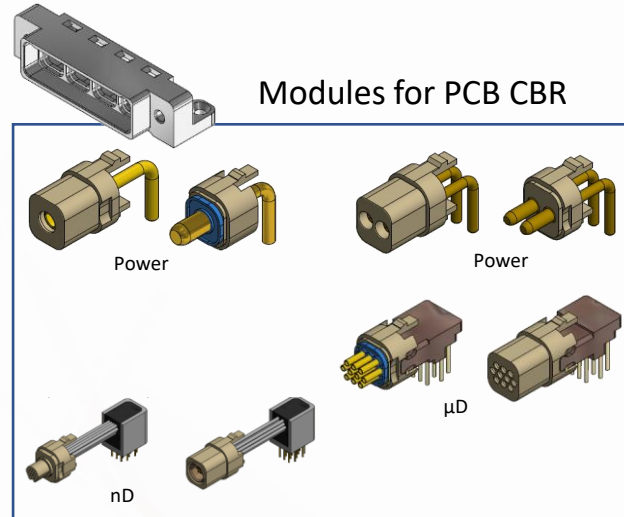
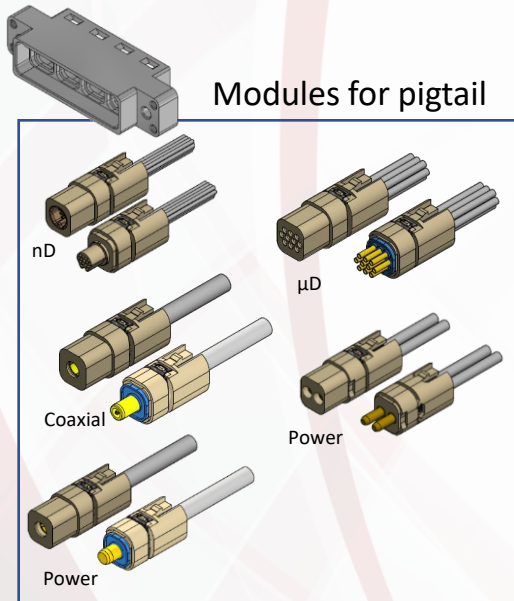
- Only 4 standard contact arrangements available
- Contacts not managed by Axon' / expensive costs
- Performances up 20A Max for AWG12
- Standard hardware available only
- **Customers always want custom connectors (= High Costs)**

- **Versatys Connectors**

- **Only 2 contact arrangements available (With AWG12 contacts)**
- Contact managed by Axon' / lower prices than the ones for MDCA
- High performances till 40A for AWG12
- Fast locking hardware (D-Click) available
- Removable contacts



NESTY: Modular connectors



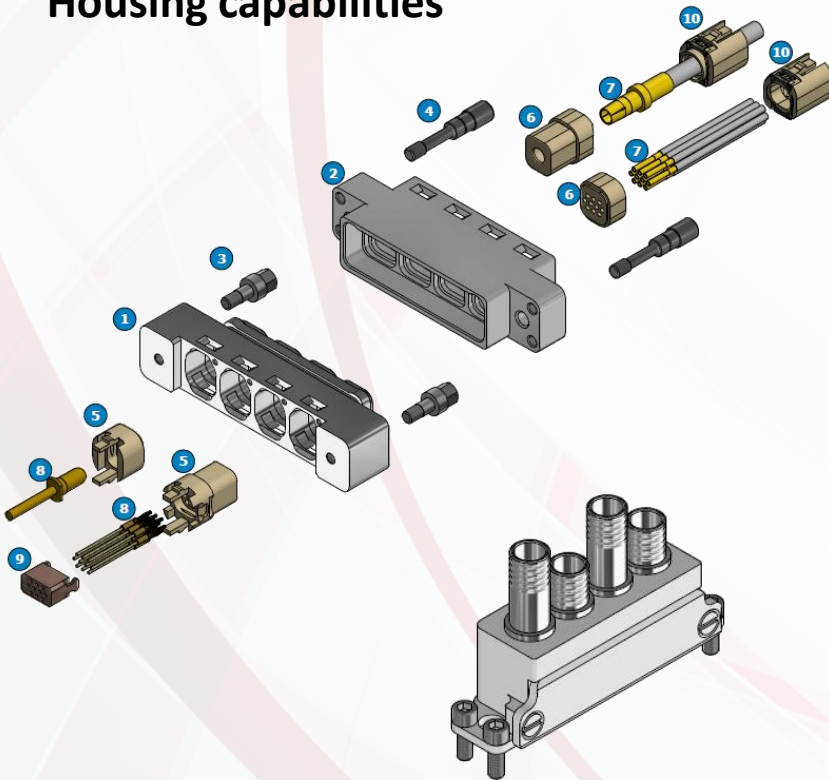
NESTY: Modular connectors

Main features : Housing capabilities

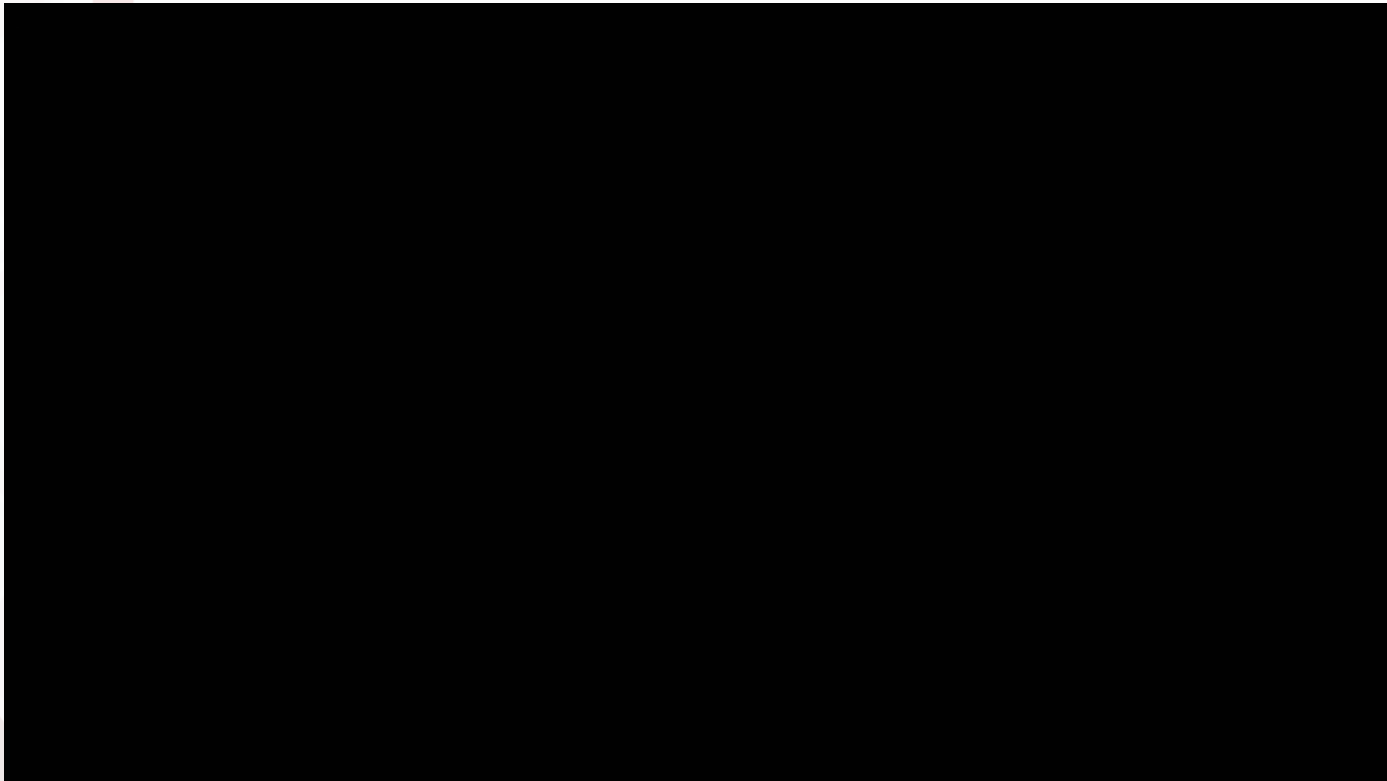
Each cavity accepts all module kinds & genders

Each cavity is EMI Protected – Covered by metal
→ For signal segregation

→ Rear backshell available to complete the signal integrity



NESTY: Modular connectors



MicroD connector and watertightness

- Water impact : humidity and liquid ingress under shallow water
 - Not for submarine application

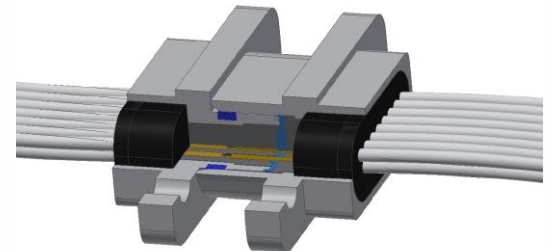
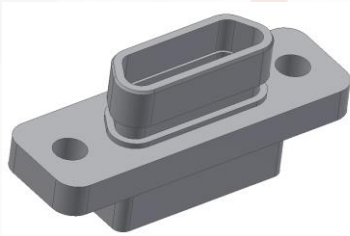


- Solution for couple of connectors is new!
 - For soldier in river, in the mud.
 - For automotive sport
 - For waterproofness of specific MicroD arrangement
 - ...

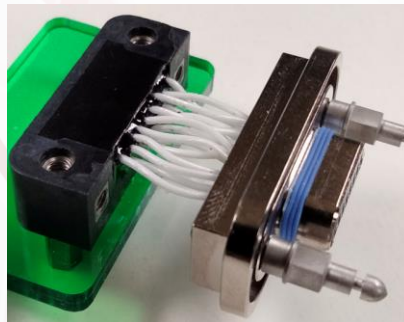
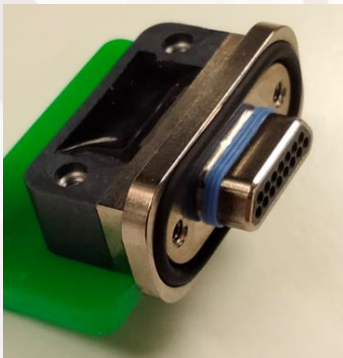


Micro D IP68

- Only plug shell is specific (but similar price as standard)



- Compatible D-click, Combo, High-density, custom MicroD configuration



HARNES SHOP

- Workshops dedicated to high tech and complex assemblies
- France, Latvia, China , India, USA, Mexico



Complex harnessing

- High quality, high complexity harnessing using Axon' connector and other.



Nano D to Micro D harness



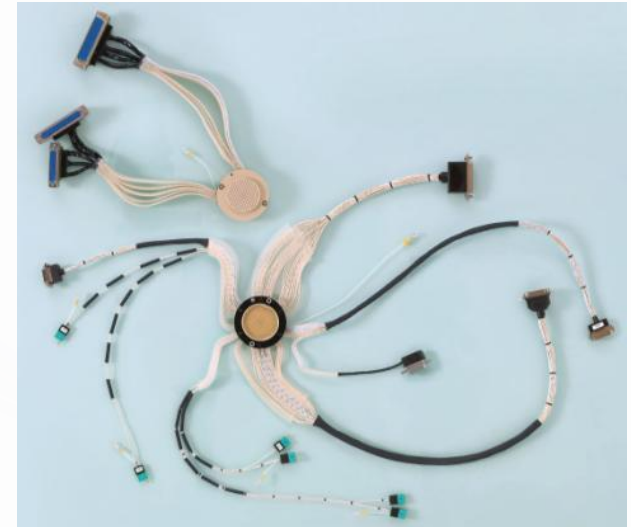
Full EMI protected harness



Twist capsule assembly



Custom connector harness



Complex harness with overmolding and specific connector

EMC

Harness = physically long part of a system

→ can be a major contributor to EMC related issues.

Harness technologies for EMC environment

⇒ Wires.

⇒ Backshells.

⇒ Connectors.



Each components has an impact on EMC performances

ASSEMBLIES



Flat versus round constructions

Silform[®]

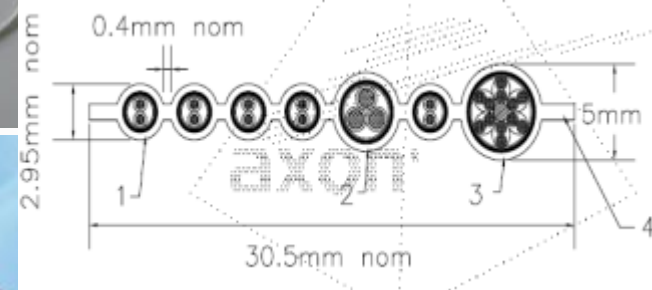
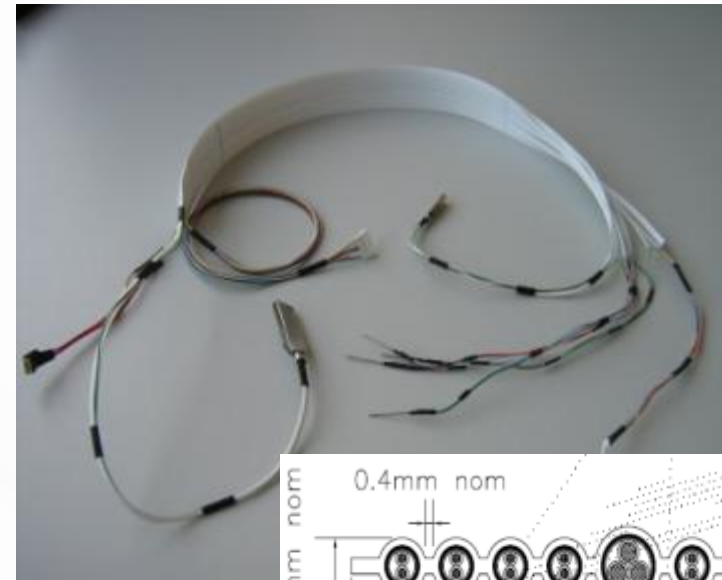
Flat flexible Silicon cables and assemblies



- Hardness from 20 to 60 shores
- Thin cables
- Multi elements : wires, pairs, shielded wires and pairs, coax...

Flextrack[®]

Flat flexible PTFE cables and assemblies

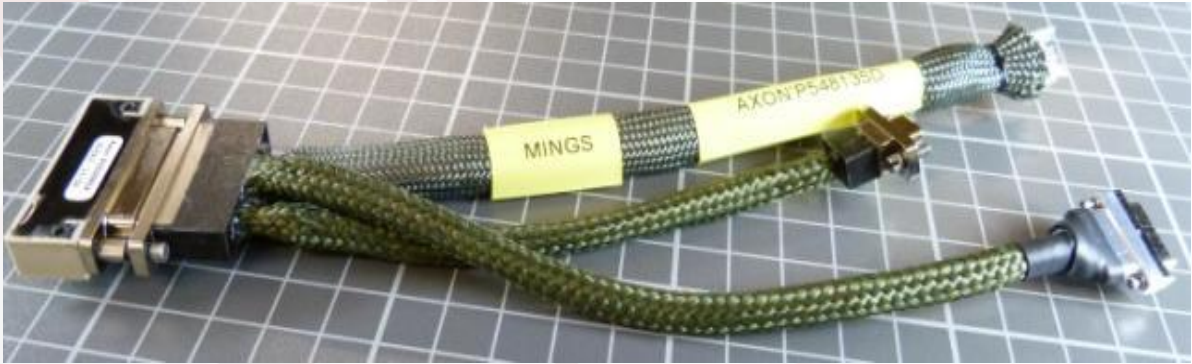


Multi branches constructions



Combo HD

➤ NanoD & microD



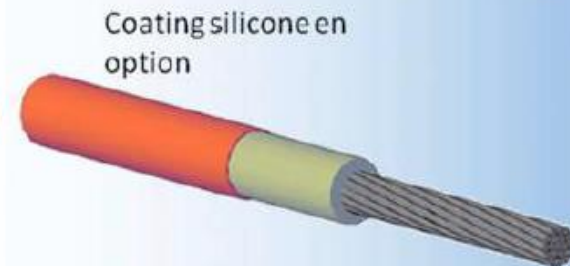
Circular Assemblies



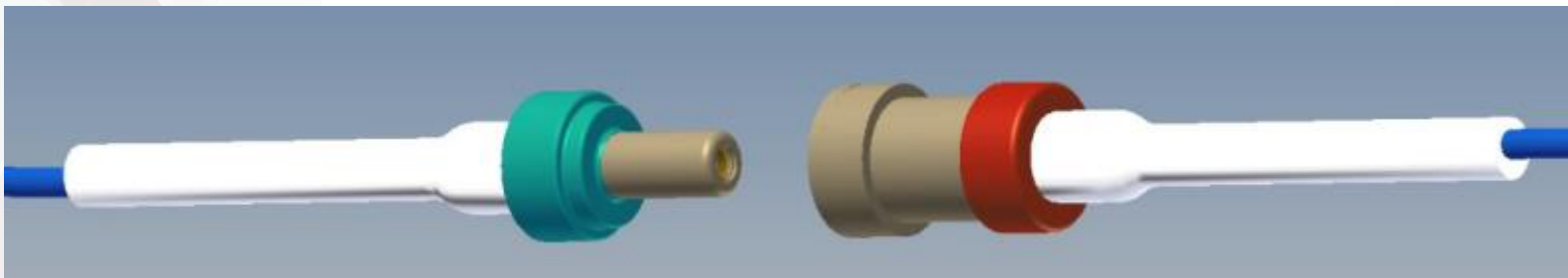
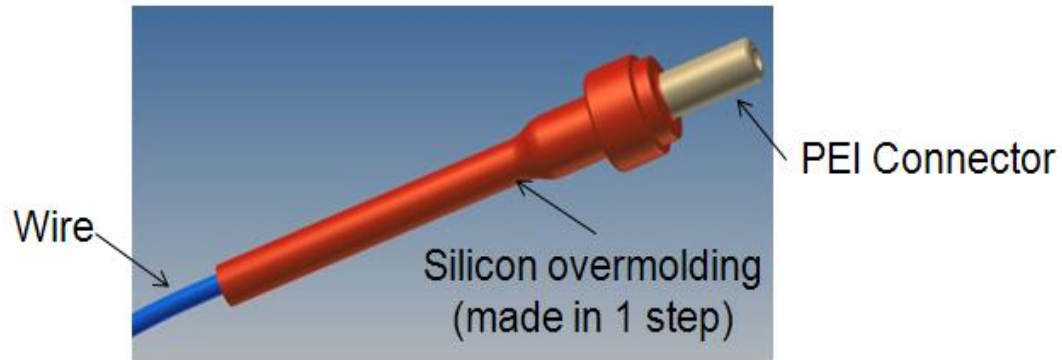
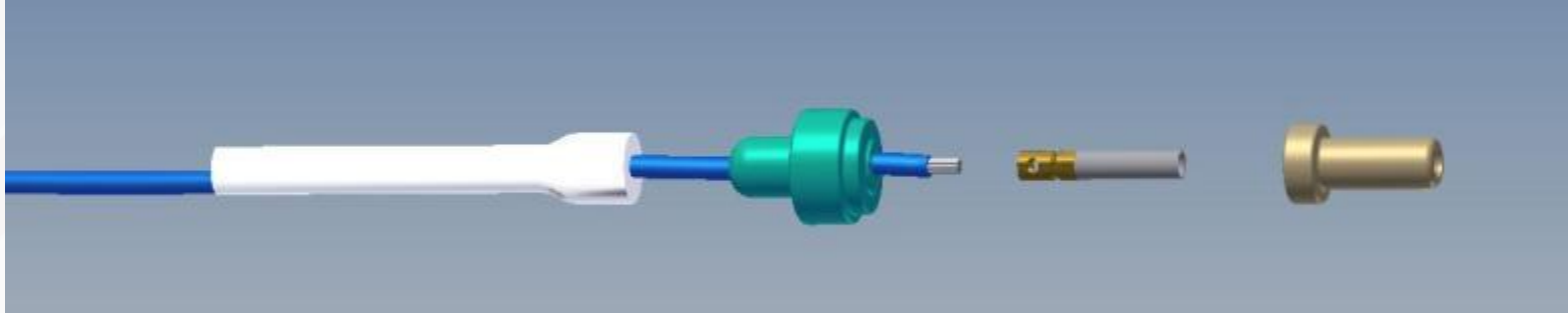
AXOVOLT High Voltage wires

- From -55°C to $+125^{\circ}\text{C}$ use.
- High Voltage 18 & 20 kV DC.
(From sea level to 21,000 meters)

- Special FEP insulation
- Silicone coated version to achieve an excellent bonding for silicone rubber potting.
- High Flexibility.
- Small diameter



Axovolt^o harnesses constructions



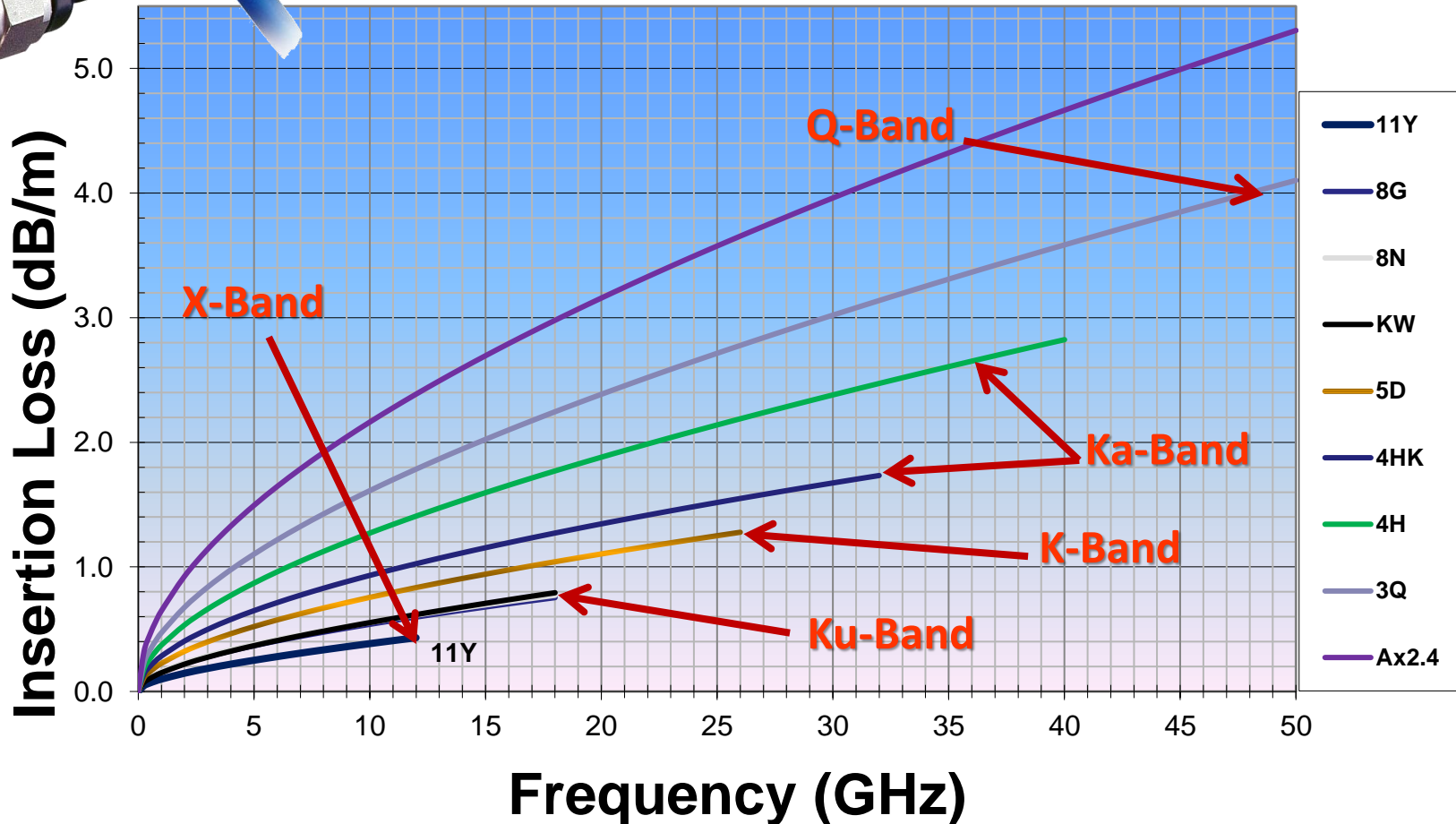
Axon's Microwave, Data Transfer & High Data



RF Assemblies

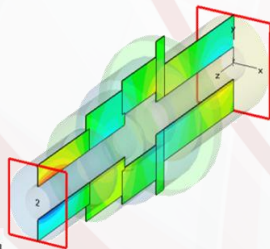
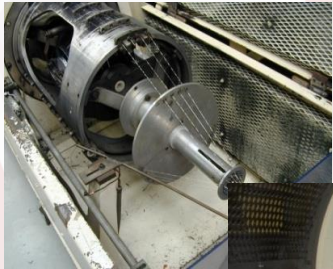
From OD 1.5 to 20 mm up to 50 GHz

Guaranteed Insertion Loss Comparison 2.4 to 11 mm OD cables, solid conductor



RF Microwave by Axon'

- To propose a complete RF solution from the conductor to the assembly:



Type E-field
Monitor e-field (r-18) [1]
Component y
Plane at x 0
Maximum-Zd 6748.91 V/m at -1.23559e-015 / 2.48 / 16.74
Frequency 18
Phase 0 degrees

CONDUCTOR



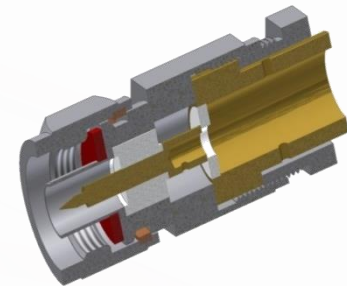
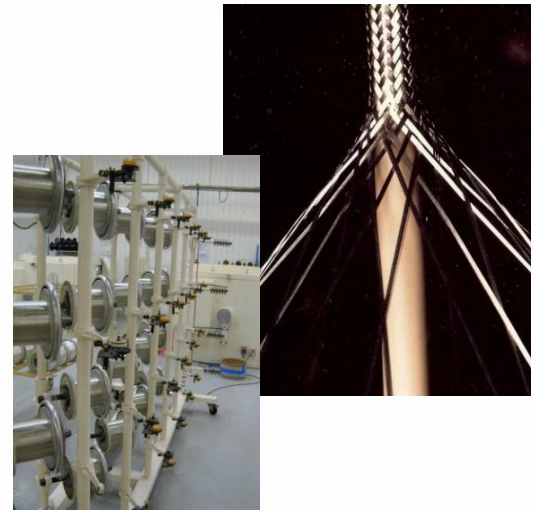
CABLE



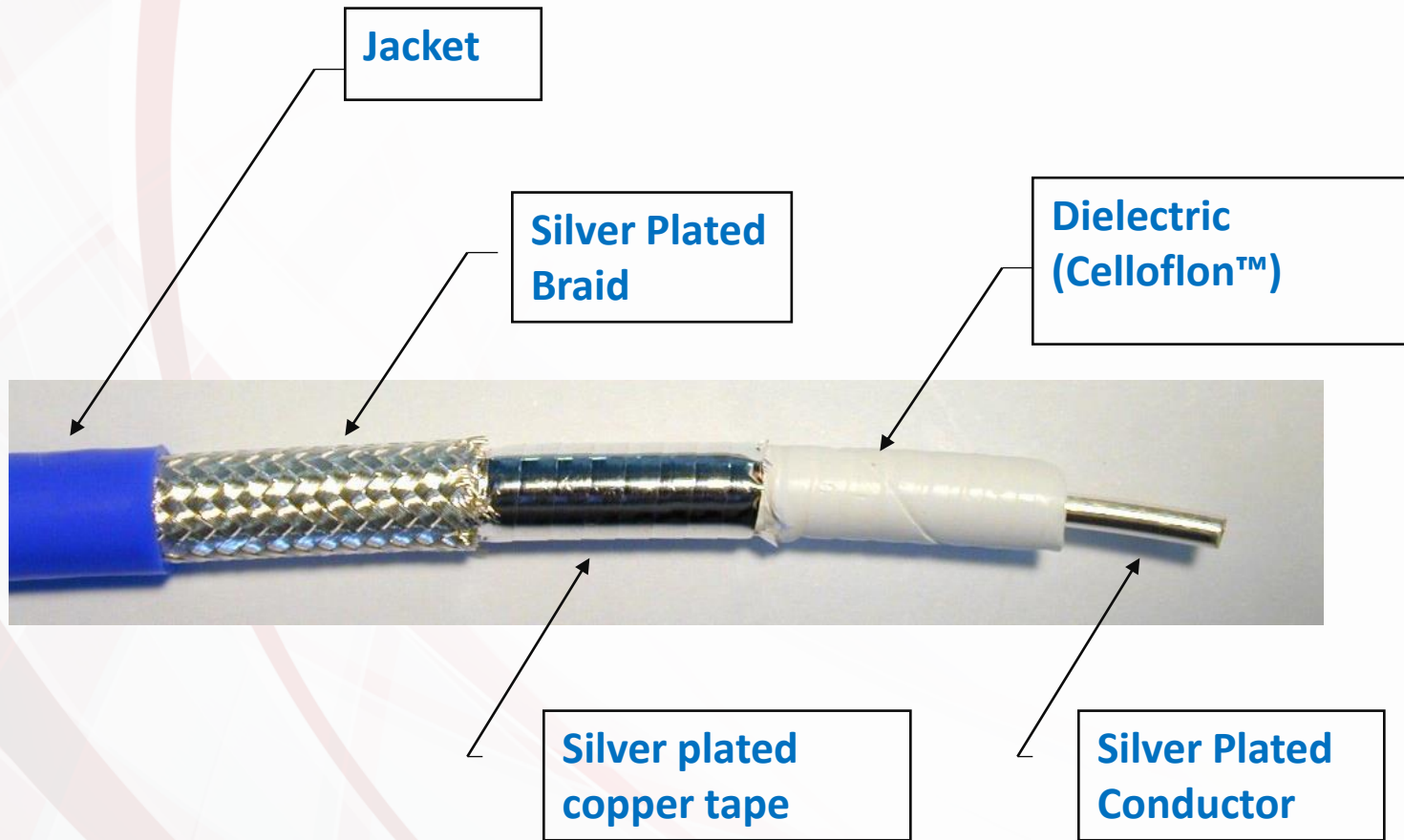
CONNECTOR



ASSEMBLY



CONSTRUCTION



Connectors

□ MAIN CONNECTORS USED

- SMA (26.5 GHz),
- 2.9 (40 GHz),
- 2.4 (50 GHz),
- N (18 GHz),
- TNC (18 GHz),

AXON' MANUFACTURE
THEIR OWN CONNECTORS FOLLOWING THE
NORMALIZED INTERFACE



TNC



N



SMA



2.9



2.4

AXOWAVE LIGHTWEIGHT™

- Lightweight solution with mass saving near 30%:

Product	Characteristics	Status	Family
AXOWAVE L113SK	DC - 12.4 GHz with N	Available	Lightweight 11 mm; Mass : -18 % IL: -26% at 12.4 GHz
AXOWAVE L77SK	DC - 18 GHz with SMA, TNC, N	Available	Lightweight 8 mm; Mass : -34 %
AXOWAVE L53SK	DC - 26.5 GHz with SMA, TNC, N	Available	Lightweight 5 mm; Mass : -30 %

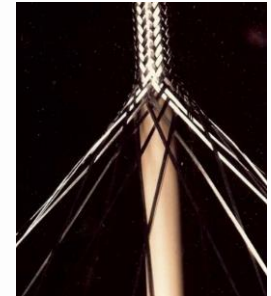


Axon': fully integrated

- Fully integrated
 - Conductor manufacturing
 - Cable manufacturing
 - Connector manufacturing
 - Assembly/harness manufacturing
 - In-house test capability



Conductor stranding



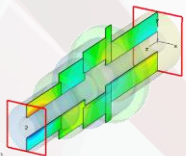
Shield braiding



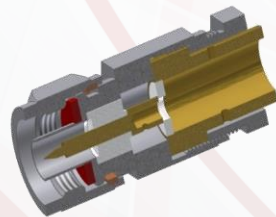
Thermo-plastic extrusion



67 GHz 4 ports VNA



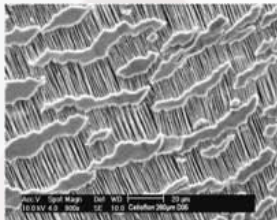
Connector simulation



Connector design

AXOWAVE Cable construction

	AXOWAVE	AXOWAVE LIGHTWEIGHT	AXOWAVE EXTRAFLEX
Conductor	Solid or Stranded Silver Plated Copper	Solid Silver Plated Copper Clad Aluminum	Stranded Silver Plated Copper Alloy
Dielectric	Celleflon	Celloflon	Celloflon
Shielding	SPC tape + SPC braid	SPC tape + SPC / Aluminum / SPCCA braid	SPC tape + SCA braid
Jacket	FEP, PU	FEP, PFA	PFA, PU
Impedance	50 ohms	50 ohms	50 ohms
Specificities		≈ 30 % mass save	≥ 100 000 flex cycles (up to 3 000 000 for U50MR)



AXOWAVE assembly

- Specific connectors specially develop for each cable for optimal performances



N
18 GHz max



TNC
18 GHz max



SMA
26.5 GHz max



2.9 mm
40 GHz max



Choice of connectors

New reference	Old reference	2.4 mm plug straight	2.9 mm (K) plug straight	SMA plug straight	SMA jack straight	SMA plug swept 90°	SMA jack swept 90°	N plug straight	N plug swept 90°	N jack straight	TNC plug straight	TNC plug swept 90°
C32SZ	3Q	•		•	•							
C37MK	3S			•	•	•	•					
C40SK	4H		•									
C53MK	5T			•	•	•	•	•	•		•	•
C54SK	5D			•	•	•	•	•	•		•	•
C54MK	5L			•	•	•	•	•	•		•	•
C62MR	5T-PU			•	•	•	•	•	•		•	•
C80MK	8M			•		•		•	•	•	•	•
C80SK	8N			•		•		•	•	•	•	•
C90MR	8M-PU			•				•	•	•	•	•
C90SR	8N-PU			•				•	•	•	•	•
C107MK	11X							•				
C145MK	15P										•	
C152MR	15P-PU										•	
C200MR	20W							•				

On request an over-moulding can replace the cable / connector connection to ensure a good seal and a better mechanical retention.



- High quality manufacturing
 - Up to 67 GHz
 - Low insertion loss
 - Low VSWR: < 1.25 over the frequency range
 - Good Shielding effectiveness: >90 dB up to 18 GHz
 - Phase matching: +/- 0.157°/m/GHz

AX and QFX: substitute to semi-rigid cable

- What is a semi-rigid coaxial cable?
 - Coaxial cable with solid shield
 - Need tools for bending
 - Standardize dimension



- Axon' hand-formable substitute: QFX family
- Axon' flexible substitute: AX family



Same dimension as semi-rigid => same connectors



Axon Crimp Coupler
(ACC™)

MIL-STD-1553B



ACB1 connector

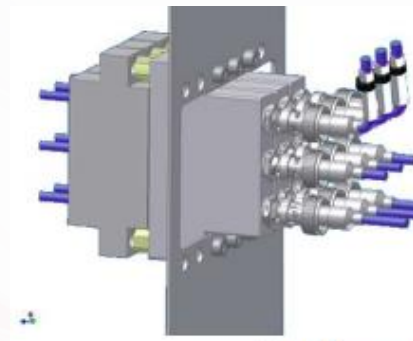
- Complete Bus 1553 range of solution for Aeronautic and space application
- Large heritage (Arianne 5, VEGA, Airbus A350...)



AMB : In-line coupler



ADB : Box coupler



Rack coupler



AMB : In-line coupler

High data rate expertise

- Limiting signal distortion with low insertion loss cable
=>low dielectric constant material



A-PTFE (alveolar PTFE)
 $\epsilon = 1.35$ to 1.6

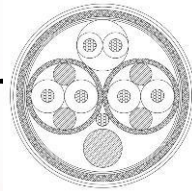


Extruded Celloflon
 $\epsilon = 1.6$ to 1.8



Taped Celloflon
 $\epsilon = 1.30$ to 1.55

- Complex cable construction
 - Shielding
 - Assembling

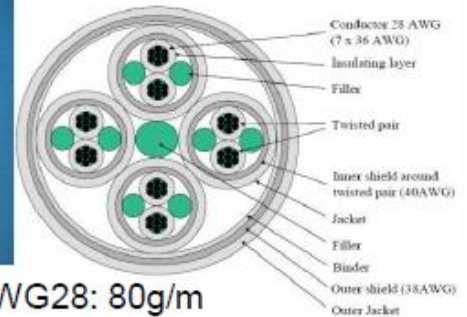


LVDS/Space-Wire

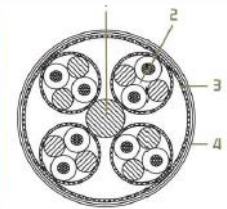
- ESCC qualified since 2006
- Data rate: up to 400 MB/s
- up to 400Mb/s
- 4 Shielded twisted pairs 100 ohms
- MicroD 9 ways with special EMI backshell



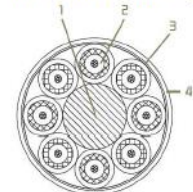
SpaceWire Cable AWG28: 80g/m



Low Mass SpaceWire Cable AWG28: 43g/m

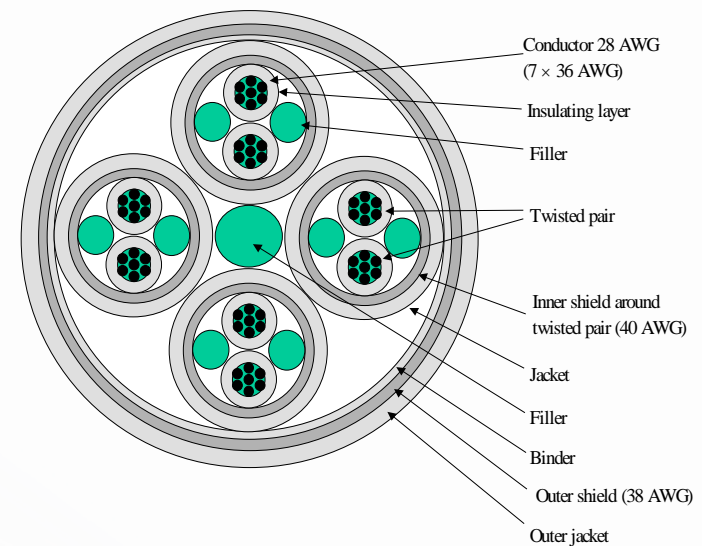


Coaxial pairs – new concept: 30g/m



AXON' space wire cable

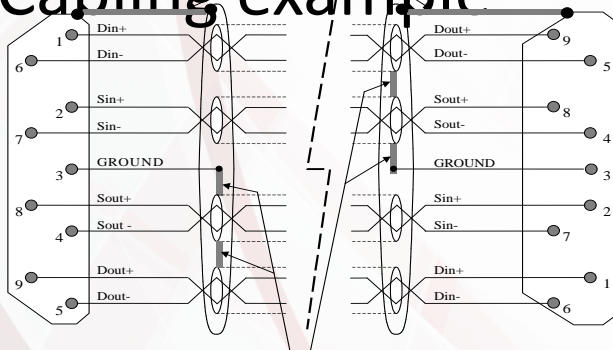
- ESCC 3902/003
 - Variant 1 : AWG28
 - P532242
 - Variant 2 : AWG26
 - P544806
- On Both variant, dielectric material is taped celloflon with a thin layer of PFA (to reduce risk of celloflon crushing)



AXON' space wire harness

- μ D connector is ESCC3401- 029 EPPL2 since 2006

- Cabling example



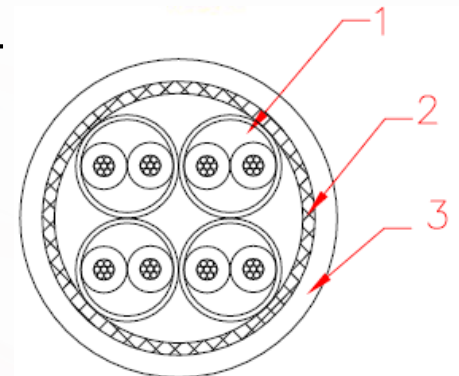
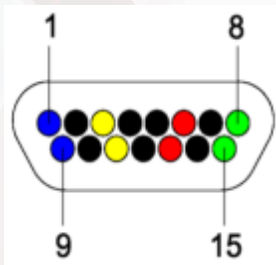
Inner shields are isolated from one another.
Inner shields around Sout and Dout pairs are connected together and to pin 3 of connector.



Axon microD Ethernet Solution Cat6A



- Ethernet Cat.6a cables
 - 1: 4 x 100 ohms shielded a-PTFE (alveolar PTFE dielectric) AWG 2707 pairs
 - 2: Shielded braid
 - 3: FEP, PU or 0HAL jacket
- Good EMI protection
- Low attenuation
- Possibility to use various connectors (RJ45, micro D, D38999...)
- Data rate: up to 10 GB/s for 4 (2.5 GB/s per pair)

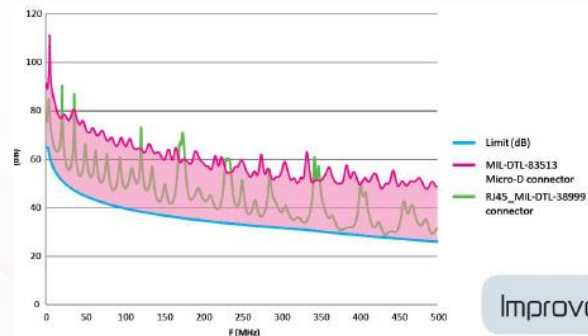
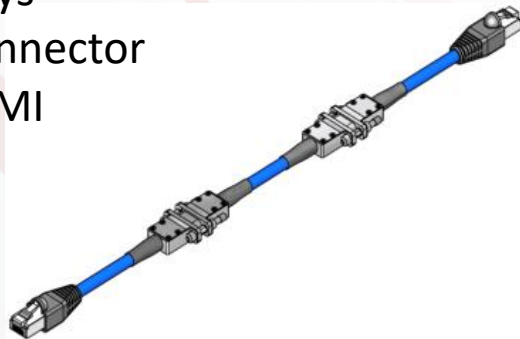


Axon microD Ethernet Solution Cat6A Harnesses



Micro D 19 ways circular connector

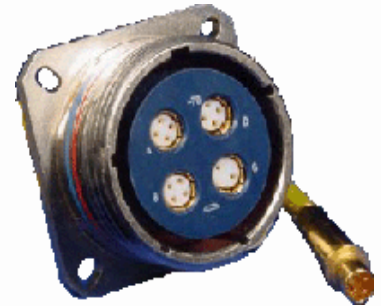
Micro D 15 ways rectangular connector with specific EMI backshell



Improvement -17dB

IEEE1394 harnesses

- HARNESS DESCRIPTION
 - Interconnect solution:
 - Quadrax Contact
 - D38999 Connector
 - with 2 or 4 contacts cavities
 - Backshell Strain relief style



MicroMach connectors

- Very close in size to the 9 way Micro-D
=> Little additional footprint required on e
- Has matched 100 ohm impedance pairs,
=> Provides excellent continuity of signal.
- Enjoys a robust EMC design, providing protection for both the cable and the equipment.
- Capable of data rates well in excess of typical SpaceWire performance – up to 3Gb/s
=> Can be use for Ethernet Cat6a

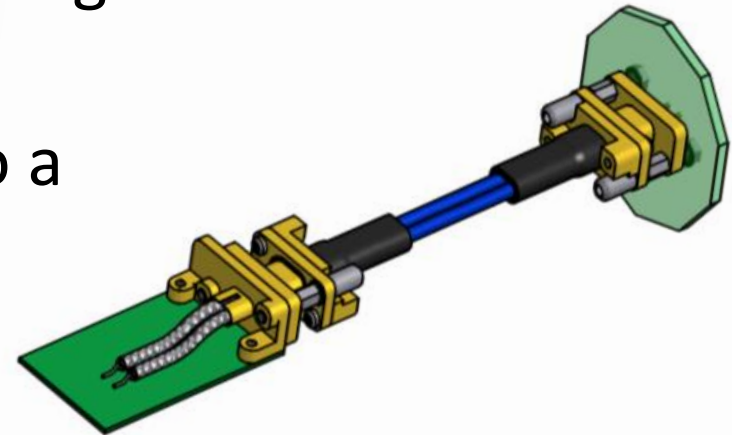


AXOMach

10 Gbps Data transmission

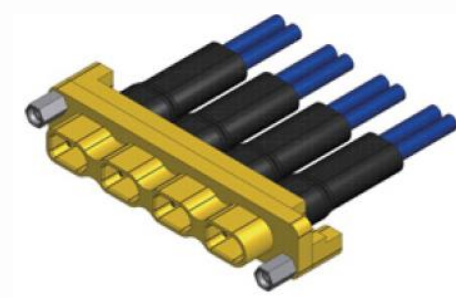
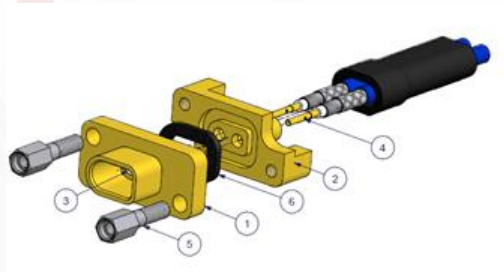


- Data rate up to 40 Gb/s (10 Gb/s per channel)
- 1 channel is composed by 2 microwave cable 50 ohms
- Low skew: < 10 ps per mated pair
- Low crosstalk: < -38 dB @ 10 GHz
- Improved EMC behavior: Shielding effectiveness for 1 m link < -60 dB up to 10 GHz
- Open solution not dedicated to a digital logic family standard (LVDS, LVPECL, CML, ...)

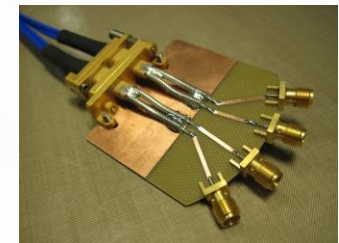
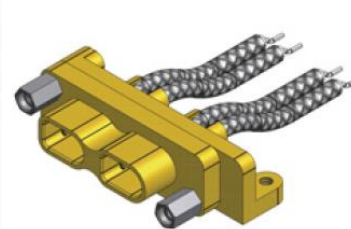
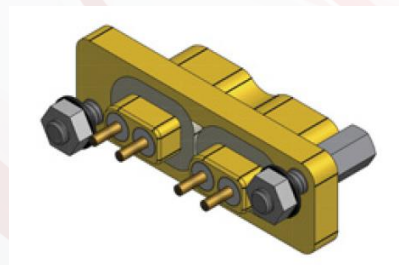


AXOMACH

- Specific connectors, from 1 to 4 channels



- Cable mount, Panel mount, SMD, SMA connectors available



The AXON' Laboratory : EXTENSIVE INTERNAL TEST FACILITIES

- Dimensional tests
- Mechanical tests :
traction/flexion/torsion/folding/vibration...
- Electric test: continuity/insulation/dielectric/...
- Aging test : temperature/salt spray...
- Solderability
- Microwave
- High tension (A.C. / D.C.)
- X-ray tests
- EMI tests
- ...





Thank you!

