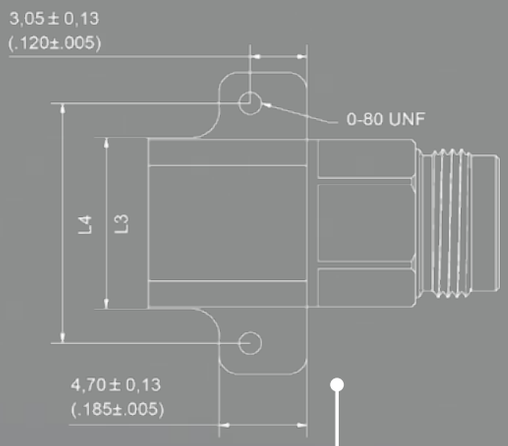
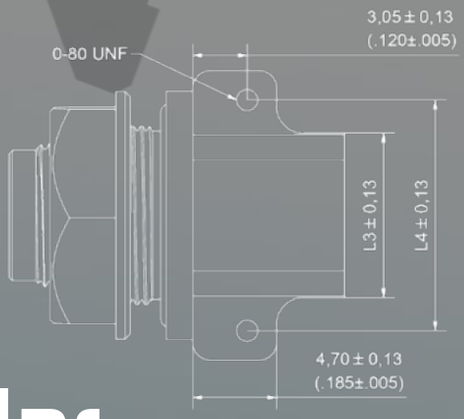
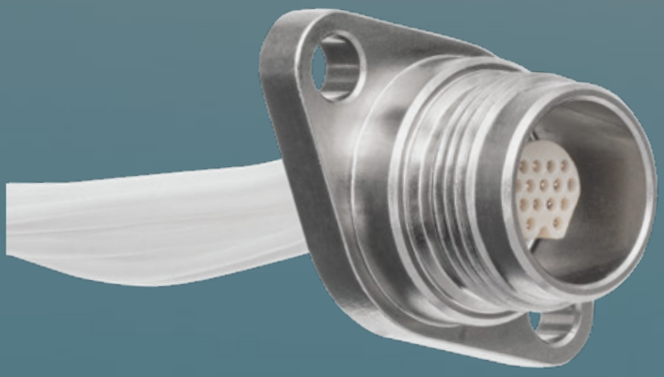




Nano-D Circular Axon' Solutions



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axon' cable & interconnect

TABLE OF CONTENTS

INTRODUCTION

In addition to the standard range of Micro-D connectors and assemblies, AXON' is able to offer Nano-D connectors and assemblies based on highly reliable Twist Pin contact technology. Such solutions are ideal for applications including aerospace, military, industrial, medical or offshore which require extreme miniaturization, space or weight saving and reliability.

AXON' Nano-D connectors meet the requirements of MIL-DTL-32139

Circular range of connectors offers a better weight and space saving on electronical systems. Design and o-ring gasket can provide IP67/68 waterproofness if the connector needs to stay in water environment.

Different configurations:

- Nano-D circular connectors for cables
- Nano-D circular connectors for PCBs
- Can be integrated in harnesses

Characteristics

- 0.635mm between contacts of each line
- 0.635mm between each line
- Number of ways: 15, 25 and 37
- High reliability Twist Pin contacts
- Metal shell with captivated hardware
- Plastic pigtails solution without shells and hardware (size of the connector ~diameter of the bundle)
- Threaded Solution available

Special connectors available on request (Breakaway, custom-designed,...)

RoHS compliance

AXON' CABLE has been pro-actively implementing measures for many years to ensure compliance with the European Directive 2011/65/EU which came into force on 21st July 2011.The Directive prohibits the use of Hazardous Substances such as lead, mercury, hexavalent chromium, cadmium, bromine compounds (PBB and PBDE) and various phtalates. It relates to all components of products which are used in the manufacture of electrical and electronic equipment.

As a cable and connector manufacturer, AXON' has taken actions to ensure compliance with directive 2000/53/EC applicable since 21st October 2000.

SPECIFIC COMPONENTS FOR RoHS COMPLIANCE

COMPONENT	MATERIAL	FINISH	RoHS STATUS
PIN CONTACT (TWIST PIN)	PRECIOUS GOLD ALLOY	N/A	COMPLIANT
SOCKET CONTACT	PRECIOUS GOLD ALLOY	N/A	COMPLIANT
METAL SHELL	ALUMINIUM ALLOY TYPE 6061	ELECTROLESS NICKEL	COMPLIANT
PLASTIC INSERT / PCB TRAY	PEEK	N/A	COMPLIANT
CLIP	STAINLESS STEEL 300 SERIES	PASSIVATION	COMPLIANT
PCB TERMINATION	COPPER BASE ALLOY	GOLD	COMPLIANT
ENCAPSULANT	EPOXY RESIN 150°C VERSION	N/A	COMPLIANT

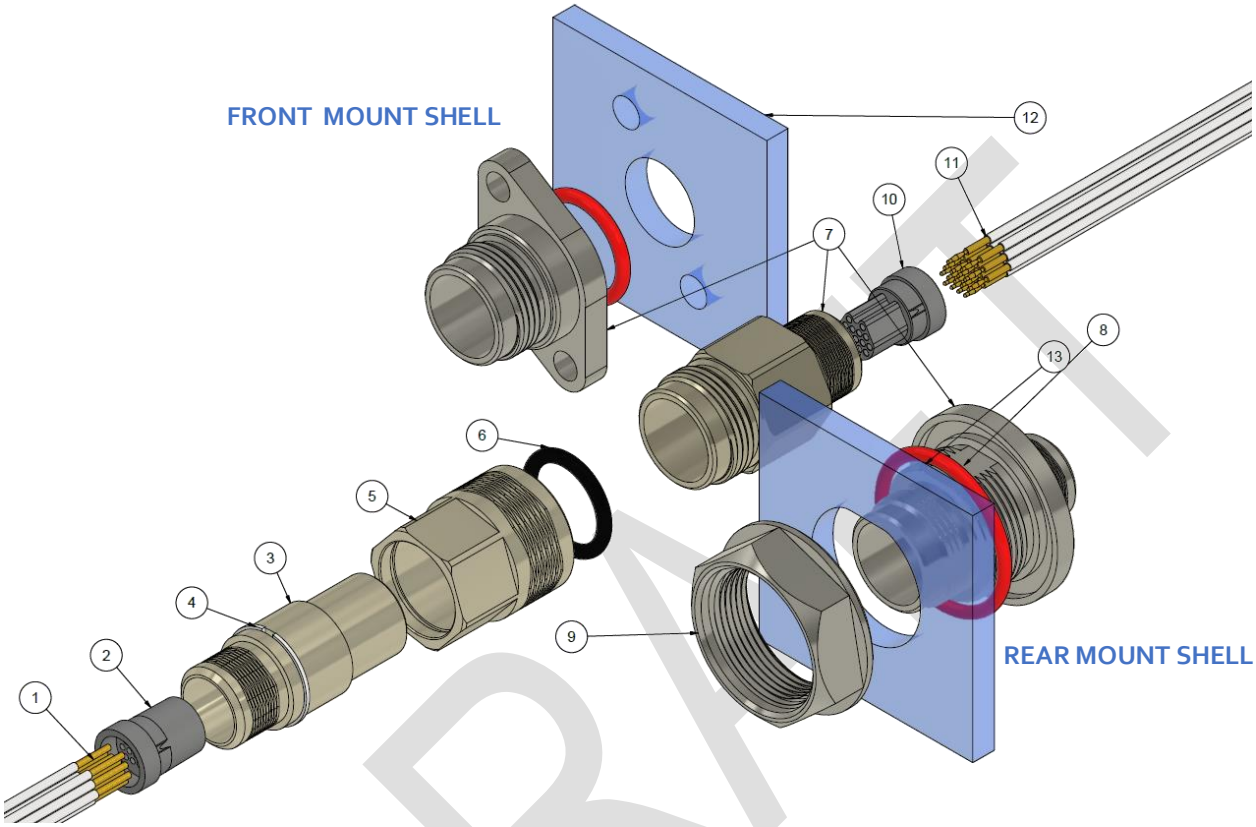
Application of REACH

The new EU regulation on the Registration, Evaluation, Authorization and restriction of Chemicals (REACH) came into force in June 2007.The regulation concerns the authorized use of chemicals. It requires manufacturers and importers to register substances and their use with the European Chemical Agency (ECHA).
AXON' CABLE is known as a "downstream user" with respect to the REACH regulation, and a manufacturer of "Articles". AXON' CABLE products are not intended to release any undesired substance under normal and reasonable operations of use.
To this day AXON' CABLE has not identified any component containing any SVHC in Nano-D Circular range.

GLOSSARY OF TERMS

Standard connector: Manufacture to the standard dimensions and specification
Special connector: A standard connector modified to meet specific requirements
Pigtail Connector: Connector with insulated or uninsulated wires
PCB connector: Connector designed to be mounted on a Printed Circuit Board card
CBR connector: Condensed Board Right angle connector
BS connector: Board Straight connector

Pigtail description

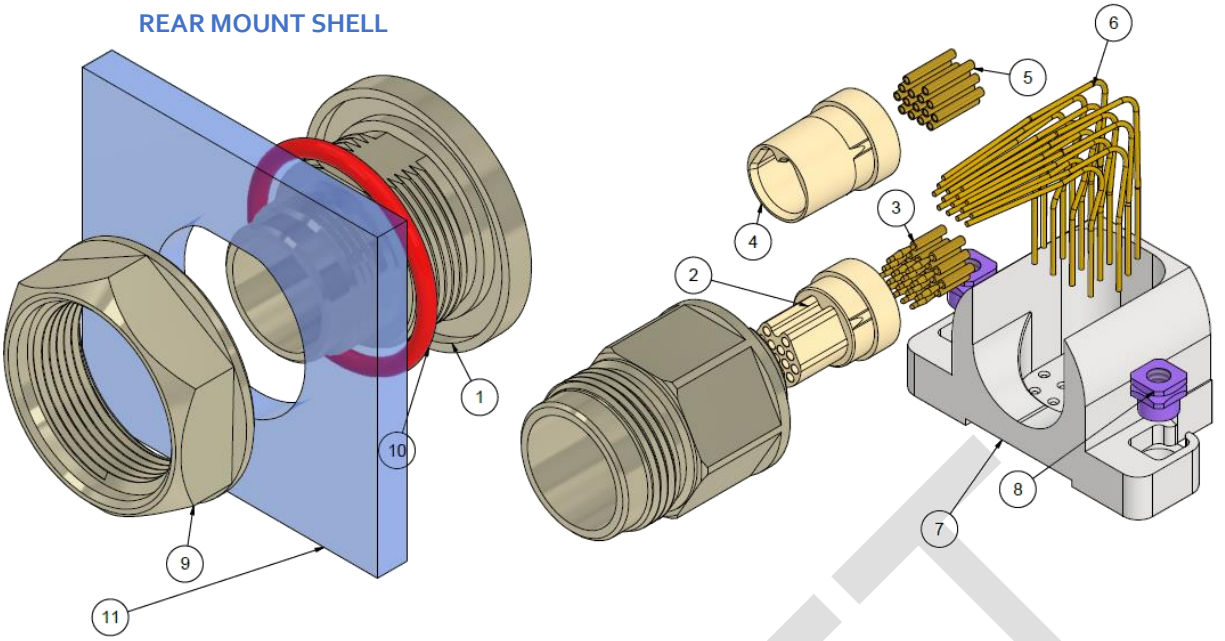


1. Wired socket contacts
2. Female insert
3. Inner shell
4. Circlip
5. Ring
6. O-ring (optional)
7. Shell
8. O-ring for panel mounting (panel mount shapes only)
9. Jam nut (only for rear panel mounting)
10. Male insert
11. Wired Twist Pin contacts
12. Panel (front mount case)
13. Panel (rear mount case)

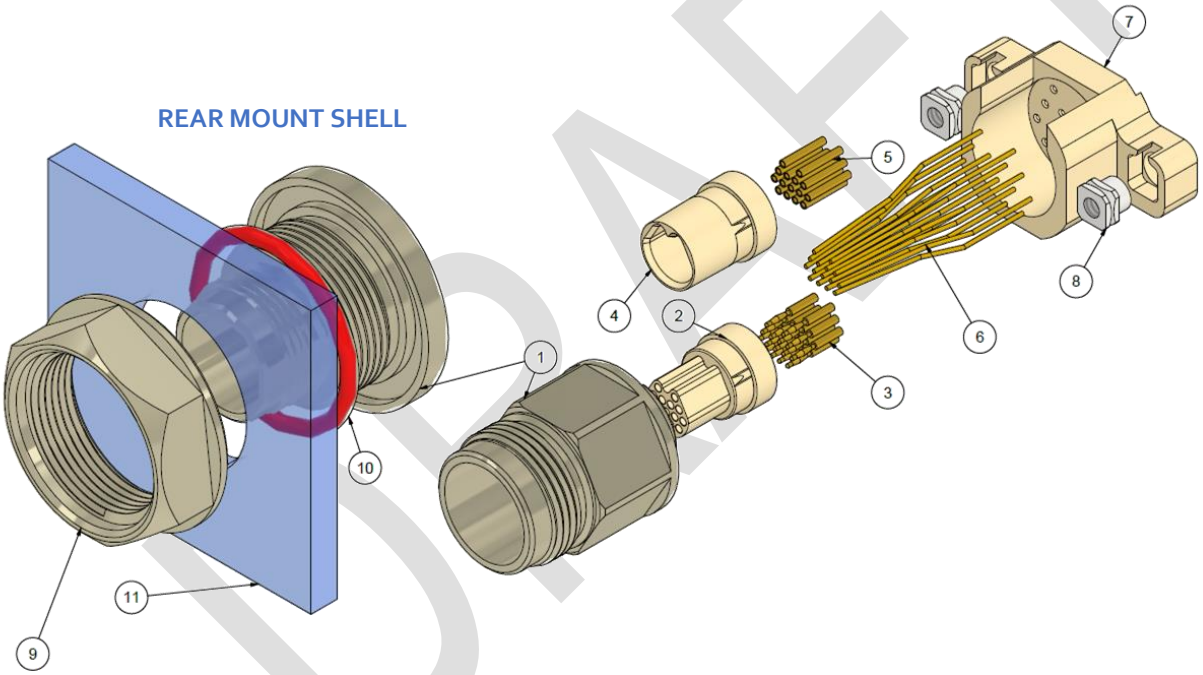
Both female and male insert fit in shell or inner shell

PCB connectors description

REAR MOUNT SHELL



REAR MOUNT SHELL



1. Plug shell
2. Male insert
3. Pin contacts
4. Female insert
5. Socket contacts
6. Uninsulated solid wires
7. Tray
8. Hardware for PCB mounting
9. Nut
10. O-ring for panel mounting
11. Panel (rear mount case)

Both female and male insert fit in shell

The opposite connector has to be a receptacle pigtail

GENERAL CHARACTERISTICS

AXON's range of Nano-D connectors which is covered by the MIL-DTL-32139* standard, is ideally suited to equipment and applications where weight, miniaturization and long-term performance are required. It is available in 3 contact arrangements (15, 25 and 37 contacts) for circular Nano-D connectors.

Electrical & mechanical characteristics

CHARACTERISTIC	SPECIFICATION	TEST METHOD
CURRENT RATING	1 A max.	EIA-364-70
CONTACT RESISTANCE	71 mΩ max.	EIA-364-06
INSULATION RESISTANCE	5000 MΩ min.@ 100 Vdc	EIA-364-21
DIELECTRIC WITHSTANDING VOLTAGE **- SEA LEVEL 0 m** **- ALTITUDE 21 km (70,000 ft)**	 250 Vac 100 Vac	EIA-364-20
CONTACT ENGAGING AND SEPARATION FORCE	141 g max.(5 oz) 11 g min.(0.4 oz)	EIA-364-37
CONNECTOR MATING AND DE-MATING FORCE	198 g (7 oz) x number of contacts max.	EIA-364-13
CONTACT RETENTION	0.9 kg (2 lbs) for 5 seconds min.	EIA-364-29
DURABILITY	200 mating cycles min.	EIA-364-09
TEMPERATURE RANGES **- STANDARDS**	 -55°C / +150°C	
VIBRATION	20 g's - No discontinuity >1µs	EIA-364-28 - TEST CONDITION IV
SHOCK	100 g's - No discontinuity >1µs	EIA-364-27 - TEST CONDITION G
SALT SPRAY	48 hours	EIA-364-26 - TEST CONDITION B
HUMIDITY	Insulation resistance > 1MΩ	EIA-364-31 - TEST CONDITION B (EXCLUDING STEPS 7A & 7B)**

Material & Finish

COMPONENT	MATERIAL	FINISH
MALE CONTACT (TWIST PIN)	PRECIOUS GOLD ALLOY IN ACCORDANCE WITH ASTM-B-477 OR 541 OR 562	NONE
FEMALE CONTACT	PRECIOUS GOLD ALLOY IN ACCORDANCE WITH ASTM-B-477 OR 541 OR 562	NONE
METAL SHELL	ALUMINIUM ALLOY, TYPE 7075	ELECTROLESS NICKEL PLATING IN ACCORDANCE WITH SAE-AMS-2404, CLASS 4.
INSERT/ PCB TRAY	PEEK	
HARDWARE	STAINLESS STEEL, 300 SERIES	PASSIVATION IN ACCORDANCE WITH SAE-AMS2700
ENCAPSULANT	EPOXY RESIN	
INSULATED WIRE	PTFE INSULATED SILVER PLATED COPPER IN ACCORDANCE WITH NEMA-HP3	
UNINSULATED WIRE	GOLD PLATED SOLID COPPER WIRE IN ACCORDANCE WITH A-A-59551 OR GOLD PLATED SOLID COPPER BASED ALLOY IN ACCORDANCE WITH ASTM-B-194	GOLD PLATING IN ACCORDANCE WITH ASTM-B488, TYPE II, CLASS 1 (1.27µm MIN.(0.00005")), CODE C OVER NICKEL UNDERPLATE IN ACCORDANCE WITH SAE-AMS-QQ-N-290, CLASS 2 (1.27µm)

*: ISSUE **B** AMENDMENT 1 AT THE TIME OF GOING TO PRESS
**: ACCORDING TO MIL-DTL-32139

WIRE CODE

Nominal dimensions are used throughout this chapter.

Uninsulated wires

WIRE CODE	WIRE DESIGNATION	WEIGHT (g/m)	CONDUCTOR					
			MATERIAL	AWG	CONSTRUCTION mm (inch)	Ø mm (inch)	AREA mm2 (sq in)	RESISTANCE Ω/100m (Ω/1000ft)
G	GPCUBE3001-1/4DUR	0.45	GOLD PLATED COPPER	30	1X0.254 (1X0.010)	0.254 (.010)	0.051 (.00008)	190 (579.1)
D	GPCUBE3001-1/4DURF	0.45	FLASH GOLD PLATED COPPER	30	1X0.254 (1X0.010)	0.254 (.010)	0.051 (.00008)	190 (579.1)
T	GPCUBE3001 RoHS solder dipped Tin	0.45	GOLD PLATED COPPER AND TIN LEAD-FREE (97% TIN MAX)	30	1X0.254 (1X0.010)	0.254 (.010)	0.051 (.00008)	190 (579.1)

Insulated wires

WIRE CODE	WIRE DESIGNATION	WEIGHT (g/m)	CONDUCTOR						INSULATION		TEMPERATURE RATING	VOLTAGE RATING
			MATERIAL	AWG	CONSTRUCTION mm (inch)	Ø mm (inch)	AREA mm2 (sq in)	RESISTANCE Ω/100m (Ω/1000ft)	MATERIAL	Ø mm (inch)		
1	ET 3007	1.50	SPC*	30	7X0.102 (7X.0040)	0.304 (.012)	0.057 (.000882)	31 (94.5)	EXTRUDED PTFE	0.62 (.024)	-90°C/+200°C	250 Vac
2	ET 3207	1.20	SPC*	32	7X0.079 (7X.0031)	0.237 (.009)	0.034 (.00005)	52 (158.5)	EXTRUDED PTFE	0.57 (.022)	-90°C/+200°C	250 Vac
3	ET 3407	1.00	SPC*	34	7X0.063 (7X.0025)	0.189 (.007)	0.022 (.00003)	95 (289.6)	EXTRUDED PTFE	0.50 (.020)	-90°C/+200°C	250 Vac
4	ET 3607	0.80	SPC*	36	7X0.050 (7X.0020)	0.150 (.006)	0.014 (.00006)	150 (457)	EXTRUDED PTFE	0.48 (.019)	-90°C/+200°C	250 Vac

*: SILVER PLATED COPPER

COLOR CODE

Codes F and L

All wires have the same color, Available with all wire types

COLOR CODE	COLOR
F	Yellow
L	White

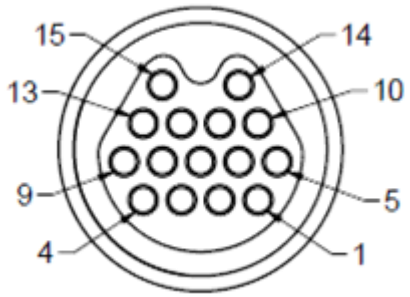
Color Code W

Also called 10 color repeat (10 colors repeated in sequence) as per MIL-DTL-32139.Available with all wire types.

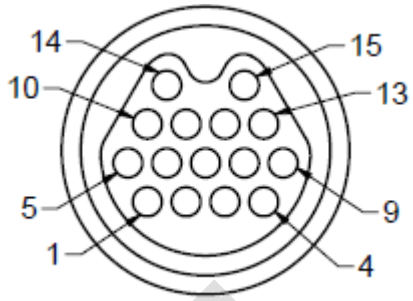
PIN NUMBER	MIL-STD-681 NUMBER	COLOUR
1	0	BLACK
2	1	BROWN
3	2	RED
4	3	ORANGE
5	4	YELLOW
6	5	GREEN
7	6	BLUE
8	7	VIOLET
9	8	GREY
10	9	WHITE
11	0	BLACK
12	1	BROWN
13	2	RED
14	3	ORANGE
15	4	YELLOW
16	5	GREEN
17	6	BLUE
18	7	VIOLET
19	8	GREY
20	9	WHITE
21	0	BLACK

CONTACT ARRANGEMENTS

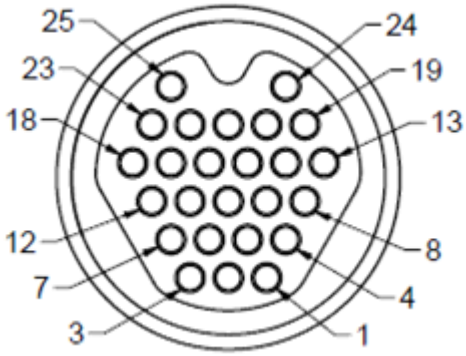
Mating face of male insert

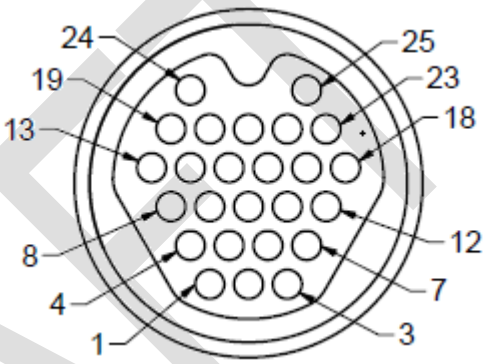


Mating face of socket insert

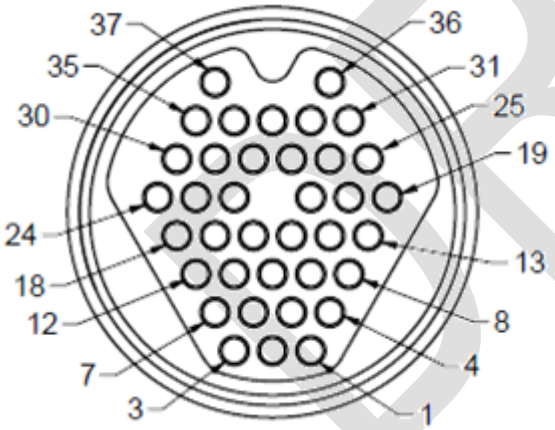


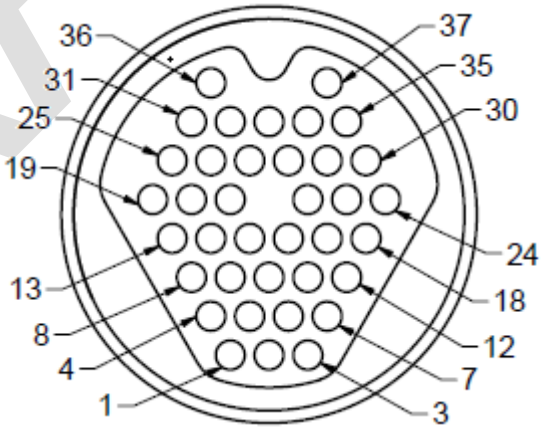
15 contacts





25 contacts





37 contacts

- 0.635mm (.025") contact spacing
- 0.635mm (.025") spacing between rows

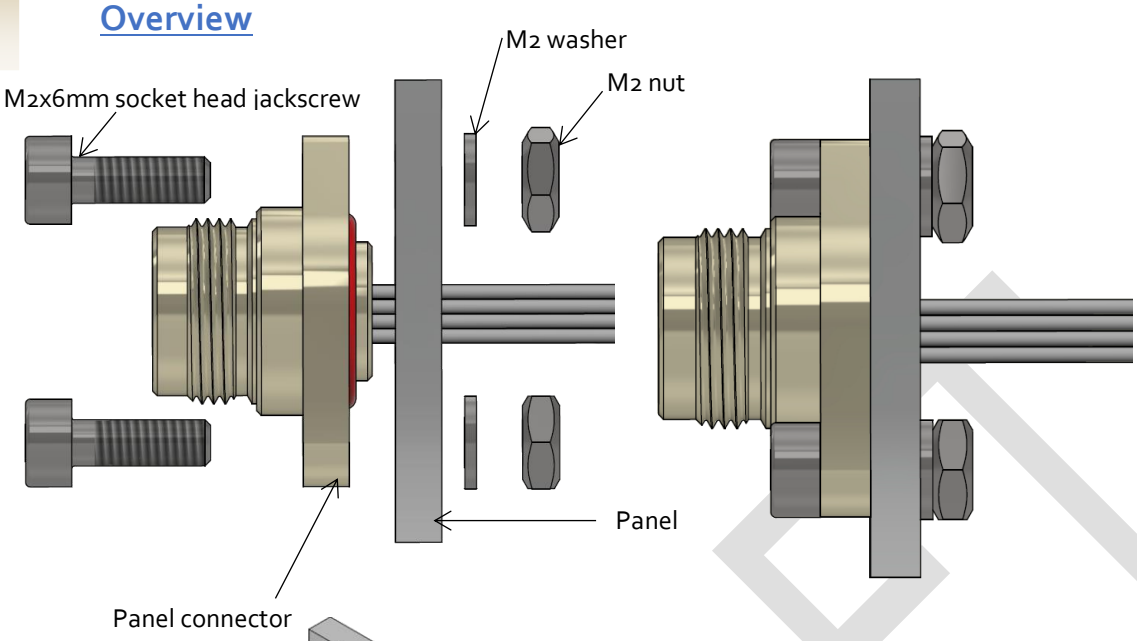
Both inserts can be mounted in plug or receptacle shell to make a keying on customer assembly

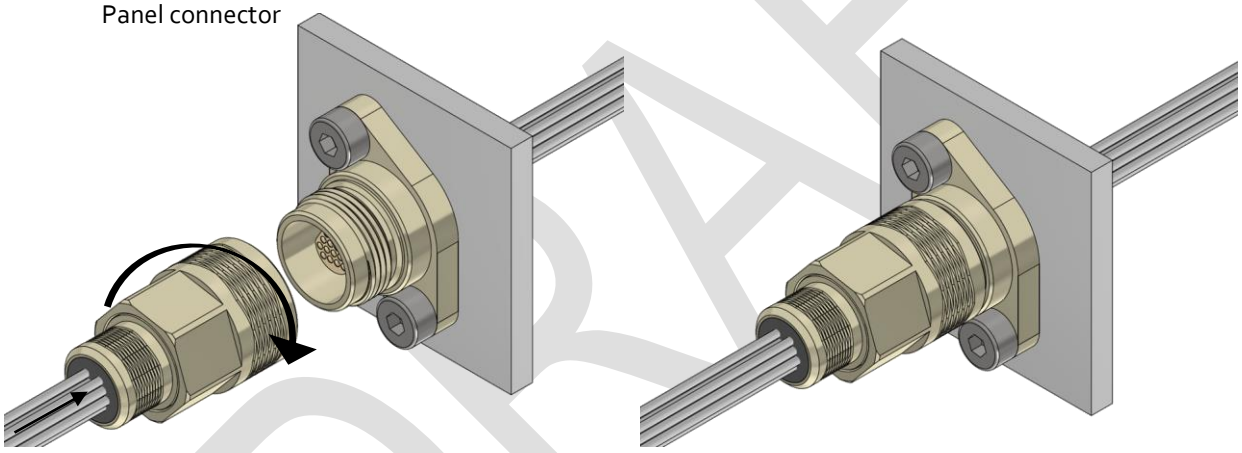
PANEL MOUNTING

Two ways of panel mounting are available on Nano-D circular AXON' Solutions: front mount with Oval flange (only for pigtail) and round shape rear mount (for pigtails and PCB connectors). Those are described with their own panel cutout below.

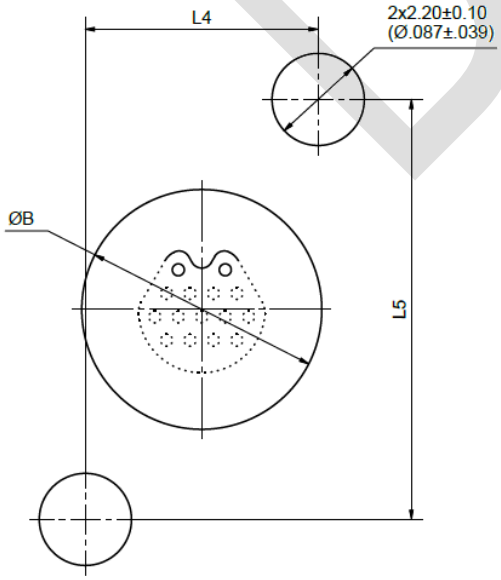
Front Panel mounting (only for pigtail)

Overview





Panel Cutout



View from the back flange of the connector

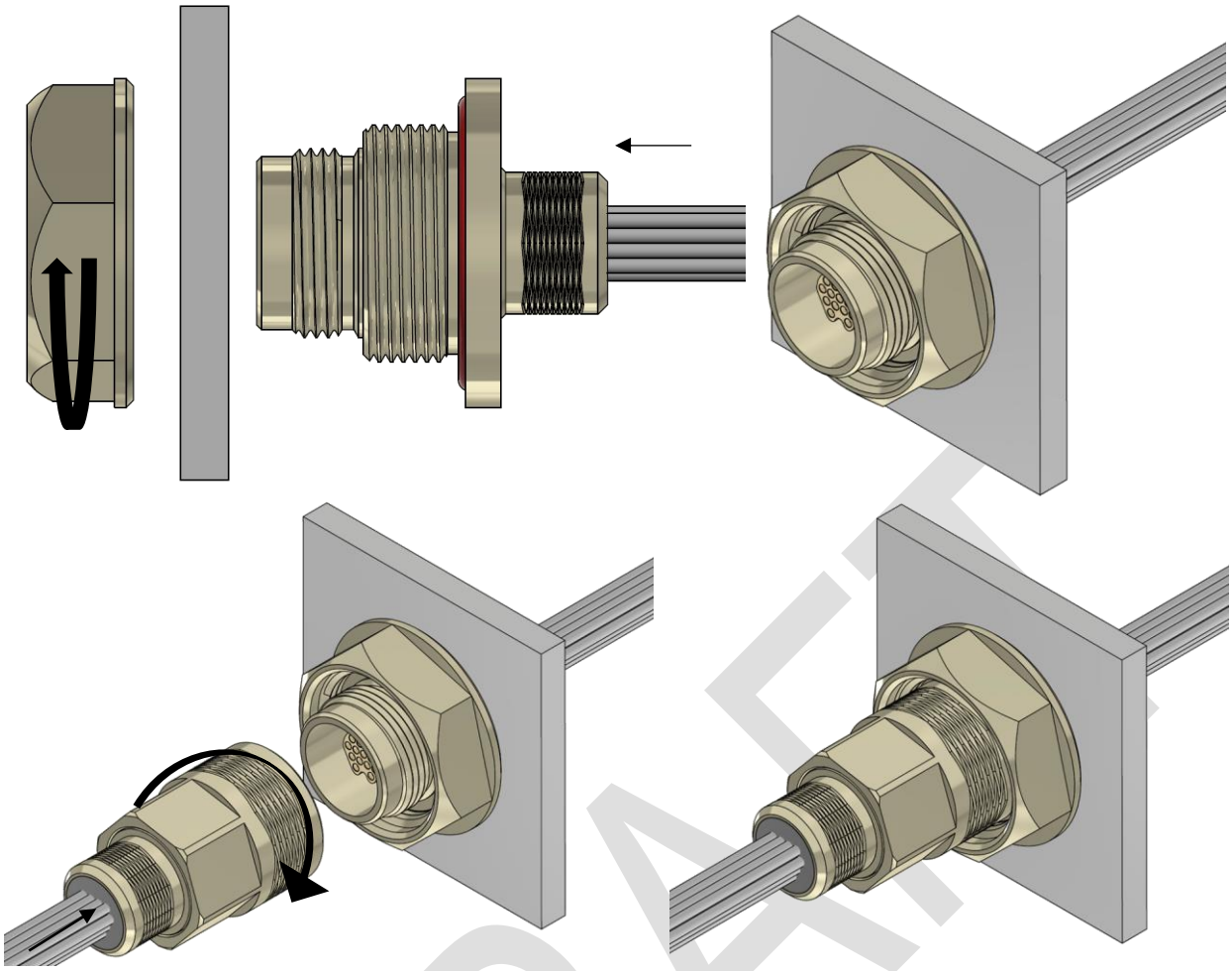
SHELL SIZE	L4 ±0.10 (±.0039)	L5 ±0.10 (±.0039)	ØB -0/+0.10 (-0/+.0039)
15 CONTACTS	6.3 (0.248)	11.38 (0.448)	6.3 (0.248)
25 CONTACTS	7.3 (0.287)	11.94 (0.470)	7.3 (0.287)
37 CONTACTS	8.8 (0.346)	12.14 (0.478)	8.5 (0.335)

Dimensions are in millimeters (inches)

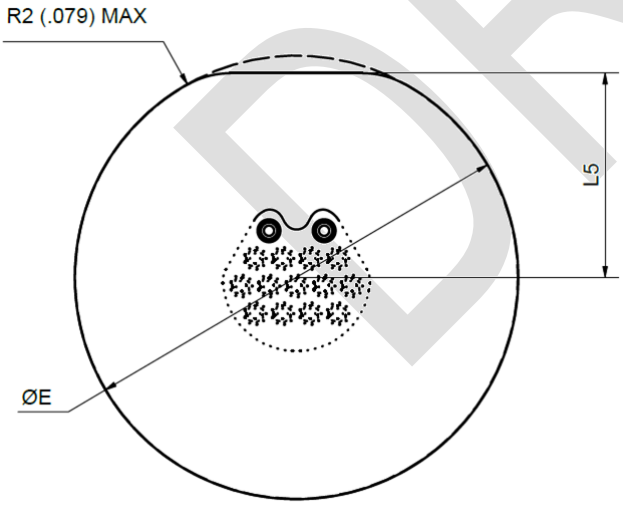
M2x6mm screws are recommended

Rear Panel mounting (pigtail or PCB)

Overview



Panel Cutout



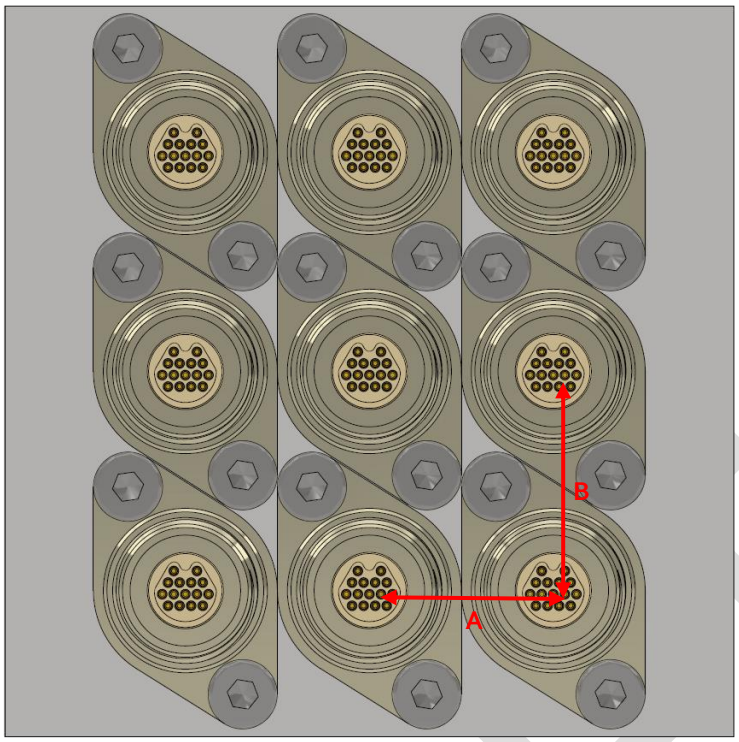
SHELL SIZE	L5 -0/+0.10 (±.0039)	ØE -0/+0.10 (-0/+.0039)
15 CONTACTS	4.70 (0.185)	10.20 (0.402)
25 CONTACTS	5.20 (0.205)	11.20 (0.441)
37 CONTACTS	5.70 (0.224)	12.20 (0.480)

Dimensions are in millimeters (inches)

⚠ WARNING ⚠

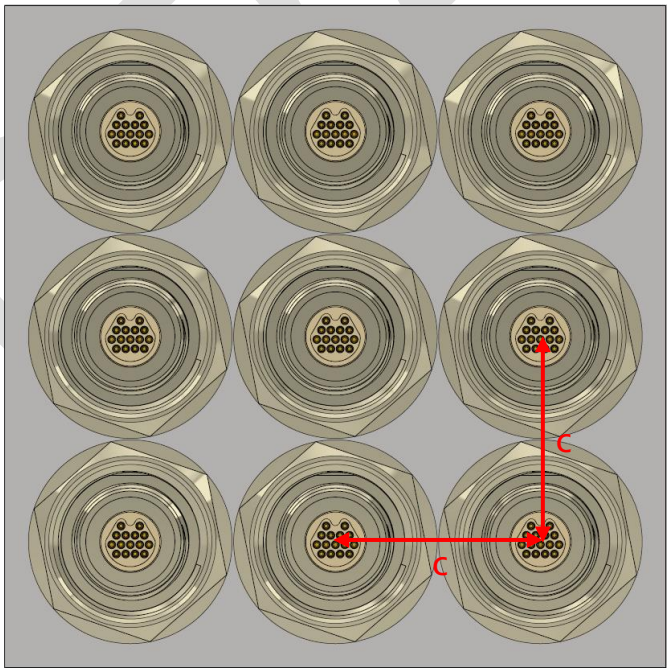
For panel mounting with PCB connectors take care that there is no overstressing of the connector by fixing. We recommend to use flex PCB or a rigid-flex PCB to let the PCB card moving from the flange when connector is fully mounted on the panel.

Oval Shape Panel Front Mount



SHELL SIZE	A MIN	B MIN
15 CONTACTS	10.1	12
25 CONTACTS	11.1	12.5
37 CONTACTS	12.1	13.3

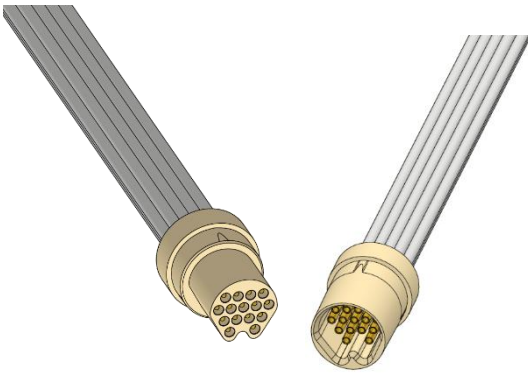
Round Shape Panel Rear Mount



SHELL SIZE	C MIN
15 CONTACTS	14
25 CONTACTS	15
37 CONTACTS	16

Take care to have enough space between the connector to screw on the nuts

NANO-D CIRCULAR PLASTIC PIGTAILS



Ultraminiature Connectors
Diameter of the connector ~Diameter of the bundle
No hardware

NCA	P	25	F	4	W	050

Series
NCA : Nano-D Circular AXON' Solution

Material and Finish
P: Plastic

Number of contacts
15 ; 25 ; 37

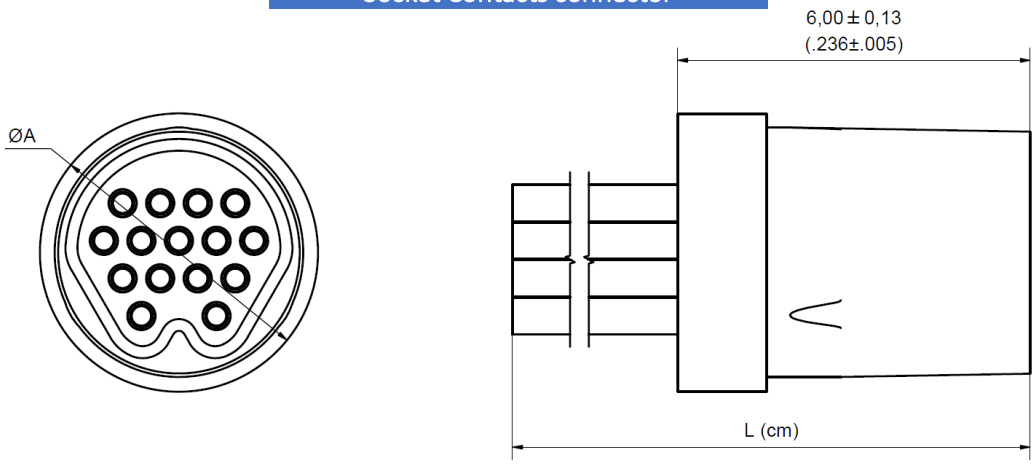
Contacts Gender
F : Socket contacts
M : Pin contacts

Wire type
1 : ET3007, AWG30, 7 strands, 250V
2 : ET3207, AWG32, 7 strands, 250V
3 : ET3407, AWG34, 7 strands, 250V
4 : ET3607, AWG36, 7 strands, 250V

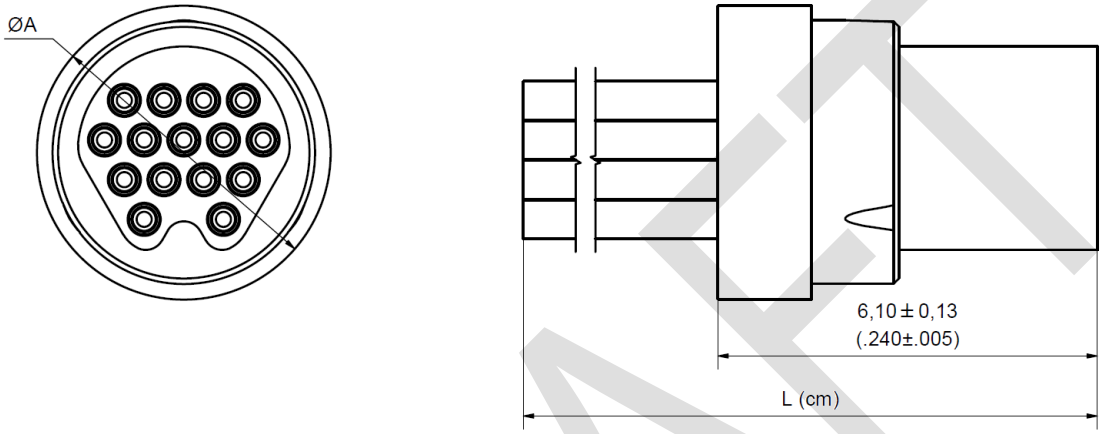
Color Code
L: White
F: Yellow
W: 10 color repeat

Wire length (3 digits in cm)
Warning! Wire length in centimeters
(1cm = 10mm = .394")

Socket Contacts connector



Pin Contacts connector



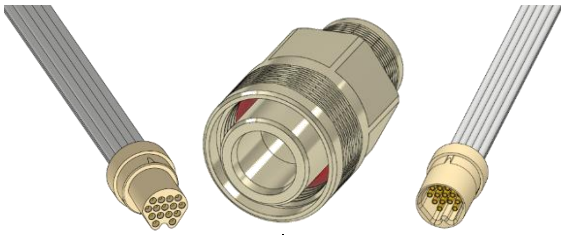
NUMBER OF CONTACTS	ØA±0.13 (±.005)
15	4.70
	(0.185)
25	5.70
	(0.224)
37	6.80
	(0.268)

Dimensions are in millimeters (inches)

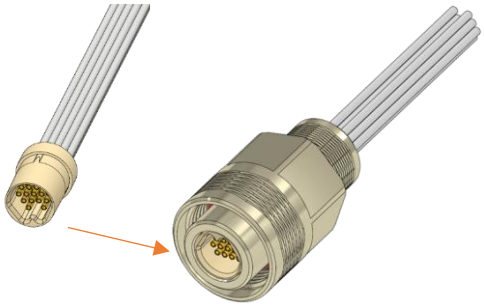
SWAPPABLE INSERTS

To distinguish two side by side connectors, on a panel you can put a female insert (with socket contacts) or male insert (with pin contacts) n plug or receptacle connectors.

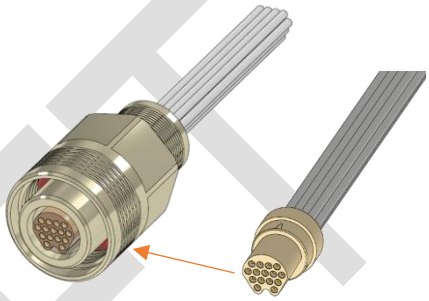
Receptacle Connector



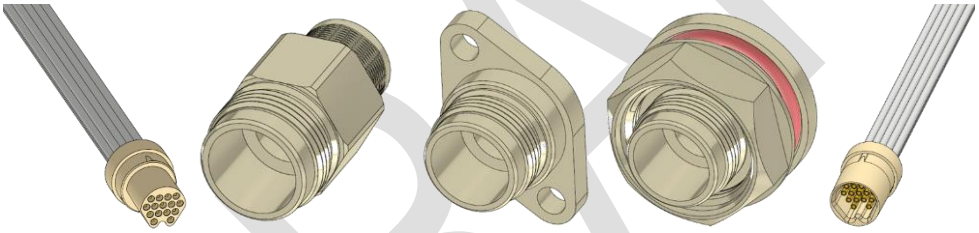
With Female insert (Socket contacts)



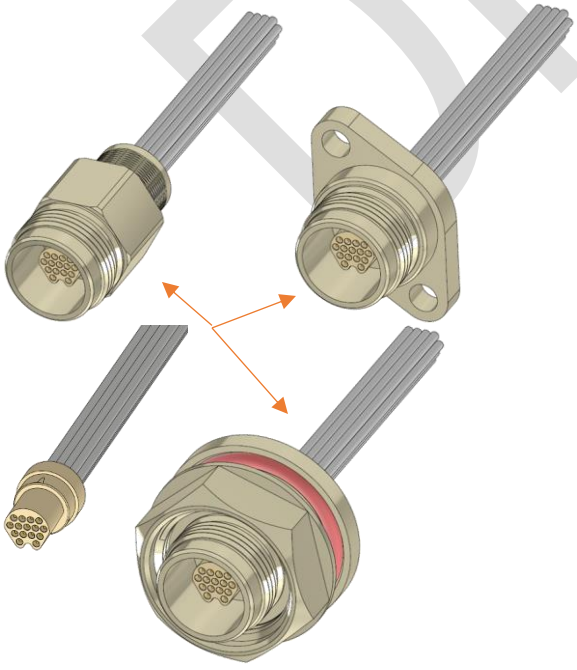
With Male insert (Pin contacts)



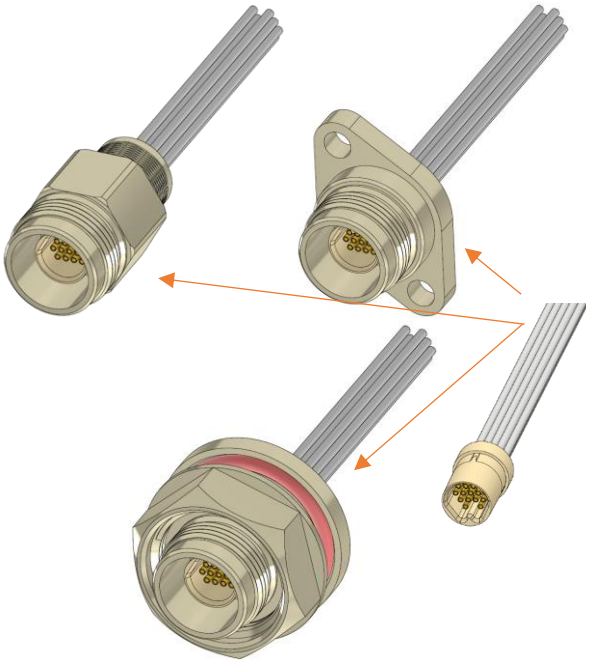
Plug Connector



With Male insert (Pin contacts)



With Female insert (Socket contacts)



Also available on PCB connectors BS and CBR

PIGTAILS NANO-D CIRCULAR CONNECTORS

Reliability for micro-miniature operating systems
High performance metal connector and PTFE wires
Various sizes and mounting solutions
3 Sizes with 15, 25 or 37 contacts

NCA	TH	2	15	F	S	OF	1	L	050	R

Series
NCA : Nano-D Circular AXON' Solution

Locking
TH : Metric Thread

Material and Finish
2 : Aluminium with electroless Nickel plating and epoxy 150°C

Number of contacts
15 ; 25 ; 37

Contacts Gender
F : Socket contacts
M : Pin contacts

Shell Gender
S : Receptacle
P : Plug

Shell Style
IL : In-Line
OF : Front mount oval Flange (plug shell only)
JR : Jam Nut Rear mount flange (plug shell only)

Wire type
1 : ET3007, AWG30, 7 strands, 250V
2 : ET3207, AWG32, 7 strands, 250V
3 : ET3407, AWG34, 7 strands, 250V
4 : ET3607, AWG36, 7 strands, 250V

Color Code
L: White
F: Yellow
W: 10 color repeat

Wire length (3 digits in cm)
Warning! Wire length in centimeters (1cm = 10mm = .394")

L in cm (inches)	2≤L≤10 (0.79≤L≤3.940)	10<L≤100 (3.940<L≤39.40)	L>100 (L>39.40)
TOLERANCE in cm (inches)	-0 / +0.5 (-0 / +0.200)	-0 / +3 (-0 / +1.180)	-0 / +5 (-0 / +1.970)

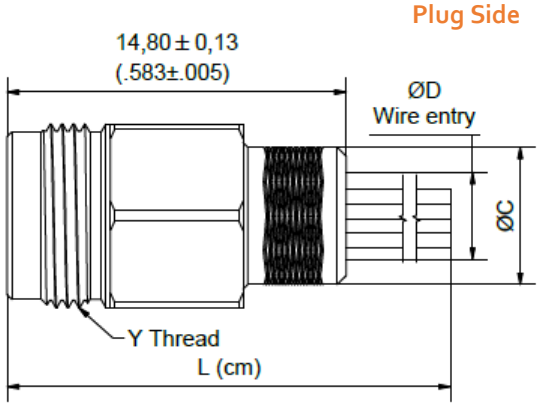
O-ring Option (receptacle Only)
R : With O-ring
Blank : without O-ring

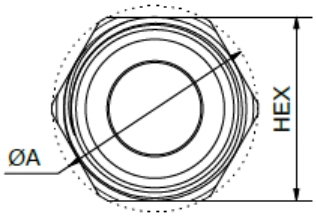
Dimensions

Dimensions are in millimeters (inches)

In Line

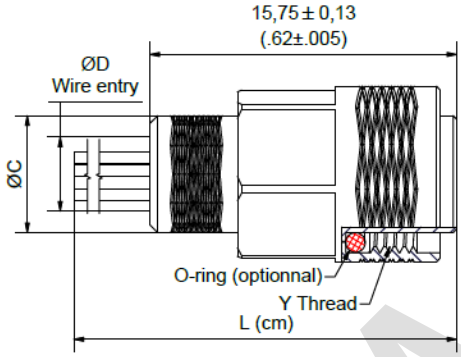
Plug Side

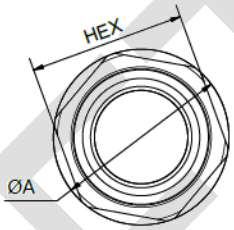




plug connector - front face

Receptacle Side

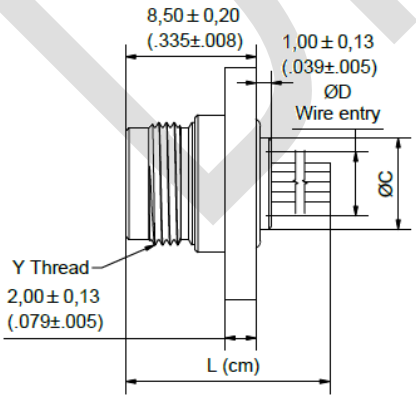


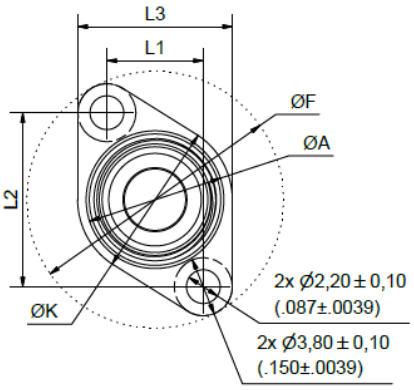


receptacle connector - back face

SHELL SIZE	ØA±0.13 (±.005)	ØC±0.13 (±.005)	ØD±0.13 (±.005)	HEX	Y Thread
15 CONTACTS	9.00 (0.354)	6.00 (0.236)	4.80 (0.189)	8.00 (0.315)	M8x0.5 (-)
25 CONTACTS	10.00 (0.394)	7.00 (0.276)	5.80 (0.228)	9.00 (0.354)	M9x0.5 (-)
37 CONTACTS	11.00 (0.433)	8.00 (0.315)	6.95 (0.274)	10.00 (0.394)	M10x0.5 (-)

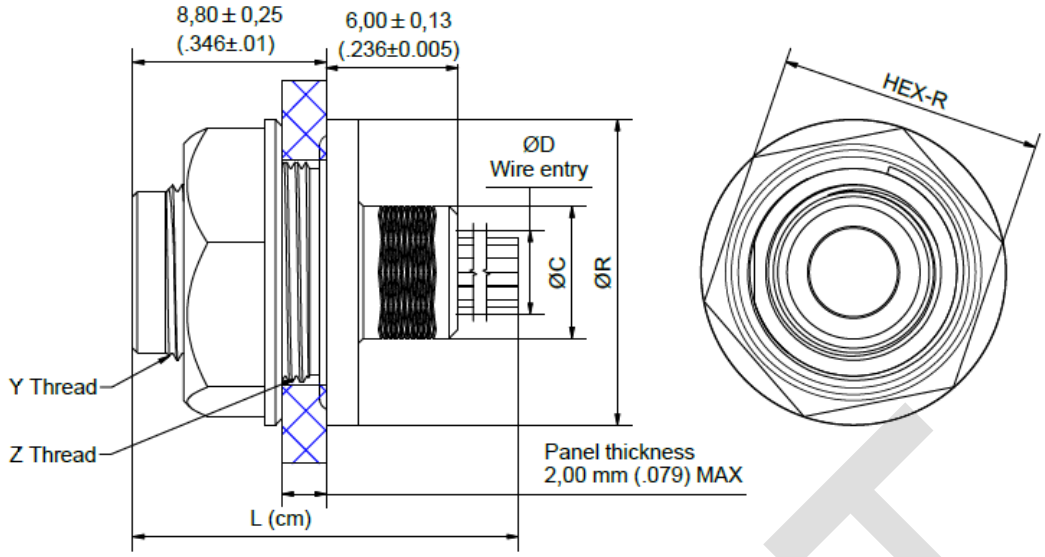
Panel front mount (Plug shell)





SHELL SIZE	ØA±0.13 (±.005)	ØC±0.13 (±.005)	ØD±0.13 (±.005)	ØK±0.2 (±.008)	ØF±0.13 (±.005))	L1±0.13 (±.005)	L2±0.13 (±.005)	L3±0.2 (±.008)	Y Thread
15 CONTACTS	9.00 (0.354)	6.00 (0.236)	4.80 (0.189)	10.1 (0.398)	16.8 (0.661)	6.3 (0.248)	11.38 (0.448)	10.1 (0.398)	M8x0.5 (-)
25 CONTACTS	10.00 (0.394)	7.00 (0.276)	5.80 (0.228)	11.1 (0.437)	17.8 (0.701)	7.3 (0.287)	11.94 (0.470)	11.1 (0.437)	M9x0.5 (-)
37 CONTACTS	11.00 (0.433)	8.00 (0.315)	6.95 (0.274)	12.6 (0.496)	18.8 (0.740)	8.8 (0.346)	12.14 (0.478)	12.6 (0.496)	M10x0.5 (-)

Panel rear mount (plug shell)



SHELL SIZE	ØR±0.13 (±.005)	ØC±0.13 (±.005)	ØD±0.13 (±.005)	HEX-R	Y Thread	Z Thread
15 CONTACTS	13.90 (0.547)	6.00 (0.236)	4.80 (0.189)	12.00 (0.472)	M8x0.5 (-)	M10x0.5 (-)
25 CONTACTS	14.90 (0.587)	7.00 (0.276)	5.80 (0.228)	13.00 (0.512)	M9x0.5 (-)	M11x0.5 (-)
37 CONTACTS	15.90 (0.626)	8.00 (0.315)	6.95 (0.274)	14.00 (0.551)	M10x0.5 (-)	M12x0.5 (-)

Summary of characteristics

ELECTRICAL & MECHANICAL PERFORMANCES	
CURRENT RATING	1A MAX
CONTACT RESISTANCE	71mΩ MAX
INSULATION RESISTANCE	5000 MΩ min; @100V_{DC}
DIELECTRIC WITHSTANDING VOLTAGE	Sea level: 250V_{AC} Altitude 21km (70,000ft): 100V_{AC}
CONTACT ENGAGING FORCE	141 g MAX (50z.)
CONTACT SEPARATING FORCE	11g min (0.40z.)
CONTACT RETENTION	0.9kg (2 lbs)
DURABILITY	200 mating cycles min.
VIBRATION	20g's – no discontinuity > 1µs
SHOCK	100g's – no discontinuity > 1µs

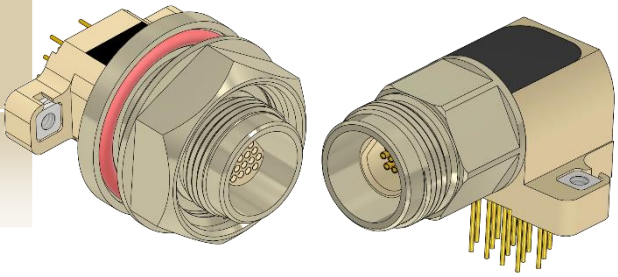
MATERIAL AND FINISH	
SHELL	Aluminium Alloy 7075 nickel plated
MOLDED INSULATOR	PEEK
PIN CONTACTS	Precious gold Alloy
SOCKET CONTACTS	Precious gold Alloy
ENCAPSULANT	Epoxy Resin

Recommended Torques

To secure the mating between plug and socket connector and Jam nut on the plug connector panel rear mount, please apply the torques recommended in the following table

MATING TORQUE	JAM NUT ON PANEL REAR MOUNT
0.8 Nm	1 Nm

NANO-D CIRCULAR PCB CONNECTORS



Reliability for micro-miniature operating systems
Several tail length and PCB mounting
Various sizes: 3 Sizes with 15, 25 or 37 contacts
Panel mounting available

NCA	TH	2	15	F	P	IL	CBR	G	1

Series
NCA : Nano-D Circular AXON' solution

Locking
TH : Metric Thread

Material and Finish
2 : Aluminium with electroless Nickel plating and epoxy 150°C

Number of contacts
15 ; 25 ; 37

Contacts Gender
F : Socket contacts
M : Pin contacts

Shell Gender
P : Plug

Shell Style
IL : In-line
JR : Jam Nut Rear mount flange

PCB type
CBR : Condensed board Right Angle
BS : Board Straight

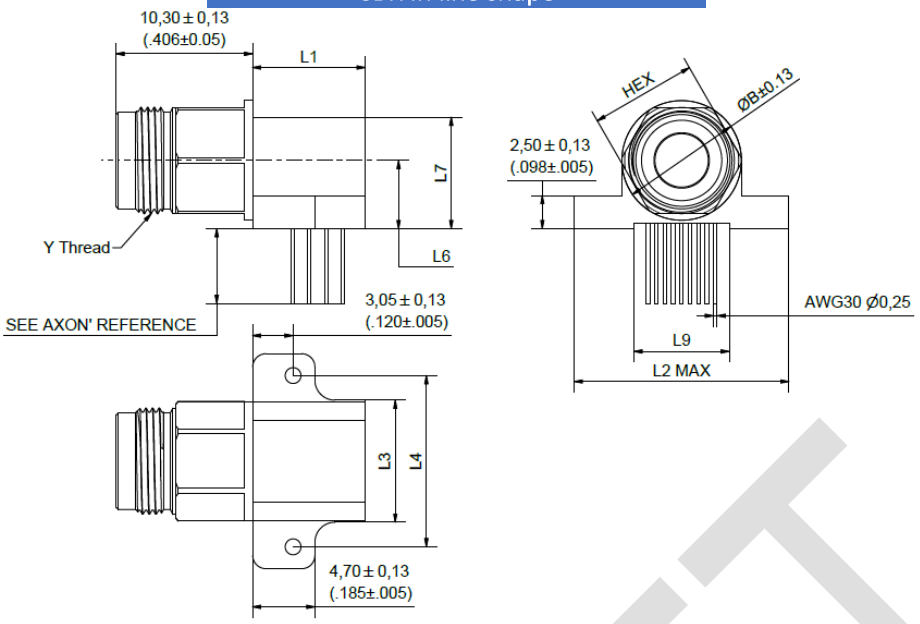
Tail plating
F : Gold flash
G : Gold
T : Tin

Tail Length
1 : 2.77mm
2 : 3.56mm
3 : 4.37mm
4 : 2.29mm

Dimensions

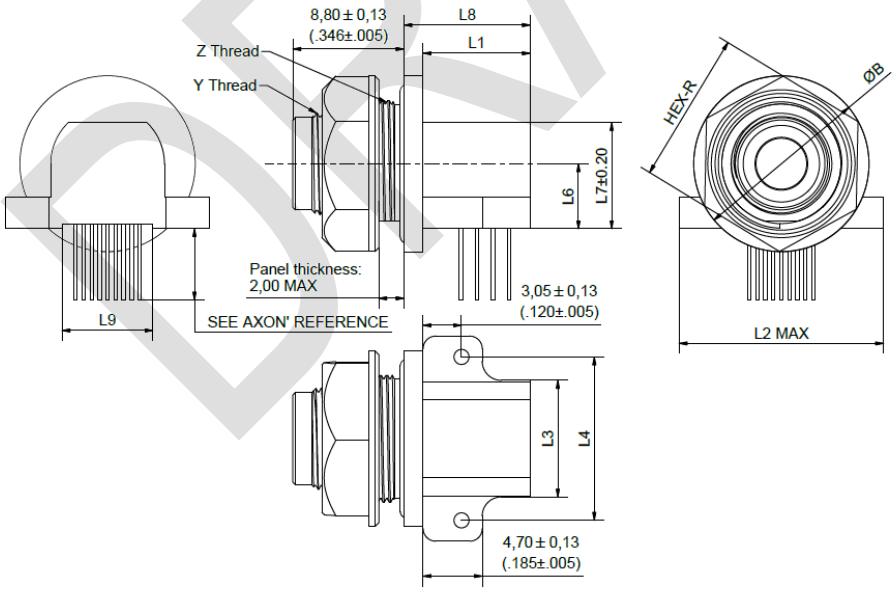
Dimensions are in millimeters (inches)

CBR In line shape



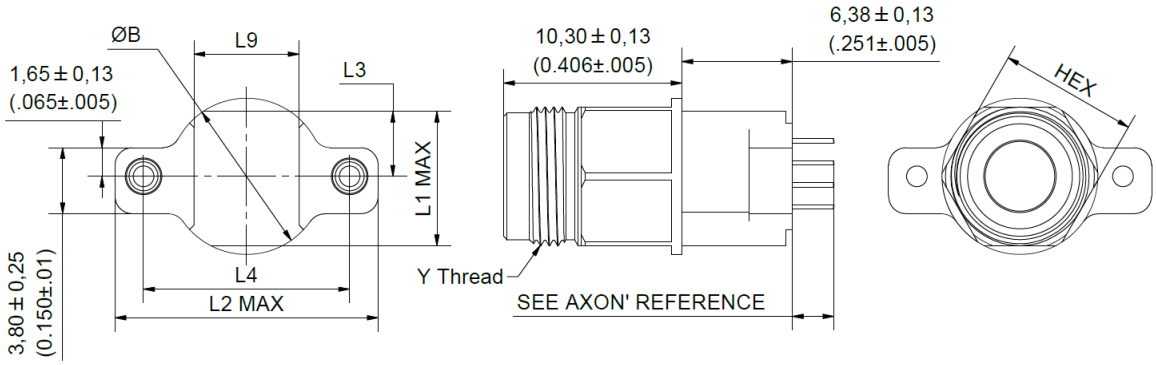
SHELL SIZE	ØB ±0.13 (±.005)	L1 ±0.13 (±.005)	L2 MAX	L3 ±0.13 (±.005)	L4 ±0.13 (±.005)	L6 ±0.13 (±.005)	L7 ±0.20 (±.008)	L9 ±0.13 (±.005)	HEX	Y Thread
15 CONTACTS	9.00 (0.354)	8.50 (0.335)	16.50 (0.650)	9.20 (0.362)	12.90 (0.508)	5.13 (0.202)	8.40 (0.331)	7.20 (0.283)	8.00 (0.315)	M8x0.5 (-)
25 CONTACTS	10.20 (0.402)	11.00 (0.433)	17.70 (0.697)	10.40 (0.409)	14.10 (0.555)	5.73 (0.226)	9.40 (0.370)	8.40 (0.331)	9.00 (0.354)	M9x0.5 (-)
37 CONTACTS	11.50 (0.453	13.30 (0.524)	19.00 (0.748)	11.70 (0.461)	15.40 (0.606)	6.38 (0.251)	10.40 (0.409)	9.70 (0.382)	10.00 (0.394)	M10x0.5 (-)

CBR Panel Rear mount



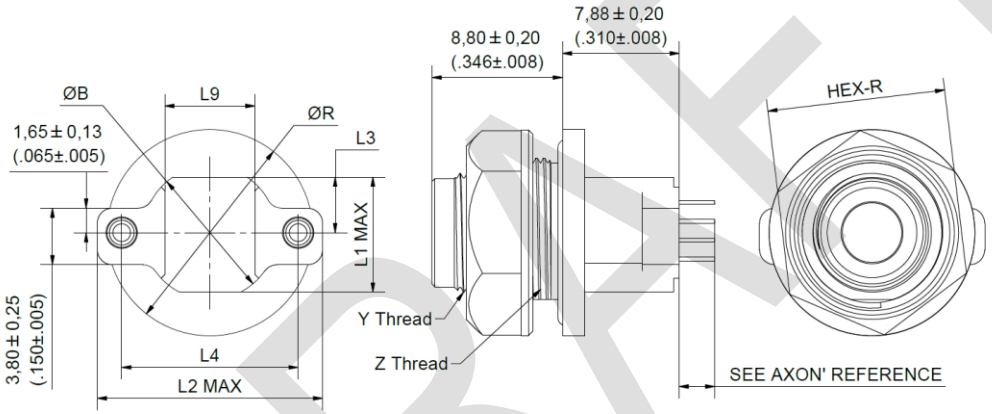
SHELL SIZE	ØR ±0.13 (±.005)	L1 ±0.13 (±.005)	L2 MAX	L3 ±0.13 (±.005)	L4 ±0.13 (±.005)	L6 ±0.13 (±.005)	L7 ±0.20 (±.008)	L8 ±0.20 (±.008)	L9 ±0.13 (±.005)	HEX-R	Y Thread	Z Thread
15 CONTACTS	13.90 (0.547)	8.50 (0.335)	16.50 (0.650)	9.20 (0.362)	12.90 (0.508)	5.13 (0.202)	8.40 (0.331)	10.00 (0.394)	7.20 (0.283)	12.00 (0.472)	M8x0.5 (-)	M10x0.5 (-)
25 CONTACTS	14.90 (0.587)	11.00 (0.433)	17.70 (0.697)	10.40 (0.409)	14.10 (0.555)	5.73 (0.226)	9.40 (0.370)	12.50 (0.492)	8.40 (0.331)	13.00 (0.512)	M9x0.5 (-)	M11x0.5 (-)
37 CONTACTS	15.90 (0.626)	13.30 (0.524)	19.00 (0.748)	11.70 (0.461)	15.40 (0.606)	6.38 (0.251)	10.40 (0.409)	14.80 (0.583)	9.70 (0.382)	14.00 (0.551)	M10x0.5 (-)	M12x0.5 (-)

BS In Line shape



SHELL SIZE	ØB±0.13 (±.005)	L1 MAX	L2 MAX	L3±0.13 (±.005)	L4±0.13 (±.005)	L9±0.13 (±.005)	HEX	Y Thread
15 CONTACTS	9.00 (0.354)	7.90 (0.311)	15.50 (0.610)	3.75 (0.148)	11.90 (0.469)	6.08 (0.239)	8.00 (0.315)	M8x0.5 (-)
25 CONTACTS	10.20 (0.402)	8.95 (0.352)	16.50 (0.650)	4.30 (0.169)	12.90 (0.508)	7.35 (0.289)	9.00 (0.354)	M9x0.5 (-)
37 CONTACTS	11.50 (0.453)	10.70 (0.421)	17.50 (0.689)	5.20 (0.205)	13.90 (0.547)	8.00 (0.315)	10.00 (0.394)	M10x0.5 (-)

BS Panel Rear Mount



SHELL SIZE	ØB±0.13 (±.005)	ØR±0.13(±.005)	L1 MAX	L2 MAX	L3±0.13 (±.005)	L4±0.13 (±.005)	L9±0.13 (±.005)	HEX-R	Y Thread	Z Thread
15 CONTACTS	9.00 (0.354)	13.90 (0.547)	7.90 (0.311)	15.50 (0.610)	3.75 (0.148)	11.90 (0.469)	6.08 (0.239)	12.00 (0.472)	M8x0.5 (-)	M10x0.5 (-)
25 CONTACTS	10.20 (0.402)	14.90 (0.587)	8.95 (0.352)	16.50 (0.650)	4.30 (0.169)	12.90 (0.508)	7.35 (0.289)	13.00 (0.512)	M9x0.5 (-)	M11x0.5 (-)
37 CONTACTS	11.50 (0.453)	15.90 (0.626)	10.70 (0.421)	17.50 (0.689)	5.20 (0.205)	13.90 (0.547)	8.00 (0.315)	14.00 (0.551)	M10x0.5 (-)	M12x0.5 (-)

Summary of characteristics

ELECTRICAL & MECHANICAL PERFORMANCES	
CURRENT RATING	1A MAX
CONTACT RESISTANCE	71mΩ MAX
INSULATION RESISTANCE	5000 MΩ min; @100V_{DC}
DIELECTRIC WITHSTANDING VOLTAGE	Sea level: 250V_{AC}
	Altitude 21km (70,000ft): 100V_{AC}
CONTACT ENGAGING FORCE	141 g MAX (5oz.)
CONTACT SEPARATING FORCE	11g min (0.4oz.)
CONTACT RETENTION	0.9kg (2 lbs)
DURABILITY	200 mating cycles min.
VIBRATION	20g's – no discontinuity > 1µs
SHOCK	100g's – no discontinuity > 1µs

MATERIAL AND FINISH	
SHELL	Aluminium Alloy 7075 nickel plated
MOLDED INSULATOR AND TRAY	PEEK
PIN CONTACTS	Precious gold Alloy
SOCKET CONTACTS	Precious gold Alloy
ENCAPSULANT	Epoxy Resin
PCB TAILS	Gold plated solid copper alloy wires

Recommended Torques

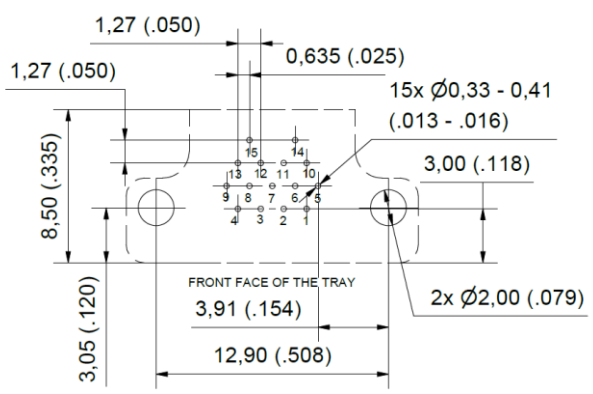
To secure the mating between plug and socket connector and Jam nut on the plug connector panel rear mount, please apply the torques recommended in the following table

MATING TORQUE	JAM NUT ON PANEL REAR MOUNT
0.8 Nm	1 Nm

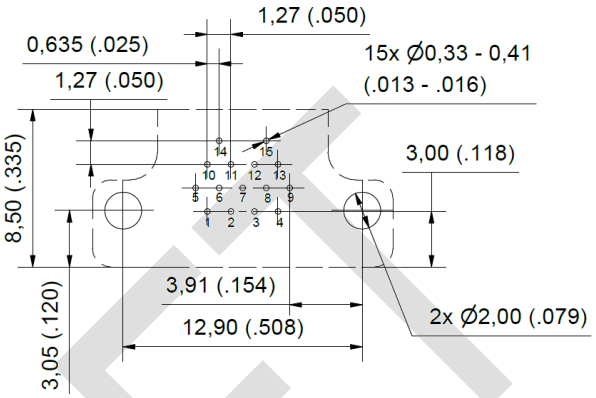
Layouts

Layout on PCB will be changed if you chose pin are socket contacts in plug shell. Layout for each configuration is summarized below:

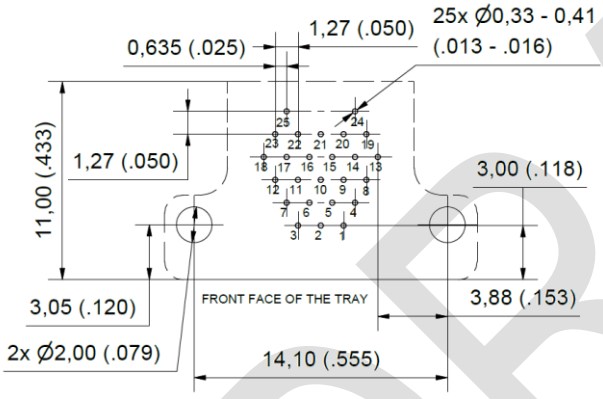
CBR



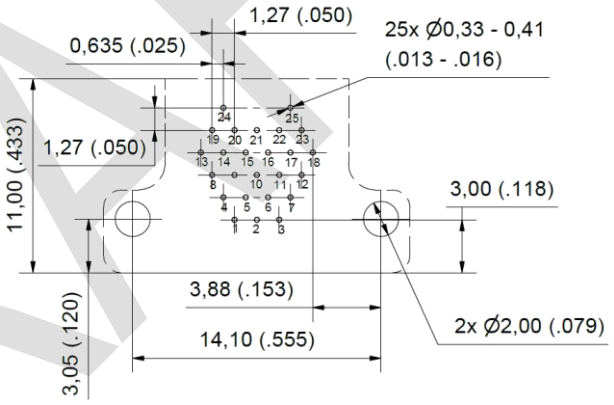
15 PIN CONTACTS



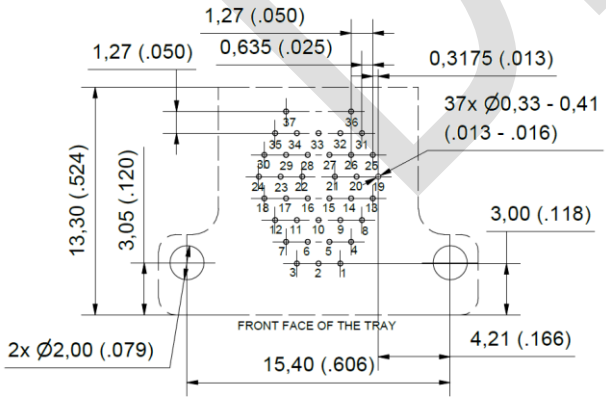
15 SOCKET CONTACTS



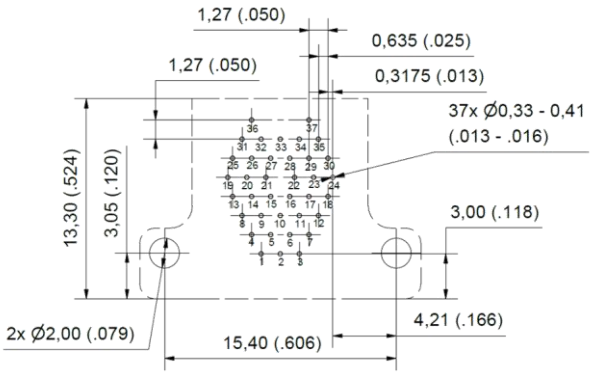
25 PIN CONTACTS



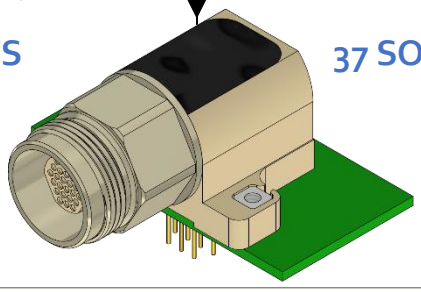
25 SOCKET CONTACTS

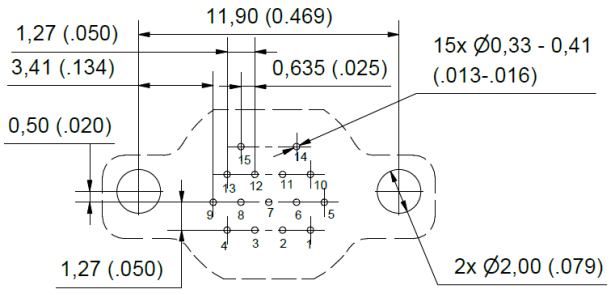


37 PIN CONTACTS

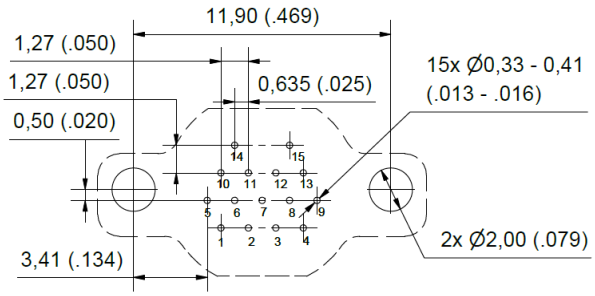


37 SOCKET CONTACTS

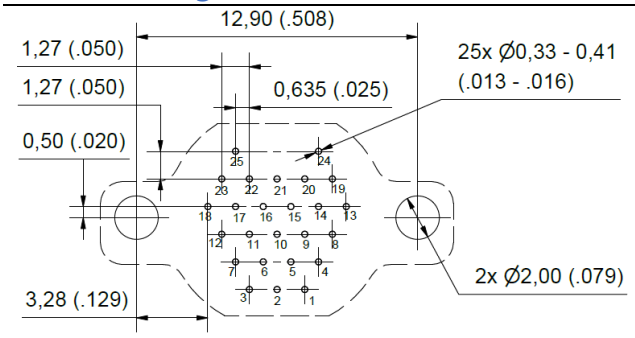




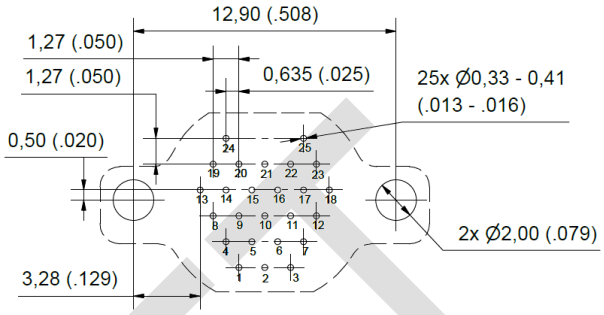
15 PIN CONTACTS



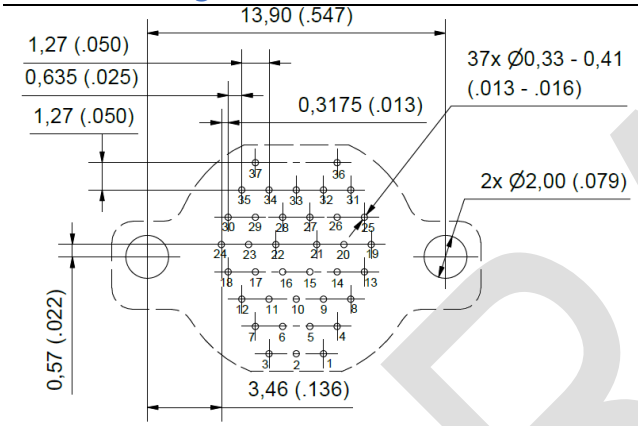
15 SOCKET CONTACTS



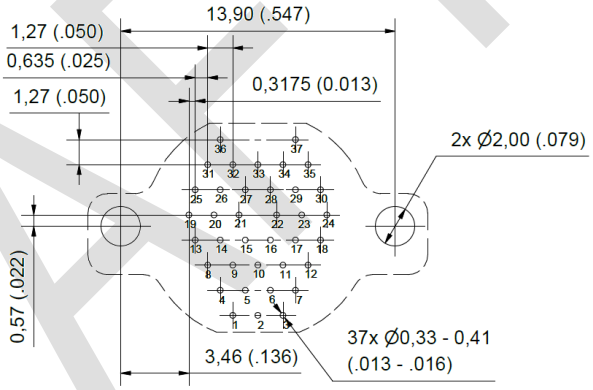
25 PIN CONTACTS



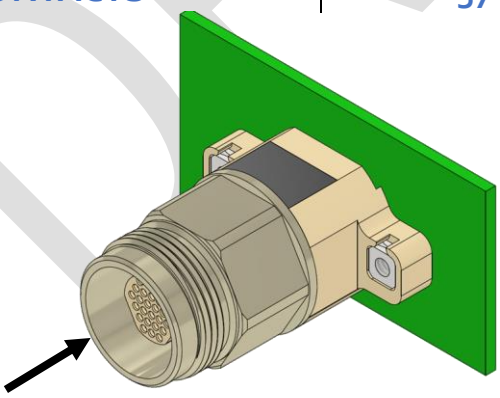
25 SOCKET CONTACTS



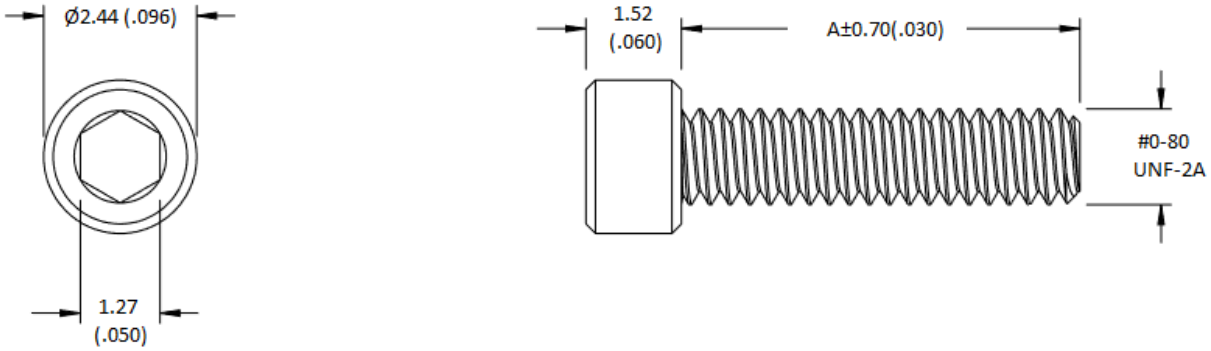
37 PIN CONTACTS



37 SOCKET CONTACTS



Recommended Screws for PCB mounting (#0-80 UNF)



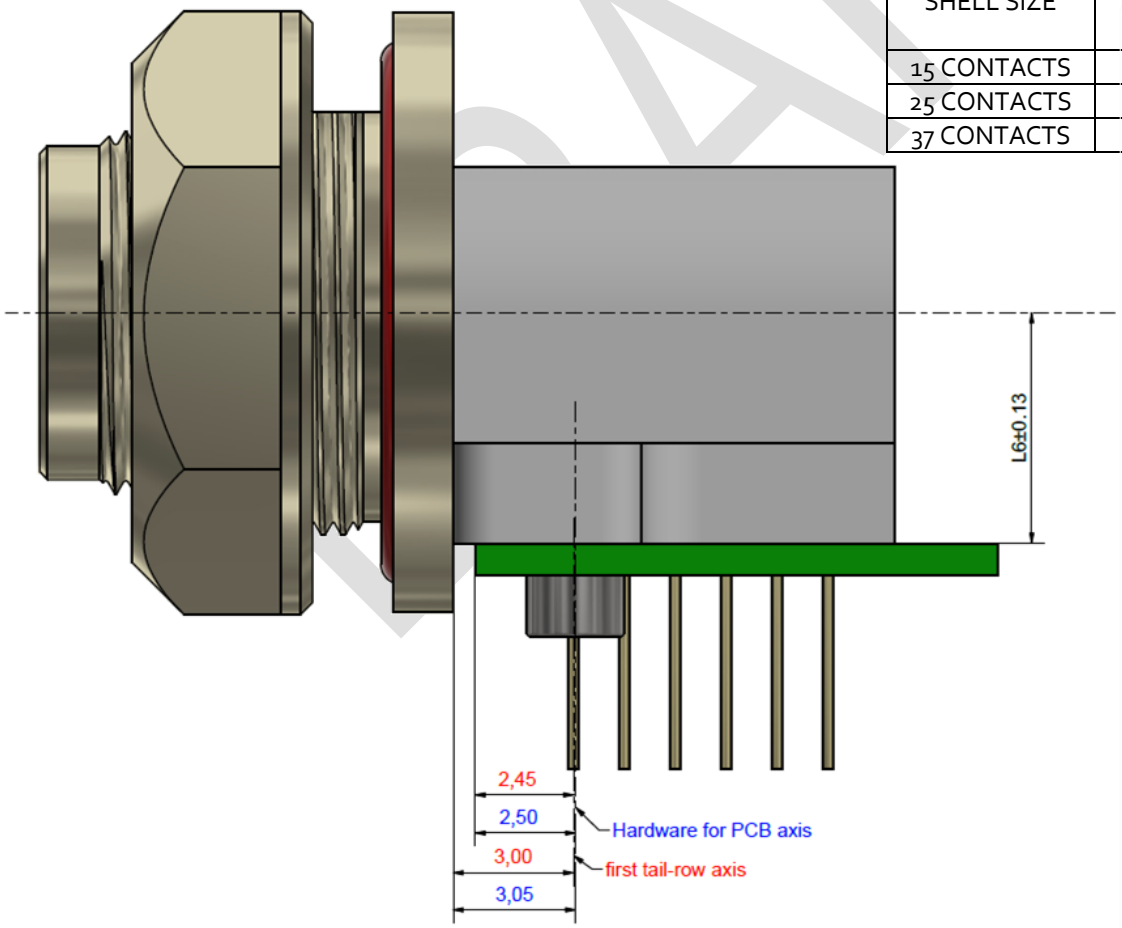
PCB THICKNESS	RECOMMENDED SCREW LENGTH	AXON REF
Thickness < 0.80mm (.0315")	3.18 mm (1/8")	NDAHM0-80-1/8
0. 80mm (.0315") < Thickness < 2.4mm (.094")	4.77 mm (3/16")	NDAHM0-80-3/16
2.4mm (.094") < Thickness	6.35 mm (1/4")	NDAHM0-80-1/4

Panel mount for PCB-CBR mounting

For rear panel mounting CBR connector, the flange will go under the edge of the PCB card. Take care of that when you design the implantation and systems.

Dimensions are in millimeters (inches)

SHELL SIZE	L6±0.13 (±.005)
15 CONTACTS	5.13
25 CONTACTS	5.73
37 CONTACTS	6.38



axon'
INTERNAL INFORMATION
axoClue
n°64
The newsletter for sales teams
February 2022

READY TO SELL

Circular Nano-D connectors

In addition to its rectangular nano-D range, Axon' has extended the range with circular connectors, based on the highly reliable Twist Pin contact technology.

Advantages (over competition)

- For applications where the space available is extremely limited or for extreme miniaturization: space and weight saving.
- In compliance with the requirements of the MIL-DTL-32139 standard.
- Resistance to high shock and vibrations while maintaining electrical integrity.
- These connectors can be configured with different levels of waterproof sealing up to IP-68: optimized design and gasket.
- PCB versions offered in plastic and in metal (contrary to Omnetics which offers only plastic versions).
- Smaller panel mount connectors compared to Omnetics products.
- Reduction of dimensions for highest compactness with oval front mount (from 20 to 40%).
- Swappable inserts : either female or male contacts can be inserted whatever the type of shell (jack or plug) – which enables more configuration.
- Our cabling expertise allows us to offer a large range of custom-designed solutions in terms of wiring and high data rate.

Technical characteristics

- 0.635mm between contacts of each line and between each line.
- Number of ways: 15,25 and 37.
- Different configurations are available:
  - Nano-D circular connectors for cables,
  - Nano-D circular connectors for PCBs,
  - can be integrated in harnesses.

Circular Nano-D connectors

- Versions with metal shells with captivated hardware.
- Plastic pigtails without shells and hardware.
- Threaded solutions available.
- Easy 360° shield termination of the connector.

Applications

- Sensor systems for Inertial Measurement Unit, navigation systems
- Circular connectors are usually used to connect outboxes between systems for avionics applications or for research centres.
- For applications which require frequent connections and disconnections in space-restricted systems.

More Clues

Please find enclosed technical specifications.

Project Technology Readiness Level