

cannon

Nemesis II Series Connectors Catalog



ITT

Nemesis II Series

Miniature circular connector featuring Cannon breakaway functionality and high-pressure sealing capability for water submersion up to 20 meters.



Combining high speed, high mating and quick termination, the Nemesis II mini-circular interconnect provides a high performance, ruggedized interconnect solution for the extreme conditions and harsh environments.



Delivering reliable power, signal and data in a smaller, robust and integrated design package, our lightweight Nemesis II breakaway connector reduces mission-critical failures with a wipe proof pogo pad to remove FOD, Cannon breakaway coupling for rapid mating and custom overmolding and cabling options. Combined with watertight sealing at up to 20 meters, the Nemesis Series reduces soldiers physical loads while maintaining communication in any environment.

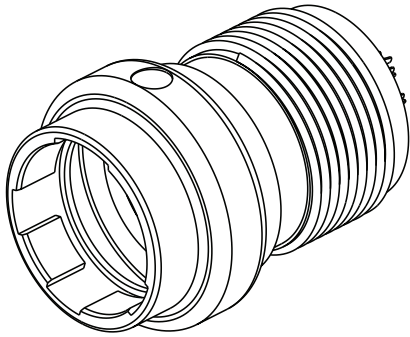
Features & Benefits

- Dual Coupling with positive locking or Cannon Breakaway for rapid mating and demating
- High sealing capability with up to 20 meters submersible
- Easily terminates to wire, PCB and flex circuits
- Blind mating design
- Power, signal and data
- RoHS plating meeting the latest environmental standards
- Enhanced strain relief design with overmolding and custom cabling options
- 500 hour salt spray resistant plating
- Sealed in the mated and un-mated conditions
- Reliability up to 10,000 mating cycles

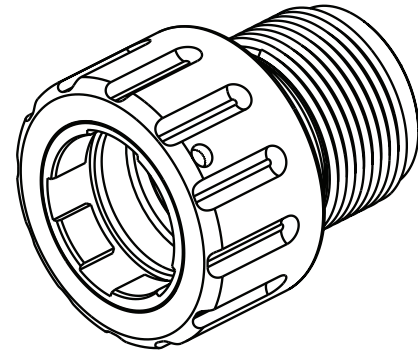
Markets



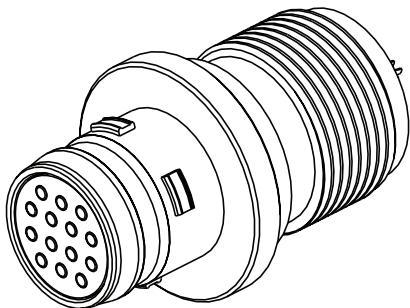
Nemesis Configurations



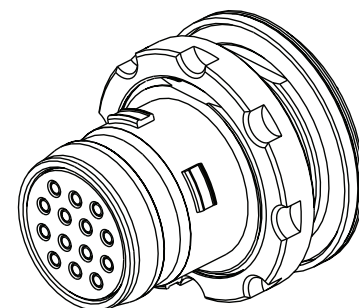
Standard Plug



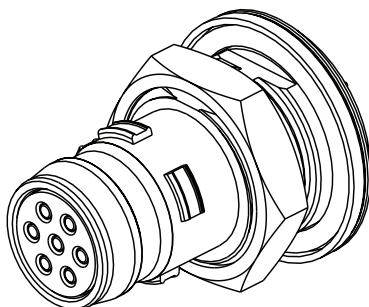
Dual Coupling Plug



Nemesis In-line Receptacle



Tamper Proof Jamnut



Hex Jamnut

Mechanical Specifications

Contact Type	Plugs - Pogo, Receptacles - Pogo Pad
Contacts	Plugs - Solder cup, Receptacles - Solder cup or PCB tails
Wire size	22-32 AWG
Vibration	20 g's in accordance with MIL-STD-1344 Method 2005, Condition IV
Shock	50 g's in accordance with MIL-STD-1344 Method 2004, Condition E
Durability	10K mating cycles standard, 5K mating cycles w/dual coupling
Plating	RoHS compliant black electroless nickel or electroless nickel
Receptacle Mounting	Jamnut with standard hex nut or optional tamper proof nut
Coupling	Snap-on/breakaway or dual coupling (rotate collar locking) - blind mate
Coding	5 clocking positions, N, A, B, C, & D
Coding Identification	N=Blue, A=Red, B=Green, C=Gray, D=Yellow
Snap-on/Break Away Force	30N (nominal)
Layouts (# of positions)	7, 8, 14 & 19
Material	Shell assemblies - Stainless Steel
	Backshells - Brass
	Insulators - Thermoplastic
	Seals - Fluorosilicone Rubber
	Contacts - Copper Alloy w/gold over nickel plating

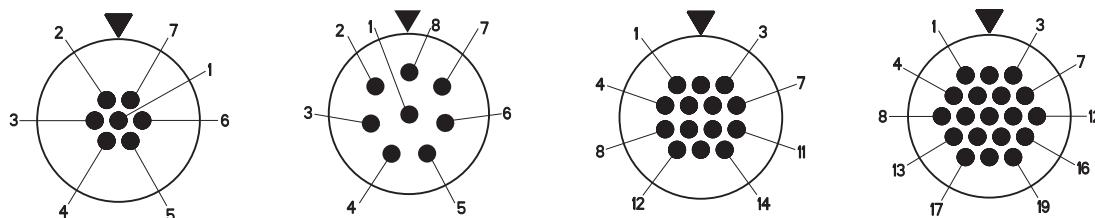
Electrical Specifications

Contact Current Rating	2 Amps, 3 Amps peak
Insulation Resistance	5,000 mOhm minimum
DWV, At Sea Level	500 Volts
Contact Resistance	15 mOhm maximum
EMI Shielding	50dB attenuation 100MHz to 1000 MHz in terminated condition
Shell to Shell Resistance	<20m mOhm

Environmental Specifications

Temperature	Operating: -55 °C - 125 °C
Sealing	IP67
Fluid Immersion	Unmated connectors immersed in various fuels and oils shall have no damage detrimental to the operation of the connector components
Salt Spray	500 hours

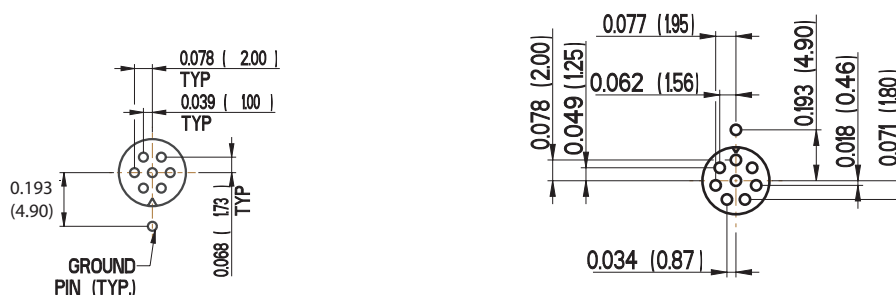
Nemesis Contact Arrangements



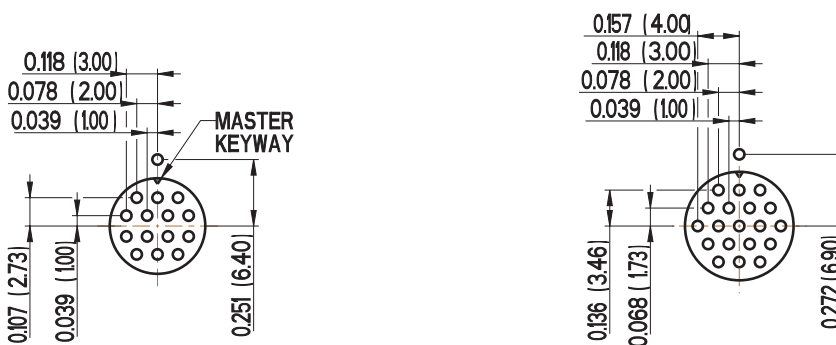
Number of Contacts	7	8	14	19
--------------------	---	---	----	----

Cavity identification numbers are for reference only. They do not appear on connectors.

Nemesis PCB Layouts

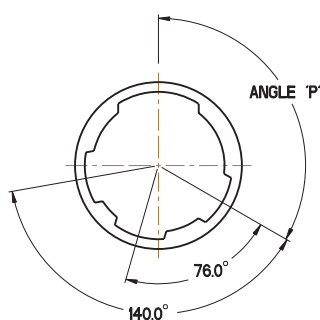


Number of Contacts	7	8
--------------------	---	---



Number of Contacts	14	19
--------------------	----	----

Nemesis Clocking



Face View of Plug
Keyway Orientation

Polarization Coding		
Letter	Color Coded Paint Line / Dot	Angle 'P'
N	Blue	120°
A	Red	132°
B	Green	108°
C	Grey	96°
D	Yellow	84°

Nemesis Ordering Guide- Standard & Dual Coupling Plug

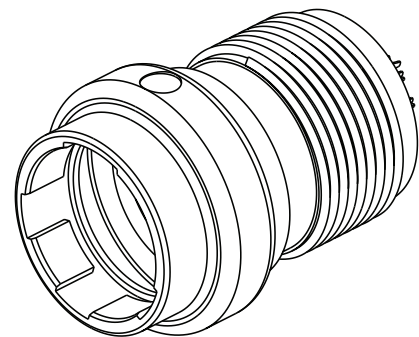
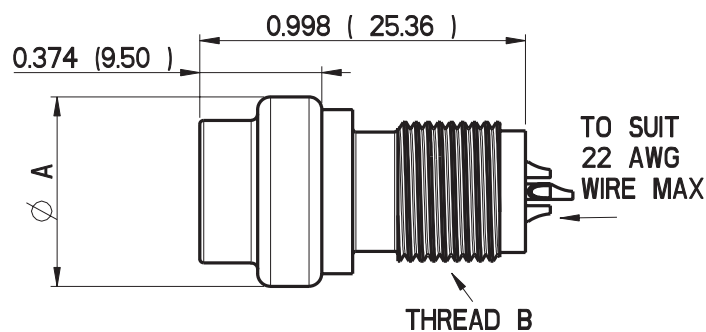


			NEM	QTHSSB	8	14	PG	N	S	B	1
PRODUCT SERIES	NEM	NEMESIS									
SUB SERIES	QTHSSB	QUICK TERMINATION HIGH SPEED SNAPON BREAKAWAY									
SHELL STYLE	6	STANDARD CABLE PLUG									
	8	DUAL COUPLING PLUG									
CONTACT ARRANGEMENT	14	7*, 8, 14, 19									
CONTACT TYPE	PG	POGO PIN, SPRING PROBE CONTACT									
CLOCKING	N	COLOR MARK BLUE									
	A	COLOR MARK RED									
	B	COLOR MARK GREEN									
	C	COLOR MARK GREY									
	D	COLOR MARK YELLOW									
TERMINATION TYPE	S	SOLDER CUP (22 AWG MAX)									
HARDWARE FINISH	B	BLACK ELECTROLESS NICKEL									
	N	ELECTROLESS NICKEL									
SEALING DEPTH	BLANK	2M FOR 1 HOUR									
	1	20M FOR 1 HOUR**									

* 7 CONTACT PINS IS RATED FOR STANDARD SPEED
 ** 20M FOR SHELL STYLE 8 ONLY

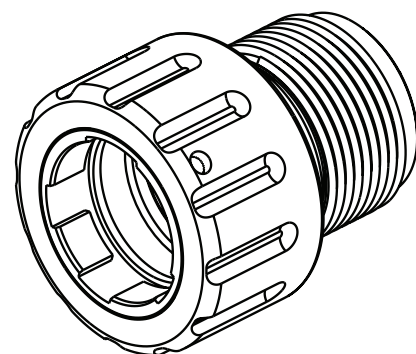
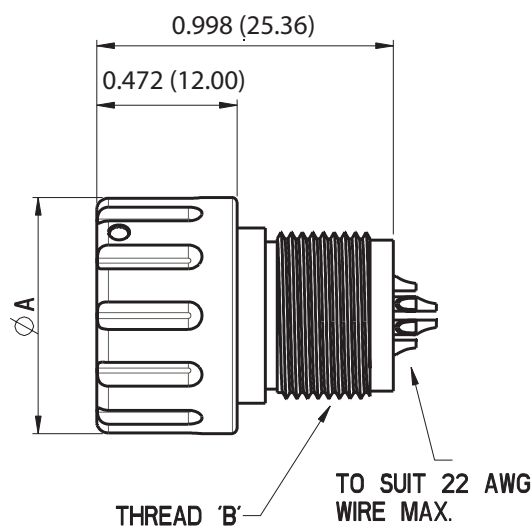
Nemesis Plug Drawings- Standard and Dual Coupling

Standard Plug



Standard Plug		
Shell Size	A	Thread B
7/8	0.590 (15.00)	7/16-28 UNEF-2A
14	0.699 (17.75)	9/16-28 UN-2A
19	0.748 (19.00)	5/8-28 UN-2A

Dual Coupling Plug



Dual Coupling Plug		
Shell Size	A	Thread B
7/8	0.687 (17.45)	7/16-28 UNEF-2A
14	0.795 (20.20)	9/16-28 UN-2A
19	0.844 (21.45)	5/8-28 UN-2A

Dimensions shown in inches (mm)
Specifications and dimensions subject to change



Nemesis Ordering Guide-

In-line Receptacle

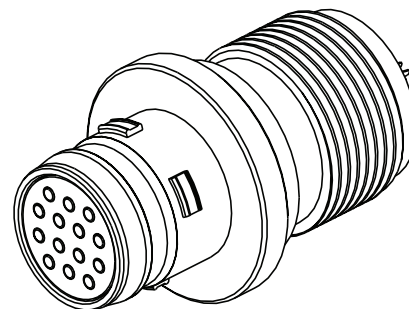
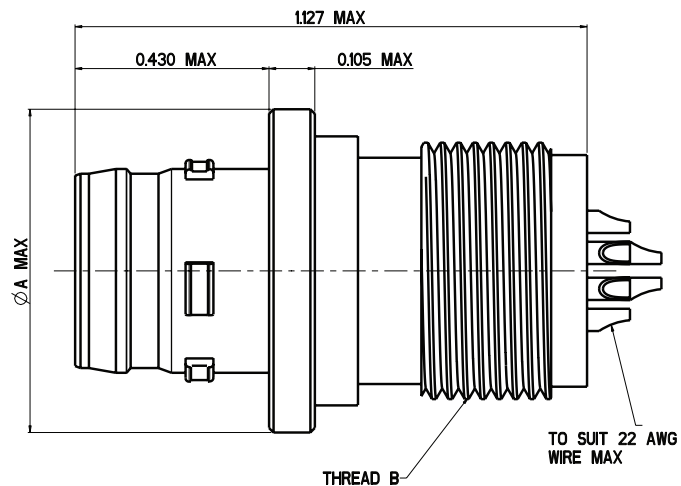


			NEM	QTHSSB	1	14	PP	N	S	B	2
PRODUCT SERIES	NEM	NEMESIS									
SUB SERIES	QTHSSB	QUICK TERMINATION HIGH SPEED SNAPON BREAKAWAY									
SHELL STYLE	1	IN-LINE RECEPTACLE									
CONTACT ARRANGEMENT	14	7*, 8, 14, 19									
CONTACT TYPE	PP	POGO PAD CONTACT									
CLOCKING	N	COLOR MARK BLUE									
	A	COLOR MARK RED									
	B	COLOR MARK GREEN									
	C	COLOR MARK GREY									
	D	COLOR MARK YELLOW									
TERMINATION TYPE	S	SOLDER CUP (22 AWG MAX)									
HARDWARE FINISH	B	BLACK ELECTROLESS NICKEL									
	N	ELECTROLESS NICKEL									
SEALING DEPTH	1	2M FOR 1 HOUR									
	2	20M FOR 1 HOUR									

* 7 CONTACT PINS IS RATED FOR STANDARD SPEED

Nemesis In-line Receptacle

Nemesis In-line Receptacle



Nemesis In-line Receptacle		
Shell Size	$\varnothing A$	Thread B
7/8	0.595 (15.11)	7/16-28 UNEF-2A
14	0.713 (18.11)	9/16-28 UN-2A
19	0.772 (19.61)	5/8-28 UN-2A

Nemesis Ordering Guide- Jamnut Receptacle

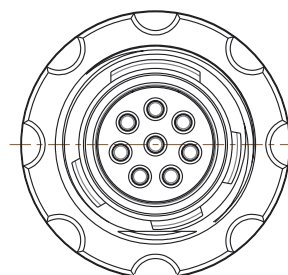
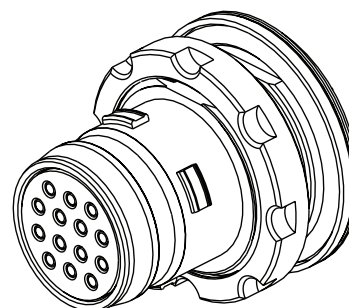
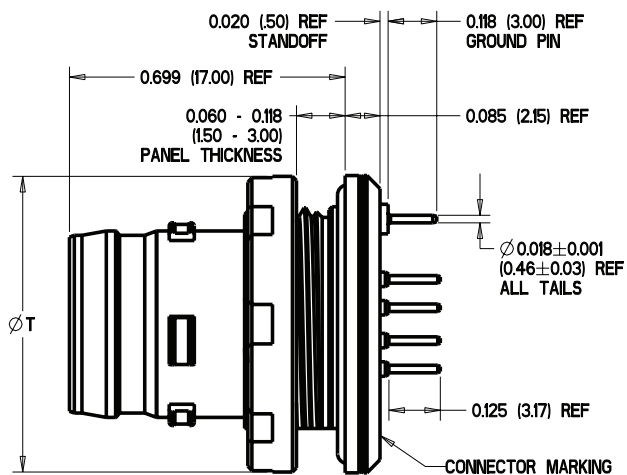


			NEM	QTHSSB	7	14	PP	N	S	B	2	H
PRODUCT SERIES	NEM	NEMESIS										
SUB SERIES	QTHSSB	QUICK TERMINATION HIGH SPEED SNAPON BREAKAWAY										
SHELL STYLE	7	JAMNUT RECEPTACLE										
CONTACT ARRANGEMENT	14	7*, 8, 14, 19										
CONTACT TYPE	PP	POGO PAD CONTACT										
CLOCKING	N	COLOR MARK BLUE										
	A	COLOR MARK RED										
	B	COLOR MARK GREEN										
	C	COLOR MARK GREY										
	D	COLOR MARK YELLOW										
TERMINATION TYPE	S	SOLDER CUP (22 AWG MAX)										
	T	PCB TAIL										
HARDWARE FINISH	B	BLACK ELECTROLESS NICKEL										
	N	ELECTROLESS NICKEL										
SEALING DEPTH	BLANK	2M FOR 1 HOUR FLUOROSILICONE O-RING										
	1	2M FOR 1 HOUR EMI O-RING										
	2	20M FOR 1 HOUR FLUOROSILICONE O-RING										
ACCESSORIES	H	HEX JAMNUT										
	T	TAMPERPROOF JAMNUT										

* 7 CONTACT PINS IS RATED FOR STANDARD SPEED

Nemesis Jamnut Receptacle

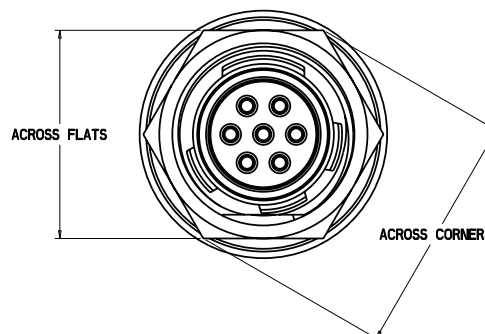
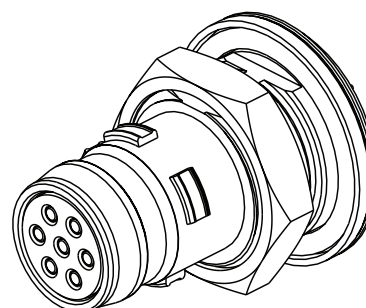
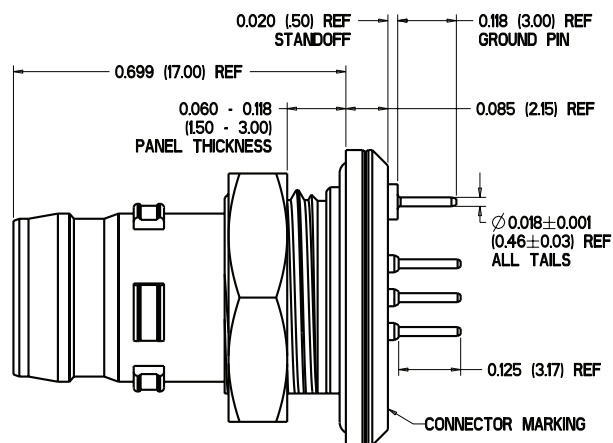
Tamper Proof Jamnut



Tamperproof Jamnut

Shell Size	$\varnothing T$
7/8	0.590 (15)
14	0.701 (18)
19	0.748 (19)

Hex Jamnut

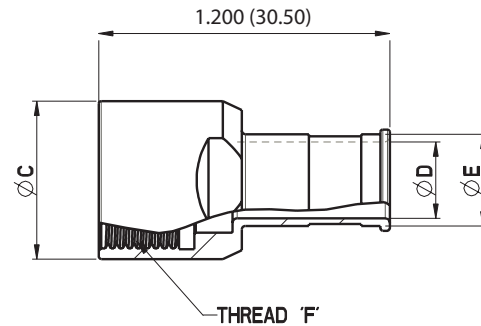


Hex Jamnut

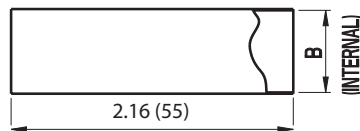
Shell Size	Across Flats	Across Corners
7/8	0.500 (12.70)	0.577 (14.66)
14	0.625 (15.88)	0.722 (18.34)
19	0.687 (17.45)	0.793 (20.16)

Nemesis Accessories

Backshell

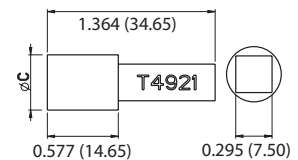
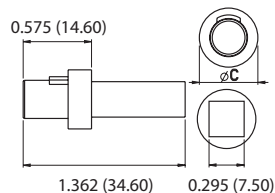


Nemesis Backshells							
Part Number	Descriptive Part Number	Shell Size	ØC	ØD	ØE	THREAD F	Weight (grammes)
448-7873-001	NEM-BS-71N	7/8	0.528 (13.40)	0.236 (6.00)	0.299 (7.60)	7/16-28UNEF-2B	9.64
448-7873-002	NEM-BS-72N	7/8	0.528 (13.40)	0.264 (6.70)	0.327 (8.30)	7/16-28UNEF-2B	9.80
448-7873-003	NEM-BS-73N	7/8	0.528 (13.40)	0.291 (7.40)	0.354 (9.00)	7/16-28UNEF-2B	9.95
448-7873-010	NEM-BS-1410N	14	0.652 (16.55)	0.264 (6.70)	0.327 (8.30)	9/16-28UN-2B	
448-7873-004	NEM-BS-144N	14	0.652 (16.55)	0.315 (8.00)	0.378 (9.60)	9/16-28UN-2B	11.85
448-7873-005	NEM-BS-145N	14	0.652 (16.55)	0.354 (9.00)	0.417 (10.60)	9/16-28UN-2B	12.03
448-7873-006	NEM-BS-146N	14	0.652 (16.55)	0.394 (10.00)	0.457 (11.60)	9/16-28UN-2B	12.93
448-7873-011	NEM-BS-1411N	14	0.652 (16.55)	0.413 (10.50)	0.476 (12.10)	9/16-28UN-2B	
448-7873-007	NEM-BS-197N	19	0.717 (18.20)	0.364 (9.25)	0.427 (10.85)	5/8-28UN-2B	13.87
448-7873-008	NEM-BS-198N	19	0.717 (18.20)	0.404 (10.25)	0.467 (11.85)	5/8-28UN-2B	14.05
448-7873-009	NEM-BS-199N	19	0.717 (18.20)	0.443 (11.25)	0.506 (12.85)	5/8-28UN-2B	14.22



Heat Shrink Boot Dimension		
Part Number	Shell Size	B
252-7689-000	7 / 8	0.63 (16)
252-7689-001	14 / 19	0.94 (24)

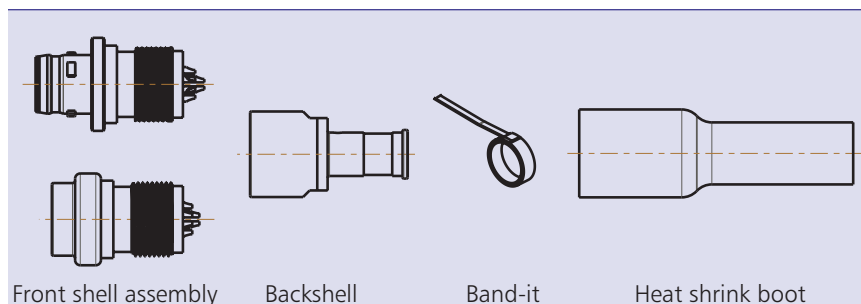
Cable Ties & Tool		
Part Number	Description	Shell Size
995-0002-299	1/8 Cable Tie Band	7, 8, 14 & 19
995-0002-298	Hand Banding Tool	7, 8, 14 & 19



Plug Cable Support Tool		
Part Number	Shell Size	ØC
T4918	7 / 8	0.492 (12.50)
T4919	14	0.610 (15.50)
T4920	19	0.650 (16.50)

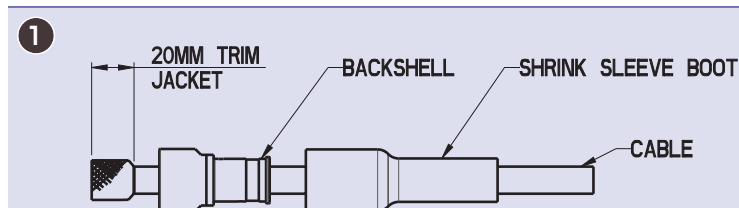
Receptacle Cable Support Tool		
Part Number	Shell Size	ØC
T4921	7 / 8	0.445 (11.30)
T4922	14	0.553 (14.05)
T4923	19	0.630 (16.00)

Nemesis Assembly Instructions

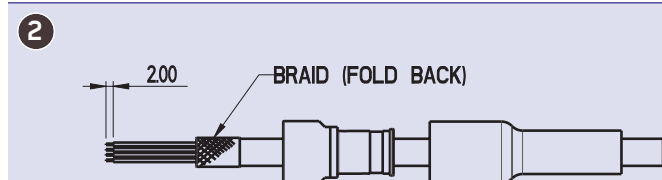


Tooling required :

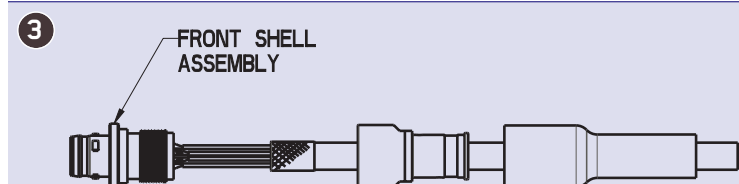
- 1) Band-it tool - tie-dex 2
- 2) Front shell support tool :-
 T4918 - 7 way plug T4921 - 7 way receptacle
 T4919 - 14 way plug T4922 - 14 way receptacle
 T4920 - 19 way plug T4923 - 19 way receptacle



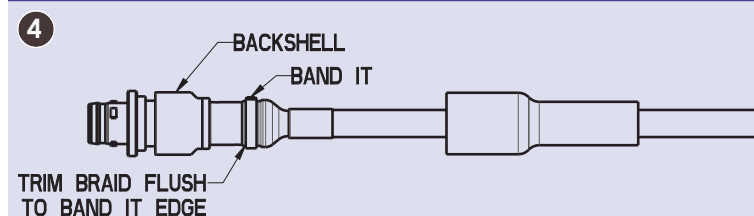
Slide boot and backshell onto cable (these can be put on later if building a pigtail assembly). Trim outer jacket back to dimension shown, exposing braid, being careful not to nick or damage it.



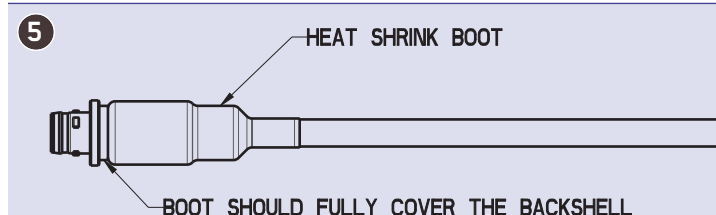
Fold the braid back over the jacket, this can be taped back in position whilst carrying out the wire termination. Trim back the wire insulation to the dimension shown, if a stranded center conductor, ensure the twist is tight and tin dip the wire ends in preparation for soldering to contacts.



Fit the appropriate support tool to a vice and plug on front shell assembly. Offer up the wires, one at a time, to the required contact and solder to position.



Slide the backshell over the wires and screw onto the front shell to a torque of 30 / 35 lb. ins. (3.40 / 3.95nm). Flare the braid over the tube of the backshell. If the cable has a strain relief, this should be wrapped and secured under the Band-it. Load the Band-it to the tool, note - the Band-it should be wrapped twice, locate the Band-it over the braid (there is a u'cut on the tube to indicate the position of the Band-it) and operate the tool to secure the Band-it around the braid. Trim the braid and strain relief (if fitted) approx. flush with the edge of the Band-it.



Slide the boot fully over the backshell and apply heat to shrink in position.

Cables and Overmolding

Value-Added Cabling Solutions from ITT Cannon

Let ITT Cannon complete your solution with our custom cable products. A complement to the reduction in size of the connectors is the reduction in weight and thickness in cabling. Choose from several available options to help customize your application. Improving on our high reliability connectors, we offer overmolds that are suitable for military requirements in harsh environments.



Braiding

- EMI shielded metal to light weight, textile braiding for abrasion protection

Overmolding

- Injection molding with poly ureaurethane, Santoprene, and polyimide
- Transfer molding with Cannon's Super Jacketing System (SJS Series), Viton, Neoprene, EPDM, and alternative molding compounds
- Low pressure and prototype molding including M24041, poly ureaurethane, Polyimide, and custom compounds

Shrink Boots

- Customized solution for all connector-to-cable transition type including straight, 90 and 45 degree.



Backshells

- Integration of commercial and MIL-Spec backshell or molding adapters

Cable Jacket

- Blown on for multi leg or short run in SJS jacket, Viton Neoprene, EPDM, and various other tubing jackets
- Extruded jackets for high runner cables and long lengths SJS jacket, poly u, Santoprene, Neoprene, EPDM and various other types. NOTE RONDENT PROOF
- Textile braids and heat shrinks

Integrated Assembly

- Integrated Connectors into your Box/Unit.
- Cable/Wire harnesses in boxes or as an LRU (Note NO splice micro cables)
- Machined & high volume Die Cast housings that save time and money when connectors are part of the housing.

Connect with your ITT Cannon representative today
or visit us at ittcannon.com

Connect with the experts

ITT's Cannon brand is a world leader in the design and manufacture of highly engineered connector solutions for multiple end markets.



Why ITT

ITT is a focused multi-industrial company that designs and manufactures highly engineered critical components and customized technology solutions. ITT's Cannon brand is a leading global manufacturer of connector products serving international customers in aerospace, defense, medical, industrial and transportation end markets. ITT's Connector business, which also includes the Veam and BIW Connector Systems brand, manufactures and supplies a variety of connectors and interconnects that make it possible to transfer data, signal and power in an increasingly connected world.

Connect with your ITT Cannon representative today or visit us at ittcannon.com

Follow us 

CHINA - Shenzhen City
+86.755.2726.7888

GERMANY - Weinstadt
+49.7151.699.0

ITALY - Lainate
+39.02938721

KOREA
+82.2.702.7111

SHANGHAI
+ 86.21.2231.2222

UK - Basingstoke
+44.1256.347400

FRANCE
+33.1.60.04.93.93

HONG KONG
+852.2732.2720

JAPAN - Kanagawa
+81.462.57.2010

MEXICO - Nogales
+52.631.311.0050

SINGAPORE
+65 66974205

USA - Irvine, CA
+1.800.854.3028