

TNM (Trident/Neptune Metal) is specifically designed to meet the needs of systems that require shielding, sealing, and the extra durability of a metal shell. The combination of Trident contacts, membrane seals, and the Universal Shielded Endbell\* make TNM both cost effective and easy to assemble.

## Applications

- Communication equipment.
- Industrial electronics.
- Heavy duty equipment.



\*Patent pending

## Product Features

- Accepts Trident signal, printed circuit, and coaxial contacts.
- Mixed signal and 30 A power contact version.
- Can be sealed to IP67.
- 360° shielding.
- Easy to assemble.

## Performance Specifications

<b>Temperature Range</b>	-55°C to 105°C (-67°F to 221°F)
<b>Operating Voltage</b>	250 V ac
<b>Test Voltage</b>	2000 V ac rms
<b>Insulation Resistance</b>	5000 MΩ min. at 500 V dc
<b>Current Rating (Single Contact)</b>	13 A or 6 A signal contacts (crimp), 40 A power contacts
<b>Sealing (Sealed Version)</b>	Up to IP67

## Materials and Finishes

Description	Material	Finish
Shell	High Specification Zinc Alloy	Nickel
Insulator	Nylon, UL 94V-0	None
Coupling Ring	Brass	Nickel
Seal	Rubber	None

## TNM Connectors

TNM features nickel plated zinc alloy shells and UL 94V-0 rated thermoplastic insulators. All TNM receptacles are supplied with an interface seal to provide sealing between connectors to IP67. In addition a membrane seal is available for those applications requiring the sealing of discrete wires at the rear of the connector.

In order to seal multicore jacketed cables to connectors an endbell is available. This has 'O' ring sealing to the connector and a second seal to the cable jacket.

- Available unsealed or sealed to IP67.
- Highly reliable Bayonet Coupling System.
- See pages 40-41 for part numbers and additional information.



## Universal Endbell

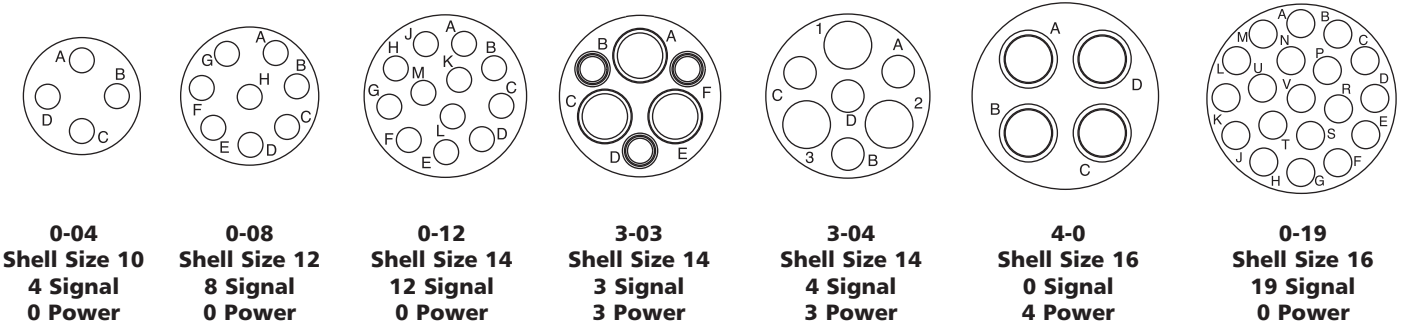
The Universal Endbell provides sealing, shielding and strain relief in an easy to assemble system.

- 360° shielding.
- Sealed to IP67.
- Provides strain relief.
- Easy to assemble.
- See page 44 for part numbers and additional information.



## Contact Cavity Arrangements

### Mating Face View



Wire sealing range 1,70 to 2,70 (.066 to .106)

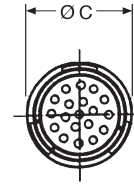
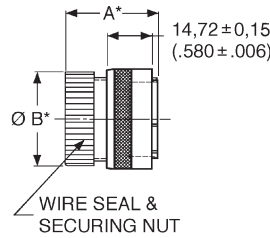
Dimensions shown in mm (inch)  
Specifications and dimensions subject to change

[www.ittcannon.com](http://www.ittcannon.com)



# Cannon Trident Connector System

TNM Circular Connectors



## Standard Plugs — Pin Contacts

### Standard Plug

#### Part Numbers — with wire seal

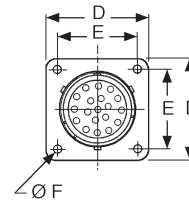
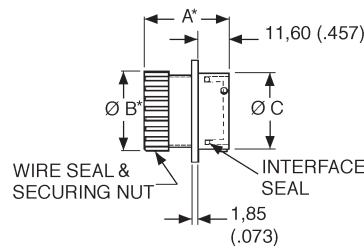
Number of Contacts	Shell Size	Part Number	Nomenclature	A	ØB	ØC
4	10	192993-0011	TNM 6S 1000-04 P1L	42,50 (1.673)	17,50 (.689)	21,60 (.850)
8	12	192993-0012	TNM 6S 1200-08 P1L	42,50 (1.673)	20,60 (.811)	24,80 (.976)
3-4	14	192993-0695	TNM 6S 1403-04 P1L	42,50 (1.673)	24,30 (.957)	28,00 (1.102)
12	14	192993-0013	TNM 6S 1400-12 P1L	42,50 (1.673)	24,30 (.957)	28,00 (1.102)
19	16	192993-0014	TNM 6S 1600-19 P1L	42,50 (1.673)	27,00 (1.063)	31,20 (1.229)

#### Part Numbers — without wire seal and securing nut<sup>©</sup>

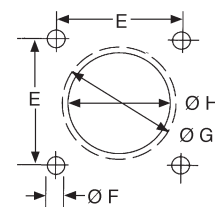
Number of Contacts	Shell Size	Part Number	Nomenclature	A*	ØB*	ØC
4	10	192993-0001	TNM 6U 1000-04 P1L	38,10 (1.500)	13,80 (.543)	21,60 (.850)
8	12	192993-0002	TNM 6U 1200-08 P1L	38,10 (1.500)	16,90 (.665)	24,80 (.976)
12	14	192993-0003	TNM 6U 1400-12 P1L	38,10 (1.500)	20,10 (.791)	28,00 (1.102)
19	16	192993-0004	TNM 6U 1600-19 P1L	38,10 (1.500)	23,30 (.917)	31,20 (1.229)

\* Dimensions A and B apply to connectors without wire seals and securing nuts.

© Can be sealed to IP67 with a sealed endbell, see page 42.



### Panel Cutout



ØH = Flange in Front of Panel  
ØG = Flange at Rear of Panel

## Standard Receptacles — Socket Contacts

### Standard Receptacle

#### Part Numbers — with wire seal

No. of Contacts	Shell Size	Part Number	Nomenclature	A	ØB	ØC	D	E	ØF	ØG	ØH
4	10	192993-0031	TNM OS 1000-04 S1L	34,70 (1.366)	17,50 (.689)	14,92 (.563)	23,79 (.937)	18,26 (.719)	3,20 (.126)	17,30 (.681)	15,10 (.594)
8	12	192993-0032	TNM OS 1200-08 S1L	34,70 (1.366)	20,60 (.811)	18,98 (.747)	26,15 (1.030)	20,62 (.812)	3,20 (.126)	21,80 (.858)	18,20 (.717)
3-4	14	192993-0698	TNM OS 1403-04 S1L	34,70 (1.366)	24,30 (.957)	22,16 (.872)	28,54 (1.124)	22,80 (.898)	3,50 (.138)	25,00 (.984)	21,40 (.843)
12	14	192993-0033	TNM OS 1400-12 S1L	34,70 (1.366)	24,30 (.957)	22,16 (.872)	28,54 (1.124)	22,80 (.898)	3,50 (.138)	25,00 (.984)	21,40 (.843)
19	16	192993-0034	TNM OS 1600-19 S1L	34,70 (1.366)	27,00 (1.063)	25,33 (.997)	30,89 (1.216)	24,61 (.969)	3,50 (.138)	28,10 (1.106)	24,60 (.969)

#### Part Numbers — without wire seal and securing nut<sup>©</sup>

No. of Contacts	Shell Size	Part Number	Nomenclature	A*	ØB*	ØC	D	E	ØF	ØG	ØH
4	10	192993-0021	TNM OU 1000-04 S1L	30,30 (1.193)	14,30 (.563)	14,92 (.563)	23,79 (.937)	18,26 (.719)	3,20 (.126)	17,30 (.681)	15,10 (.594)
8	12	192993-0022	TNM OU 1200-08 S1L	30,30 (1.193)	17,40 (.685)	18,98 (.747)	26,15 (1.030)	20,62 (.812)	3,20 (.126)	21,80 (.858)	18,20 (.717)
12	14	192993-0023	TNM OU 1400-12 S1L	30,30 (1.193)	20,60 (.811)	22,16 (.872)	28,54 (1.124)	22,80 (.898)	3,50 (.138)	25,00 (.984)	21,40 (.843)
19	16	192993-0024	TNM OU 1600-19 S1L	30,30 (1.193)	23,80 (.937)	25,33 (.997)	30,89 (1.216)	24,61 (.969)	3,50 (.138)	28,10 (1.106)	24,60 (.969)

\* Dimensions A and B apply to connectors without wire seals and securing nuts.

© Can be sealed to IP67 with a sealed endbell, see page 42.

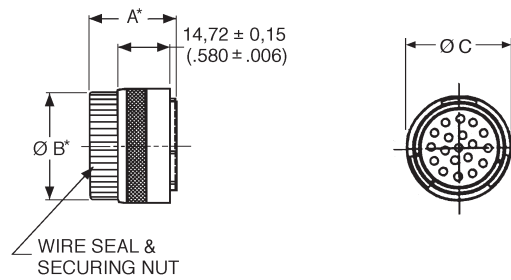


Dimensions shown in mm (inch)  
Specifications and dimensions subject to change

www.ittcannon.com

# Cannon Trident Connector System

TNM Circular Connectors



## Reversed Plugs — Socket Contacts

### Reversed Plug

#### Part Numbers — with wire seal

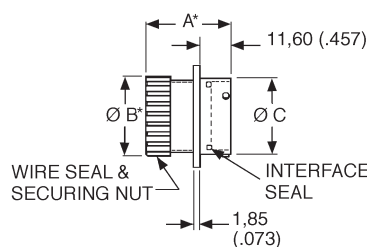
Number of Contacts	Shell Size	Part Number	Nomenclature	A	ØB	ØC
4	10	192993-0051	TNM 6S 1000-04 S1L	34,20 (1.346)	17,50 (.689)	21,60 (.850)
8	12	192993-0052	TNM 6S 1200-08 S1L	34,20 (1.346)	20,60 (.811)	24,80 (.976)
3-4	14	192993-0696	TNM 6S 1403-04 S1L	34,20 (1.346)	24,30 (.957)	28,00 (1.102)
12	14	192993-0053	TNM 6S 1400-12 S1L	34,20 (1.346)	24,30 (.957)	28,00 (1.102)
19	16	192993-0054	TNM 6S 1600-19 S1L	34,20 (1.346)	27,00 (1.063)	31,20 (1.229)

#### Part Numbers — without wire seal and securing nut<sup>©</sup>

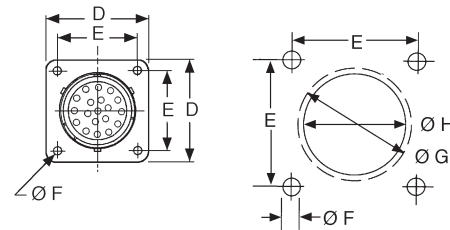
Number of Contacts	Shell Size	Part Number	Nomenclature	A*	ØB*	ØC
4	10	192993-0041	TNM 6U 1000-04 S1L	29,80 (1.173)	13,80 (.543)	21,60 (.850)
8	12	192993-0042	TNM 6U 1200-08 S1L	29,80 (1.173)	16,90 (.665)	24,80 (.976)
12	14	192993-0043	TNM 6U 1400-12 S1L	29,80 (1.173)	20,10 (.791)	28,00 (1.102)
19	16	192993-0044	TNM 6U 1600-19 S1L	29,80 (1.173)	23,30 (.917)	31,20 (1.229)

\* Dimensions A and B apply to connectors without wire seals and securing nuts.

© Can be sealed to IP67 with a sealed endbell, see page 42.



### Panel Cutout



ØH = Flange in Front of Panel  
ØG = Flange at Rear of Panel

## Reversed Receptacles— Pin Contacts

### Reversed Receptacle

#### Part Numbers — with wire seal

No. of Contacts	Shell Size	Part Number	Nomenclature	A	ØB	ØC	D	E	ØF	ØG	ØH
4	10	192993-0071	TNM 0S 1000-04 P1L	43,00 (1.693)	17,50 (.689)	14,92 (.563)	23,79 (.937)	18,26 (.719)	3,20 (.126)	17,30 (.681)	15,10 (.594)
8	12	192993-0072	TNM 0S 1200-08 P1L	43,00 (1.693)	20,60 (.811)	18,98 (.747)	26,15 (1.030)	20,62 (.812)	3,20 (.126)	21,80 (.858)	18,20 (.717)
7	14	192993-0697	TNM 0S 1403-04 P1L	43,00 (1.693)	24,30 (.957)	22,16 (.872)	28,54 (1.124)	22,80 (.898)	3,50 (.138)	25,00 (.984)	21,40 (.843)
12	14	192993-0073	TNM 0S 1400-12 P1L	43,00 (1.693)	24,30 (.957)	22,16 (.872)	28,54 (1.124)	22,80 (.898)	3,50 (.138)	25,00 (.984)	21,40 (.843)
19	16	192993-0074	TNM 0S 1600-19 P1L	43,00 (1.693)	27,00 (1.063)	25,33 (.997)	30,89 (1.216)	24,61 (.969)	3,50 (.138)	28,10 (1.106)	24,60 (.969)

#### Part Numbers — without wire seal and securing nut<sup>©</sup>

No. of Contacts	Shell Size	Part Number	Nomenclature	A*	ØB*	ØC	D	E	ØF	ØG	ØH
4	10	192993-0061	TNM 0U 1000-04 P1L	38,60 (1.520)	14,30 (.563)	14,92 (.563)	23,79 (.937)	18,26 (.719)	3,20 (.126)	17,30 (.681)	15,10 (.594)
8	12	192993-0062	TNM 0U 1200-08 P1L	38,60 (1.520)	17,40 (.685)	18,98 (.747)	26,15 (1.030)	20,62 (.812)	3,20 (.126)	21,80 (.858)	18,20 (.717)
12	14	192993-0063	TNM 0U 1400-12 P1L	38,60 (1.520)	20,60 (.811)	22,16 (.872)	28,54 (1.124)	22,80 (.898)	3,50 (.138)	25,00 (.984)	21,40 (.843)
19	16	192993-0064	TNM 0U 1600-19 P1L	38,60 (1.520)	23,80 (.937)	25,33 (.997)	30,89 (1.216)	24,61 (.969)	3,50 (.138)	28,10 (1.106)	24,60 (.969)

\* Dimensions A and B apply to connectors without wire seals and securing nuts.

© Can be sealed to IP67 with a sealed endbell, see page 42.

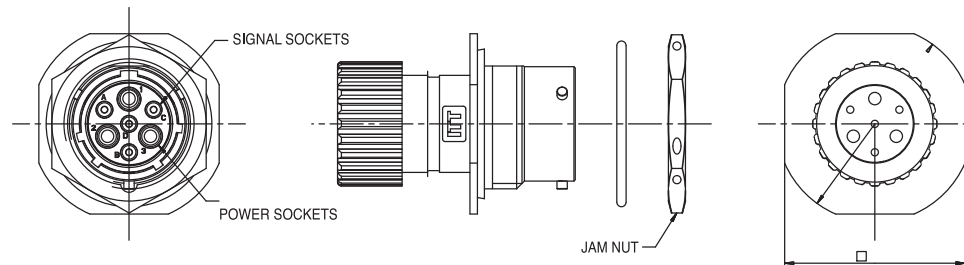
Dimensions shown in mm (inch)

Specifications and dimensions subject to change

www.ittcannon.com



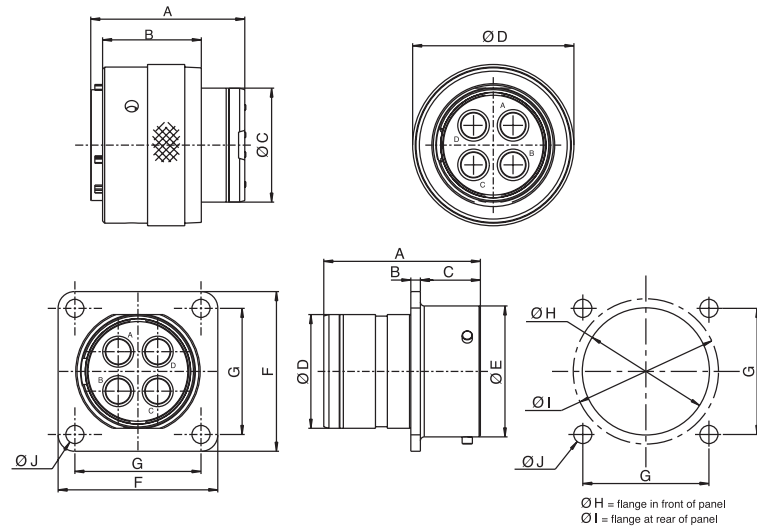
TNM  
Circular



## Jam Nut Receptacles

- Mates with Standard and Reversed Plugs, see pages 40-41

Type	Number of Contacts	Shell Size	Part Number	Nomenclature	A	B	C	ØD	ØE	ØF	ØG
Standard	3-04	14	192993-0700	TNM 75 1403045S1L	50,00 (1.968)	2,80 (.110)	17,60 (.692)	22,20 (.874)	24,30 (.956)	38,09 (1,500)	34,90(1.374)
Reversed	3-04	14	192993-0699	TNM 75 1403045P1L	50,00 (1.968)	2,80 (.110)	17,60 (.692)	22,20 (.874)	24,30 (.956)	38,09 (1,500)	34,90(1.374)



## Four Way Power Connector

This connector was developed for use on servomotors where high currents and high voltages are used

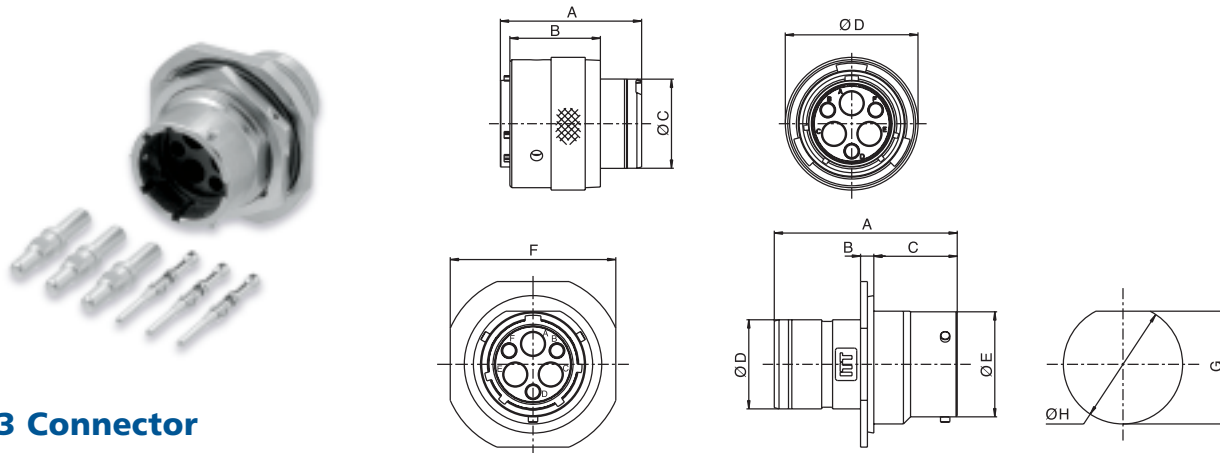
- Uses Cannon D Subminiature power contacts.
- Current rating 40A.
- Voltage rating 40A.
- Earth contact version available.
- Short receptacle to save space.

Type	No. of Contacts	Shell Size	Part Number	Nomenclature	A	B	C	D	E	F	G	H	I	J
Reversed Receptacle	4	16	192993-0106	TNM192993-0106	30.3	1.85	11.6	23.7	25.33	30.9	24.4	24.6	28.1	3.5
Reversed Plug	4	16	192993-0105	TNM192993-0105	29.8	19.1	23.2	31.2						



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

www.ittcannon.com



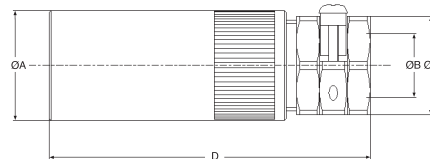
## 3-3 Connector

Designed for use as an antenna connector, this design incorporates D Subminiature power contacts and standard Trident signal contacts.

- Can terminate wire sizes up to 8 AWG (10mm<sup>2</sup>)
- Large cables with outside diameters up to 16,00 (.630) diameter can be accommodated.

For more information, please contact your local Cannon sales office.

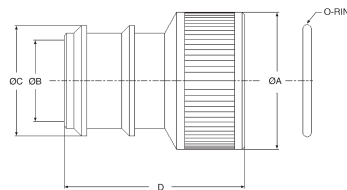
Type	Number of Contacts	Shell Size	Part Number	A	B	C	D	E	F	G	H
Standard Receptacle Pin	3-03	14	192993-2013	38.6	2.8	17.6	18.8	22.16	34.9	24.2	25.8
Standard Plug Socket	3-03	14	192993-0261	29.8	19.1	18.85	28				



## Shielded Endbell for Larger Cable Sizes

- Metal body with plastic cable clamp.
- For assembly instructions, see page 61.
- For use with jacketed cables.

Shell Size	Part Number	Nomenclature	Cable Accommodation		ØAmax.	ØB min.	ØB max.	ØC	ØD max.
			Outer Sheath Diameter						
			Minimum	Maximum					
10	192993-0091	TNA 10CC-SE01L	5,00 (.196)	10,00 (.393)	18,10 (.712)	5,00 (.196)	10,00 (.393)	19,00 (.748)	70,00 (2.755)
12	192993-0092	TNA 12CC-SE01L	6,00 (.236)	12,00 (.472)	21,20 (.834)	6,00 (.236)	12,00 (.472)	21,00 (.826)	72,00 (2.834)
14	192993-0093	TNA 14CC-SE01L	7,00 (.275)	14,00 (.551)	24,20 (.952)	7,00 (.275)	14,00 (.551)	23,00 (.905)	78,00 (3.070)
16	192993-0094	TNA 16CC-SE01L	8,00 (.314)	16,00 (.692)	27,60 (1.086)	8,00 (.314)	16,00 (.629)	25,00 (.984)	82,50 (3.248)



## Heat Shrink Adapter for use with TNM Circular Connectors

Shell Size	Part Number	Nomenclature	Ø Amax.	ØB min.	ØC	ØDmax
10	192993-0631	TNA 10HSAD 00L	18,10 (.712)	10,20 (.401)	16,00 (.629)	35,50 (1.397)
12	192993-0632	TNA 12HSAD 00L	21,20 (.834)	12,20 (.480)	18,00 (.708)	36,00 (1.417)
14	192993-0633	TNA 12HSAD 00L	24,20 (.952)	14,20 (5.59)	20,00 (.787)	36,00 (1.417)
16	192993-0634	TNA 16HSAD 00L	27,60 (1.086)	16,30 (.641)	22,00 (.866)	36,50 (1.437)

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

www.ittcannon.com







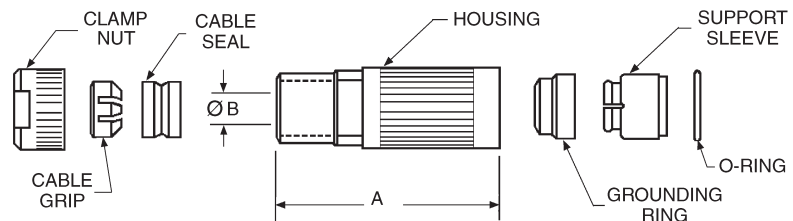
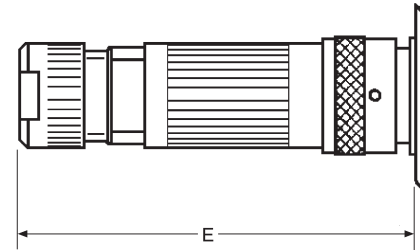
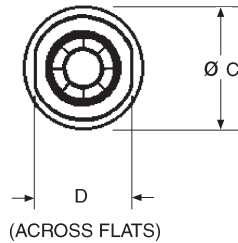
## Universal Shielded Endbell\*

In order to meet EMC requirements it will be necessary to fit a shielded endbell to the TNM connectors. The TNM Shielded Endbell provides sealing to the connector shell, a cable braid grip and sealing to the outer sheath of the cable. Sealing rating is IP67.

Shielded endbells are used with unsealed plugs and receptacles.

## Materials and Finishes

Description	Material/Finish
Housing	Aluminum/Nickel
Grounding Ring	Aluminum/Nickel
Clamp Nut	Aluminum/Nickel
Cable Grip	Nylon, UL 94V-0
Support Sleeve	Nylon, UL 94V-0
O-Ring	Rubber
Cable Seal	Rubber



For assembly instruction, see page 58.

### Dimensions

Shell Size	Part Number	Nomenclature	A	ØB	ØC	D	E max.	
							Standard Format	Reversed Format
10	192993-0081	TNA 10 CCSE00L	56,60 (2.228)	8,00 (.315)	17,90 (.705)	13,00 (.512)	88,50 (3.484)	80,00 (3.150)
12	192993-0082	TNA 12 CCSE00L	56,70 (2.320)	10,00 (.394)	21,00 (.827)	16,00 (.630)	88,50 (3.484)	80,00 (3.150)
14	192993-0083	TNA 14 CCSE00L	57,00 (2.441)	11,30 (.449)	24,00 (.945)	19,00 (.748)	88,50 (3.484)	80,00 (3.150)
16	192993-0084	TNA 16 CCSE00L	57,40 (2.260)	13,60 (.535)	27,40 (1.079)	22,00 (.886)	88,50 (3.484)	80,00 (3.150)

\*Patent Pending

## Cables

The TNM Shielded Endbell covers a wide range of multicore cable used in industrial applications. The following table indicates the sizes that can be accommodated provided the outside sheath diameter is within the accommodation range shown.

For detail of contacts, see page 47.

Shielded cable to Endbell Assembly Instructions are supplied with the Endbell piece parts kit.

Endbell Shell Size	Number of Contacts	Cable Accommodation Outer Sheath Size	
		Minimum	Maximum
10	4	4,40 (.173)	7,30 (.287)
12	8	6,40 (.252)	9,50 (.374)
14	12	6,90 (.272)	10,20 (.402)
16	19	7,90 (.311)	12,60 (.496)



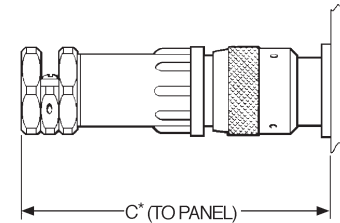
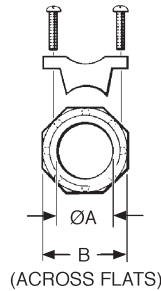
Dimensions shown in mm (inch)  
Specifications and dimensions subject to change

www.ittcannon.com



## Sealed Cable Clamps for use with TNM Circular Connectors

- For use with jacketed cables.
- Provides strain relief and wire protection.
- Provides sealing to IP67.
- For assembly instructions, see page 59.

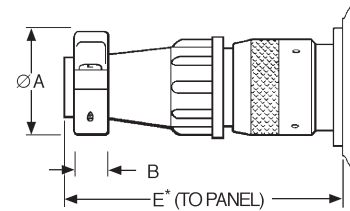
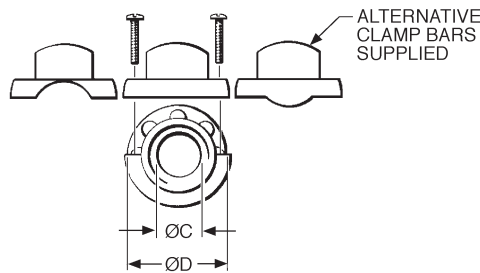


\* For disassembly, add 9,000 (.0354) for shell sizes 10-16.

### Dimensions

Shell Size	Part Number	Nomenclature	ØA max.	B	C max.	
					Standard Format	Reversed Format
10	192900-0636	TNA 10 CCHC00L	11,10 (.437)	8,70 (.740)	89,00 (3.504)	80,70 (3.177)
12	192900-0637	TNA 12 CCHC00L	13,60 (.535)	20,80 (.818)	92,00 (3.622)	83,70 (3.295)
14	192900-0496	TNA 14 CCHC00L	14,60 (.574)	22,80 (.897)	99,00 (3.898)	90,70 (3.571)
16	192900-0497	TNA 16 CCHC00L	16,60 (.653)	24,70 (.972)	103,00 (4.055)	94,70 (3.728)

\* Assumes a uniformly cylindrical cable. Variations in the diameter could effect sealing.



\* For disassembly, add 9,000 (.0354) for shell sizes 10-16.

## Unsealed Cable Clamps for use with TNM Circular Connectors

- Provides strain relief and wire protection.
- For use with discrete wires or jacketed cables.
- For assembly instructions, see page 59.

### Dimensions

Shell Size	Part Number	Nomenclature	ØA max.	B	ØC max.	ØD	E max.	
							Standard Format	Reversed Format
10	192900-0639	TNA 10 CCSR00L	21,50 (.846)	6,40 (.251)	8,70 (.342)	21,00 (.826)	74,50 (2.933)	66,20 (2.606)
12	192900-0640	TNA 12 CCSR00L	24,90 (.980)	6,40 (.251)	12,80 (.503)	24,00 (.944)	74,50 (2.933)	66,20 (2.606)
14	192900-0286	TNA 14 CCSR00L	27,00 (1.063)	6,40 (.251)	13,80 (.543)	27,00 (1.063)	80,50 (3.169)	71,80 (2.826)
16	192900-0343	TNA 16 CCSR00L	30,10 (1.185)	6,40 (.251)	17,00 (.669)	30,20 (1.189)	80,50 (3.169)	71,80 (2.826)

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

www.ittcannon.com

