

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

For more information: www.ittcannon.com/cat006

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

| | |
|---------------------------------|--|
| Temperature Range | -55°C to 105°C (-67°F to 221°F) |
| Operating Voltage | 250 V ac |
| Test Voltage | 2000 V ac rms |
| Insulation Resistance | 5000 MΩ min. at 500 V dc |
| Current Rating (Single Contact) | 13 A or 6 A signal contacts (crimp), 30 A power contacts |
| Sealing (Sealed Version) | 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 38-39 for part numbers and additional information.



Universal Endbell

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

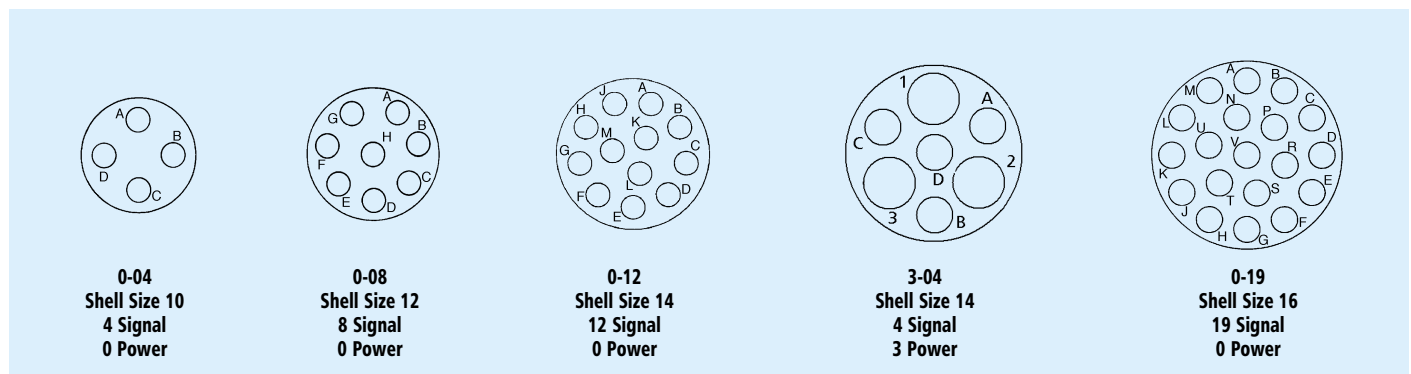
- 360° shielding.
- Sealed to IP67.
- Provides strain relief.
- Easy to assemble.
- See page 42 for part numbers and additional information.



TNM
Circular

Contact Cavity Arrangements

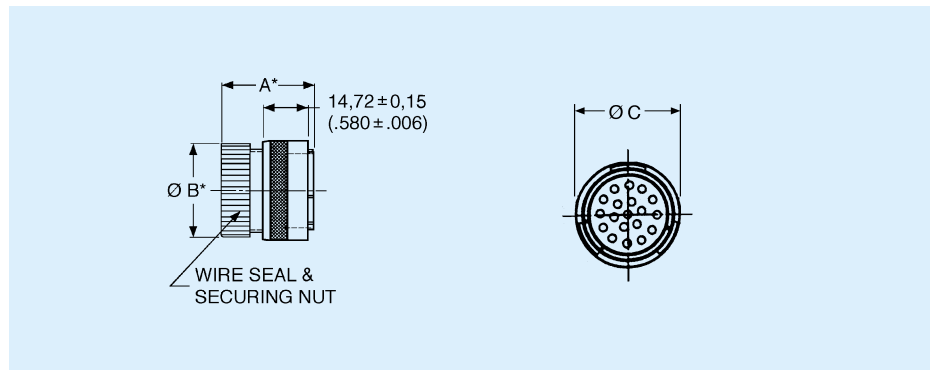
Mating Face View



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

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 ♦

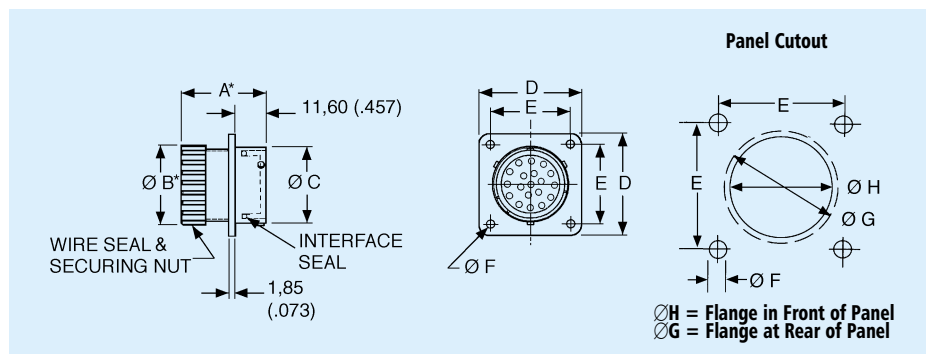
| Number of Contacts | Shell Size | Part Number | Nomenclature | A* | ØB* | ØC |
|--------------------|------------|-------------|--------------------|---------------|--------------|---------------|
| 4 | 10 | 192993-0001 | TNM 6U 1000-04 P1L | 38,10 (1.500) | 13,80 (.543) | 21,60 (.850) |
| 8 | 12 | 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.

Standard Receptacles—Socket Contacts

Standard Receptacle



Part Numbers — with wire seal

| Number of Contacts | Shell Size | Part Number | Nomenclature | A | ØB | ØC | D | E | ØF | ØG | ØH |
|--------------------|------------|-------------|--------------------|---------------|---------------|--------------|---------------|--------------|-------------|---------------|--------------|
| 4 | 10 | 192993-0031 | TNM 0S 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 0S 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 0S 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 0S 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 0S 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 ♦

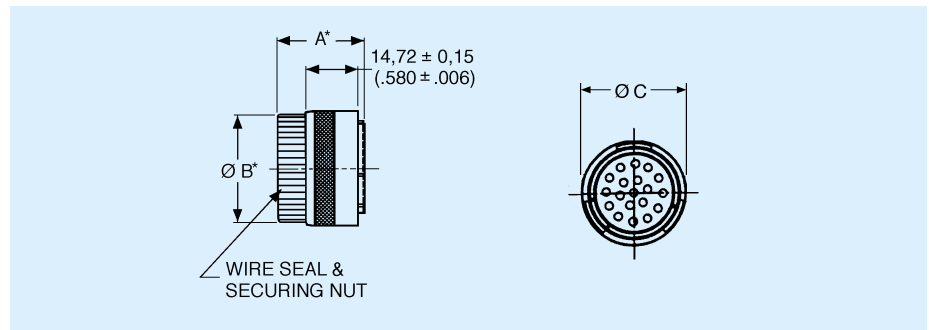
| Number of Contacts | Shell Size | Part Number | Nomenclature | A* | ØB* | ØC | D | E | ØF | ØG | ØH |
|--------------------|------------|-------------|--------------------|---------------|--------------|--------------|---------------|--------------|-------------|---------------|--------------|
| 4 | 10 | 192993-0021 | TNM 0U 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 0U 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 0U 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 0U 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.

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) |

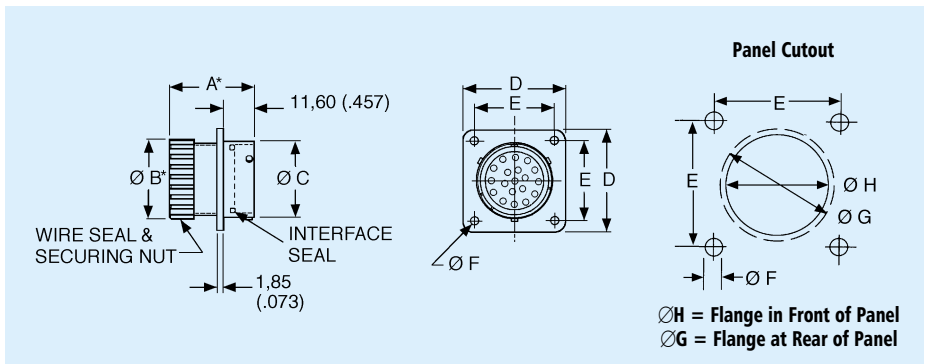
Part Number — without wire seal and securing nut ♦

| 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.

Reversed Receptacles — Pin Contacts

Reversed Receptacle



Part Numbers — with wire seal

| Number 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 140304 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 ♦

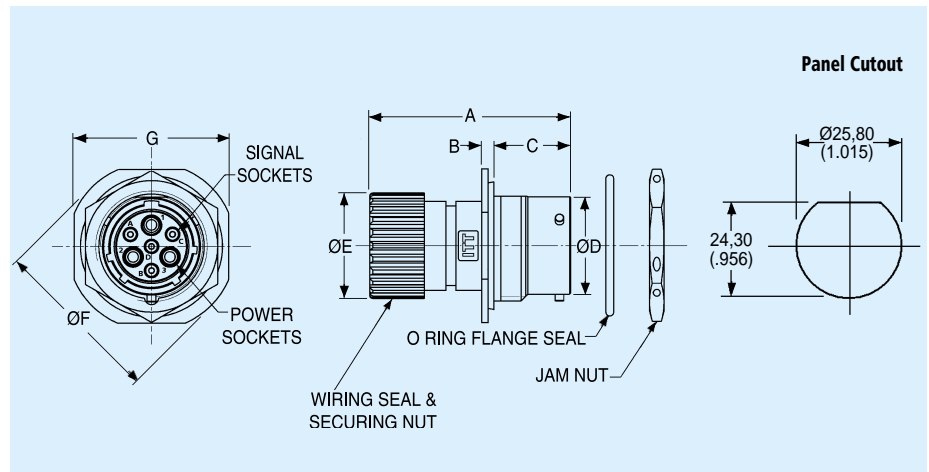
| Number of Contacts | Shell Size | Part Number | Nomenclature | A* | ØB* | ØC | D | E | ØF | ØG | ØH |
|--------------------|------------|-------------|--------------------|---------------|--------------|--------------|---------------|--------------|-------------|---------------|--------------|
| 4 | 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.

Jam Nut Receptacles



- Mates with Standard and Reversed Plugs, see pages 38-39.



| Type | Number of Contacts | Shell Size | Part Number | Nomenclature | A | B | C | ØD | ØE | ØF | G |
|----------|--------------------|------------|-------------|-----------------|---------------|-------------|--------------|--------------|--------------|---------------|---------------|
| Standard | 3-04 | 14 | 192993-0700 | TNM7S 140304S1L | 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 | TNM7S 140304P1L | 50,00 (1.968) | 2,80 (.110) | 17,60 (.692) | 22,20 (.874) | 24,30 (.956) | 38,09 (1.500) | 34,90 (1.374) |

Special Products

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 40 A.
- Voltage rating 700 V.
- Earth contact version available.
- Short receptacle to save space.

Antenna Connector

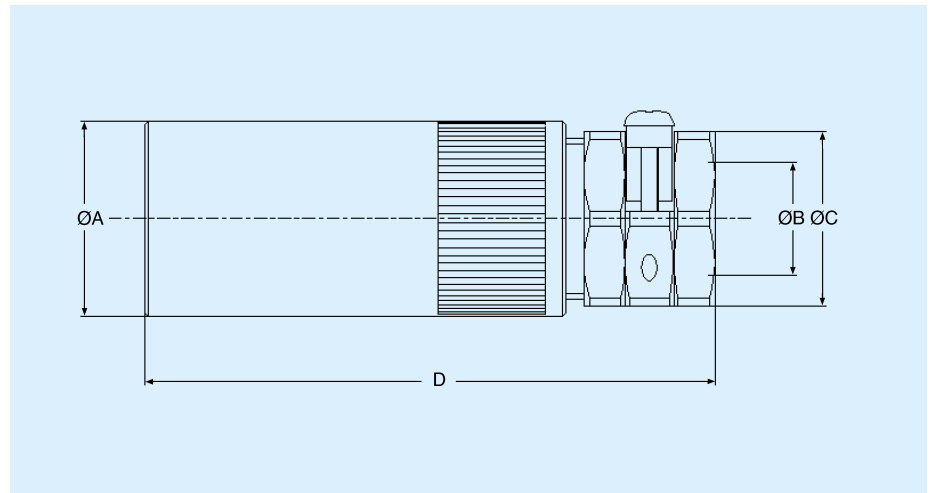


Designed for use as an antenna connector, this design incorporates D Subminiature power contacts and standard Trident signal contacts.

- Can terminate wire sizes up to 8 AWG (10mm²).
- Large cables with outside diameters up to 16,00 (.630) diameter can be accommodated.

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

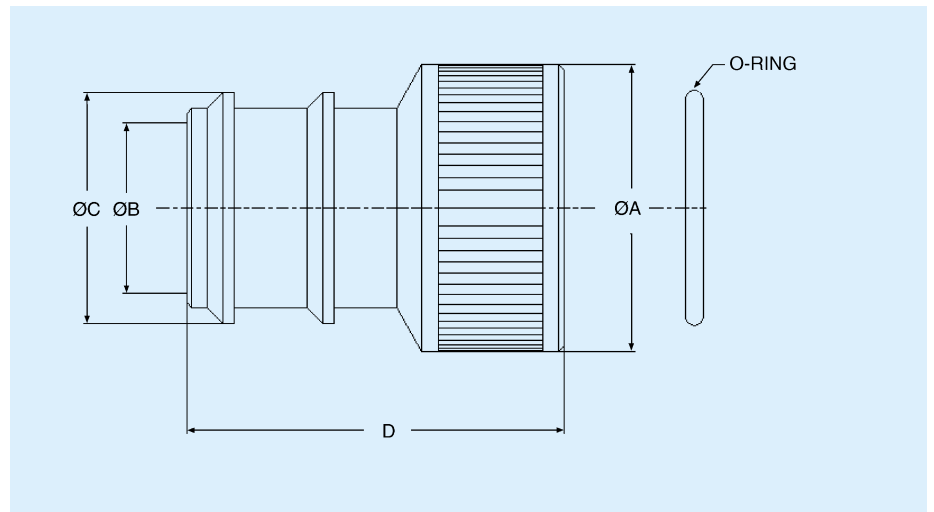
Shielded Endbell for Larger Cable Sizes



- Metal body with plastic cable clamp.
- For use with jacketed cables.
- For assembly instructions, see page 59.

| Shell Size | Part Number | Nomenclature | Cable Accommodation Outer Sheath Diameter | | ØA max. | ØB min. | ØB max. | ØC | D max. |
|------------|-------------|-----------------|---|--------------|---------------|-------------|--------------|--------------|---------------|
| | | | Minimum | Maximum | | | | | |
| 10 | 192993-0091 | TNA 10CC-SE 01L | 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-SE 01L | 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-SE 01L | 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-SE 01L | 8,00 (.314) | 16,00 (.629) | 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 | ØA max. | ØB max. | ØC | D max. |
|------------|-------------|----------------|---------------|--------------|--------------|---------------|
| 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 14HSAD 00L | 24,20 (.952) | 14,20 (.559) | 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) |

TNM
Circular

Universal Shielded Endbell*

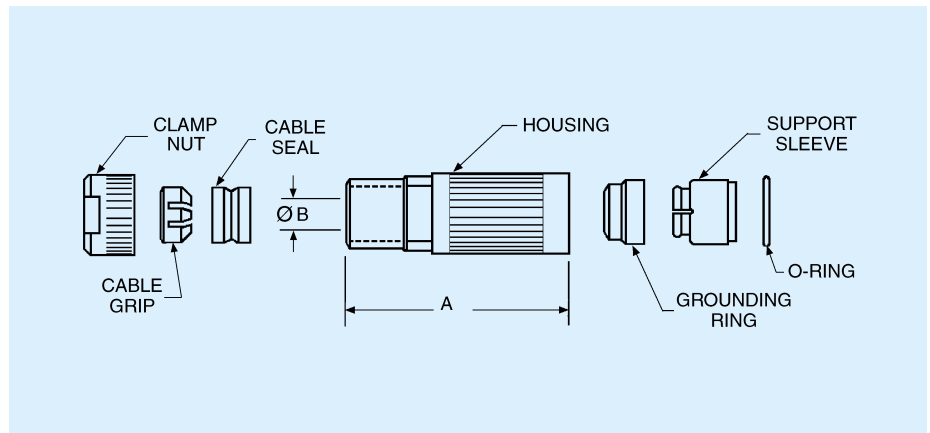
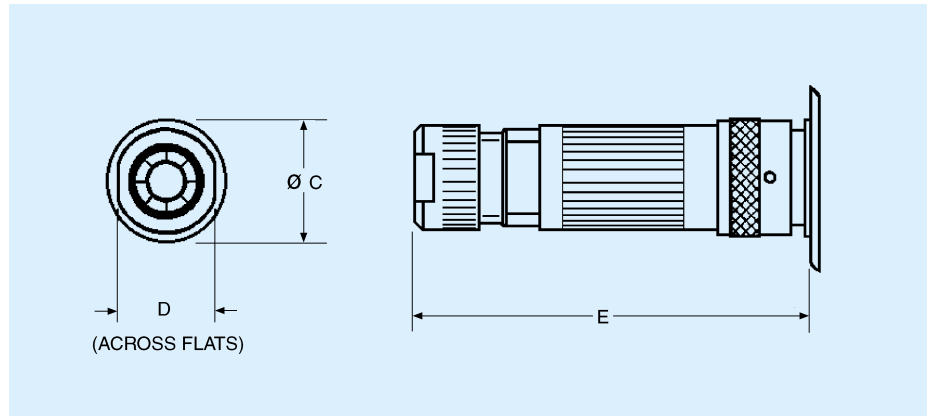


In order to meet EMC requirements it will be necessary to fit a shielded endbell to the TNM connectors. The TNM Shielded Endbell provides sealing to the connector shell, a cable braid grip and sealing to the outer sheath of the cable. Sealing rating is IP67.

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 instructions, see page 58.

Dimensions

| Shell Size | Part Number | Nomenclature | A | ØB | ØC | D | E max. | |
|------------|-------------|-----------------|---------------|--------------|---------------|--------------|-----------------|-----------------|
| | | | | | | | Standard Format | Reversed Format |
| 10 | 192993-0081 | TNA 10 CCSE 00L | 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 CCSE 00L | 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 CCSE 00L | 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 CCSE 00L | 57,40 (2.260) | 13,60 (.535) | 27,40 (1.079) | 22,00 (.866) | 88,50 (3.484) | 80,00 (3.150) |

*Patent pending

Cables

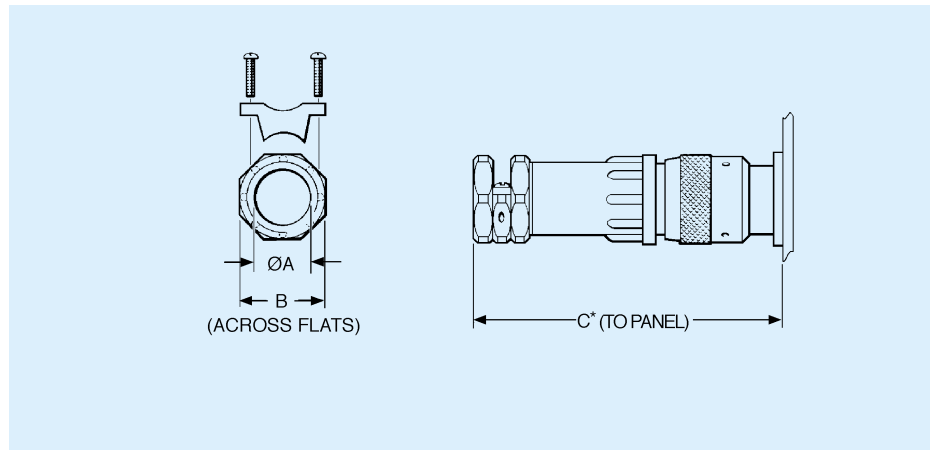
The TNM Shielded Endbell covers a wide range of multicore cable used in industrial applications. The following table indicates the sizes that can be accommodated provided the outside sheath diameter is within the accommodation range shown.

For detail of contacts, see page 45.

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

| Endbell Shell Size | Number of Contacts | Cable Accommodation Outer Sheath Diameter | |
|--------------------|--------------------|---|--------------|
| | | 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) |

Sealed Cable Clamps for use with TNM Circular Connectors



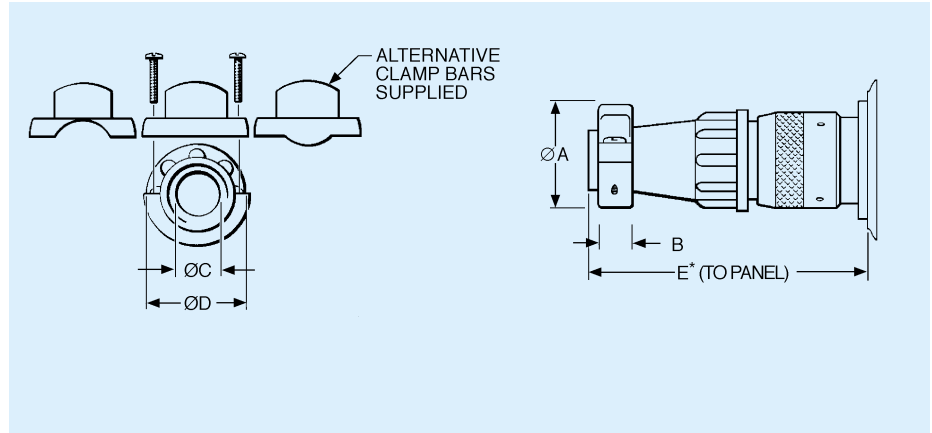
- For use with jacketed cables.
- Provides strain relief and wire protection.
- Provides sealing to IP67.
- For assembly instructions, see page 57.

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

| Shell Size | Part Number | Nomenclature | ØA max. | B | Dimensions | |
|------------|-------------|----------------|--------------|--------------|-----------------|-----------------|
| | | | | | C max. | |
| | | | | | Standard Format | Reversed Format |
| 10 | 192900-0636 | TNA 10 CCHC00L | 11,10 (.437) | 18,80 (.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.

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 57.

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

| Shell Size | Part Number | Nomenclature | ØA max. | B | ØC max. | ØD | Dimensions | |
|------------|-------------|-----------------|---------------|-------------|--------------|---------------|-----------------|-----------------|
| | | | | | | | 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 CCSR-00L | 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 CCSR-00L | 30,10 (1.185) | 6,40 (.251) | 17,00 (.669) | 30,20 (1.189) | 80,50 (3.169) | 71,80 (2.826) |

TNM Circular