The Hi/Mate™ Series are miniature insertable/removeable high voltage contact assemblies for use in MIL-C-38999 Series I, III and IV off-the-shelf connectors having a 12 gauge, rear release, contact retention cavity.

Hi/Mate™ expands the capability of MIL-C-38999 Series I, III and IV connectors, by adapting them to carry 13.5 kVDC from sea level to airborne applications up to 70,000 feet altitude over a temperature range of -55° to 125°C.

Hi/Mate™ contact assemblies are insertable into four standard shell sizes and eight insert arrangements in accordance with MIL-STD-1560. These contact assemblies are, in actuality, independent high voltage connectors, and do not rely upon the dielectric properties of the MIL-C-38999 insert. This fact makes the Hi/Mate™ ideally suited to be combined in inserts with fiber optic, co-axial or low voltage pins. The insert is merely a holder for the Hi/Mate™ contact and Advanced Interface Seal™.

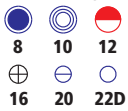
Hi/Mate™
The MIL-C-38999 compatible high voltage interface

The Advanced Interface Seal™ was patented by Teledyne Reynolds and has been highly successful in numerous connectors designed for use in the harshest of environments from sea level to Deep Space.

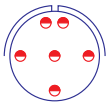
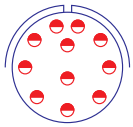
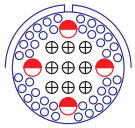
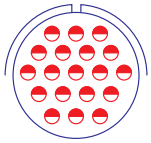
INSERT ARRANGEMENTS

Any 12 gauge cavity in the insert arrangements shown below, can be converted to a 13.5 kVDC high voltage circuit without modification to the insert, by installing a Hi/Mate™ contact assembly in the appropriate pin and socket combination. Insert arrangements are in accordance with MIL-STD-1560. 12 gauge cavities are identified in the Contact Legend.

Contact Legend

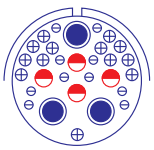
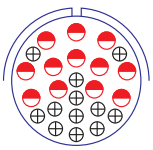
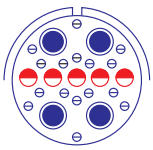


Front face of pin inserts illustrated

Insert Arrangement	17-6	21-11	23-54			25-19
Service Rating	1	1		M		1
Number of Contacts	6	11	40	9	4	19
Contact Size	12	12	22D	16	12	12

Front face of pin inserts illustrated

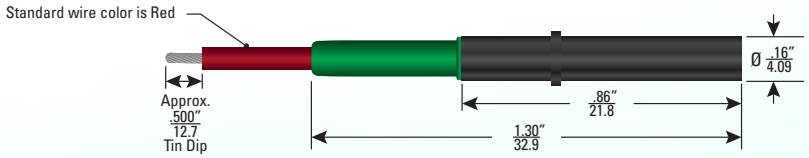




Note:
Custom inserts are available for high voltage, low voltage, fiber optic and coaxial pins, as well as combinations of these pins

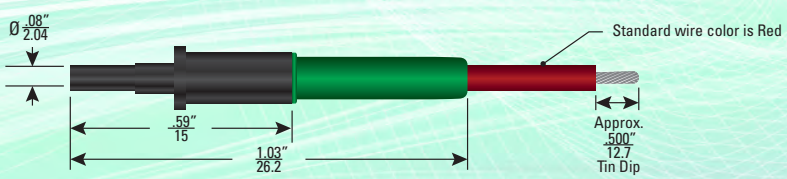
Insert Arrangement	25-20				25-24		25-26		
Service Rating			N			I		I	
Number of Contacts	10	13	3	4	12	12	16	5	4
Contact Size	20	16	8 Twinax	12 Coax	16	12	20	12	8 Coax

PLUG AND RECEPTACLE CONTACT ASSEMBLY DIMENSIONS

Receptacle Contact Assembly



Plug Contact Assembly



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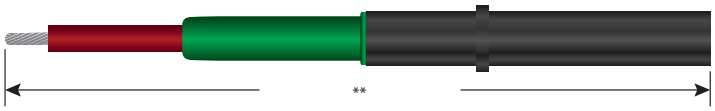
PLUG CONTACT ASSEMBLIES

Single-Ended
178-5237

Double-Ended
178-5240

RECEPTACLE CONTACT ASSEMBLIES

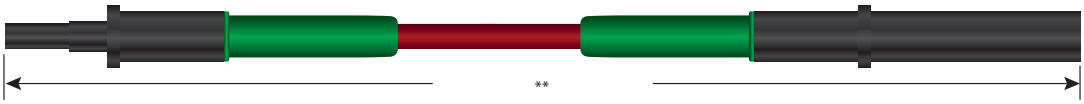
Single-Ended
178-5238



Double-Ended
178-5241

PLUG - RECEPTACLE CONTACT ASSEMBLY

Double-Ended
178-5239



SERIES SPECIFICATIONS

(• = Same value as above)

Series	Voltage Rating (kVDC)	Altitude Rating (ft)	Operating Temp. (°C)	Current Rating (Amp)	Receptacle Insulator Material	Plug Insulator Material	Coupling Style	Coupling Nut Material/ Finish	Plug Contact Material/Finish (Socket)	Recept. Contact Material/Finish (Pin)	Wire Type	Wire Insulation	Braid Termination	Test Voltage @ 70,000 ft (kVDC)	Test Voltage @ Sea Level (kVDC)
Hi/Mate™	13.5	70,000	-55 to 125	4	Plastic	Plastic	MIL-DTL-38999	MIL-DTL-38999	BeCu/Au	Brass/Au	Non-shielded	FEP	N/A	18	NA

WIRE SPECIFICATIONS

Part #	Operating Voltage (kVDC)	Conductor			Insulation		Shielding			Jacket		Impedance Ω	Attenuation dB/100 ft @ 400 MHz	Capacitance pF/ft (Nom.) @ 1 kHz
		AWG	Strands	Plating	Material	ø in./mm	AWG	Plating	ø in./mm	Material	ø in./mm			
178-8410	18	24	19/36	SPC	Silicone Coated FEP	.058 / 1.48	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Cable Assembly Ordering Information: All cable assembly cable lengths are to be specified in inches only. For example, to order part number 178-6027 with a cable length of 10 feet 8 inches the cable assembly part number would be specified as 178-6027-128N.

• **Note:** Product numbers and specs subject to change without notice. • Products listed represent only a small selection of Teledyne Reynolds' products please visit www.teledynereynolds.com for the most up to date product information. • Contact Teledyne Reynolds' Engineering to discuss custom designs. **WARNING: Connectors should NEVER be handled mated or unmated when voltage is applied.**

The Hi/Mate$_D$™ Series of high voltage insertable/removeable contact assemblies are rated at 13.5 kVDC and can be fitted into a Subminiature-D (Sub-D) 8 gauge insert cavity. The assemblies are ideal for airborne applications up to 70,000 feet altitude over a temperature range of -55° to 125°C. Hi/Mate$_D$ is fully compatible with signal lines, co-axial, fiber optic and power contacts in the same Sub-D connector. These contact assemblies are independent high voltage connectors, and do not rely upon the dielectric properties of the Sub-D insert.

Complete cable assemblies with Hi/Mate$_D$™ high voltage contact assemblies installed into Positronic CBD Series Subminiature-D connectors, are available from Teledyne Reynolds as fully tested units.

INSERT ARRANGEMENTS

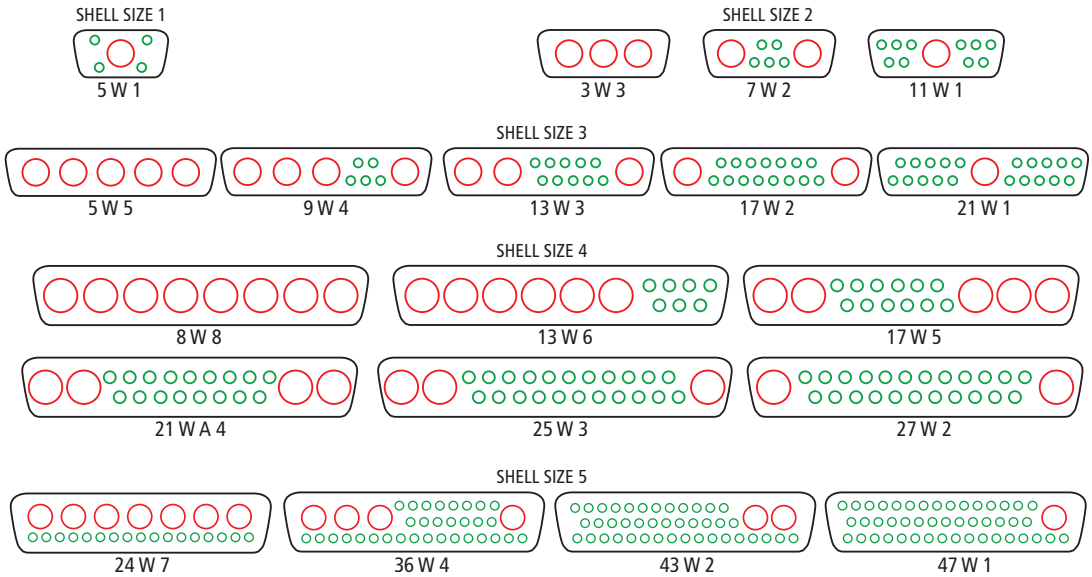
Any 8 gauge cavity in the insert arrangements shown below, can be converted to a 13.5 kVDC high voltage circuit simply by installing a Hi/Mate$_D$™ contact assembly into the appropriate male or female cavity.

Positronic CBD series Subminiature-D Insert Arrangemets

Face view of Male - Rear view of Female

○ 8 Gauge Cavity for Hi/Mate$_D$™ installation

○ Size 20 fixed contacts



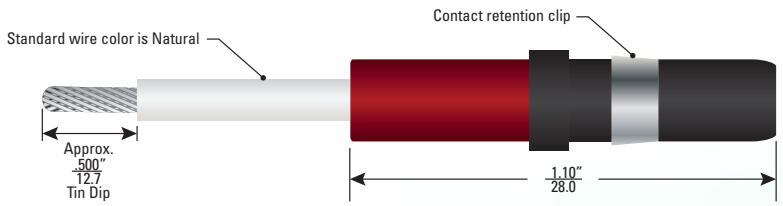
To view shell dimensions courtesy of Positronic Industries please go to: www.connectpositronic.com

Notes: 1. Shell drawings are not to scale.

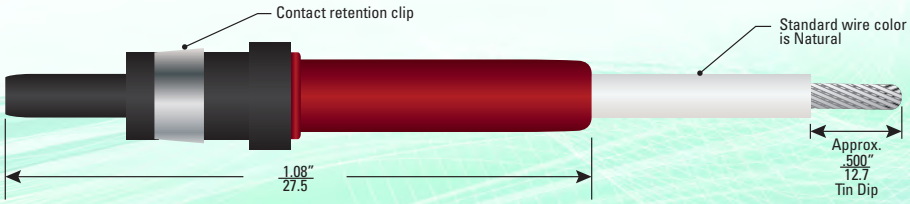
2. Care must be taken to observe Male/Female gender of both the Hi/Mate$_D$™ contact assembly and the Sub-D Shell/Insert arrangement.

PLUG AND RECEPTACLE CONTACT ASSEMBLY DIMENSIONS

Receptacle Contact Assembly



Plug Contact Assembly



Note: Receptacle assembly can only be installed into a Sub-D female insert. Plugs can only be installed into a male insert.

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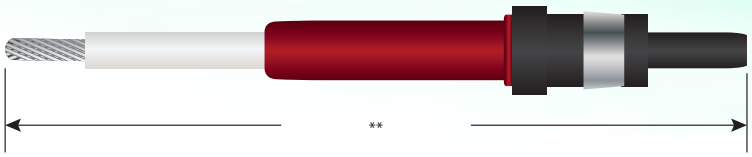
PLUG CONTACT ASSEMBLIES

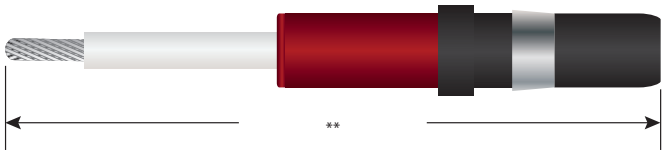
Single-Ended
178-5727



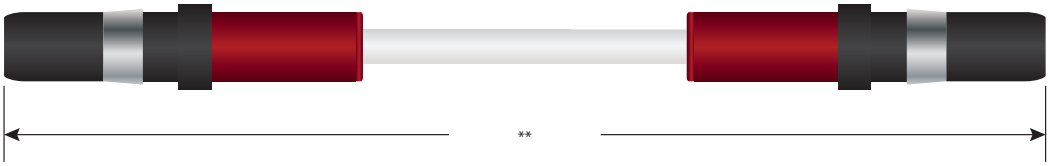
Double-Ended
178-5729

RECEPTACLE CONTACT ASSEMBLIES

Single-Ended
178-5728



Double-Ended
178-5741



PLUG-RECEPTACLE CONTACT ASSEMBLY

Double-Ended
178-5729

SERIES SPECIFICATIONS

(• = Same value as above)

Series	Voltage Rating (kVDC)	Altitude Rating (ft)	Operating Temp. (°C)	Current Rating (Amp)	Receptacle Insulator Material	Plug Insulator Material	Coupling Style	Coupling Nut Material/ Finish	Plug Contact Material/Finish (Socket)	Recept. Contact Material/Finish (Pin)	Wire Type	Wire Insulation	Braid Termination	Test Voltage @ 70,000 ft (kVDC)	Test Voltage @ Sea Level (kVDC)
Hi/Mate™	13.5	70,000	-55 to 125	4	Plastic	Plastic	D-Sub	D-Sub	BeCu/Au	Brass/Au	Non-shielded	FEP	N/A	18	NA

WIRE SPECIFICATIONS

Part #	Operating Voltage (kVDC)	Conductor			Insulation		Shielding			Jacket		Impedance Ω	Attenuation dB/100 ft @ 400 MHz	Capacitance pF/ft (Nom.) @ 1 kHz
		AWG	Strands	Plating	Material	ø in./mm	AWG	Plating	ø in./mm	Material	ø in./mm			
178-8066	18	24	19/32	SPC	FEP	.06 / 1.53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Cable Assembly Ordering Information: All cable assembly cable lengths are to be specified in inches only. For example, to order part number 178-6027 with a cable length of 10 feet 8 inches the cable assembly part number would be specified as 178-6027-128N.

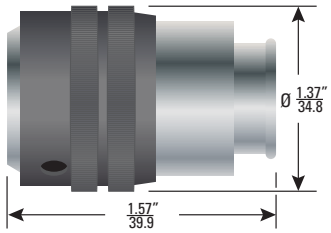
• **Note:** Product numbers and specs subject to change without notice. • Products listed represent only a small selection of Teledyne Reynolds' products please visit www.teledynereynolds.com for the most up to date product information. • Contact Teledyne Reynolds' Engineering to discuss custom designs. **WARNING: Connectors should NEVER be handled mated or unmated when voltage is applied.**

The 1804 and 1807 Series of ruggedized 4 and 7-pin, connectors have been used in applications ranging from military vehicle electric reactive armor to airborne Synthetic Aperture Radar. The 1807 has even been used on the Ion Propulsion systems that have propelled some of NASA's most successful spacecraft into Deep Space.

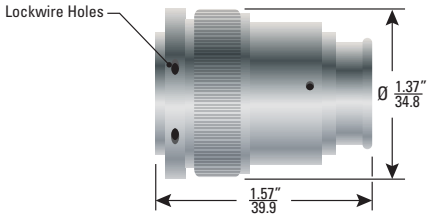
Both the 1804 and 1807 use the same connector housings which come in, shielded and non-shielded configurations with either threaded or bayonet coupling nuts. Plug kits are available for customer-fabricated cable assemblies using Teledyne Reynolds' specified wire.

PLUG KITS

Bayonet, Shielded (shown)



Threaded, Shielded (shown)



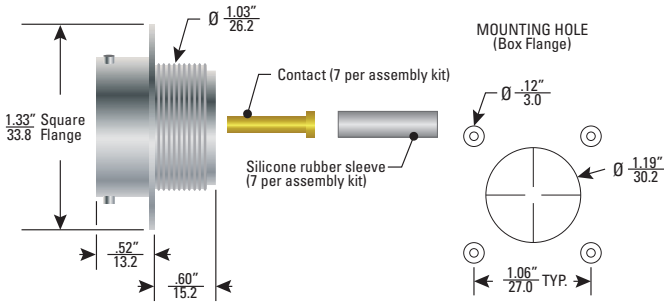
SERIES	BAYONET, SHIELDED	BAYONET, NON-SHIELDED	THREADED, SHIELDED	THREADED, NON-SHIELDED
1804	167-9704	167-9601	167-9702	167-9703
1807	167-9708	167-9709	167-9691	167-9693

- Shielded Plug Kits use wire 167-9346
- Non-shielded Plug Kits use wire 167-9543
- While plugs kits are available for customer-fabricated cable assemblies, Teledyne Reynolds highly recommends purchasing cable assemblies because of difficulties customers may experience in assembly and testing.
- Assembly instructions can be found at www.teledynereynolds.com or by contacting Teledyne Reynolds' Engineering.

RECEPTACLE

Bayonet, Front, Box Flange Mount with Contact Kit

1807: 178-8741

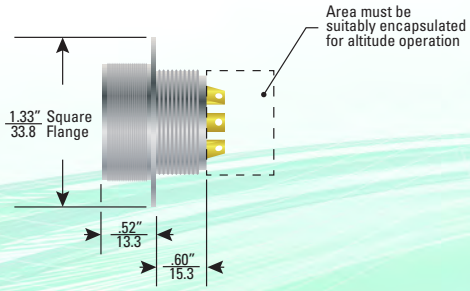


- **Mounting:** See optional Box Flange mounting hole
- Note: Contacts to be soldered to cable, inserted & bonded into insulator. Assembly instructions can be found at www.teledynereynolds.com or by contacting Teledyne Reynolds' Engineering.

Bayonet, Front, Box Flange Mount with Molded-in Contacts

1804: 167-9707
1807: 167-9712

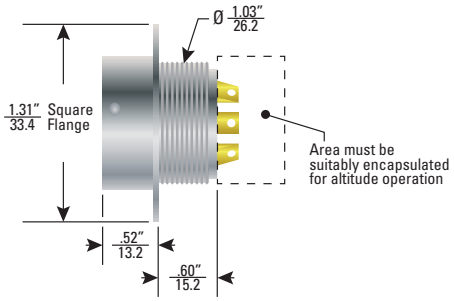
- **Mounting:** See optional Box Flange mounting hole



Threaded, Front, Box Flange Mount

1804: 167-9706
1807: 167-9711

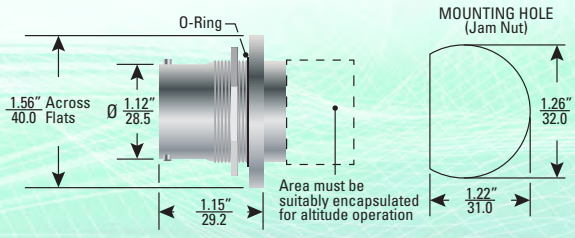
- **Mounting:** See optional Box Flange mounting hole



Sealed, Bayonet, Rear, Jam Nut Mount

1804: 167-8819
1807: 167-8666

- **Panel Mounting Torque:** 84 ± 2 in-lbs
- **Mounting:** See optional Jam Nut mounting hole
- **Pressure:** Sealed for 1 ATM differential pressure
- **Max. Leak Rate:** $1x10^{-6}$ cc/s He @1 ATM differential pressure



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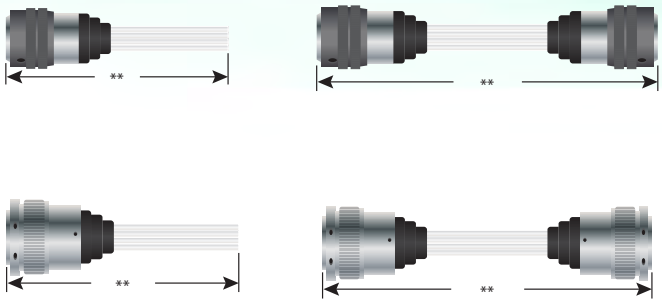
Rev. 100913

PLUG CABLE ASSEMBLIES

1804	SINGLE-ENDED	DOUBLE-ENDED	WIRE
BAYONET, SHIELDED	167-9717	167-9713	167-9346
BAYONET, NON-SHIELDED	167-9658	167-9714	167-9543
THREADED, SHIELDED	167-9724	167-9720	167-9346
THREADED, NON-SHIELDED	167-9725	167-9721	167-9543

1807	SINGLE-ENDED	DOUBLE-ENDED	WIRE
BAYONET, SHIELDED	167-9718	167-9715	167-9346
BAYONET, NON-SHIELDED	167-9719	167-9716	167-9543
THREADED, SHIELDED	167-9726	167-9722	167-9346
THREADED, NON-SHIELDED	167-9727	167-9723	167-9543



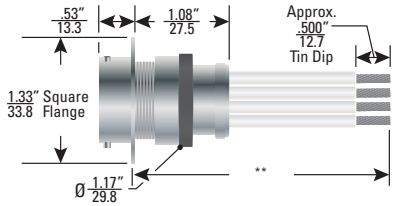
RECEPTACLE CABLE ASSEMBLIES

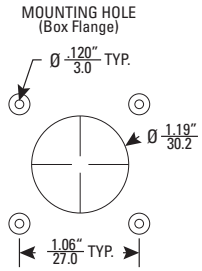
Non-sealed, Bayonet, Front, Box Flange Mount

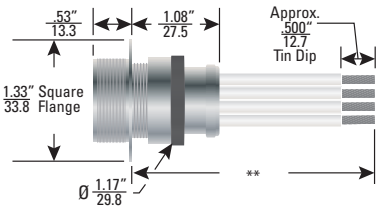
1804: 167-9661 Uses wire 167-9543
1807: 167-8730 Uses wire 167-9543
- Plastic Insulator
- **Mounting:** See optional Box Flange mounting hole

Non-sealed, Threaded, Front, Box Flange Mount

1804: 167-8732 Uses wire 167-9453
1807: 167-9730 Uses wire 167-9453
- Plastic Insulator
- **Mounting:** See optional Box Flange mounting hole

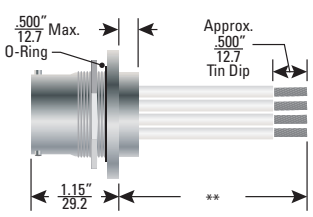


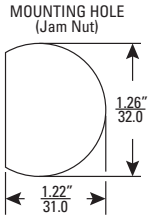




Sealed, Rear, Jam Nut Mount

1804: 167-8731 Uses wire 167-9453
1807: 178-7006 Uses wire 167-9453
- Plastic Insulator
- **Panel Mounting Torque:** 84 ± 2 in-lbs
- **Mounting:** See optional Jam Nut mounting hole
- **Pressure:** Sealed for 1 ATM differential pressure
- **Max. Leak Rate:** 1x10^{-6} cc/s He @1 ATM differential pressure





SERIES SPECIFICATIONS

(• = Same value as above)

Series	Voltage Rating (kVDC)	Altitude Rating (ft)	Operating Temp. (°C)	Current Rating (Amp)	Receptacle Insulator Material	Plug Insulator Material	Coupling Style	Coupling Nut Material/ Finish	Plug Contact Material/Finish (Pin)	Recept. Contact Material/Finish (Socket)	Wire Type	Wire Insulation	Braid Termination	Test Voltage @ 70,000 ft (kVDC)	Test Voltage @ Sea Level (kVDC)
1804	15	70,000	-55 to 125	7.5	Plastic	Silicone	Bayonet or Threaded	Al/Ni	Brass/Au	BeCu/Au with CRES hood	Shielded or Non-shielded	FEP	Clamp	22	N /A
1807	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

WIRE SPECIFICATIONS

Part #	Operating Voltage (kVDC)	Conductor			Insulation		Shielding			Jacket		Impedance Ω	Attenuation dB/100 ft @ 400 MHz	Capacitance pF/ft (Nom.) @ 1 kHz
		AWG	Strands	Plating	Material	ø in./mm	AWG	Plating	ø in./mm	Material	ø in./mm			
167-9543	21	20	19/32	TPC	FEP	0.080 / 2.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
167-9346	22	22	19/34	SPC	•	•	36	SPC	0.100 / 2.54	FEP	0.125 / 3.18	43	10.6	31

**Cable Assembly Ordering Information: All cable assembly cable lengths are to be specified in inches only. For example, to order part number 178-6027 with a cable length of 10 feet 8 inches the cable assembly part number would be specified as 178-6027-128N.

• **Note:** Product numbers and specs subject to change without notice. • Products listed represent only a small selection of Teledyne Reynolds' products please visit www.teledynereynolds.com for the most up to date product information. • Contact Teledyne Reynolds' Engineering to discuss custom designs. **WARNING: Connectors should NEVER be handled mated or unmated when voltage is applied.**

155 SERIES | 20 kVDC | 70,000 FT | -55° TO 105°C | 5-Pin

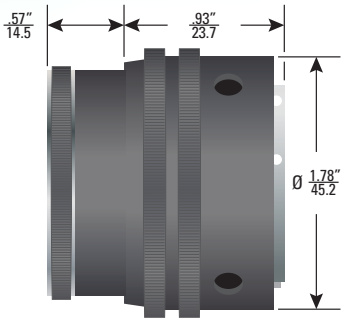
The 155 Series is a 5-pin, bayonet coupled connector. At 20 kVDC between pins and shell, the 155 is one of Teledyne Reynolds' highest rated multi-pin connectors.

The 155 is a non-shielded connector. Plug kits are available for customer-fabricated cable assemblies using Teledyne Reynolds' wire.

PLUG KIT

(Dimensions shown as in/mm)

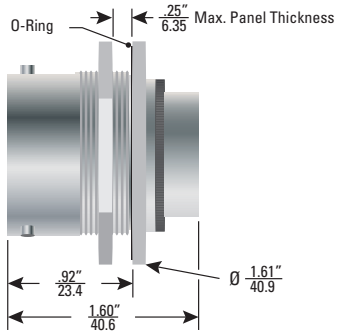
167-9032
167-9032-1 Includes Strain Relief Adapter
- Uses wire 167-4872
- While plug kits are available for customer-fabricated cable assemblies, Teledyne Reynolds highly recommends purchasing cable assemblies because of difficulties customers may experience in assembly and testing.
- Assembly instructions can be found at www.teledynereynolds.com or by contacting Teledyne Reynolds' Engineering.

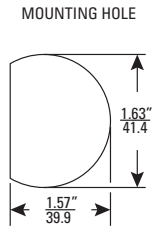


RECEPTACLE

Sealed, Rear, Jam Nut Mount

167-9013
- **Mounting:** See optional mounting hole
- **Panel Mounting Torque:** 96 ± 6 in-lbs
- **Pressure:** Sealed for 1 ATM differential pressure
- **Max. Leak Rate:** $1x10^{-6}$ cc/s He @1 ATM differential pressure

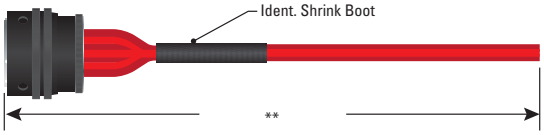




PLUG CABLE ASSEMBLIES

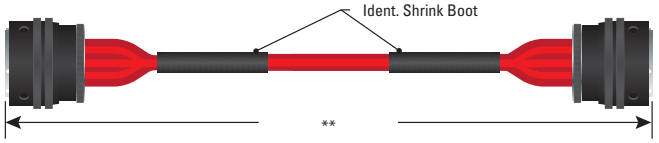
Single-Ended

167-9012 Uses wire 167-4874



Double-Ended

167-9128 Uses wire 167-4874



SERIES SPECIFICATIONS

(• = Same value as above)

Series	Voltage Rating (kVDC)	Altitude Rating (ft)	Operating Temp. (°C)	Current Rating (Amp)	Receptacle Insulator Material	Plug Insulator Material	Coupling Style	Coupling Nut Material/ Finish	Plug Contact Material/Finish (Socket)	Recept. Contact Material/Finish (Pin)	Wire Type	Wire Insulation	Braid Termination	Test Voltage @ 70,000 ft (kVDC)	Test Voltage @ Sea Level (kVDC)
155	20	70,000	-55 to 95	7.5	Plastic	Plastic	Bayonet	Al/Ni	BeCu/Au	Brass/Au	Non-shielded	PE	N/A	25	25

WIRE SPECIFICATIONS

Part #	Operating Voltage (kVDC)	Conductor			Insulation		Shielding			Jacket		Impedance Ω	Attenuation dB/100 ft @ 400 MHz	Capacitance pF/ft (Nom.) @ 1 kHz
		AWG	Strands	Plating	Material	ø in./mm	AWG	Plating	ø in./mm	Material	ø in./mm			
167-4874	25	22	7/30	TPC	PE	.12 / 3.05	N/A	N/A	N/A	Vinyl	.15 / 3.81	N/A	N/A	N/A

**Cable Assembly Ordering Information: All cable assembly cable lengths are to be specified in inches only. For example, to order part number 178-6027 with a cable length of 10 feet 8 inches the cable assembly part number would be specified as 178-6027-128N.

• **Note:** Product numbers and specs subject to change without notice. • Products listed represent only a small selection of Teledyne Reynolds' products please visit www.teledynereynolds.com for the most up to date product information. • Contact Teledyne Reynolds' Engineering to discuss custom designs. **WARNING: Connectors should NEVER be handled mated or unmated when voltage is applied.**

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The 403 Series, at the time of this writing, is the highest voltage rating in Teledyne Reynolds' family of multi-pin connector products. It is a high reliability, ruggedized 3-pin, bayonet coupled connector. The 403 is designed to minimize any generation of corona or partial discharges, both, at sea level and at the reduced pressures found at 70,000 feet. This connector series has been extremely successful in high power Naval Radar applications.

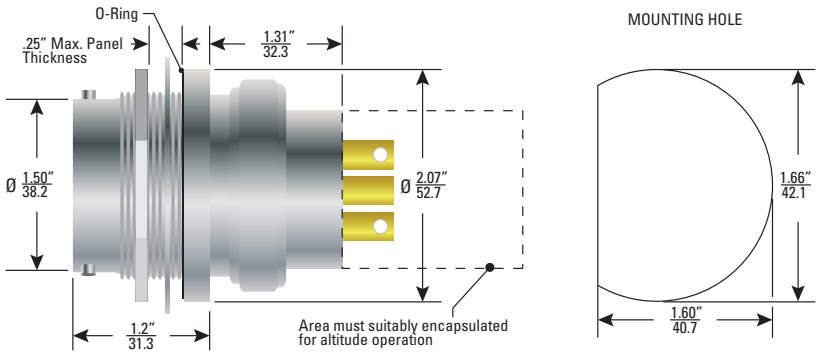
The 403 is offered as, either, a shielded or non-shielded cable assembly.

RECEPTACLE

Sealed, Rear, Jam Nut Mount

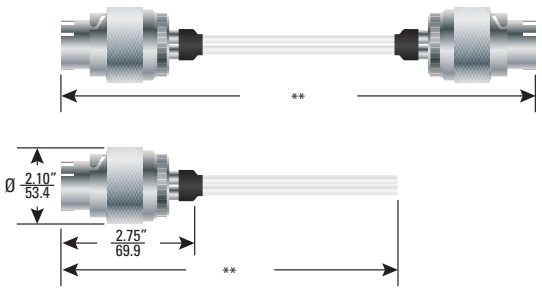
167-9836 Uses wire 167-9609, 167-9610

- **Mounting:** See optional mounting hole
- **Panel Mounting Torque:** 96 ± 6 in-lbs
- **Pressure:** Sealed for 1 ATM differential pressure
- **Max. Leak Rate:** 1x10^{-6} cc/s He @1 ATM differential pressure



PLUG CABLE ASSEMBLIES

	SINGLE-ENDED	DOUBLE-ENDED	WIRE
SHIELDED	167-8744	167-8743	167-9785
NON-SHIELDED	167-8748	167-8750	167-9610

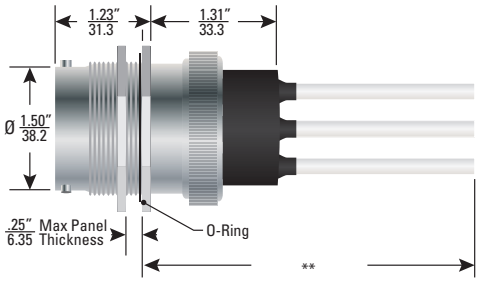


RECEPTACLE CABLE ASSEMBLIES

Sealed, Rear, Jam Nut Mount

178-7918 Uses wire 167-9609

- **Mounting:** See optional mounting hole
- **Panel Mounting Torque:** 96 ± 6 in-lbs
- **Pressure:** Sealed for 1 ATM differential pressure
- **Max. Leak Rate:** 1x10^{-6} cc/s He @1 ATM differential pressure



SERIES SPECIFICATIONS

(• = Same value as above)

Series	Voltage Rating (kVDC)	Altitude Rating (ft)	Operating Temp. (°C)	Current Rating (Amp)	Receptacle Insulator Material	Plug Insulator Material	Coupling Style	Coupling Nut Material/ Finish	Plug Contact Material/Finish (Socket)	Recept. Contact Material/Finish (Pin)	Wire Type	Wire Insulation	Braid Termination	Test Voltage @ 70,000 ft (kVDC)	Test Voltage @ Sea Level (kVDC)
403	35	70,000	-55 to 125	12	Plastic	Plastic	Bayonet	CRES / Passivate	Brass / Au	BeCu/Au with CRES hood	Shielded or Non-shielded	FEP	N/A	60	60

WIRE SPECIFICATIONS

Part #	Operating Voltage (kVDC)	Conductor			Insulation		Shielding			Jacket		Impedance Ω	Attenuation dB/100 ft @ 400 MHz	Capacitance pF/ft (Nom.) @ 1 kHz
		AWG	Strands	Plating	Material	ø in./mm	AWG	Plating	ø in./mm	Material	ø in./mm			
167-9610	37	20	19/32	TPC	FEP	0.150 / 3.81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
167-9785	35	•	•	•	•	•	•	TPC	0.18 / 4.57	FEP	0.22 / 5.59	•	•	26
167-9609	30	•	•	•	•	0.10 / 2.54	•	N/A	N/A	N/A	N/A	•	•	N/A

**Cable Assembly Ordering Information: All cable assembly cable lengths are to be specified in inches only. For example, to order part number 178-6027 with a cable length of 10 feet 8 inches the cable assembly part number would be specified as 178-6027-128N.

• **Note:** Product numbers and specs subject to change without notice. • Products listed represent only a small selection of Teledyne Reynolds' products please visit www.teledynereynolds.com for the most up to date product information. • Contact Teledyne Reynolds' Engineering to discuss custom designs. **WARNING: Connectors should NEVER be handled mated or unmated when voltage is applied.**

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