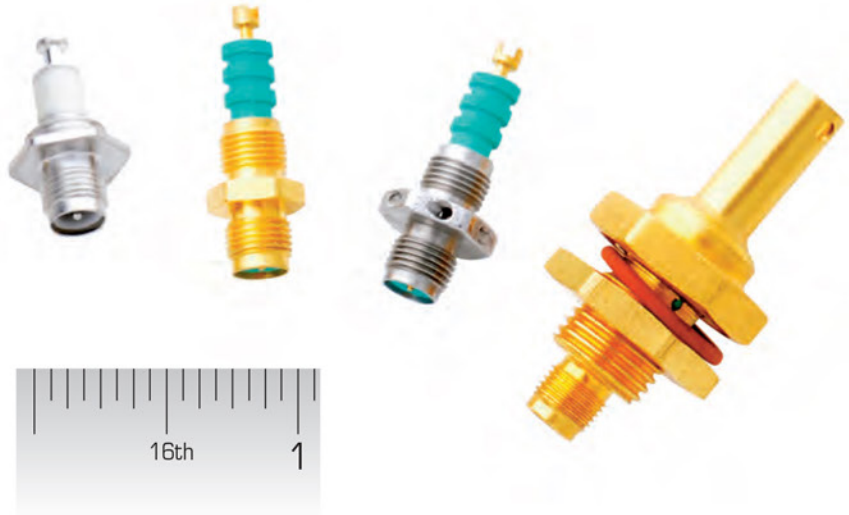


600, 610 & 600 "S" SERIES SUBMINIATURE, HIGH RELIABILITY CONNECTOR

5 kVDC • -55°C to 125°C • 70,000 ft. • Space Use



INTRODUCTION

600 Series

A complete line of subminiature coaxial high voltage connectors. The series 600 is rated at 5 kVDC for altitude operation over the temperature range of -55°C to 125°C. Various adapters are available on special order.

610 Series

The series 610 has a larger coupling nut and threads than the series 600 and can therefore be used for polarization to prevent cross mating in multiple circuit applications.

600 "S" Space Use Series

Series 600 "S" Space Use connectors have been specifically designed to operate over a long period of time in the hard vacuum of space. The operating voltage is 5 kVDC at a minimum vacuum of 10 millitorr to deep space. Series 600 "S" connectors and cable assemblies are not interchangeable with series 600/610 connectors or cable assemblies and should not be used in any application other than one with a minimum vacuum of 10 millitorr or in deep space.

FEATURES

- Small size for applications with tight space constraints
- Rated for operation @ 70,000 feet and the hard vacuum of deep space
- Shielded and Non-Shielded Versions

GENERAL SPECIFICATIONS

	600	600 "S"	610
Voltage Rating:	5 kVDC		
Altitude Rating:	70,000 ft.	250,000 ft. to Deep Space	70,000 ft.
Operating Temp. Range:	-55° to 125°C		
Receptacle Insulator Material:	Plastic or Ceramic	Plastic or Ceramic	Plastic
Lock Wire Holes on Hex:	Yes	Yes	No
Plug Body Material/Finish:	Brass/Gold		
Hex Threaded Coupling Material/Finish:	Stainless Steel/Passivated		
Knurled Threaded Coupling Mat./Finish:	Brass/Gold	N/A	N/A
Coupling Thread:	10-56 UNS	10-56 UNS	12-32 UNS
Male Contact Dia. (Receptacle) in./mm:	0.031/0.79		
Male & Female Contact Mat./Finish:	BeCu/Gold		
Wire Type:	Coax or Non-Shielded	Coax	Coax or Non-shielded
Test Voltage @ 70,000 ft. Simulated Alt. & Ambient Temp:	7.5 kVDC†		

* Custom color combinations available upon request.

† 600 "S" tested with interface seal installed. Seal must be removed before use in reduced pressure applications.



TELEDYNE REYNOLDS
A Division of Teledyne Limited
A Teledyne Technologies Company

Navigation House Canal View Road
Newbury Berkshire RG14 5UR UK

Tel: +44 1635 262200 Fax: +44 1635 30920

Email: trlsales@teledyne.com www.teledynereynolds.co.uk

Electrical Connectors, Wire and Cable Assemblies for Space or Ultra High Vacuum Applications

Typical Requirements:

- Vented and Non-Vented Connectors
- Low Outgassing Materials (TML < 1%; CVCM < 0.1%)
- "Red plague" Resistant Conductors
- Ultrasonically Cleaned Conductors
- Non-magnetic Materials
- Low Partial Discharge Designs
- Cermic-to-Metal, Brazed, Hermetic Feedthroughs

Applications:

- Satellite Ion Propulsion
- Satellite Arcjet Thrusters
- Ultra High Vacuum Semiconductor Processing Equipment
- Miniature High Voltage Power Supplies
- Spark Igniter Connectors and Cables Assemblies
- Mass Spectrometers
- Tethered Satellite Connections

Product Heritage

Teledyne Reynolds (TRI) has an extensive heritage as being a key

supplier to the space community and is the preferred high voltage interconnection solution provider. Listed below are just a few of the spacecraft and/or missions in which TRI has successfully provided products to be used in mission critical systems.

- EUVE - Extreme Ultraviolet Explorer
- Cassini
- Huygens
- Hubble Space Telescope
- SOHO - Solar and Heliospheric Observatory
- TIMED - Thermosphere Ionosphere Mesosphere Energetics and Dynamics
- New Horizons
- Nozomi
- Rosetta
- AIM - Aeronomy of Ice in the Mesosphere
- IMAGE - Imager for Magnetopause-to-Aurora Global Exploration
- IBEX- Interstellar Boundary Explorer
- DS-1 - Deep Space 1
- Dawn
- MESSENGER - MErcury Surface, Space ENvironment GEOchemistry, and Ranging

Note: Product part numbers, dimensions and specifications are subject to change without notice. Products listed represent only a small selection of Teledyne Reynolds products please visit www.teledynereynolds.co.uk for most up to date product line. Contact Teledyne Reynolds Engineering to discuss custom designs. **WARNING:** Connectors should **NEVER** be handled mated or unmated when voltage is applied.

7 Pin Circular 15 kVDC connectors for Ion Thrusters (1807 Series shown)



Subminiature High Voltage Coaxial Connector/Cable Assemblies with Plastic or Ceramic Insulators (600 Series shown)



Also available are silicone wires with semi-conductive layers to eliminate partial discharges and high voltage gradients. Voltages range from 5 kVDC to 75 kVDC.



Miniature High Voltage Push-Pull Connector Cable Assemblies (Pee Wee Series shown)



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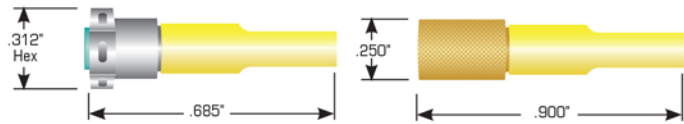
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5 kVDC • -55°C to 125°C • 70,000 ft. • Space Use

600 PLUG KITS AND RECEPTACLES



P/N 178-7110 (shielded) Hex coupling (CRES) **P/N 167-3770** (shielded) Knurled coupling (brass)
P/N 178-7746 (non shielded) **P/N 167-7668** (non shielded)

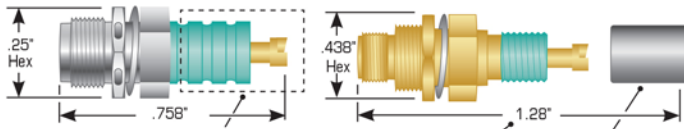
Shielded cable: Type "L" cable **P/N 167-2896**

Non-shielded cable: 0.100 Dia. FEP wire **P/N 167-9609 (White), P/N 178-7455 (Clear),**
 0.100 Dia. silicone wire **P/N 167-9634**

IMPORTANT: 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.

P/N 178-7111 & P/N 167-3771
 Mounting requires .197" dia. hole

P/N 167-4078
 Mounting requires clearance for .250-56 UNS thread



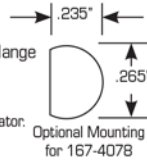
Area must be suitably encapsulated or insulated when connector is subjected to reduced pressure or excessive moisture.

Note: Dim. applies to end of installed potting shell
 Connector shipped with a threaded plastic potting shell

P/N 178-7111 Front mount, non-sealed connector. Stainless steel body. Lock wire holes
P/N 167-3771 Same as P/N 178-7111 except for gold plated brass body. No lock wire holes
P/N 167-4078 Rear mount sealed connector. Gold plated brass body. No lock wire holes
 Rated for 15 PSI differential pressure.

Max. leak rate: 1×10^{-6} ccHe/sec.

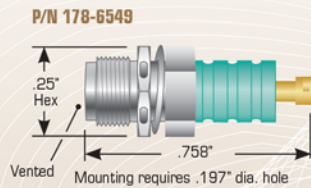
P/N 467-7028 Front mount, hermetic, ceramic-to-metal braze with weld flange
(P/N 467-7009 solder flange version). **Max leak rate:** 1×10^{-8} ccHe/sec



NOTE: Panel connectors require encapsulation at the junction of the terminal and insulator.

600 "S" SPACE USE

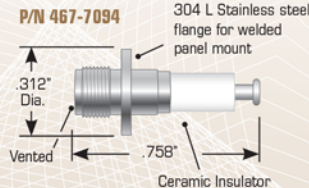
A series of receptacles and cable assemblies designed to operate at a minimum vacuum of 10 millitorr to deep space. Connectors have no seals, both plug and receptacle are vented to release any air trapped during pressure reduction associated with launch to deep space. Receptacles are shipped with an interface seal which can be installed for necessary pre-launch voltage testing. The seal must be removed prior to launch with removal tool 178-8608. We strongly urge discussing any potential useage of these connectors with a Teledyne Reynolds applications engineer before purchasing or using the series 600 "S" in any space application.



P/N 178-6549

Vented

Mounting requires .197" dia. hole



P/N 467-7094

304 L Stainless steel flange for welded panel mount

Ceramic Insulator

Vented

Mounting requires .197" dia. hole

Receptacles

P/N 178-6549 - Front panel mount receptacle. Stainless steel vented body.
P/N 467-7094 - Front mounted, hermetic, ceramic-to-metal brazed, stainless steel vented body with weld flange.

Max Leak Rate: 1×10^{-6} ccHe/sec.

Mating Connectors: Cable assembly (P/N 178-6027 and 178-5996 only)

Test Seal installation/removal tool:
 P/N 178-8608

Double-Ended Shielded Cable Assembly

(Using 167-2896 Coax Cable)

P/N 167-6027



P/N 178-5996 - Single-Ended Cable Assembly (not shown)

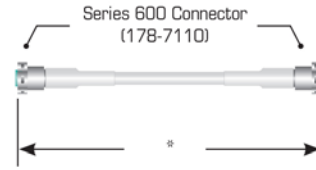
***Cable Assembly Ordering Information:** Use "F" for feet, "N" for inches. Example: Assembly 178-6027 10 feet 8 inches in length is ordered as **P/N 178-6027-10F-8N**

Note: Product part numbers, dimensions and specifications are subject to change without notice. Products listed represent only a small selection of Teledyne Reynolds' products. Please visit www.teledynereynolds.co.uk for the most up to date product line. Contact Teledyne Reynolds Engineering to discuss custom designs. **WARNING:** Connectors should NEVER be handled mated or unmated when voltage is applied.

600 CABLE ASSEMBLIES

Doubled Ended Shielded Cable Assemblies (Using 167-2896 Coax Cable)

P/N 178-7113



P/N 167-3306

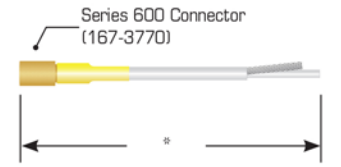


Single Ended Coaxial Cable Assemblies (Using 167-2896 Coax Cable)

P/N 178-7115



P/N 167-3305



P/N 178-8210 Non-Shielded Single-Ended Cable Assembly (not shown)
 (uses .100 Dia. FEP wire **178-7455**)

P/N 167-7667 Non-Shielded Single-Ended Cable Assembly (Not Shown)
 (uses .100 Dia. Silicone wire **167-9634**)

610 CONNECTORS & CABLE ASSEMBLIES

Double-Ended Shielded Cable Assembly

(Using 167-2896 Coax Cable)

P/N 167-8920



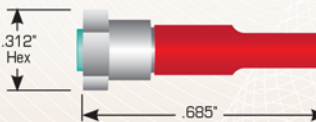
Single-Ended Shielded Cable Assembly

(Using 167-2896 Coax Cable)

P/N 167-9487



PLUG (KIT)



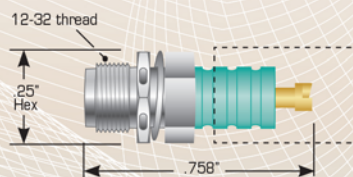
P/N 167-9363 610 Hex coupling (Cres)

Shielded cable: Type "L" cable P/N 167-2896.

IMPORTANT:

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

RECEPTACLES



P/N 167-9364

Front mount, non-sealed connector. Brass body no lock holes.

Area must be suitably encapsulated or insulated when connector is subjected to reduced pressure or excessive moisture.

Production Testing

Receptacles: 7.5 KVDC @ 70,000 ft. simulated altitude and ambient temperature

Cable assemblies: 7.5 KVDC @ 70,000 ft. simulated altitude and ambient temperature



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