

HYPERGRIP® **CONNECTOR SERIES**

High Reliability Medical Connectors



FEATURES & BENEFITS

▶ QUICK CONNECT

Push/pull latching feature allows for easy one-hand mating

▶ IMMEDIATE DELIVERY

Four standard sizes are stocked for optimal lead time:

- ▶ HG0: 5 contacts
- ▶ HG2: 12 contacts
- ▶ HG3: 19 contacts
- ▶ HG4: 33 contacts



▶ CUSTOMIZABLE

Innovative customer keyability and five available color options create a visually and mechanically intuitive experience

- ▶ Cost savings, reduced inventory
- ▶ To special order custom inserts in standard connectors, please contact factory

▶ MEDICAL QUALITY

Durable yet sleek aesthetic form designed specifically for medical devices.

- ▶ Allows for easy cleaning
- ▶ IP67 sealed for wet applications
- ▶ Fingerproofing per IEC 60601-1
- ▶ Patented under US patent numbers: 7,326,091B2; 7,661,995B2; D596,127S; 7,938,670; D615,932; and D616,825

TECHNICAL CHARACTERISTICS

SPECIFICATIONS

Number of Contacts: HG0: 5, HG2: 12, HG3: 19, HG4: 33
Termination Style: Crimp
Contact Diameter: HG0: 0.012"(0.30mm), HG2, 3, 4: 0.016"(0.40mm)
Current Rating: 1.0 Amp per contact
Contact Resistance: < 8.0 mΩ
Extraction Force: 0.50 - 1.60 oz per contact
Mating Cycle Life: Up to 20,000
Breakdown Voltage Between Contacts: 1000V
Dielectric Withstanding Voltage: 750V
Contact Plating: Gold over nickel
Insulator Material: LCP (Liquid Crystal Polymer)
Body Components: Polyetherimide
Sealing Components: Silicone
Insulation Resistance: > 5 x 10⁴ MΩ at 500 VDC
Operating Temperature Rating: -40°C to 125°C
Sterilization: Steam Autoclave, Gamma, EtO, Sterrad®

*Sterrad® is a registered trademark of Advanced Sterilization Products (ASP)

FEATURES

- ▶ **Push/pull latching design - simple, one-hand disconnect**
- ▶ **Sealing to IP67 when mated for temporary submergence up to 1 meter**
- ▶ **Easily keyed in 6 standard positions to prevent mismating**
- ▶ **EMI/RFI shielding option available in HG2, HG3 and HG4 sizes**
- ▶ **Available in 5 colors for efficient mating and easy identification**
- ▶ **Integrated strain relief prevents cable wire fatigue due to bending**
- ▶ **Crimp & poke termination eliminates the need to pre-tin, solder or shrink boot**

HYPERGRIP® SERIES

- ▶ **Customer Keyable**
- ▶ **Design Flexibility**
- ▶ **Color Coding Options**
- ▶ **Meets Medical Industry Requirements**

HyperGrip Circular Connector Series is available with 5, 12, 19 or 33 pin positions and a user-configurable keying system. While competitive products require purchasing a different connector for each keying configuration needed, our advanced keying system allows customers to build connectors with six different keying options reducing lead time and inventory.

Specifically designed to meet medical industry requirements, the HyperGrip connector's sleek, robust body delivers superior performance in the most crucial applications. Not only does the standard sealing offer IP67 protection when mated to prevent electrical shorts, but the available shielding feature supplies EMI/RFI protection providing the highest degree of safety and reliability.

By utilizing the unparalleled performance of Hypertac® hyperboloid contact technology, HyperGrip connectors are able to provide high cycle life, low power consumption, low insertion force, reliability under harsh conditions, maximum contact performance and excellent wiping action.

HyperGrip connectors are color-coded and range from 1/2 to 2 inches in diameter. The five available color options, along with our innovative keying system, make recognition effortless and incorrect mating impossible. This becomes essential for medical instrumentation applications where multiple connector interfaces are required.

Smiths Connectors offers custom options in order to meet application specific requirements. The flexible design of HyperGrip connectors allows for the use of alternate technologies including Fiber Optic (expanded beam or butt joint termini), Coaxial and Spring Probe contacts. Custom inserts, cable mount receptacles and cable assemblies (available in select sizes) can also be provided to optimize your connector solution.



ADDITIONAL CONTACT TECHNOLOGIES*

EDGE CARD

- Low cost disposable receptacle/ reusable plug
- Designed for user-friendly assembly
- Mass terminate wires directly to PCB
- Reusable plug
- Utilizes straight PCBs
- Customizable and scalable

SPRING PROBE

- Extremely high density
- Low contact resistance
- Suited for blind mate and fine pitch applications
- Z-axis compliance
- Shock & vibration resistant
- High misalignment tolerance
- Non-magnetic

FIBER OPTIC

- Low susceptibility to contamination
- Compatible with multi and single-mode fiber
- Allows for easy cleaning
- High speed data transmission
- Rugged to extreme environments
- Non-magnetic
- Expanded beam and butt-joint fiber optic options available

COAXIAL

- Ideal for compact, high density connections
- Low VSWR up to 40 GHz
- Light weight applications
- Non-magnetic, high frequency
- Maximum contact diameter Ø.133"



*Please contact factory for availability

HYPERTAC®

CONTACT TECHNOLOGY

- ▶ Immune to shock & vibration
- ▶ Low insertion/extraction forces
- ▶ Minimal contact resistance
- ▶ Industry leading mating cycles
- ▶ Self-clean wipe action
- ▶ Superior signal integrity



DIMENSIONS*

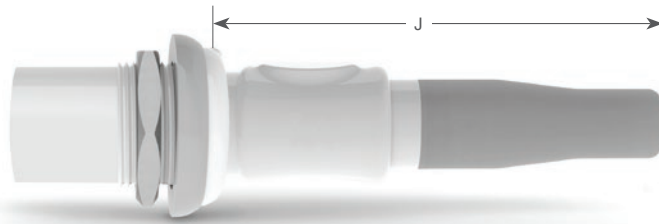
	HG0	HG2	HG3	HG4
A	Ø0.807 (20.50)	Ø1.014 (25.76)	Ø1.172 (29.77)	Ø1.250 (31.77)
B	0.728 (18.50)	1.220 (30.88)	1.220 (30.88)	1.220 (30.88)
C	Ø0.630 (16.00)	Ø0.866 (22.00)	Ø1.007 (25.59)	Ø1.090 (27.80)
D	0.285 (7.25)	0.272 (6.91)	0.272 (6.91)	0.272 (6.91)
E	1.040 (26.38)	1.808 (45.92)	2.170 (55.07)	2.170 (55.07)
F	0.343 (8.71)	0.427 (10.84)	0.354 (9.00)	0.354 (9.00)
G	Ø0.370 (9.40)	Ø0.502 (12.75)	Ø0.650 (16.50)	Ø0.710 (18.15)
H	Ø0.486 (12.34)	Ø0.656 (16.66)	Ø0.800 (20.36)	Ø0.880 (22.47)
J	1.415 (35.94)	2.390 (60.65)	2.730 (69.33)	2.730 (69.33)
K	0.118 (3.00)	0.118 (3.00)	0.118 (3.00)	0.118 (3.00)
L	0.689 (17.50)	0.823 (20.90)	0.980 (24.90)	1.060 (26.90)
M	—	Ø0.433 (11.00)	Ø0.535 (13.60)	Ø0.610 (15.50)
N	—	Ø0.197 (5.00)	Ø0.378 (9.60)	Ø0.378 (9.60)
P	—	1.704 (43.27)	1.961 (49.82)	2.124 (53.95)

*Dimensions are in inches (mm)

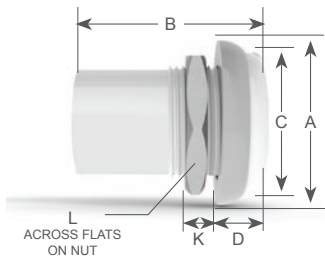
▶ STANDARD PLUG & RECEPTACLE

For HG0, HG2, HG3 and HG4

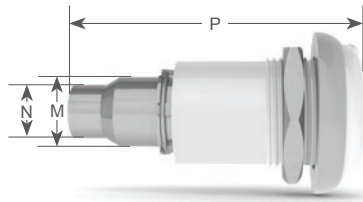
PLUG & RECEPTACLE MATED PAIR
with strain relief



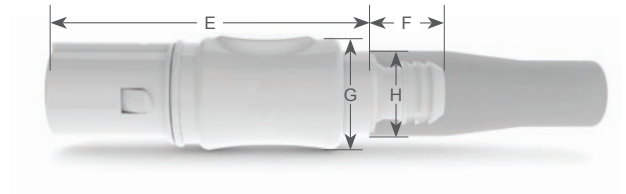
[E] RECEPTACLE



[E] RECEPTACLE
with shielding option



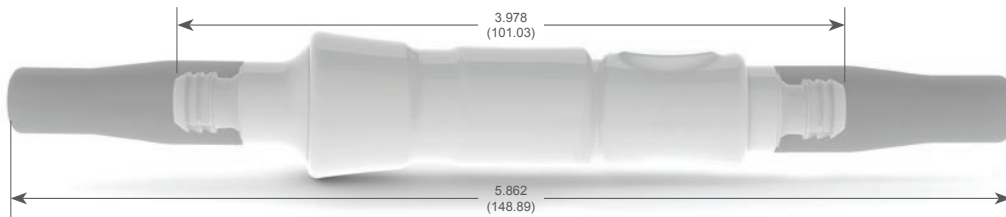
[P] PLUG



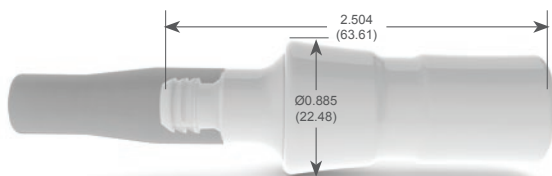
▶ PLUG & CABLE RECEPTACLE

For HG2 only

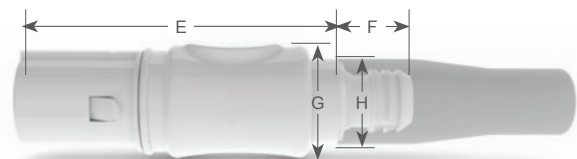
PLUG & CABLE RECEPTACLE MATED PAIR
with strain relief



[C] CABLE RECEPTACLE
with shielding option



[P] PLUG



HOW TO ORDER



1 ▸ HYPERGRIP CONNECTOR SERIES *[Fixed]*

2 ▸ SIZE

0 HG0 **2** HG2 **3** HG3 **4** HG4

3 ▸ TYPE

P PLUG **E** RECEPTACLE/PANEL **C** RECEPTACLE/CABLE
(Available on HG2 only)

4 ▸ CONNECTOR OPTIONS

1 SEALED **2** SHIELDED *(Unsealed)*

5 ▸ STRAIN RELIEF SIZE *(Cable diameter ranges)*

0 NO STRAIN RELIEF *(Panel receptacles only)* **4** 4.50 - 6.50 mm *(HG2 only)* **6** 9.00 - 11.00 mm *(HG4 only)*
(Shielded: 9.50 - 11.00mm)
1 2.08 - 3.10 mm *(HG0 only)* **5** 7.00 - 9.00 mm *(HG3 only)*

6 ▸ OUTER SHELL COLOR *[Fixed]*

G LIGHT GRAY

7 ▸ COLOR CODING *(Strain relief only)*

G LIGHT GRAY *(Standard)* **D** BLUE **R** RED **V** GREEN **Y** YELLOW

8 ▸ POSITIONS

5 HG0 **12** HG2 **19** HG3 **33** HG4

9 ▸ CONTACT DIAMETER

03 HG0 *(0.3mm)* **04** HG2, HG3, HG4 *(0.4mm)*

10 ▸ CONTACT GENDER

F FEMALE SOCKETS *(Receptacles)* **M** MALE PINS *(Plugs)*

11 ▸ TERMINATION *[Fixed]*

R CRIMP/SOLDER *(26 - 28 AWG*)*

*Contacts are shipped unloaded, may be crimped or soldered, then inserted into insulator.
For more information, please see Assembly Instructions.*

12 ▸ PLATING *(Pins: Gold over nickel Sockets: Gold over nickel on contact surfaces, gold flash on terminations)*

G HG2, HG3, HG4 pins **H** HG0 pins **ANH** HG2, HG3, HG4 sockets **AH** HG0 sockets

**Available tooling: Crimp Tool: AFM8 or M22520/2-01,
Crimp Positioner: K1775 (HG0) or T2030 (HG2, HG3, HG4), Insertion Tool: T2080*

smiths connectors