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## HyperGrip® Disposable Connectors

April 2022 | Customer Product Training

BEYOND  
CONNECTIVITY

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## HyperGrip® Series



- HyperGrip® series is a [patented and proven high reliability circular connector series](#) specifically designed for the medical industry.
- Throughout the years since the first product launch at the beginning of the 2000s we have had a good response from the market and we were able to establish a recognized product reputation in the marketplace thanks to its [reliability, versatility, customer keying system](#) and [quick and accurate connections](#). In addition it was recognized for the [finger-proofing to IEC60601, flammability rated to UL94 V0](#), and compliance with most [sterilization requirements](#).
- Today the market needs for a [disposable, cost-effective version](#) of the plug connectors to be used when single or few uses are required.



**Improved technical and value alignment** to the disposables market with the use of the HyperGrip® Disposable Plugs

**Reduced inventory and SKUs** with flexible design and assembly, allowing customers to purchase only what they need.

**Improved total cost of ownership** with the use of crimp and poke contacts vs. traditional nested tested contacts and support for high volume assembly processes such as overmolding

**Reduced risks** to fail device qualification testing due to existing connector HyperGrip® series qualifications

**Increased reliability** for critical applications with higher cycle life and the HyperGrip® receptacles providing a robust combination.

**Improved value** for final device due to premium medical look and feel, fool proof mating, easy cleaning, and reduced chances of cut or torn gloves.





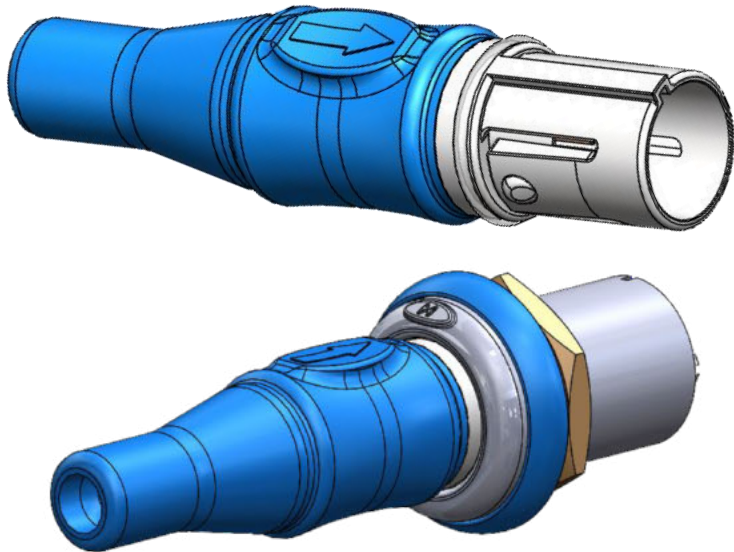
### Target Applications

- Patient monitoring
- Electrosurgical / Endoscopic tools
- Catheter
- Home healthcare
- Portable therapeutic

# HyperGrip® Disposable Connectors | Product Features

## Designed for Value & Performance

- Available in 2 sizes: HG2 with 12 contact positions and HG4 with 33 contact positions.
- Modular four-piece design allows customer to purchase only what they need.
- Crimp and poke pins designed for ease of installation and plating optimized for disposable applications
- Support for high volume processes such as overmolding for low cost of ownership
- Utilized existing insertion tool and crimp positioner for assembly
- Maintains electrical performance of HG Series Plugs



## Mechanically & Visually Intuitive

- Innovative keying system allows customers to build connectors with 6 different keying options reducing lead time and inventory
- Available in 5 color options for effortless mating recognition

## Aesthetic, User-friendly Design

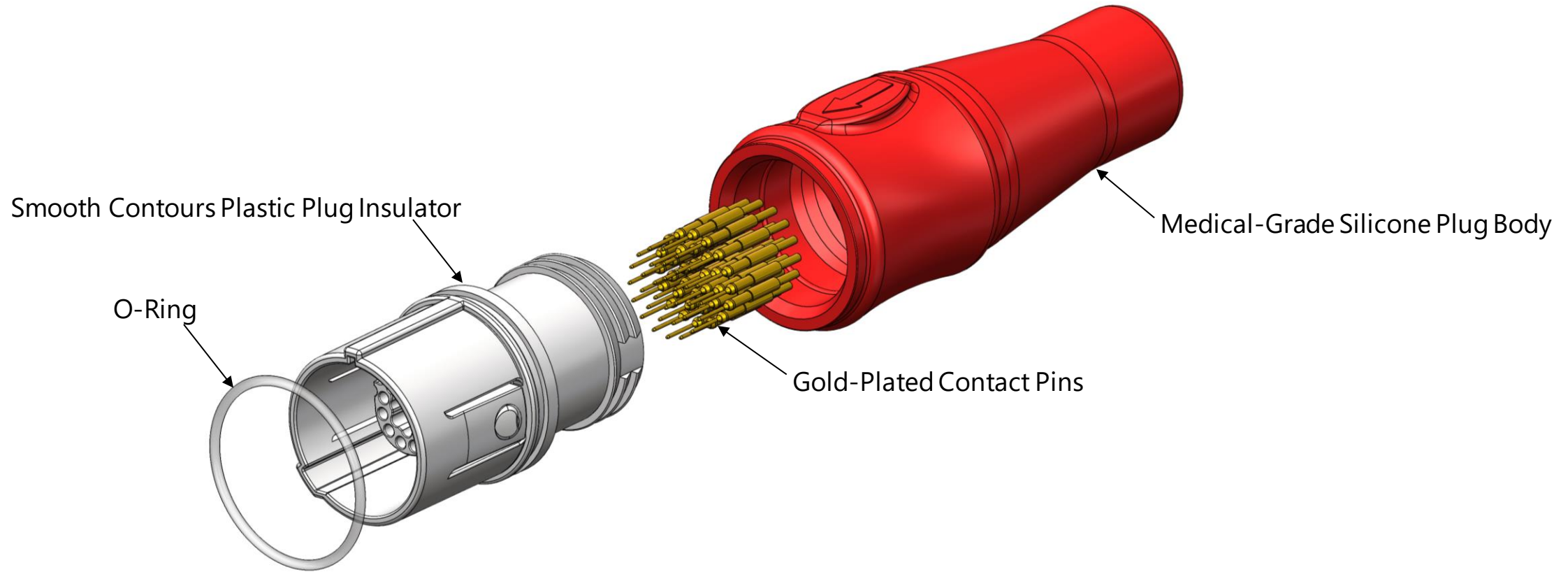
- **Sleek and light-colored body; blends well with medical equipment**
- **Smooth contours with no sharp edges**
  - Easy cleaning
  - Safety – won't cut surgical gloves
- **Passive latching for easy, one-hand mating and quick disconnect**

## Medical Quality

- **IPX4 Sealed when mated\***
- **Flammability: UL94 V-0 rated**
- **Fingerproof: Meets requirements of IEC 60601-1**
- **Supports biocompatibility**
- **Processing Temperatures up to 90°C**

- **Disposable HG4 33-Positions Plug Assembly**

- Modular design enable customer to purchase only what is needed





# HyperGrip® Disposable Plug vs HyperGrip® Standard Plug



Technical features	Hypergrip Disposable	Hypergrip Standard
Mating cycles	30	>20,000
6 different keying options	✓	✓
HG0 & HG3 size	✗	✓
HG2, & HG4 sizes	✓	✓
5 color options	✓	✓
IP65 sealed when mated	✗	✓
IP64 sealed when mated	✓	✓
Passive latching design	✓	✗
Push/pull latching design	✗	✓
1 A per contact	✓	✓
Shielded in HG2, HG3, & HG4 sizes	✗	✓

# HyperGrip® Disposable Plug vs HyperGrip® Standard Plug



Applications	Hypergrip Disposable	Hypergrip Standard
Patient monitoring	✓✓	✓
Electrosurgical / Endoscopic tools	✓✓	✓
Catheter	✓	✓
Home healthcare	✓	✓
Portable therapeutic	✓	✓
Imaging	✗	✓

# HyperGrip® Disposable Plug | Next Best Alternatives

Features	Benefits	HG Disposable	Next Best Alternative 1	Next Best Alternative 2
• <b>Customer keyability</b>	6 keys configuration Easily keyed / prevents mismatching – 1 part / 6 keys	✓	✓	✗ (keying by contact qty)
• <b>Cycle life</b>	Provides longer usage and <12 mΩ resistance	✓ (30)	✓ (15)	✓ (10)
• <b>Contacts shipped unloaded</b>	Easier termination – reduced cost of ownership	✓	✗ (solder cup nest is std)	✓
• <b>Ingress Protection in Mated Condition (IPx4)</b>	Protection against dust and water	✓ (Back Potted)	✗	✗
• <b>Backward compatibility</b>	Disposable plug can be mated with standard (non-disposable) receptacle	✓	✓	✓
• <b>Color coding</b>	Visually intuitive mating to receptacle	✓ (5)	✓	✓

# HyperGrip® Disposable Connectors | How to order: additions

	H	G				G					R		
	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Series	HG Series												
2 Size	0 HGO, 2 HG2, 3 HG3, 4 HG4												
3 Type	P Plug, E Receptacle/Panel, C Receptacle/Cable (Available on HG2 only), D Disposable plug												
4 Connector option	1 Sealed, 2 Shielded (Unsealed) (HG2, HG3, HG4 only / plugs "P" and panel receptacles "E" only)												
5 Strain relief size (Cable diameter ranges)	0 No strain relief, 4 4.50 mm to 6.50 mm (HG2 only), 6 9.00 mm to 11.00 mm (HG4 only) (Shielded: 9.50 mm to 11.00 mm), 1 2.08 mm to 3.10 mm (HGO only), 5 7.00 mm to 9.00 mm (HG3 only)												
6 Outer shell color (Fixed)	G Light gray, W White (Disposable only)												
7 Color coding (Strain relief or panel seal only)	G Light gray (Standard), D Blue, R Red, V Green, Y Yellow												
8 Positions	G HGO, 1 2 HG2***, 1 9 HG3, 3 3 HG4***												
9 Contact diameter	0 3 0.3 mm (HGO), 0 4 0.4 mm (HG2, HG3, HG4)***												
10 Contact gender	F Female sockets (Receptacles only), M Male pins (Plugs only), C MR contact female sockets (Receptacles only)												
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 HGO pins, A N H HG2, HG3, HG4 HC sockets, A H HGO HC sockets, I HG2, HG3, HG4 MR sockets, A 2 Disposable HG2, HG4 pins												
13 Keying option (Disposable only)	- A A-Key, - B B-Key, - C C-Key, - D D-Key, - E E-Key, - F F-Key												

## 3 Type

P Plug      E Receptacle/Panel      C Receptacle/Cable (Available on HG2 only)

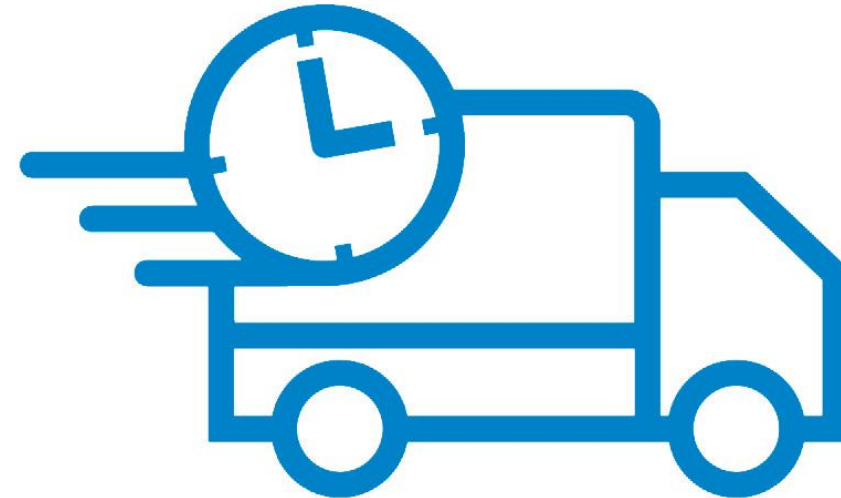
D Disposable plug

13 Keying option (Disposable only)

- A A-Key      - B B-Key  
 - C C-Key      - D D-Key  
 - E E-Key      - F F-Key

\*\*\* : Disposable plug is available only for 12 and 33 positions  
 \*\*\*\* : Disposable plug only uses 0.4 mm contacts


- **Smiths Interconnect can support the following:**
  - Selective / reduced contact loading
  - Customized tooling to reduce contact count
  - Increased cavities on injection molds for custom insulators
  - Reduced component count (No O-ring, use of overmolding, etc.)
- **Standard Lead Time – 14-16 weeks**



## Smithsdinterconnect.com website Product Page with:

- Updated Product Brochure
- New product video and images
- New Assembly instructions for Disposable Plugs

## Press Release available for media



### HyperGrip® Series

HyperGrip is a circular plastic, user-configurable, color coded connector with push/pull latching design allowing for one-hand disconnect. HyperGrip is designed to meet medical industry requirements such as finger-proofing to IEC60601, flammability rated to UL94 V0, and is compatible with most sterilization requirements.

[PRODUCT DETAILS](#)    [Download Brochure](#)

**smiths interconnect**

News Release  
April 2022

**Smiths Interconnect expands its product offering for disposable healthcare applications**  
*HyperGrip® disposable connectors offer a cost-effective solution for single or few use medical devices*

Smiths Interconnect, a leading provider of technically differentiated electronic components, subassemblies, microwave, optical and radio frequency products announced today the extension of its HyperGrip® connector series for the medical market with the addition of the new disposable connectors.

Medical disposables are essential products in the field of healthcare and the demand for end-use devices (including endoscopes, catheters, and patient monitoring systems) has increased significantly even before the outbreak of the COVID-19 pandemic. Disposable devices ensure patient-specific care while reducing risk of infection/contamination.

Within this market context, Smiths Interconnect has developed new disposable connectors to complete the HyperGrip® series by delivering a reliable interconnect solution when single or few uses are required. HyperGrip® is a well known, patented and proven series of high reliability circular connectors specifically designed for the medical industry. Thanks to its recognized market success, the HyperGrip series has established a strong reputation of reliability, versatility, and ease of use.

The introduction of the new disposable plugs aim to serve those applications that don't require high cycle life as a technical requirement but still require a premium disposable connector rated with a high cycle life.

Available in 2 sizes of 12 and 33 contact positions, the new plugs maintain the premium look, reliability, regulatory compliance, and ease of use of the HyperGrip® connector series and have been designed to support overmolding and high volume production methods.

The disposable plug versions maintain the proven electrical performance of the standard plugs in terms of insulation resistance, dielectric withstand voltage, current carrying, low level current resistance and at least IP64 with potting or overmolding.

**smiths interconnect**

News Release  
April 2022

**The new HyperGrip® disposable options embrace all benefits of the existing HyperGrip® series with a cost-effective design for single or few use applications** says Mark Kalkbrenner, VP and General Manager of the Connector Business Unit at Smiths Interconnect. "Our new disposable solutions offer a modular four-piece design that allows customers to purchase only what they need with consistent savings and inventory reduction."

Smiths Interconnect H22 and H24 disposable plugs meet the medical industry requirements such as finger proofing to IEC60601, flammability rated to UL94 V0, and compliance with most sterilization methods.

The new plugs have been designed and tested to provide:

- **Longer cycle life than current disposable plugs in the marketplace** - the connector provides industry standard cycle life of at least 30 cycles for medical disposables.
- **Color coding** for visually intuitive mating to receptacle.
- **Lock and release** designed for ease of installation and **detent operation** for disposable applications.
- **Backwards compatible** with unshielded H22 and H24 HyperGrip® receptacles with support for **RF Shielded Applications**.
- **Compatibility with standard non-disposable receptacles**.
- **Easy to connect/disconnect**.

About Smiths Interconnect

Smiths Interconnect is a leading provider of technically differentiated electronic components, subassemblies, microwave, optical and radio frequency products that connect, protect and control critical applications in the commercial aviation, defense, space, medical rail, semiconductor test, and industrial market segments. Smiths Interconnect is synonymous with exceptional performance whenever a technologically advanced, high quality solution is required to ensure reliability and safety.

Smiths Interconnect is part of Smiths Group, a global leader in applying advanced technologies for markets in thrust and combatant detection, enemy, medical devices, communications and engineered components. Smiths Group employs approximately 22,000 people in more than 30 countries.

FOR FURTHER INFORMATION

www.smithsinterconnect.com




# HyperGrip® Disposable Connectors | Website product page and related documents

Home > Products > Connectors > Circular > HyperGrip® Series

**HyperGrip® Series**  
High Reliability Connectors

HyperGrip is a circular plastic, user-configurable, color-coded connector with push/pull latching design allowing for one-handed operation. HyperGrip is designed to meet [medical](#) requirements such as finger-proofing to ISO20022, flameability tested to UL94 V0, and is compatible with most qualification requirements.

[Request a Quote](#) [Download Brochure](#) [3D Configure](#)



**Features & Benefits**

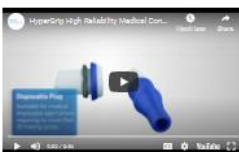
- 5, 12, 18 and 23 contact positions
- 1.6 µm contact
- IP65 sealed when mated
- IP40N4 cleaning option
- Push/pull latching design
- Clear for disposable applications
- 5 latching positions
- 5 color options

**Overview**

Designed specifically for the medical industry, this is customer legible for quick and accurate connections on medical equipment. The unique HyperGrip latching system allows customers greater freedom and flexibility to build connectors with low assembly options from a set of common components, thereby reducing cost, lead time and inventory.

Unique to HyperGrip is the front or rear push/retract receptacle design which allows the user to return the harness assembly from inside or outside of the device enclosure. HyperGrip is designed to meet [medical](#) requirements such as finger-proofing to ISO20022, flameability tested to UL94 V0, and is compatible with most qualification requirements. HyperGrip is offered in several configurations, including the 5 position HG2, 12 position HG2, 18 position HG2, and 23 position HG2. Also available is a modified version for the HG2, HG2L and HG4 use for DVI/DVI-D connections as well as [Signal Probe](#), [Flow Optic](#), [Sealed Bore](#) and [Bulk Power](#) and [Circular](#) variants.

**Video**



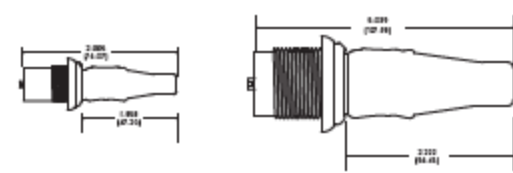
**HyperGrip® Series** **smiths interconnect**

## HyperGrip®


**High Reliability Me**

**Disposable HG2 and HG4 Plugs**  
Plug and receptacle mated pairs


**HG2** **HG4**



**Disposable HG2 plug**  
[View CAD File](#)



**Disposable HG4 plug**  
[View CAD File](#)



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## Assembly Instructions

HyperGrip® Disposable I

April 2022



*Do Not Discard, Deliver to Manufacturer  
No Descartar, Entregar A Fabricante  
Instructions De Montage, Ne Pas  
Bitte nicht wegwerfen, bitte an die produ*

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## Qualification Test Report

**HYPERGRIP® SERIES**  
**Qualification of Disposable HG2 Plug Connectors**

March, 2022



HYPERGRIP® SERIES - Qualification Test Report - 03/2022

**Thank you**







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