

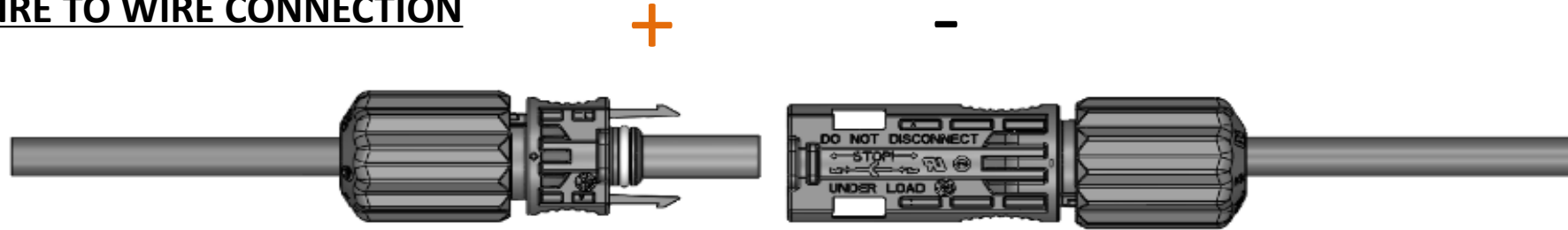


# AMPHENOL INDUSTRIAL H4™ **PLUS** PRESENTAION

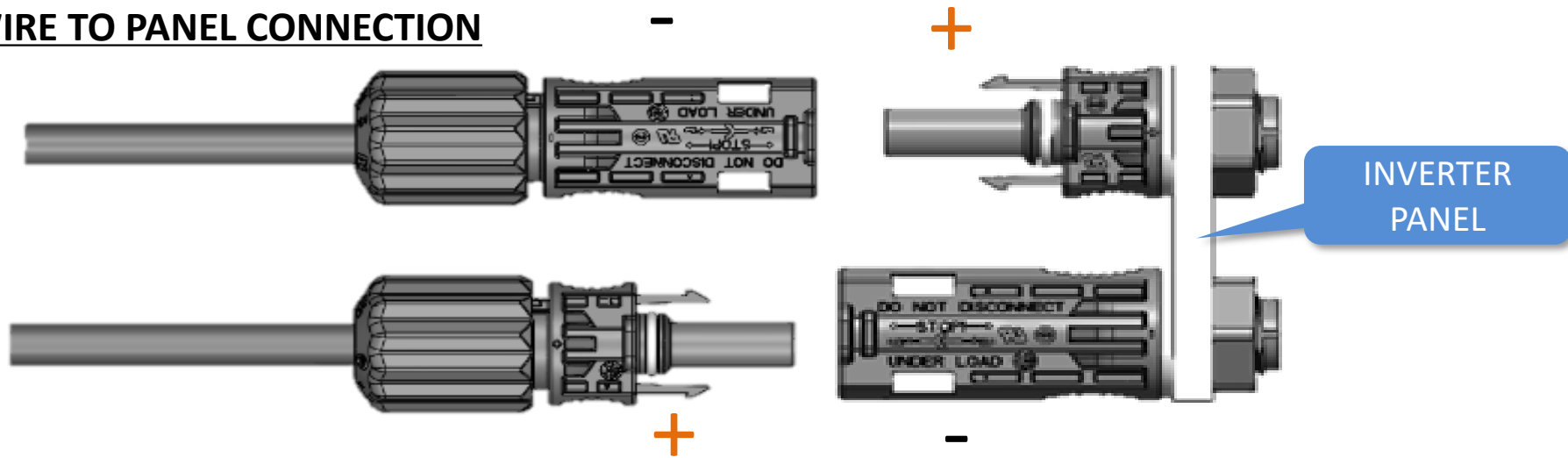
[www.amphenol-industrial.com](http://www.amphenol-industrial.com)

# H4™ Plus OVERVIEW

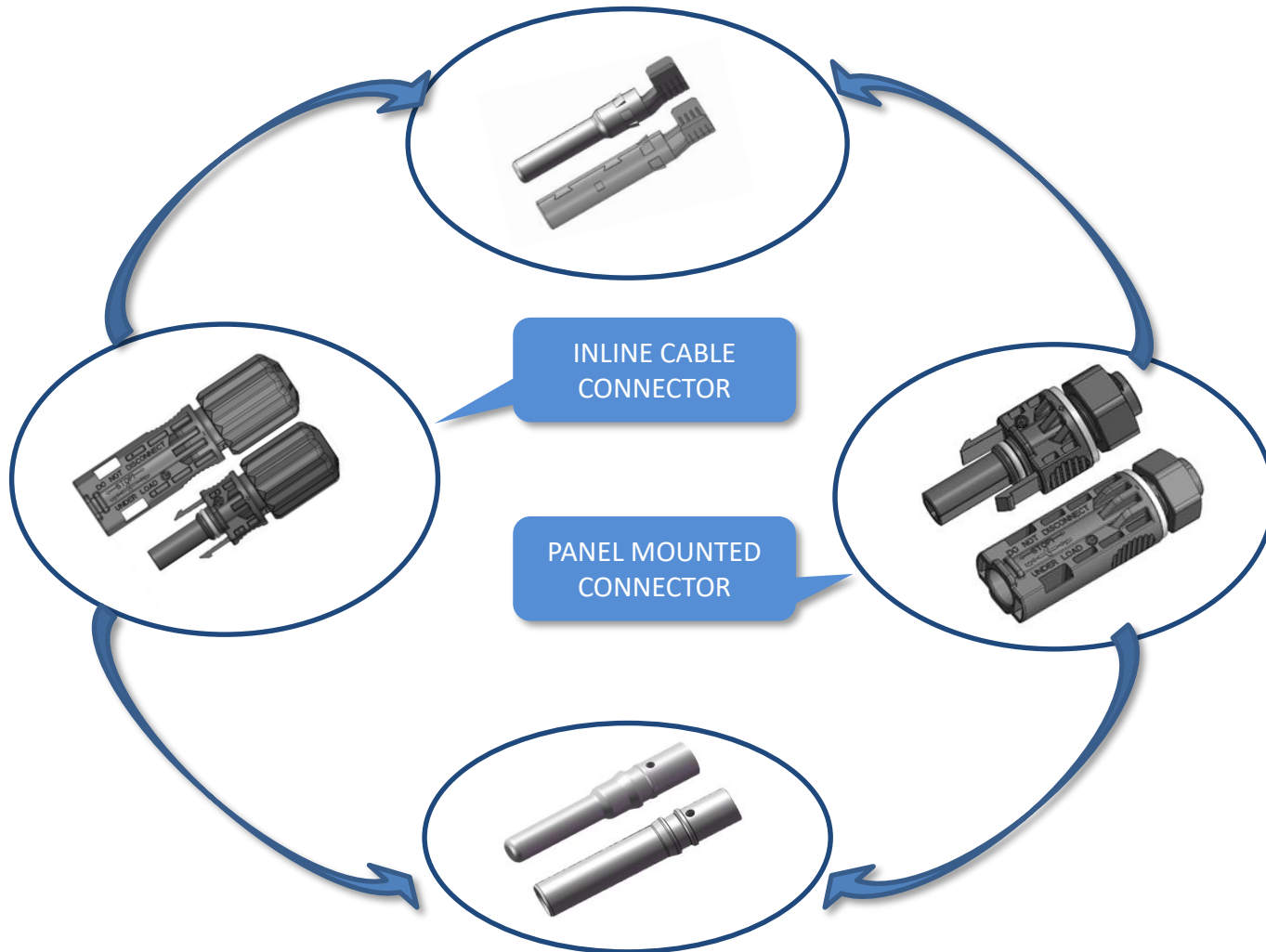
## WIRE TO WIRE CONNECTION



## WIRE TO PANEL CONNECTION



# H4™ Plus Summary

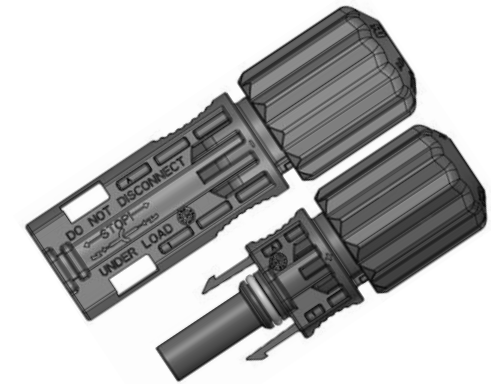


## KEY FEATURES :

- 1500 V DC,UL & TUV ✓
- Chemical resistance ✓
- Low contact resistance ✓
- Anti-reverse structure ✓
- Compatibility ✓
- Tool unlock ✓
- Reliable ✓
- Contact optional ✓

# H4™ Plus specification overview

ITEMS	SPECIFICATION
Rated Voltage	UL6703 1500V DC / IEC62852 (am 1), 1500V DC
Rated Current ( IEC @85°C)	25A (2.5mm <sup>2</sup> /14AWG), 35A(4.0mm <sup>2</sup> /12AWG), 45A(6.0 mm <sup>2</sup> /10AWG), 65A(10.0mm <sup>2</sup> /8AWG)
Rated Current ( UL)	15A (14AWG), 20A(12AWG), 30A(10AWG), 50A(8AWG)
Rated impulse voltage	16KV (IEC)
Typical contact resistance	≤ 0.25mΩ for Stamped & Formed contact , ≤ 0.2mΩ for Cold Formed contact , TYP
Insulation material	Thermoplastic (PC/PA)
Contact Material	Copper, tin-Plated
Contact System options	Stamped & Formed /Cold Formed contact with RADSOK ® insert
Application Class	Class A
Over voltage category	III
Degree of Protection	IP68(1 meter, 24hours) mated
Flame class	UL94-V0
Cable OD range	∅5.0mm~∅8.8mm
Pollution Degree	2
Safety Class	Class II
Ambient Temperature range	-40°C ~ +85°C
Upper limiting temperature	120°C

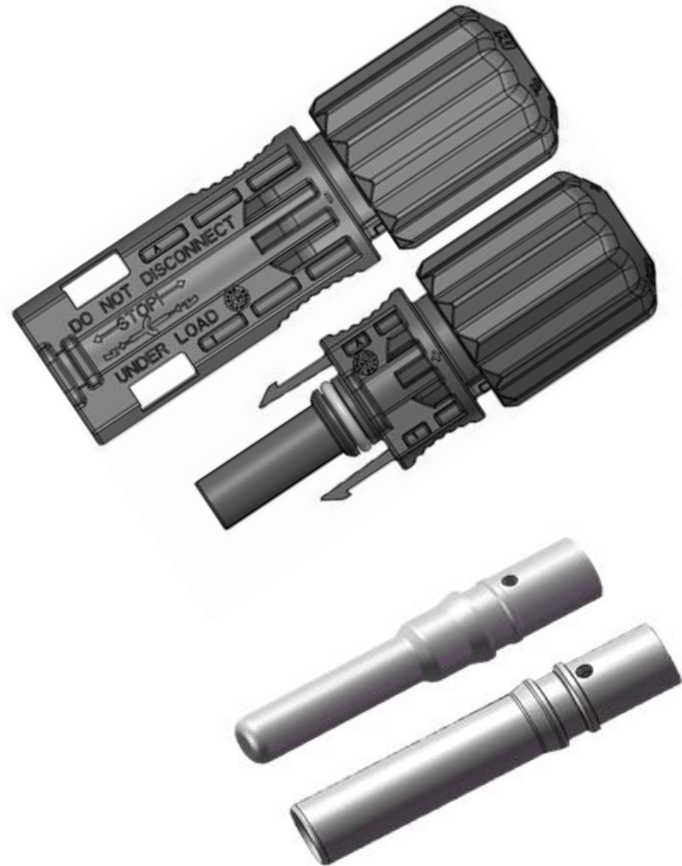


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# H4™ Plus cable connectors solid contacts



## Key Features

- ✓ UL6703 1500VDC & **TUV IEC 62852( am 1), 1500VDC**
- ✓ Rated current @IEC 85°C: 25A (2.5mm<sup>2</sup>/14AWG), 35A(4.0mm<sup>2</sup>/12AWG), 45A(6.0 mm<sup>2</sup>/10AWG), 65A(10.0mm<sup>2</sup>/8AWG)
- ✓ Low and stable Contact Resistance , **≤0.20mΩ TYP**
- ✓ Cable size: 2.5mm<sup>2</sup>/14AWG to 10.0mm<sup>2</sup>/8AWG
- ✓ Cable OD range: Ø5.0mm~Ø8.8mm
- ✓ Protection of degree **IP68 (1m,24H)**
- ✓ **Anti-reverse structure**
- ✓ Ambient Temperature range: -40°C ~ +85°C
- ✓ Upper limiting temperature : 120°C
- ✓ Flame class : UL94-V0
- ✓ Insulation material : PC/PA
- ✓ Contact material: Copper, tin-Plated

## Ordering code example:

H4SFC4DM, female, for 4.0sqmm/12AWG PV wire

H4SCMC4DM, male, for 4.0sqmm/12AWG PV wire



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# H4™ Plus cable connectors S&F contacts

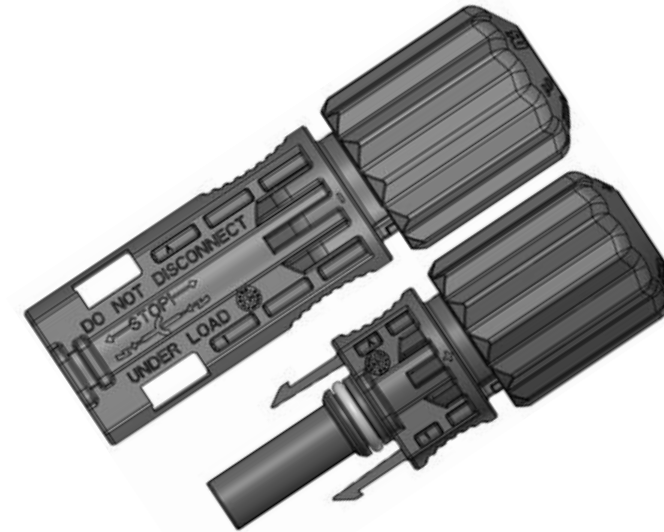
## Key Features

- ✓ **UL6703 1500VDC & TUV IEC 62852( am 1), 1500VDC**
- ✓ Rated current @IEC 85°C: 25A (2.5mm<sup>2</sup>/14AWG), 35A(4.0mm<sup>2</sup>/12AWG), 45A(6.0 mm<sup>2</sup>/10AWG)
- ✓ Low and stable Contact Resistance , **≤0. 25mΩ TYP**
- ✓ Cable size: 2.5mm<sup>2</sup>/14AWG to 6.0mm<sup>2</sup>/10AWG
- ✓ Cable OD range: Ø5.0mm~Ø7.8mm
- ✓ Protection of degree **IP68 (1m,24H)**
- ✓ **Anti-reverse structure**
- ✓ Ambient Temperature range: -40°C ~ +85°C
- ✓ Upper limiting temperature : 120°C
- ✓ Flame class : UL94-V0
- ✓ Insulation material : PC/PA
- ✓ Contact material: Copper, tin-Plated

## Ordering code example:

H4SFC4DMS, female, for 4.0sqmm/12AWG PV wire

H4SMC4DMS,male, for 4.0sqmm/12AWG PV wire



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Catalog



Presentation

# H4™ Plus Panel connectors solid contacts



## Key Features

- ✓ **UL6703 1500VDC & TUV IEC 62852 (am 1), 1500VDC**
- ✓ Rated current @IEC 85°C: 25A (2.5mm<sup>2</sup>/14AWG), 35A(4.0mm<sup>2</sup>/12AWG), 45A(6.0 mm<sup>2</sup>/10AWG), 65A(10.0mm<sup>2</sup>/8AWG)
- ✓ Low and stable Contact Resistance , **≤0.20mΩ TYP**
- ✓ Protection of degree IP68 (**1m,24H**) mated
- ✓ Ambient Temperature range: -40°C ~ +85°C
- ✓ Upper limiting temperature : 120°C
- ✓ Flame class : UL94-V0
- ✓ Insulation material : PC/PA
- ✓ Contact material: Copper, tin-Plated

## Ordering code example:

H4SFM4DM, female, for 4.0sqmm/12AWG PV wire

H4SMM4DM, male, for 4.0sqmm/12AWG PV wire



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# H4™ Plus Panel connectors S&F contacts

## Key Features

- ✓ **UL6703 1500VDC & TUV IEC 62852 (am 1), 1500VDC**
- ✓ Rated current @IEC 85°C: 25A (2.5mm<sup>2</sup>/14AWG), 35A(4.0mm<sup>2</sup>/12AWG), 45A(6.0 mm<sup>2</sup>/10AWG)
- ✓ Low and stable Contact Resistance , **≤0.25mΩ TYP**
- ✓ Protection of degree IP68 (**1m,24H**) mated
- ✓ Ambient Temperature range: -40°C ~ +85°C
- ✓ Upper limiting temperature : 120°C
- ✓ Flame class : UL94-V0
- ✓ Insulation material : PC/PA
- ✓ Contact material: Copper, tin-Plated

## Ordering code example:

H4SFM4DMS, female, for 4.0sqmm/12AWG PV wire

H4SMM4DMS, male, for 4.0sqmm/12AWG PV wire



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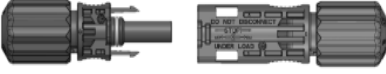


Catalog



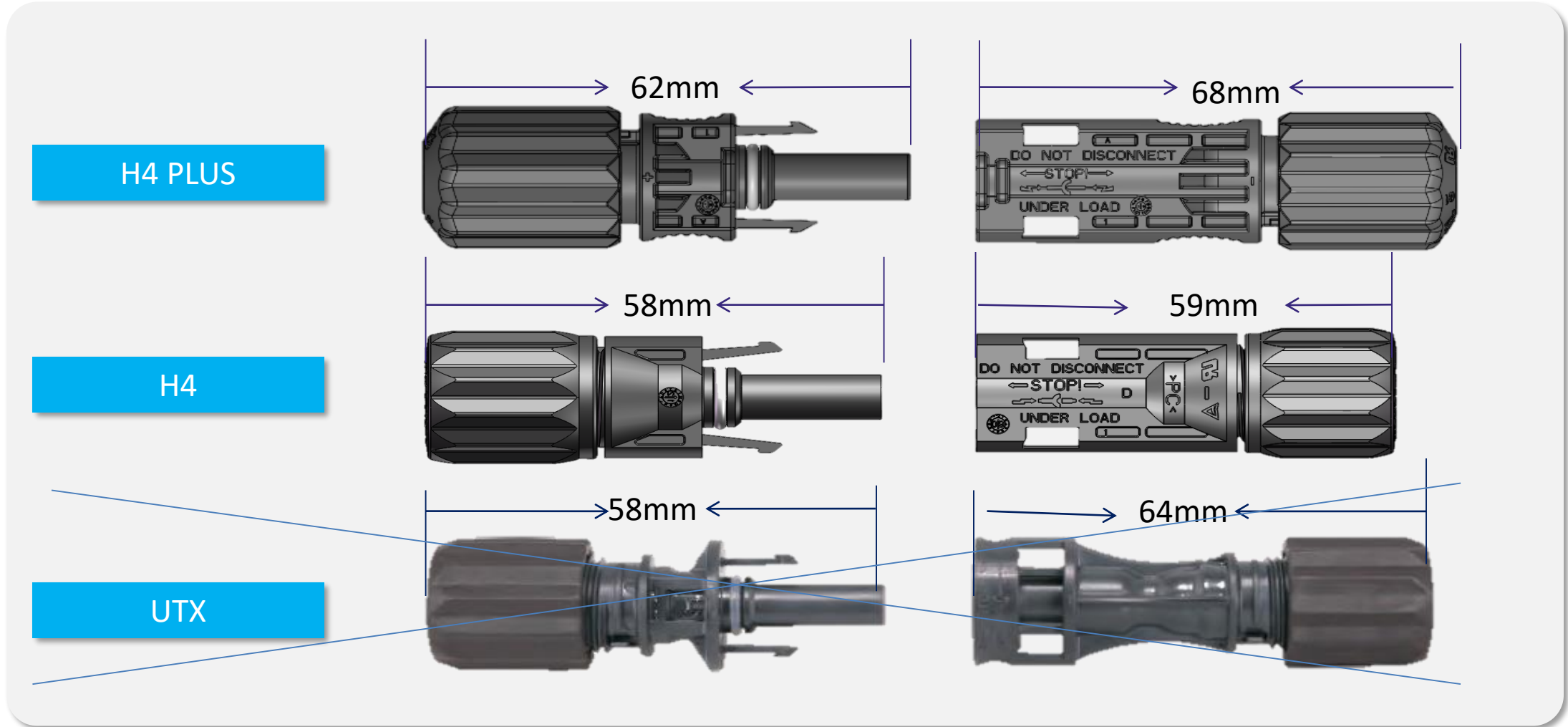
Presentation



# H4™ Plus vs Helios H4™ and UTX as reference only

Technical Specification	H4 PLUS	UTX	H4
Product image			
Approvals	1500V DC (IEC 62852) 1500V DC (UL6703)	1500V DC (IEC 62852) 1500V DC (UL6703) 1500V DC (JET)	1000VDC (IEC62852) 1500V DC (UL 6703)
Rated current (IEC @85°C)	25A (2.5mm <sup>2</sup> /14AWG) 35A (4.0mm <sup>2</sup> /12 AWG) 45A (6.0mm <sup>2</sup> /10AWG) 65A(10.0mm <sup>2</sup> /8AWG)	25A (2.5mm <sup>2</sup> /14AWG) 35A (4.0mm <sup>2</sup> /12 AWG) 45A (6.0mm <sup>2</sup> /10AWG)	25A (2.5mm <sup>2</sup> /14AWG) 35A (4.0mm <sup>2</sup> /12 AWG) 45A (6.0mm <sup>2</sup> /10AWG)
Contact resistance	≤ 0.25mΩ	≤ 0.3mΩ	≤ 0.3mΩ
Insulation material	PC/PA	PPE/PA	PC/PA
Cable cross section range	2.5 ~ 6.0mm <sup>2</sup> 14~10AWG, 8AWG/10.0mm <sup>2</sup>	2.5 ~ 6.0mm <sup>2</sup> 14~10AWG	2.5 ~ 6.0mm <sup>2</sup> 14~10AWG
Cable OD range (mm)	5.0 ~ 8.8	5.3 ~ 7.65	4.5 ~ 7.8
Ambient temperature range (IEC)	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Protection degree(unmated)	IP2X	IP2X	IP2X
Protection degree(mated)	IP68 (24h/1m)	IP68 (1h/1m)	IP68 (1h/1m)
Safety class	1500V DC: II	1500V DC: II	1000V DC : II
Upper limiting temperature	120°C	105°C	120°C

# H4™ Plus VS Helios H4™ and UTX as reference only



# H4™ Plus Certification

202504 QUQ2.E339277 - Connectors for Use in Photovoltaic Systems - Component (UL Product IQ)

**UL Product IQ™**

**QUQ2.E339277 - Connectors for Use in Photovoltaic Systems - Component**

Connectors for Use in Photovoltaic Systems - Component

See General Information for Connectors for Use in Photovoltaic Systems - Component

AMPHENOL INDUSTRIAL OPERATIONS  
40-82 DELAWARE AVE  
SENECA, NY 14628-1304 USA

539277

Cat. No.	Electrical Rating
<b>Photovoltaic wiring-system connectors</b>	
<b>Cable connectors</b>	
H4 Plus Assembled, also known as: H5RC0p (female gender) H5MC0p (male gender)	If "Y" is 2 and "Z" is S: 1500 V dc & 15 A max with appropriately rated 14 AWG cable, using a SBF contact only
Where "Y" can be L, C, or M for individual, 100 count, or 400 count packaging and "Z" can be blank for cold formed/trachined (CF) or S for stamped & formed (SBF) contacts.	If "Y" is 2 and "Z" is blank: 1500 V dc & 15 A max with appropriately rated 14 AWG cable, using a CF contact only
Acceptable cable diameter range: 05.75-7.25 mm	If "Y" is 4 and "Z" is S: 1500 V dc & 20 A max with appropriately rated 12 AWG cable OR 1500 V dc & 20 A max with appropriately rated 10 AWG cable, using a SBF contact only
	If "Y" is 4 and "Z" is blank: 1500 V dc & 20 A max with appropriately rated 12 AWG cable, using a CF contact only
	If "Y" is 6 and "Z" is blank: 1500 V dc & 20 A max with appropriately rated 10 AWG cable, using a CF contact only
	If "Y" is 0 and "Z" is blank: no contact supplied (see below for order SBF contacts separately)
H4 Plus SBF Contacts on a reel of 2000 (for use with H4 Plus Assembled PV connectors*), also known as: H5FR (female contact) H5MR (male contact)	If "Y" is 2: 1500 V dc & 15 A max with appropriately rated 14 AWG cable in the H4 Plus Assembled PV Connector above, only
*May be used with H4 and H4H female gender connector	If "Y" is 4: 1500 V dc & 20 A max with appropriately rated 12 AWG cable OR 1500 V dc & 20 A max with appropriately rated 10 AWG cable in the H4 Plus Assembled PV Connector above, only

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**CERTIFICATE**  
No. B 107201 0002 Rev. 00

**Holder of Certificate:** Amphenol Technology (Shenzhen) Co., Ltd.  
Building C  
2nd Industrial Zone of Xia Zhi Jia  
Jiangshi Community Gongming Sub-district  
Guangming New District  
518108 Shenzhen Guangdong  
PEOPLES REPUBLIC OF CHINA

**Production Facility(ies):** 107201

**Certification Mark:** 

**Product:** Connector  
Connectors for Photovoltaic Systems

**Model(s):** H4H4code/ H4H4code\*  
(M/F or M, M/C, S/M or S, C/M, A/S or S, S/M to Z, M/F to Z/M or Blank)

**Parameters:**  
Rated Voltage: 1500VDC  
Rated Current: 20A for H4H4code/ H4H4code\*(M/F)  
30A for H4H4code/ H4H4code\*(M/C)  
30A for H4H4code/ H4H4code\*(S/M)  
30A for H4H4code/ H4H4code\*(S/C)  
40A for H4H4code/ H4H4code\*(M/F)  
40A for H4H4code/ H4H4code\*(M/C)  
40A for H4H4code/ H4H4code\*(S/M)  
40A for H4H4code/ H4H4code\*(S/C)

Application Class: A  
Protection Class: IP65/IP68 (1 to 10)  
Degree of Protection: IP65/IP68 (1 to 10)  
Ambient Temperature: -40°C ~ +85°C

**Tested according to:** IEC 62852(ed.1); am1

The product was tested on a voluntary basis and complies with the essential requirements. The certification mark shown above can be affixed on the product. It is not permitted to alter the certification mark in any way. In addition, the certification holder must not transfer the certificate to third parties. This certificate is valid until the listed date, unless it is canceled earlier. All applicable requirements of the testing and certification regulations of TÜV SÜD Group have to be complied. For details see: [www.tuvsud.com/pe-cert](http://www.tuvsud.com/pe-cert)

Test report no.: T04072010203-00  
Valid until: 2025-05-25  
Date: 2020-05-26

(Yaqun Alex Liu)

Page 1 of 1  
TÜV SÜD Product Service Center - Certification Body - Riederstraße 95 - 82024 Munich - Germany



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● UL 6703 and TUV IEC62852(ed.1);am 1, 1500V CLASS A APPROVALS

# H4™ Plus Approvals

DUAL CERTIFICATION



No. 1



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E339277



IP2X



NEC

TOOL UNLOCK



## PV CONNECTOR REGULATION OF IEC/EN

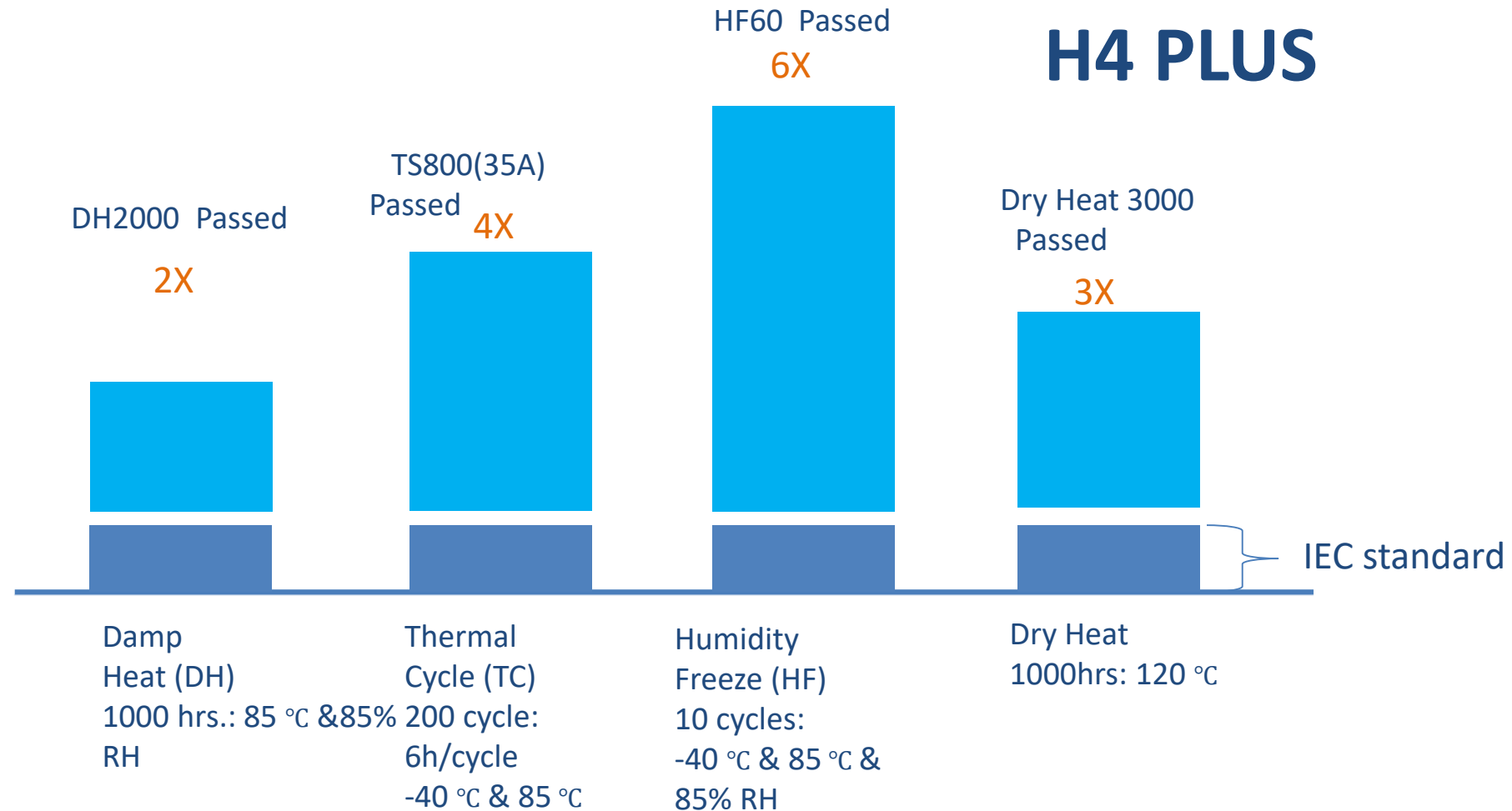
EN50521: 2008	2015.6	Expired
EN50521: 2008+A1:2012	2015.6 2017.12	Expired
IEC 62852	2017.12	Compulsory
IEC 62852; am 1	2020.5	Starting

# H4™ Plus Validation

✓ PC material has better chemical resistance and low moisture absorption, Strong insulation property, RTI 120°C.

✓ Excellent design of sealing structure to realize IP 68 ( 1m/24H).

✓ Do not use recycled materials to ensure performance.

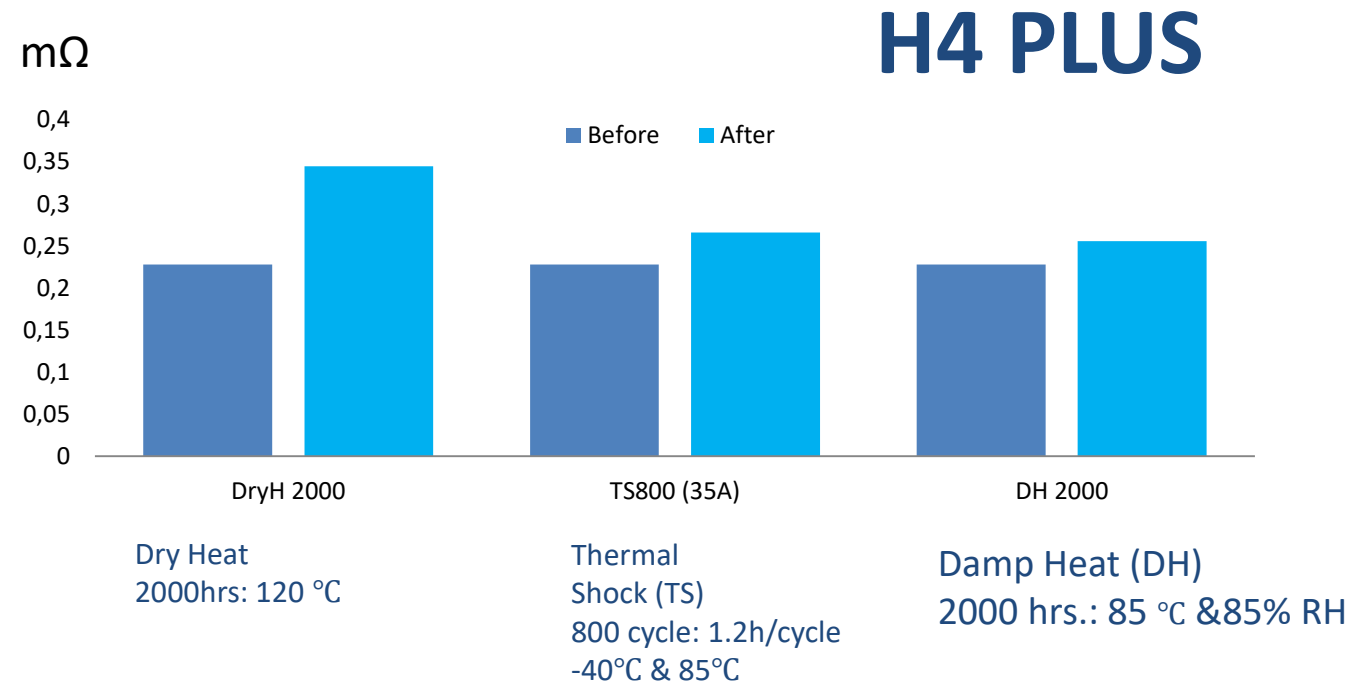


# H4™ Plus Contact Resistance

- ✓ Amphenol's low resistance RADSOK® contact technology.
- ✓ Highly conductive metal materials to reduce electrical losses.
- ✓ A stable hot dip plating (pre-plating) method is selected to ensure good contact performance.
- ✓ Optimized contact design for excellent long-term stability.

Stable contact resistance offer more power harvest over long term service in the field.

Contact resistance changes after tests



**\*\*\*IEC 62852 request :**

Deviation of the contact resistance shall be no more than 50 % of the reference value or  $\leq 5$  mΩ.  
The higher value is permissible.

# H4™ Plus Anti reverse structure back-nut

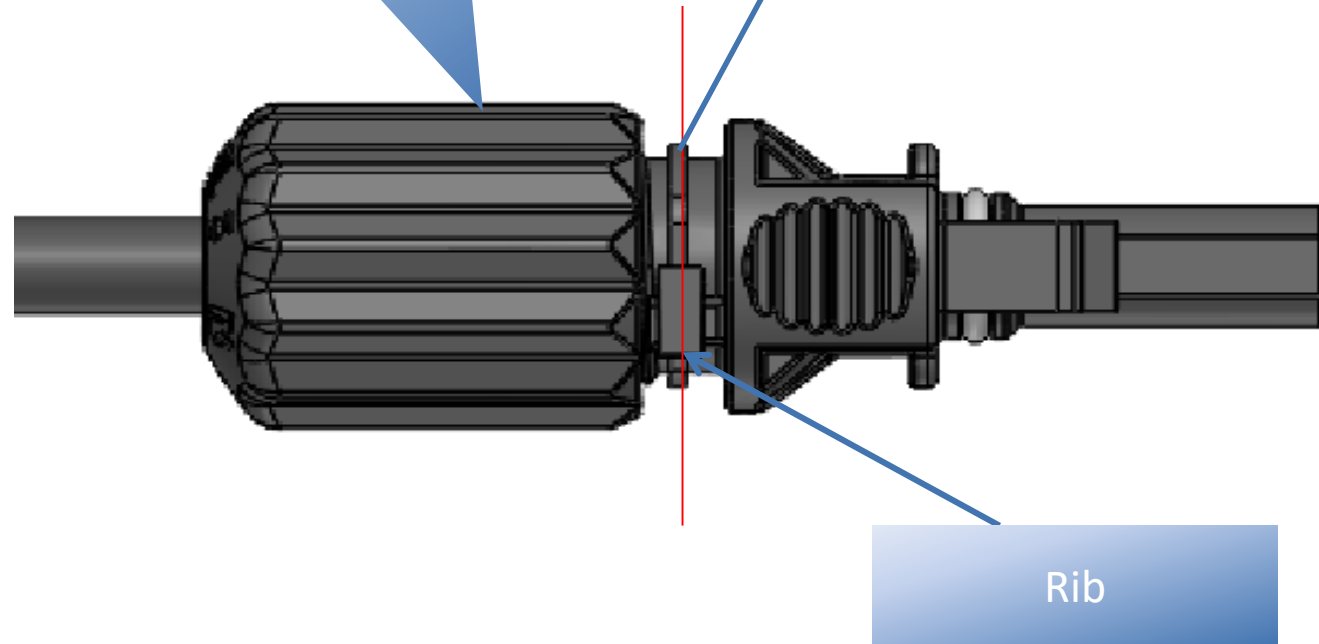
\*\*\*UL 6703 request :

2 in (51mm) diameter smooth steel sphere weighing 1.18lb(535g) failing through a distance of 51 in (1.295m).

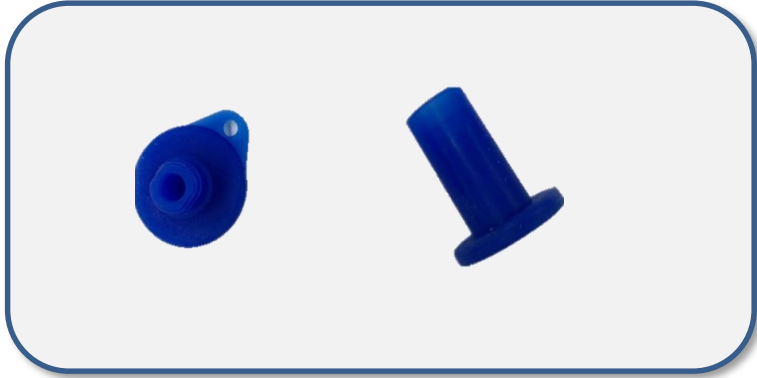
The test is to be performed on enclosure at 25°C and also after being cooled and maintained for 3 hours at a temperature as -35 °C±2 °C.

Robust gland back nut design, safe to pass UL cold shock test.

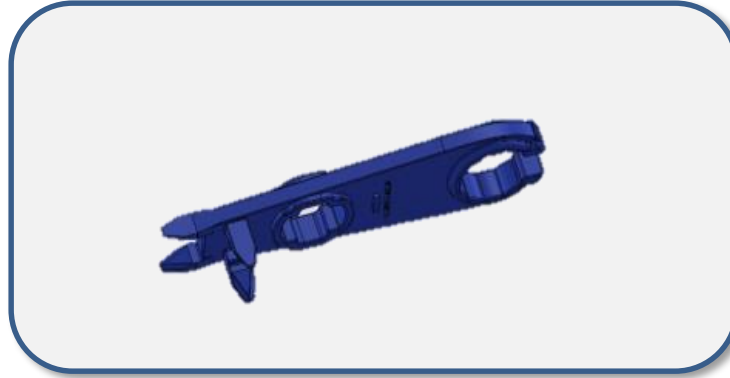
A ratcheting gland back nut, which prevents backspin once the nut is tightened.



# H4™ Plus Accessories and Tools



Protect cap



Unlock and Wrench tool



Inspection tool



Crimping tool



Strip tool



Unlock ring tool



# H4™ Plus How to order

How to Order a Connector (please choose one code per position, below)																	
1	2	3		4		5		6		7		8					
Product Line	Product Type	Gender		Connector Type		Cable Size		Certifications		Packaging		Contact Type					
H4 (H4 series)	S (H4 Plus)	F	Female (+)	C	Cable gland (tool unlock)	0*1	Without Contact	D	Dual UL/TÜV Certified	I*4	1 pc/bag	S	S&F				
				D	Cable gland (Manually unlock)	2	2.5mm <sup>2</sup> / 14AWG										
				M	Male (-)	M	M12 Panel mounted(tool unlock)			4*2	4.0mm <sup>2</sup> /12 AWG			T*3	TÜV IEC Certification Only (no NEC lock)	C*5	100 pcs/bag
						B	M12 Panel mounted( manually unlock)			6	6.0mm <sup>2</sup> / 10AWG						
		8	10.0mm <sup>2</sup> / 8AWG			M*6	400 pcs/bag	(Blank)	CF								

\*1 When ordering S&F contacts in reel version, please choose cable size code "0", means housing assembly and S&F contact with separate packaging, need to order S&F contacts separately.

\*2 When ordering a S&F contact, please choose cable size order code "4" for both 4.0mm<sup>2</sup>/ 12AWG & 6.0mm<sup>2</sup>/ 10AWG

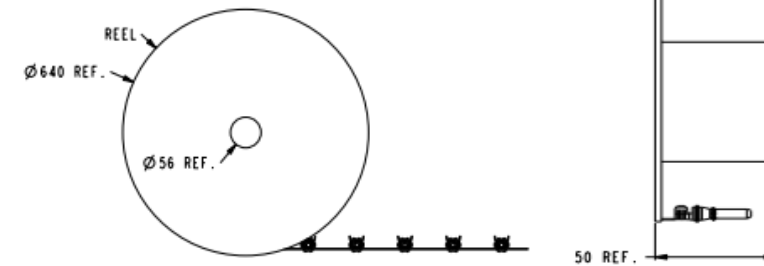
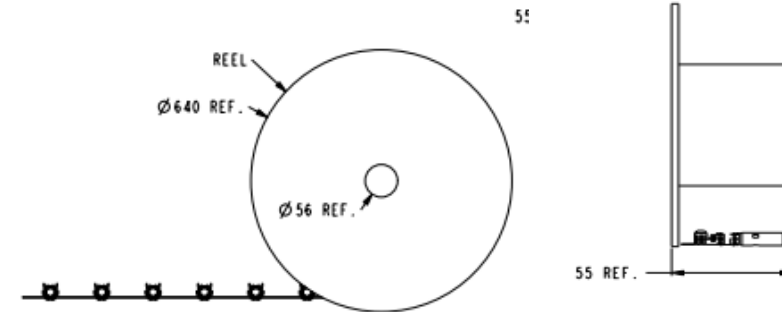
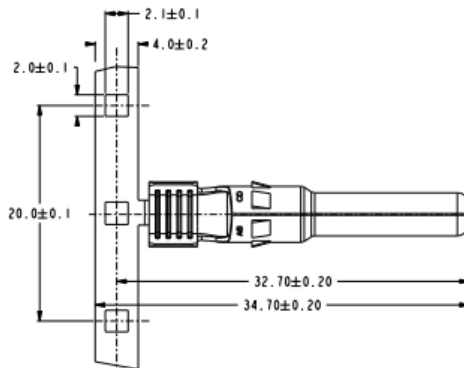
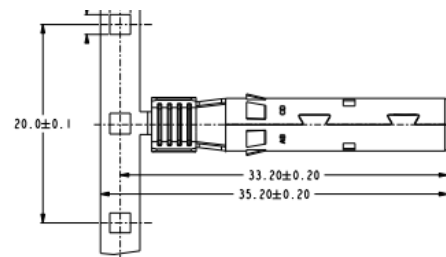
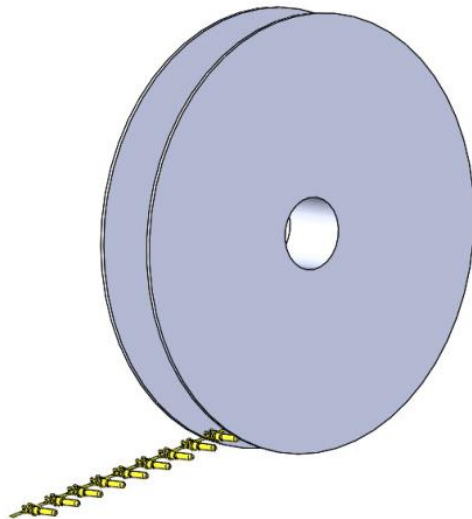
\*3 When ordering a manually unlock connector, please choose Certification code "T" for TUV certification only.

\*4 Individual packaging, 1pc/PE bag, 800pcs/carton box, for authorized distributors only.

\*5 100pcs/PE bag, 8000pcs/carton box, for authorized distributors only.

\*6 800pcs/PE bag, 8000pcs/carton box, it's standard packaging.

# H4™ Plus stamped and formed contacts for automatic assembly use



## How to Order S&F Contacts on a Reel of 2000 (please choose one code per position, below)

1	2	3		4		5
Product Line	Product Type	Gender		Cable Size		Packaging
UTX	F (S&F CONTACT)	F	Female (+)	2	2.5mm <sup>2</sup> /14AWG	R (2000 pcs/reel)
		M	Male (-)	4	4.0mm <sup>2</sup> /12AWG & 6.0mm <sup>2</sup> /10AWG	