



Pushing Performance



People | Power | Partnership

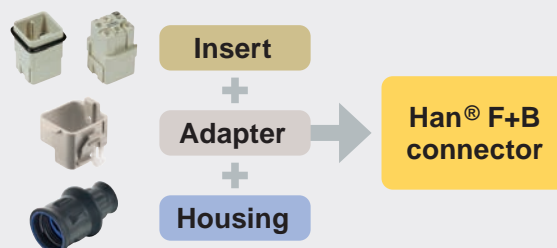
# HARTING Selection Guide

## Han<sup>®</sup> F+B – A clean connection

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## Han® F+B Connector System

- Reduces costs because connectors shorten assembly times
- Supports flexible configuration of machines as well as modularisation
- Reduces downtimes thanks to “Plug & Produce” principle



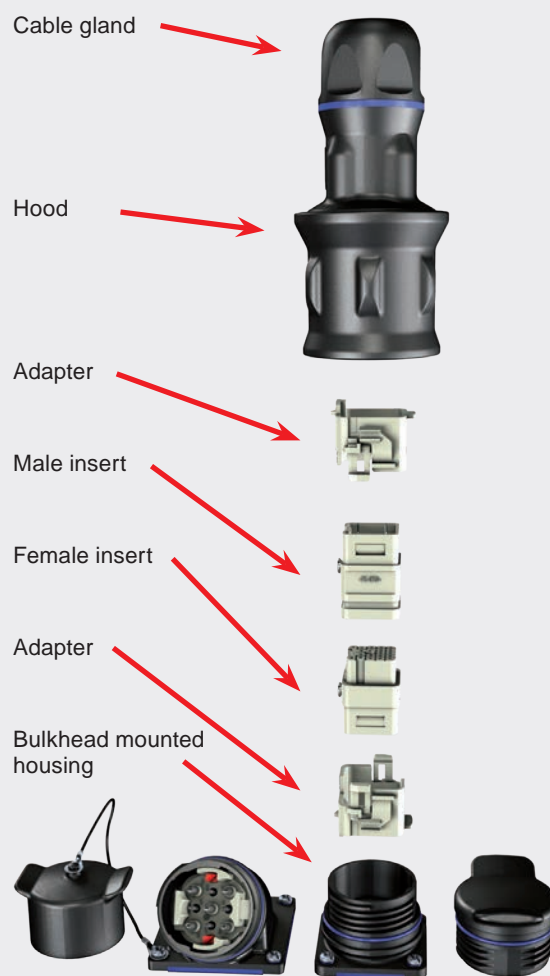
- Ecolab-certified
- Hood and housing materials comply with FDA 21
- Data, signal and power
- Easy-to-clean design, caps of hood and bulkhead mounted housing can be screwed together, e.g. for cleaning

- Highest protection class
- Resistant to cold and heat

## Technical characteristics

Material hood	PP
Material seal	TPE
Material housing	PP
Material gasket	EPDM
Material o-ring	silicone
Material cable gland	PA / silicone
Limiting temperature	-40°C ... 125°C
Mating cycles	≥ 500
Mating cycles with adapter 09 15 503 9911	≥ 250
Degree of Protection acc. to DIN EN 60529 for coupled connector	IP67 / IP69
<b>Specifications and approvals</b>	
Materials according to FDA 21	P3-topax 19
Resistance, Ecolab-certified:	P3-topax 52
	P3-topax 56
	P3-topax 66
	P3-topax 99
	P3-topax 200

## System description



## Benefits

- Helps reducing downtimes in food beverage industry
- Connectors are many times faster in plugging compared to hard wired solutions
- One type of hood or housing for all types of transmission in the industrial lifelines of data, signals and power
- Enables the modularisation of machines and plants as well as the introduction of future-proof concepts
- Reduces expenses on installation and maintenance of equipment as well as the resulting downtimes

## Features

Easy-to-clean design based on standards ISO 14 159 und DIN EN 1672-2

### Applications:

- Machines for food industry
- Bottling plants
- Packaging machines

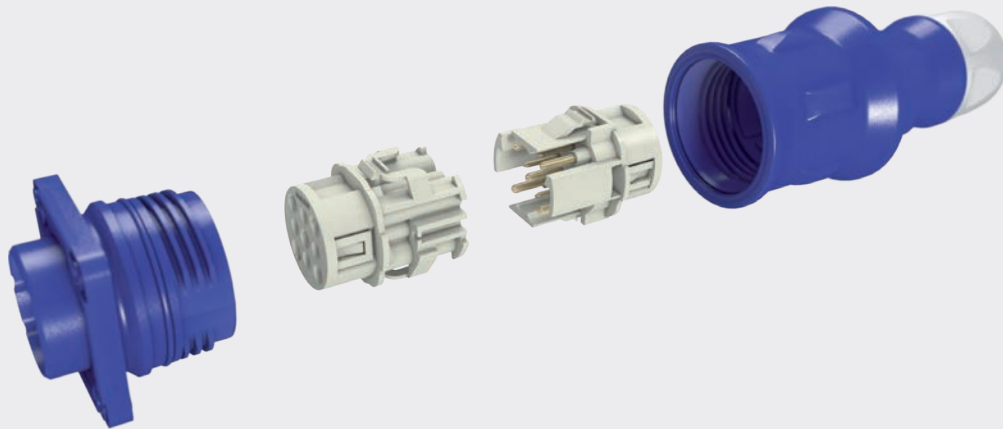
### Suitable for food processing zones:

- Interfaces inside the splash zone
- Resistant to chemical cleaning agents even at high cleaning density



Notice:  
Adapter required for Han® 3 A insert

Overview



Hoods and cable glands	Hood	Cover hood	Cable gland		
		Screw locking M25		for Han F+B® Hood	
Part number (black)	19 15 503 1403	09 15 503 5411	19 15 523 5196	19 15 503 5196	
			Clamping range 11 - 13	Clamping range 11 - 13	
			19 15 523 5197	19 15 503 5197	
			Clamping range 13 - 16	Clamping range 13 - 16	
Part number (blue)	19 15 513 1403	09 15 513 5411	19 15 523 5199	19 15 503 5199	
Notice:		Cover can be screwed into cover hood for bulk- head mounted housing	Clamping range 16 - 18	Clamping range 16 - 18	
			09 99 000 0984 Assembling aid cable gland F+B		

Housings and cable-to-cable hood	Bulkhead mounted housing, straight	Bulkhead mounted housing, angled	Cable-to-cable hood	Cover hood for bulkhead mounted housing	Bulkhead mounted housing, straight
Part number (black)	09 15 503 0301	09 15 503 0901	19 15 503 1701	09 15 503 5401	09 15 503 0102
Part number (blue)	09 15 513 0301	09 15 513 0901	19 15 513 1701	09 15 513 5401	09 15 513 0102

Cable side			
	Configuration example	Hood and cable gland 19 15 503 1403	Han® F+B 5E Screw 09 15 505 2601

	Han® F+B 4 / 4	Han® F+B 17D	Han® F+B 5E	Han® F+B 4 / 4 / 4
Contacts	4 + PE + 4	17 + PE	5 + PE	4 + PE + 4 + PE 4mm <sup>2</sup>
Electrical data	20 A / 10A / 400V / 250V	10 A / 400 V	16A / 600V	20 A / 10A / 400V / 250V
Termination	Han® E / Han® D Crimp	Han® D	Han® E Screw	Han® E / Han® D Crimp
Cross section [mm <sup>2</sup> / AWG]	4 mm <sup>2</sup> / 2,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>	4 mm <sup>2</sup> / 2,5 mm <sup>2</sup>
Male	09 15 508 3001	09 15 517 3001	09 15 505 2601	09 15 512 3002
Female	09 15 508 3101	09 15 517 3101	09 15 505 2701	09 15 512 3102
Notice	No adapter necessary, Han® D and E contacts to be ordered separately			No adapter necessary, Han® D, E and Ethernet contacts to be ordered separately


Hybrid system cable				
	Cable side	Device side	Cable side	
Contacts	20 A + PE	20 A + PE	400 V	
Electrical data	10 A / Cat. 5e	10 A / Cat. 5e		
Cable assembly	Han F+B Hybrid system cable	Han F+B Hybrid device side	Han® F+B 17 D system cable	
Wire design	5G 2,5 mm <sup>2</sup> / 2 x 1,5 mm <sup>2</sup> / 2 x 0,75 mm <sup>2</sup> / 2 x 2 AWG 22	5G 2,5 mm <sup>2</sup> / 2 x 1,5 mm <sup>2</sup> / 2 x 0,75 mm <sup>2</sup> / 2 x 2 AWG 22	17 x 0,5 mm <sup>2</sup>	
Male	33 50 300 0140 050	33 50 399 8141 010	33 50 410 0306 050	
Female				
Notice	Cable length 5 m	Wire length 1 m	Cable length 5 m	


Termination technique	Screw terminal	Han-Quick Lock® termination	Crimp termination	Axial screw termination
	HARTING screw terminals are designed according to DIN EN 60999	Push the stranded wire into the Han-Quick Lock® contact chamber and push the actuator in until it comes to a stop!	Crimp connections are solder-free and tension-resistant, to be processed with crimping tool	For flexible conductors with large cross sections, special tools required
Tools	Screwdriver	Screwdriver	Crimping tool	Torque wrench




### Cable assembly


There are not many industries that have such extensively high standards in their production than the food and drink industry. Hygiene regulations are not only applicable to connectors, but also cords and accessories. Cords need to be resistant towards physical load in order to guarantee a smooth and reliable operation. However, they also need to be able to resist aggressive cleaning chemicals, which are being used on a daily basis in different areas.

Device side	Setup of power and signal interface requires housings, adapter and insert					
	 Housing Han® F+B bulkhead mounted housing, straight 09 15 503 0301	+	 Adapter required for Han® 3 A insert 09 15 503 9911	+	 Insert Han® 7 D 09 21 007 3131	+
Configuration example						

40 A		Han® Q 2/0	Han® Q 2/0
			
Contacts		2 + PE	2 + PE
Electrical data		40 A / 400 V	40 A / 400 V
Termination		Axial screw	Crimp
Cross section [mm² / AWG]		2.5 ... 6 mm² / AWG 14-10	1.5 ... 10 mm² / AWG 16-8
Male		09 12 002 2653	09 12 002 3051
Female		09 12 002 2753	09 12 002 3151
Cross section [mm² / AWG]		4 ... 10 mm² / AWG 12-8	
Male		09 12 002 2651	
Female		09 12 002 2751	
Notice		Insert incl. contacts	Han® C contacts to be ordered separately

16 A		Han® Q 5/0 Crimp	Han® Q 5/0 Quick Lock
			
Contacts		5 + PE	5 + PE
Electrical data		16 A / 230 / 400 V	16 A / 230 / 400 V
Termination		Crimp	Quick Lock
Cross section [mm² / AWG]		0.14/0.5 ... 2.5 mm² / AWG 26/20-14	0.14/0.5 ... 2.5 mm² / AWG 26/20-14
Male		09 12 005 3004	09 12 005 2633
Female		09 12 005 3104	09 12 005 2733
Notice		Insert incl. contacts, crimp Han® E contacts to be ordered separately	Insert incl. contacts

10 A		Han® 4 A	Han® 4 A Quick Lock	Han® 7 D	Han® 7 D Quick Lock
					
Contacts		4 + PE	4 + PE	7 + PE	7 + PE
Electrical data		10 A / 230 / 400 V	10 A / 230 / 400V	10 A / 250 V	10 A / 250 V
Termination		Screw terminal	Quick Lock	Crimp	Quick Lock
Cross section [mm² / AWG]		1.0 ... 2.5 mm² / AWG 18-14	0.5 ... 2.5 mm² / AWG 20-14	0.14 ... 2.5 mm² / AWG 26-14	0.14 ... 2.5 mm² / AWG 26-14
Male		09 20 004 2611	09 20 004 2633	09 21 007 3031	09 21 007 2632
Female		09 20 004 2711	09 20 004 2733	09 21 007 3131	09 21 007 2732
Notice		Insert incl. contacts	Insert incl. contacts	Han® D contacts to be ordered separately	Insert incl. contacts

10 A		Han® High Density	Han® 3 A adapter
			
Contacts		21	
Electrical data		6.5 A / 50 - 120 V	
Termination		Crimp	
Cross section [mm² / AWG]		0.09 ... 0.56 mm² / AWG 26-20	
Male		09 12 021 3001	09 15 503 9911
Female		09 12 021 3101	
Notice		D-Sub contacts to be ordered separately	required for Han® 3 A male and female inserts

# Power and signal crimp contacts and tools



5 A – D-Sub	Cross section		Male contacts for Ethernet elements	Female contacts for Ethernet elements	Male (gold plated)	Female (gold plated)
	(mm <sup>2</sup> )	(AWG)				
	0.09-0.25	28-24			09 67 000 7576	09 67 000 7476
	0.12-0.33	26-22	21 01 100 9020	21 01 100 9025		
	0.13-0.33	26-22			09 67 000 5576	09 67 000 5476
	0.25-0.52	24-20			09 67 000 8576	09 67 000 8476

10 A – Han® D	Cross section		Male (silver plated)	Female (silver plated)	Male (gold plated)	Female (gold plated)
	(mm <sup>2</sup> )	(AWG)				
	0.14-0.37	26-22	09 15 000 6104	09 15 000 6204	09 15 000 6124	09 15 000 6224
	0.5	20	09 15 000 6103	09 15 000 6203	09 15 000 6123	09 15 000 6223
	0.75	18	09 15 000 6105	09 15 000 6205	09 15 000 6125	09 15 000 6225
	1	18	09 15 000 6102	09 15 000 6202	09 15 000 6122	09 15 000 6222
	1.5	16	09 15 000 6101	09 15 000 6201	09 15 000 6121	09 15 000 6221
	2.5	14	09 15 000 6106	09 15 000 6206	09 15 000 6126	09 15 000 6226






16 / 20 A – Han® E	Cross section		Male (silver plated)	Female (silver plated)	Male (gold plated)	Female (gold plated)
	(mm <sup>2</sup> )	(AWG)				
	0.14-0.37	26-22	09 33 000 6127	09 33 000 6227	09 33 000 6117	09 33 000 6217
	0.5	20	09 33 000 6121	09 33 000 6220	09 33 000 6122	09 33 000 6222
	0.75	18	09 33 000 6114	09 33 000 6214	09 33 000 6115	09 33 000 6215
	1	18	09 33 000 6105	09 33 000 6205	09 33 000 6118	09 33 000 6218
	1.5	16	09 33 000 6104	09 33 000 6204	09 33 000 6116	09 33 000 6216
	2.5	14	09 33 000 6102	09 33 000 6202	09 33 000 6123	09 33 000 6223
	3	12	09 33 000 6106	09 33 000 6206		
	4	12	09 33 000 6107	09 33 000 6207	09 33 000 6119	09 33 000 6221

40 A – Han® C	Cross section		Male (silver plated)	Female (silver plated)		
	(mm <sup>2</sup> )	(AWG)				
	1.5	16	09 32 000 6104	09 32 000 6204		
	2.5	14	09 32 000 6105	09 32 000 6205		
	4	12	09 32 000 6107	09 32 000 6207		
	6	10	09 32 000 6108	09 32 000 6208		
	10	8	09 32 000 6109	09 32 000 6209		

Crimping tools	Part numbers	09 99 000 0501	09 99 000 0377	09 99 000 0888	09 99 000 0898
	Contacts	D-Sub 0.09-0.52	Han® C 6.0-10.0 Han® C 4.0-40.0	Han® D 0.14-2.5 Han® E 0.14-4.0	
	Cross section [mm <sup>2</sup> ]			Han® C 1.5-4.0	
	Locator for Ethernet	61 03 600 0023			09 99 000 0637
Locator for D-Sub	09 99 000 0531			09 99 000 0637	



Axial screw termination tools	Hex key	T-handle hex key	Bit 1/4"	Hex key torque set	Others  for circular inserts
	2 mm (40 A)	09 99 000 0313	09 99 000 0369	09 99 000 0834	
2.5 mm (70 A)		09 99 000 0375	09 99 000 0834	09 99 000 0997	



Configuration example	Plug		Socket	
	  Hood and adapter Han® F+B and RJ45 adapter 19 15 503 1403	 09 15 503 9911	 Plug Cat. 6, IDC 09 45 100 1560	 Socket Cat. 6, IDC 09 45 545 1561

RJ45 male side		Cat. 5 - 4 poles IDC	Cat. 6 - 8 poles IDC	Cat. 5/6 - 4/8 poles preLink
				
	Classification	RJ45 contact insert	RJ45 contact insert	RJ45 contact insert
	Transmission rate	10/100 mbit	1/10 Gbit	1/10 Gbit
	AWG	26-22	27-22	27-22
	Part number	09 45 100 1100	09 45 100 1500	20 82 002 0001
	PreLink Block yellow AWG 23/22			20 82 000 0001
	PreLink Block white AWG 27/26			20 82 000 0002
Han® F+B 3A adapter	09 15 503 9911	09 15 503 9911	09 15 503 9911	

RJ45 female side		Cat. 5 - 4 poles IDC	Cat. 6 - 8 poles IDC	Cat. 5/6 - 4/8 poles preLink
				
	Classification	RJ45 female insert	RJ45 female insert	RJ45
	Transmission rate	10/100 mbit	1/10 Gbit	1/10 Gbit
	AWG	24-22	28-22	
	Part number	09 45 545 1120	09 45 545 1560	20 82 001 0001
	PreLink Block yellow AWG 23/22			20 82 000 0001
	PreLink Block white AWG 27/26			20 82 000 0002
Han® HIFF adapter	09 45 515 0024	09 45 515 0024	09 45 515 0024	
Han® F+B 3A adapter	09 15 503 9911	09 15 503 9911	09 15 503 9911	

RJ45 female insert		Cat. 6 coupler 8 poles	Others	Tool	
					
	Classification	RJ45 coupler Bu/Bu			HA-VIS preLink® assembly tool
	Transmission rate	100 Mbit - 10 Gbit			20 82 000 9901
	Part number male / female	09 45 200 1560			
Han® F+B 3A adapter	09 15 503 9911				



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