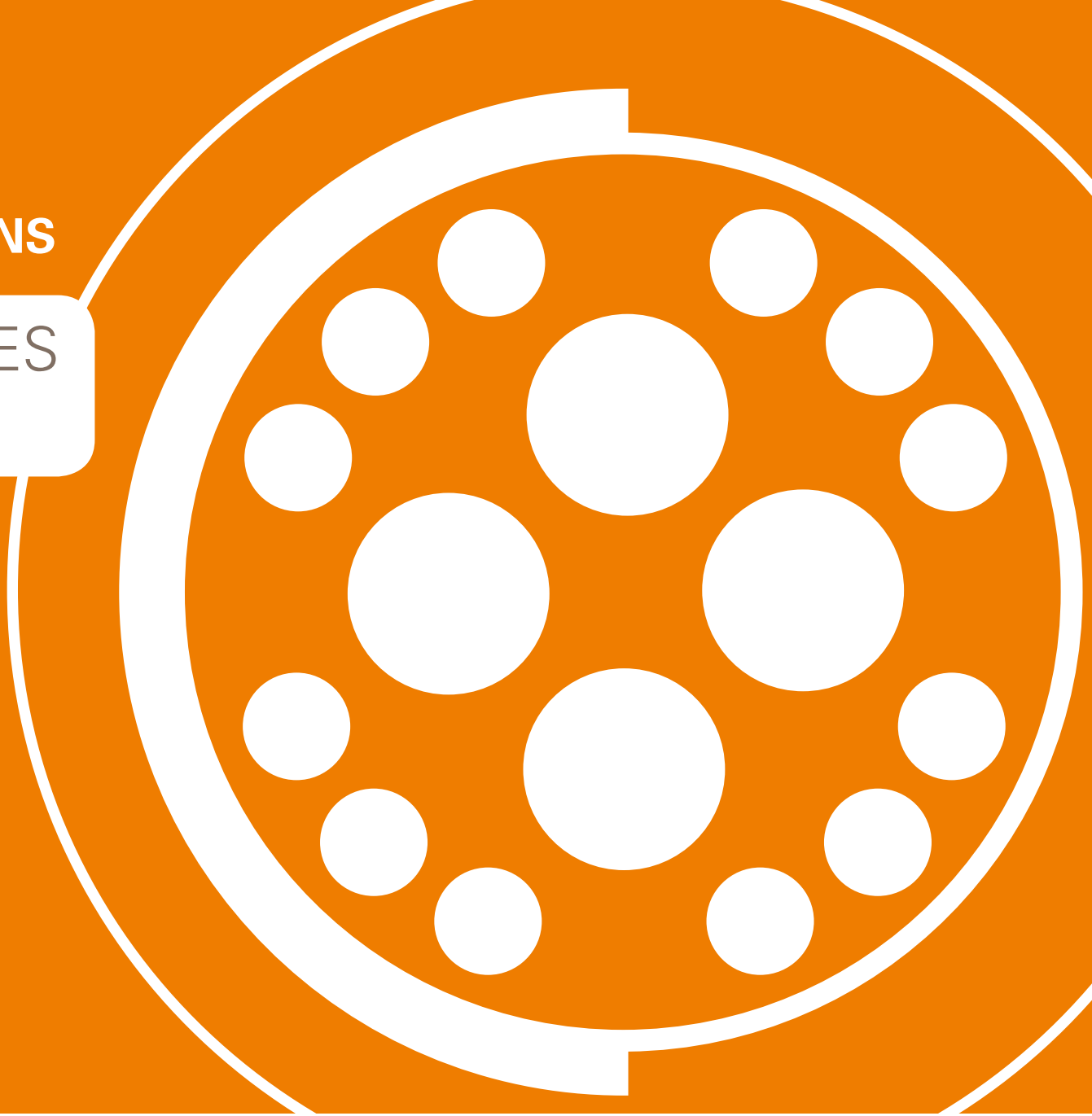
TECHNICAL SPECIFICATIONS

FISCHER CORE SERIES
STAINLESS STEEL



version 1.5 - 03.2017 – Changes without prior notice

fischer® CONNECTORS

FISCHER
CORE SERIES
STAINLESS STEEL

KEY FEATURES

The Fischer Core Series Stainless Steel connectors have been specially designed for applications where long-term, reliable solutions in extreme environments are required – such as nuclear and energy, medical, and food processing applications. They are not only safe, but also easy to clean, easy to handle and highly versatile.

Made of 316L stainless steel shell, PEEK insulators, and EPDM interface o-rings, they offer the best radiation and corrosion resistance, while ensuring consistently high performance even in high temperatures. The connectors also allow microbiological sterilization and radioactive decontamination.

PERFORMANCE

- Premium grade 316L stainless steel
- IP68 sealed solutions
- 360° EMC shielding

RELIABILITY

- Premium materials (316L, PEEK, EPDM) for out-standing chemical, temperature and radiation resistance
- High corrosion resistance

SOLUTIONS

- Wide range of body styles & sizes
- Remote handling for robotic friendly operation and custom solutions
- PCB, Solder, Crimp contacts

STERILIZATION

- Fully sterilizable
- Decontamination fluids compatible (decon 90, RBS 25)

PLUGS

CABLE MOUNTED

RECEPTACLES

PANEL FRONT MOUNTED

PANEL REAR MOUNTED

FEEDTHROUGH

PANEL FRONT MOUNTED

FOR ALL STAINLESS STEEL

PLUGS

CABLE MOUNTED

BODY STYLES	S	ST
Locking system	Push-pull	Push-pull
Sealing	IP50/IP68	IP50/IP68
Design	Standard	Remote handling

RECEPTACLES

PANEL FRONT MOUNTED

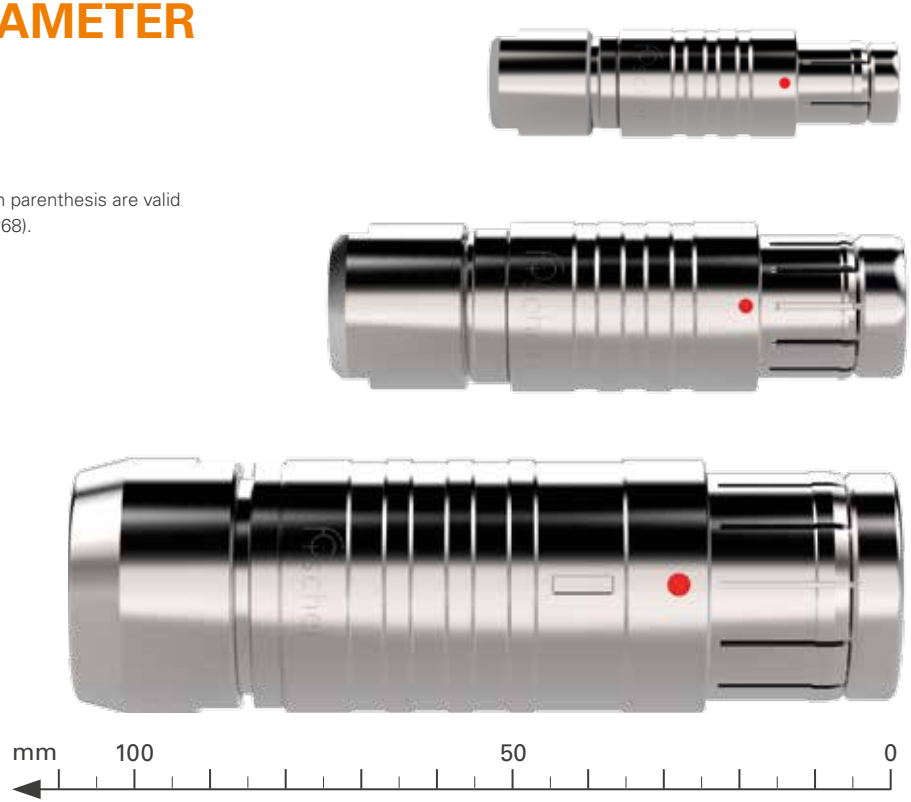
BODY STYLES	DBEE	WDE
Sealing	Hermetic	Hermetic
Design	Front-projecting	Bulkhead feedthrough

PANEL REAR MOUNTED

BODY STYLES	DBPE
Sealing	Hermetic
Design	Rear-projecting

All dimensions and images shown are in millimeters and are for reference only.

CONNECTOR SIZE
VERSUS
CABLE DIAMETER



[1] For max cable ø, values in parenthesis are valid for sealed connectors (IP68).

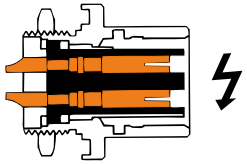
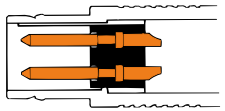
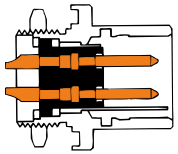
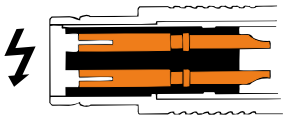
Series	Multipole low voltage		
	Min cable ø	Max cable ø	Number of contacts
103	1.7	6.7 (6.2) [1]	2-12
105	1.5	10.7	2-27
107	5.7	22.7	4-55

A/Z POLARITY

To protect users from contact with dangerous voltages, most Fischer connectors exist in two versions:

STANDARD **"A" POLARITY**
The contacts of the receptacle are protected against accidental touch.
Recommended when voltage is present on the receptacle.

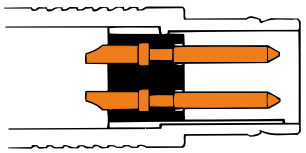
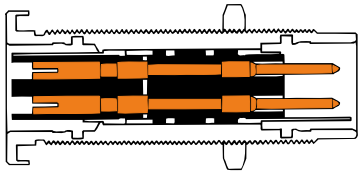
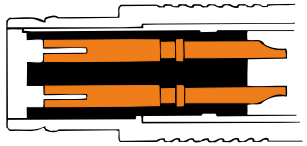
INVERTED **"Z" POLARITY**
The contacts of the plug are protected against accidental touch.
Recommended when voltage is present on the plug.

	Receptacle DBEE	Plug S/ST
Type "A" Standard Polarity		
Type "Z" Inverted Polarity		

IMPORTANT: AN "A" TYPE CONNECTOR CAN NEVER BE MATED WITH A "Z" TYPE CONNECTOR.

A plug "S" has the same housing in type "A" as in type "Z", but type "A" comes with unprotected contacts while type "Z" is equipped with touch-protected contacts. In most cases these are female contacts which are recessed in the insulator.

BULKHEAD **FEEDTHROUGH WDE**
Type "AZ" is the standard version of the WDE. The flange side accepts an "A" type plug, and the threaded side accepts a "Z" type plug.

Type "A" plug (S)	WDE, type "AZ"	Type "Z" plug (S)
		

The "ZA" version of the WDE accepts a type "Z" plug at the flange side and accepts a type "A" plug at the threaded end.

CONTACT TYPES

The Fischer Connectors' contact designs are highly reliable and are guaranteed up to 5,000 mating cycles.

All standard brass and bronze contacts for use in the Core Series are screw machined, and all are gold plated over a nickel underplate.

Most connectors are available with solder, crimp or PCB contacts and each type is optimized for a particular application.

SOLDER CONTACTS

Most versatile
Pre-installed contacts
Qualified assemblers required

- Can be produced with any type of contact block material and accept a wide range of wire sizes.
- Contacts are pre-installed in the insulator block, and the wires can be terminated with any appropriately sized soldering iron.
- May require operators who are qualified in specialized soldering techniques.

PCB CONTACTS

PCB or Flex circuit mount
Reduced pin diameter
Wave soldering

- Designed to be mounted directly onto a PCB or flex circuit, can be used in wave soldering operations for faster production assembly.
- Preferred for high rates of data transmission due to the low distance to the board that their integration allows. This helps reducing signal perturbations.
- PCB pins are generally used on rear mounted panel connectors.

CRIMP CONTACTS

Selectively annealed area
Special tools required
Limited range of wire sizes

- Each contact has a selectively annealed area which is deformed during assembly by specialized tooling to assure proper termination of the wire to the contact.
- Commonly used for field termination or repair, as no soldering process is required.
- Not available for sealed or hermetic connectors.

103 SERIES

● = Standard ❍ = Option

Reference	Pin layout	Number of contacts	Contact types			Insulating material	Contact ø [mm]	Wire size [2]		Test voltage [5] [kV] in mated position				Rated voltage [4] r.m.s [V]	Current [3] [A]
										AC r.m.s		DC			
			Solder	Crimp	PCB			Solder contacts [1]	Crimp contacts	Contact to body	Contact to contact	Contact to body	Contact to contact		
103 AZ 051		2	●	●	●	PEEK	1.3	max ø1.18mm AWG17 [1] AWG18 [16/30]	max ø1.18mm min ø0.58mm AWG18-24	1.5	2.2	2.2	3.0	≤ 250	13
103 AZ 052		3	●		●	PEEK	1.3	max ø1.18mm AWG17 [1] AWG18 [16/30]	–	1.2	1.5	1.8	2.0	≤ 250	12
103 AZ 053		4	●		●	PEEK	0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	–	1.2	1.6	2.0	2.4	≤ 250	7.0
103 AZ 054		5	●	●	●	PEEK	0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.83mm min ø0.48mm AWG22-26	1.1	1.4	1.9	2.2	≤ 250	6.8
103 AZ 056		6	●	●	●	PEEK	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.62mm min ø0.38mm AWG24-28	1.0	1.3	2.0	2.0	≤ 250	5.2
103 AZ 057		7	●	●	●	PEEK	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.62mm min ø0.38mm AWG24-28	1.0	1.3	2.0	2.0	≤ 250	5.0
103 AZ 058		8	●		●	PEEK	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.62mm min ø0.38mm AWG24-28	0.8	1.1	1.4	1.9	≤ 200	3.8
103 AZ 062		12	●	●	●	PEEK	0.5	max ø0.43mm AWG26 [1] AWG28 [19/40]	max ø0.43mm min ø0.20mm AWG28-32	0.9	1.2	1.5	1.8	≤ 200	2.0

[1] Stranding values are in brackets.

[2] For a given AWG, the diameter of some stranded conductor designs could exceptionally be larger than the hole diameter of the barrel. Testing may be required.

[3] Current per contact at 40°C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For the max. operating current a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A17 for details.

[4] Recommended operating voltage at sea level measured according to IEC 60664-1.

[5] Measured with S plug and D receptacle. Please contact us for rating for WSO right-angle plugs and WDE bulkhead feedthroughs.

105 SERIES

● = Standard ❍ = Option

Reference	Pin layout	Number of contacts	Contact types			Insulating material	Contact ø [mm]	Wire size [2]		Test voltage [6] [kV] in mated position				Rated voltage [4] r.m.s [V]	Current [3] [A]
										AC r.m.s		DC			
			Solder	Crimp	PCB			Solder contact [1]	Crimp contacts	Contact to body	Contact to contact	Contact to body	Contact to contact		
105 A Z **051**		2	●			PEEK	2.0	max ø2.03mm AWG13 [1] AWG14 [7/22]	–	2.5	3.0	4.0	4.0	≤ 630	26
105 A Z **087**		2	●			PEEK	3.0	max ø3.13mm AWG9 [1] AWG10 [105/30]	–	1.2	1.6	2.3	3.0	≤ 400	30
105 A Z **052**		3	●			PEEK	2.0	max ø2.03mm AWG13 [1] AWG14 [7/22]	–	2.0	2.5	3.0	3.5	≤ 400	23
105 A Z **053**		4	●			PEEK	2.0	max ø2.03mm AWG13 [1] AWG14 [7/22]	–	1.8	1.8	2.6	2.6	≤ 320	20
105 A Z **054** [5]		7 / 1	●			PEEK	2.0	max ø2.03mm AWG13 [1] AWG14 [7/22]	–	3.0	2.0	4.0	3.0	≤ 320	25
		7 / 6					1.3	max ø1.18mm AWG17 [1] AWG18 [16/30]	–	1.8	1.5	2.5	2.0		7.0
105 A Z **067**		8	●			PEEK	1.3	max ø1.18mm AWG17 [1] AWG18 [16/30]	–	1.7	2.0	2.5	2.8	≤ 320	10
105 A **124**		8 / 2	●			PEEK	2.3	max ø2.48mm AWG11 [1] AWG12 [7/20]	–	1.2	2.2	1.8	3.2	≤ 250	18.5
		8 / 6					1.3	max ø1.18mm AWG17 [1] AWG18 [16/30]	–	1.2	1.2	1.8	1.8		7.5
105 A Z **101** [5]		9 / 1	●		●	PEEK	2.0	max ø2.03mm AWG13 [1] AWG14 [7/22]	–	3.0	2.0	4.0	3.0	≤ 320	25
		9 / 8					1.3	max ø1.18mm AWG17 [1] AWG18 [16/30]	–	1.8	1.5	2.5	2.0		5.0

[1] Stranding values are in brackets.

[2] For a given AWG, the diameter of some stranded conductor designs could exceptionally be larger than the hole diameter of the barrel. Testing may be required.

[3] Current per contact at 40°C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For the max. operating current a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A17 for details.

[4] Recommended operating voltage at sea level measured according to IEC 60664-1.

[5] Contact dia. 2.0 is positioned to make contact first and break last.

[6] Measured with S plug and D receptacle.

105 SERIES

● = Standard ❍ = Option

Reference	Pin layout	Number of contacts	Contact types			Insulating material	Contact ø [mm]	Wire size [2]		Test voltage [8] [kV] in mated position				Rated voltage [4] r.m.s [V]	Current [3] [A]
										AC r.m.s		DC			
			Solder	Crimp	PCB			Solder contacts [1]	Crimp contacts	Contact to body	Contact to contact	Contact to body	Contact to contact		
105 A Z 062		10	●	●	●	PEEK	1.3	max ø1.18mm AWG17 [1] AWG18 [16/30]	max ø1.18mm min ø0.58mm AWG18-24	1.7	2.0	2.5	2.7	≤ 320	9.0
105 A Z 069		12	●		●	PEEK	1.3	max ø1.18mm AWG17 [1] AWG18 [16/30]	-	1.4	1.5	1.8	2.0	≤ 250	8.0
105 A Z 104 [5]		13 / 3	●		●	PEEK	1.3	max ø1.18mm AWG17 [1] AWG18 [16/30]	–	2.5	1.5	3.8	2.2	≤ 320	14
		13 / 10					0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	–	1.3	1.5	1.8	2.2		1.0
105 A 127 [7]		13 / 3		●		PEEK	1.3	–	max ø1.18mm min ø0.58mm AWG18-24	3.0	2.8	4.8	3.9	≤ 320	14
		13 / 10					0.7	–	max ø0.62mm min ø0.38mm AWG24-28	3.1	1.1	4.7	1.9		1.0
105 A Z 058		15	●	●	●	PEEK	0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.83mm min ø0.48mm AWG22-26	1.4	1.6	1.8	2.2	≤ 250	5.3
105 A Z 110 [6]		16 / 4	●		●	PEEK	1.6	max ø1.86mm AWG13 [1] AWG14 [7/22]	–	1.6	1.3	2.8	2.1	≤ 250	14
		16 / 12					0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	–	1.0	1.2	1.5	2.0		1.0
105 A Z 038		18	●	●	●	PEEK	0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.83mm min ø0.48mm AWG22-26	1.4	1.6	1.8	2.2	≤ 200	4.5
105 A Z 093		24	●		●	PBT	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	–	1.2	1.5	1.5	2.0	≤ 250	3.5
105 A Z 102		27	●	●	●	PEEK	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.62mm min ø0.38mm AWG24-28	1.2	1.5	1.5	2.0	≤ 250	3.0

[1] Stranding values are in brackets.

[2] For a given AWG, the diameter of some stranded conductor designs could exceptionally be larger than the hole diameter of the barrel. Testing may be required.

[3] Current per contact at 40°C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For the max. operating current a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A17 for details.

[4] Recommended operating voltage at sea level measured according to IEC 60664-1.

[5] Contacts dia. 1.3 are positioned to make contact first and break last.

[6] Contacts dia. 1.6 are positioned to make contact first and break last.

[7] Inverted polarity: female contacts on plug/male contact on receptacle

[8] Measured with S plug and D receptacle.

STAINLESS STEEL

107 SERIES

● = Standard ❍ = Option

Reference	Pin layout	Number of contacts	Contact types			Insulating material	Contact ø [mm]	Wire size [2]		Test voltage [5] [kV] in mated position				Rated voltage [4] r.m.s [V]	Current [3] [A]
			Solder	Crimp	PCB			Male solder contacts [1]	Female solder contacts [1]	AC r.m.s		DC			
										Contact to body	Contact to contact	Contact to body	Contact to contact		
107 A Z **013**		4	●			PTFE	2.3	max ø2.93mm AWG9 [1] AWG10 [37/26]	max ø2.28mm AWG12 [1] AWG14 [105/34]	6.5	7.0	10	11	≤ 1000	26
107 A Z **018**		6	● ❍			PTFE PEEK	2.3	max ø2.93mm AWG9 [1] AWG10 [37/26]	max ø2.28mm AWG12 [1] AWG14 [105/34]	4.5	4.5	6.0	6.0	≤ 800	25
107 A Z **015**		19	● ❍			PTFE PEEK	2.0	max ø2.08mm AWG12 [1] AWG14 [7/22]	max ø2.03mm AWG13 [1] AWG14 [7/22]	2.0	2.5	2.5	3.2	≤ 500	13
107 A Z **051**		27	● ❍			PTFE PEEK	1.3	max ø1.18mm AWG17 [1] AWG18 [16/30]	max ø1.18mm AWG17 [1] AWG18 [16/30]	2.0	2.0	3.0	3.2	≤ 400	7.5
107 A Z **052**		40	● ❍			PTFE PEEK	1.3	max ø1.18mm AWG17 [1] AWG18 [16/30]	max ø1.18mm AWG17 [1] AWG18 [16/30]	1.8	1.5	2.5	2.0	≤ 320	6.5
107 A Z **023**		55	8			PTFE	1.3	max ø1.18mm AWG17 [1] AWG18 [16/30]	max ø1.18mm AWG17 [1] AWG18 [16/30]	2.0	1.8	2.8	2.5	≤ 400	7.0
			47			PEEK	0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.88mm AWG20 [1] AWG22 [19/34]	1.7	1.5	2.5	2.1		3.0
			●												
			❍												

[1] Stranding values are in brackets.

[2] For a given AWG, the diameter of some stranded conductor designs could exceptionally be larger than the hole diameter of the barrel. Testing may be required.

[3] Current per contact at 40°C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For the max. operating current a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A17 for details.

[4] Recommended operating voltage at sea level measured according to IEC 60664-1.

[5] Measured with S plug and D receptacle.

MECHANICAL CODING

For easy connect / Disconnect operations
Our contact blocks are engineered with arc-shape metal guides, which ensure precise alignment of connectors during the mating process.

This guiding mechanism provides:

- Increased safety and user friendliness by preventing misconnection.
- Easy mating cycles, can be blind-mated.

Keying codes option
All Multipole body styles are mechanically coded.
Code 1 is the standard, but other codes can be requested.

	Code 1
Receptacle	

Other keying codes are available on request, please contact us.
Images are for reference only.

MULTIPOLE LOW VOLTAGE OPTIONS

OPTIONS

1	**Housing color** Which housing color do you need?		**Natural** **Stainless steel**	
2	**Contact block material** Which contact block material do you need?		**PEEK**	
3	**Contact type** Which contact type do you need?		**Solder**	**Crimp**[1]
4	**Keying code** Which keying code do you need?	Code 1 	-130	-150

[1] Crimp contacts are not an option for sealed or hermetic connectors.

CONTACT TYPE FOR PANEL MOUNTED CONNECTORS

Applicable for	Last digit	Description
Front mounted: **DBEE**	0	Standard: solder contacts
	9	With PCB (Printed Circuit Board) contacts instead of solder contacts
Rear mounted: **DBPE**	0	Standard: PCB (Printed Circuit Board) contacts
	9	With solder contacts instead of PCB (Printed Circuit Board) contacts

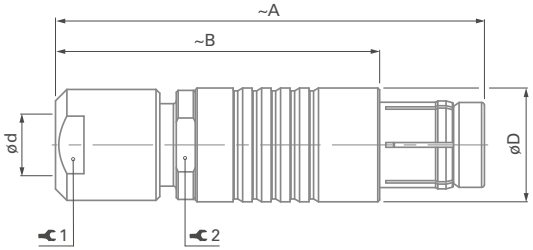
Options are available on request, please contact us.

PLUGS

CABLE
MOUNTED

S

BODY STYLE



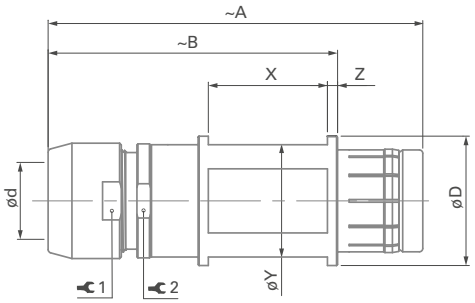
Series	A	B	ø D	d *max* Unsealed	d *max* Sealed	1	Torque 1 *[Nm]*	2
103	46	35	12	6.7	6.2	10	1.0	10
105	62	47	18	10.7	10.7	15	3.5	16
107	110	85	34	22.7	22.7	32	10.0	32

Torque *[Nm]* are recommended values that may be influenced by the characteristics of the cable jacket. Tests must be conducted to evaluate the exact values. To secure the cable clamp nut, we recommend the use of thread locking adhesive.

CABLE
MOUNTED

ST

BODY STYLE



Series	A	B	ø D	d *max* Unsealed	d *max* Sealed	1	Torque 1 *[Nm]*	2
107	110	85	34	22.7	22.7	32	10.0	32

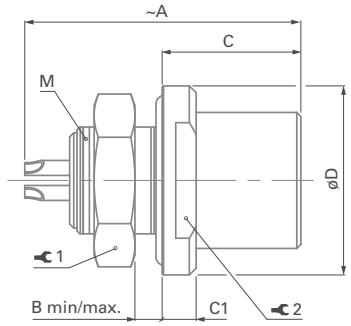
Series	X	ø Y	Z
107	35	33	3

RECEPTACLES

PANEL FRONT MOUNTED

DBEE

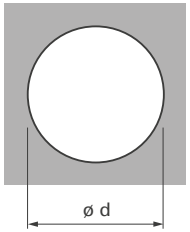
BODY STYLES



Series	A	B max.	C	C1	ø D	M	1	Torque 1 [Nm]	2
103	23	4.0	13.0	3.0	18	14x1	17	3.0	14
105	32	5.0	19.0	4.0	27	18x1	22	6.0	22
107	47	5.0	24.0	5.0	45	36x2	TX00.107	16	38

PANEL CUT-OUT

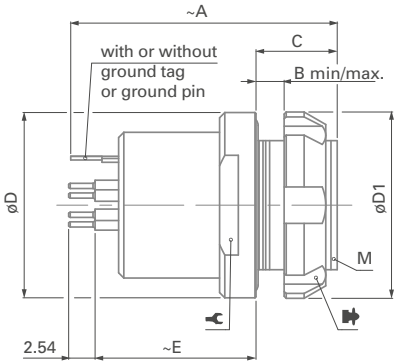
Series	DBEE
103	14.1
105	18.1
107	36.2



PANEL REAR MOUNTED

DBPE

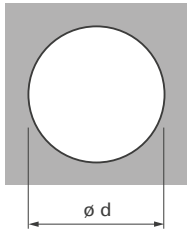
BODY STYLES



Series	A	B max.	C	ø D	ø D1	E	M			Torque [Nm]
103	26	3.0	7.8	18	18	15.5	14x1	15	TG00.001	3.0

PANEL CUT-OUT

Series	DBPE
103	14.1



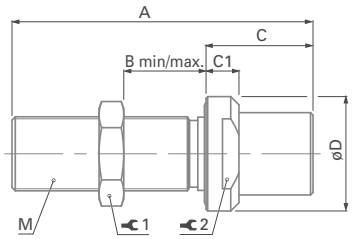
All dimensions and images shown are in millimeters and are for reference only.

FEEDTHROUGH

PANEL FRONT
MOUNTED

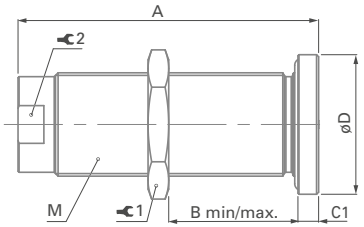
WDE 103

BODY STYLE



WDE 105

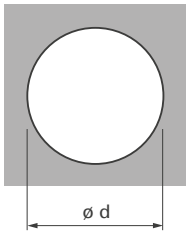
BODY STYLE



Series	A	B max	C	C1	ø D	M	1 [1]	Torque 1 [Nm]	2
103	40	23	14	4	17	12x1	14	2.5	14
105	62	46	-	4	27	20x1	22	6.5	17

PANEL CUT-OUT

Series	WDE
103	12.1
105	20.1



The bulkhead feedthrough connector allows the passing of electrical signals and power through a panel via two cable plugs.

The "AZ" version of the feedthrough accepts a type "A" plug on the flange side and a type "Z" plug on the threaded end, which is typically oriented toward the interior of the chassis. In the version "ZA" the connections "A" and "Z" are inverted.

Dimension "B max" specifies the maximum panel thickness. For panels thinner than the unthreaded section "E min", we can provide spacers as shown accessories section, page B 8-16.

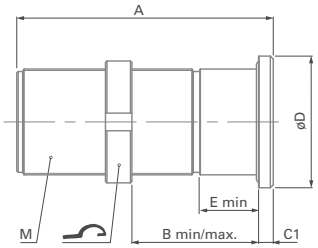
[1] Assembly tool for side hex nut, see Accessories section, page C 26.

FEEDTHROUGH

PANEL FRONT
MOUNTED

WDE 107

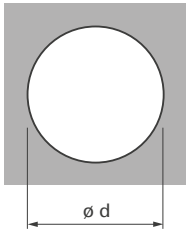
BODY STYLE



Series	A	B min/max	C1	ø D	E min	M	[1]	Torque 1 *[Nm]*
107	92	20/76	5	45	20	36x2	TX00.107	17

PANEL CUT-OUT

Series	WDE
107	36.2



The bulkhead feedthrough connector allows the passing of electrical signals and power through a panel via two cable plugs.

The "AZ" version of the feedthrough accepts a type "A" plug on the flange side and a type "Z" plug on the threaded end, which is typically oriented toward the interior of the chassis. In the version "ZA" the connections "A" and "Z" are inverted.

Dimension "B max" specifies the maximum panel thickness. For panels thinner than the unthreaded section "E min", we can provide spacers as shown in accessories section, page B 8-16.

[1] Assembly tool for side slotted nut, see Accessories section, page C 27.

Torque *[Nm]* are recommended values that may be influenced by the quality of the panel surface. Tests must be conducted to evaluate the exact values.

All dimensions and images shown are in millimeters and are for reference only.

ORDERING INFORMATION

How to build a part number
Refer to the table aside to find the information you need to build the part number to order your selected connector.
For customized solutions, please contact us.

CONNECTORS PARTS

Part system	Body style	Size	Polarity
PART NUMBER EXAMPLES			
Plug	**ST- S**	**103**	**A**
	ST- S cable mounted plug in Series 103 with 6 (multipole) low voltage male contacts and following options.		
Receptacle	**ST- DBEE**	**103**	**A**
	ST- DBEE panel mounted receptacle in Series 103 with 6 (multipole) low voltage female contacts and following options.		

Cable mounted plugs	Series	As standard rule
S ST	103 105 107	A = male contacts on plug and female contacts on receptacle Z = female contacts on plug and male contacts on receptacle
Panel mounted receptacles	See page C 4 or Technical dimensions C 12	See page C 5
DBEE DBPE WDE		

Part numbering

Contact configuration	Options	Cable clamp sets for cable mounted plugs & receptacles
056	-130	+
	Natural stainless steel housing, PEEK contact blocks with solder contacts, keying code 1 and clamp nut without bend relief.	
056	-130 E	Not applicable as panel mounted
	Natural stainless steel housing, PEEK contact blocks with solder contacts and keying code 1.	

Three-digit number specific for each pin layout

See page C 7

Specific suffix corresponding to selected options

Housing color

Natural Stainless Steel

Contact block insulating material

PEEK

Contact type

Solder Crimp PCB

Mechanical coding of the contact block

Clamp nut type & color

Other options

See page C 11

Below cable clamp sets should be ordered separately

Multipole low voltage

Example: ST- S 103 A056-130 +

Clamp set ordering line E31 103.1/6.7 + B

See page C 18

RELATED ITEMS

Accessories

Ex: ST-CR105C 2C3 A150

Stainless steel cap

- Protective sleeves
- Soft caps
- Metal caps
- Spacers
- Washers
- Mounting nuts

See page C 22

Tooling

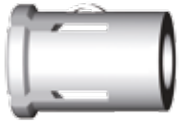
Ex: TX00.240

Crimping tool

- Spanners / Wrenches
- Crimping tools
- Tools for crimp contacts and high voltage contacts

See page C 23

INTRODUCTION



To guarantee excellent cable retention and strain relief,
Fischer Connectors provides robust and high quality cable clamp sets:

- Collet style clamp system retaining cable over large jacket surface area.
- Protection of small diameters and delicate conductors.

Cable clamp sets are suitable for all cable mounted connectors.

RANGE OVERVIEW: S, U & E CABLE CLAMP SETS

Fischer Connectors offers three types of cable clamps sets.
The table below will help you select the one corresponding to your needs.

Cable clamp set	Do you need the interface between the cable and the connector to be sealed?		Do you need the connector to be terminated to the cable shield?	
	Unsealed	Sealed	Unshielded	Shielded
S - Shielded	●			●
U - Unshielded	●		●	
E - Environmental		●	●	●

For 107 connector series, only S and E cable clamp sets are available.

PART NUMBERING

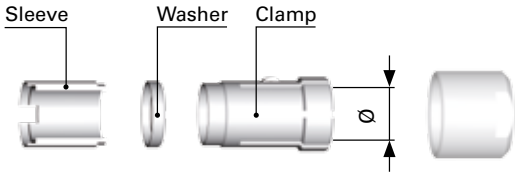
Cable clamp sets below should be ordered separately
Multipole low voltage
ST- S 103 A056-130 **+**
Examples connector ordering line
ST- S103 A056-130 **+**
Clamp set ordering line
E3 102.5/2.0

See following pages for cable clamp sets selection.

103 SERIES

S
SHIELDED

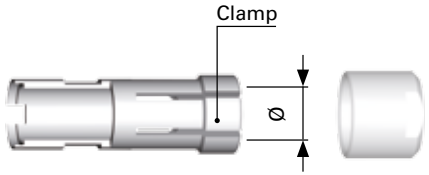
Shielded cable clamp with spacer and sleeve.



Cable dia. range	Collet Ø	Cable clamp set PEEK or PBT insulator
1.7 - 2.2	2.2	E31 103.1/2.2 + B
2.2 - 2.7	2.7	E31 103.1/2.7 + B
2.7 - 3.2	3.2	E31 103.1/3.2 + B
3.2 - 3.7	3.7	E31 103.1/3.7 + B
3.7 - 4.2	4.2	E31 103.1/4.2 + B
4.2 - 4.7	4.7	E31 103.1/4.7 + B
4.7 - 5.2	5.2	E31 103.1/5.2 + B
5.2 - 5.7	5.7	E31 103.1/5.7 + B
5.7 - 6.2	6.2	E31 103.1/6.2 + B
6.2 - 6.7	6.7	E31 103.1/6.7 + B

U
UNSHIELDED

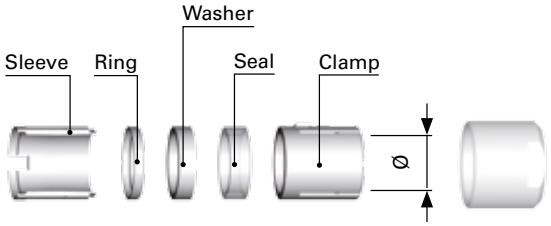
Unshielded, one-piece cable clamp.



Cable dia. range	Collet Ø	Cable clamp set PEEK or PBT insulator
2.2 - 3.2	3.2	E3 103.6/3.2
3.2 - 4.2	4.2	E3 103.6/4.2
4.2 - 4.7	4.7	E3 103.6/4.7
4.7 - 5.2	5.2	E3 103.6/5.2
5.2 - 5.7	5.7	E3 103.6/5.7
5.7 - 6.2	6.2	E3 103.6/6.2
6.2 - 6.7	6.7	E3 103.6/6.7

E
ENVIRONMENTAL

Environmentally sealed clamp for use with shielded or unshielded cables.



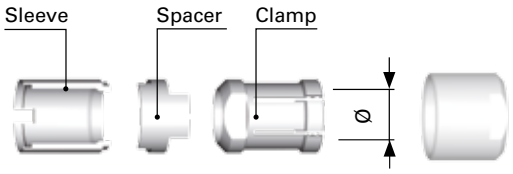
Cable dia. range	Collet Ø	Cable clamp set PEEK or PBT insulator
1.7 - 2.2	2.2	E31 103.2/2.2 + B
2.2 - 2.7	2.7	E31 103.2/2.7 + B
2.7 - 3.2	3.2	E31 103.2/3.2 + B
3.2 - 3.7	3.7	E31 103.2/3.7 + B
3.7 - 4.2	4.2	E31 103.2/4.2 + B
4.2 - 4.7	4.7	E31 103.2/4.7 + B
4.7 - 5.2	5.2	E31 103.2/5.2 + B
5.2 - 5.7	5.7	E31 103.2/5.7 + B
5.7 - 6.2	6.2	E31 103.2/6.2 + B

All dimensions and images shown are in millimeters and are for reference only.

105 SERIES

S
SHIELDED

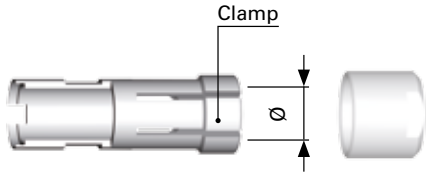
Shielded cable clamp with spacer and sleeve.



Cable dia. range	Collet Ø	Cable clamp set PEEK or PBT insulator
3.2 - 4.2	4.2	E3 105.1/4.2 + B
4.2 - 5.2	5.2	E3 105.1/5.2 + B
5.2 - 6.2	6.2	E3 105.1/6.2 + B
6.2 - 7.2	7.2	E3 105.1/7.2 + B
7.2 - 8.2	8.2	E3 105.1/8.2 + B
8.2 - 9.2	9.2	E3 105.1/9.2 + B
9.2 - 10.0	10.0	E3 105.1/10.0 + B
10.0 - 10.7	10.7	E3 105.1/10.7 + B

U
UNSHIELDED

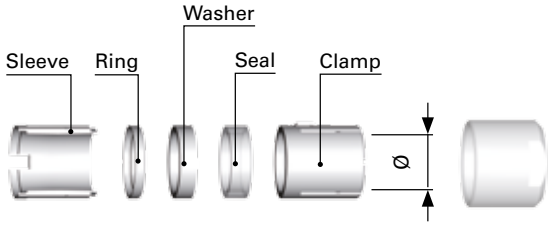
Unshielded, one-piece cable clamp.



Cable dia. range	Collet Ø	Cable clamp set PEEK or PBT insulator
2.5 - 3.5	3.5	E3 105.6/3.5
3.5 - 4.5	4.5	E3 105.6/4.5
4.5 - 5.5	5.5	E3 105.6/5.5
5.5 - 6.5	6.5	E3 105.6/6.5
6.5 - 7.5	7.5	E3 105.6/7.5
7.5 - 8.5	8.5	E3 105.6/8.5
8.5 - 9.5	9.5	E3 105.6/9.5
9.5 - 10.5	10.5	E3 105.6/10.5

E
ENVIRONMENTAL

Environmentally sealed clamp for use with shielded or unshielded cables.

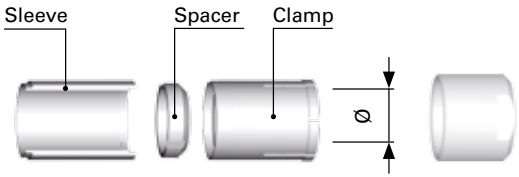


Cable dia. range	Collet Ø	Cable clamp set PEEK or PBT insulator
3.2 - 4.2	4.2	E31 105.2/4.2 + B
4.2 - 5.2	5.2	E31 105.2/5.2 + B
5.2 - 6.2	6.2	E31 105.2/6.2 + B
6.2 - 7.2	7.2	E31 105.2/7.2 + B
7.2 - 8.2	8.2	E31 105.2/8.2 + B
8.2 - 9.2	9.2	E31 105.2/9.2 + B
9.2 - 10.0	10.0	E31 105.2/10.0 + B
10.0 - 10.7	10.7	E31 105.2/10.7 + B

107 SERIES

S
SHIELDED

Shielded cable clamp with spacer and sleeve.



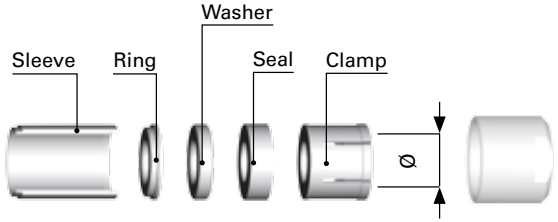
Cable dia. range	Collet Ø	Cable clamp set PTFE insulator
5.7 - 7.2	7.2	E3 107.1/7.2
7.2 - 8.2	8.2	E3 107.1/8.2
8.2 - 9.2	9.2	E3 107.1/9.2
9.2 - 10.2	10.2	E3 107.1/10.2
10.2 - 11.2	11.2	E3 107.1/11.2

Cable dia. range	Collet Ø	Cable clamp set PTFE insulator
11.2 - 12.2	12.2	E3 107.1/12.2
12.2 -13.2	13.2	E3 107.1/13.2
13.2 - 14.2	14.2	E3 107.1/14.2
14.2 - 15.2	15.2	E3 107.1/15.2
15.2 - 16.2	16.2	E3 107.1/16.2

Cable dia. range	Collet Ø	Cable clamp set PTFE insulator
16.2 - 17.2	17.2	E3 107.1/17.2
17.2 - 18.2	18.2	E3 107.1/18.2
18.2 - 19.2	19.2	E3 107.1/19.2
19.2 - 20.2	20.2	E3 107.1/20.2
20.2 - 21.2	21.2	E3 107.1/21.2
21.2 - 22.7	22.7	E3 107.1/22.7

E
ENVIRONMENTAL

Environmentally sealed clamp for use with shielded or unshielded cables.



Cable dia. range	Collet Ø	Cable clamp set PTFE insulator
5.7 - 7.2	7.2	E3 107.2/7.2
7.2 - 8.2	8.2	E3 107.2/8.2
8.2 - 9.2	9.2	E3 107.2/9.2
9.2 - 10.2	10.2	E3 107.2/10.2
10.2 - 11.2	11.2	E3 107.2/11.2

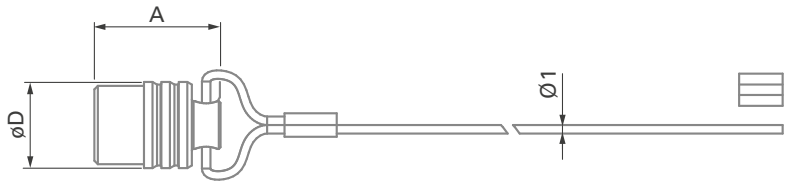
Cable dia. range	Collet Ø	Cable clamp set PTFE insulator
11.2 - 12.2	12.2	E3 107.2/12.2
12.2 -13.2	13.2	E3 107.2/13.2
13.2 - 14.2	14.2	E3 107.2/14.2
14.2 - 15.2	15.2	E3 107.2/15.2
15.2 - 16.2	16.2	E3 107.2/16.2

Cable dia. range	Collet Ø	Cable clamp set PTFE insulator
16.2 - 17.2	17.2	E3 107.2/17.2
17.2 - 18.2	18.2	E3 107.2/18.2
18.2 - 19.2	19.2	E3 107.2/19.2
19.2 - 20.2	20.2	E3 107.2/20.2
20.2 - 21.2	21.2	E3 107.2/21.2
21.2 - 22.7	22.7	E3 107.2/22.7

All dimensions and images shown are in millimeters and are for reference only.

STAINLESS STEEL CAPS

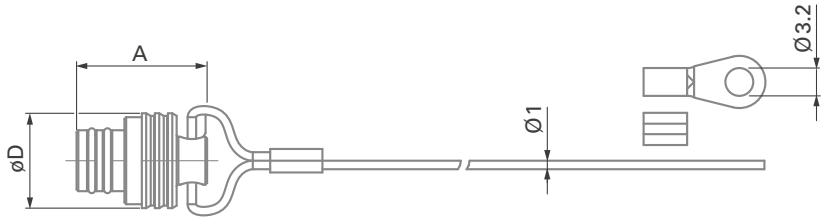
FOR PLUGS



Series	Part number	O-ring material	Caps		Stainless steel cable		Crimp ferrule
			A	D	Length	Covering material	Part number
103	ST-CP103C 2C3 A100	EPDM	21	13	100	FEP - Teflon®	300.922
105	ST-CP105C 2C3 A150		29	20	150		
107	ST-CP107C 2C3 A350		47	40	350		

Material - Cap: Stainless steel 316L – Crimp ferrule: aluminium

FOR RECEPTACLES



Series	Part number	O-ring material	Caps		Stainless steel cable		Crimp ferrule	Crimp lug
			A	D	Length	Covering material	Part number	Part number
103	ST-CR103C 2C3 A100	EPDM	13	15	100	FEP - Teflon®	300.922	300.299
105	ST-CR105C 2C3 A150		21	19	150			
107	ST-CR107C 2C3 A350		26	36	350			

Material - Cap: Stainless steel 316L – Crimp ferrule: aluminium

These metal caps are fitted with an EPDM O-ring seal. They protect and seal the mating face of the plugs and receptacles.
To attach the ferrule or the crimp lug to the stainless steel cable, use a crimp tool, a vice or a pair of pliers with parallel jaws.

TOOLING FOR CRIMP CONTACTS

Series	Polarity	Contact diameter (mm)									
		0.5		0.7		0.9		1.3		1.6	
		Part number		Part number		Part number		Part number		Part number	
		Contact	Positioner	Contact	Positioner	Contact	Positioner	Contact	Positioner	Contact	Positioner
103	Male	200.2113	TX00.300	200.2884	TX00.304	200.2890	TX00.307	200.2402	TX00.311	-	-
	Female	200.2114	TX00.302	200.2885	TX00.305	200.2892	TX00.309	200.2214	TX00.312	-	-
105	Male	-	-	200.2884	TX00.304	200.2891	TX00.308	200.2403	TX00.338	200.1653	TX00.313
	Female	-	-	200.2886	TX00.306	200.2893	TX00.310	200.2214	TX00.312	200.1654	TX00.314
Crimp tool part number		TX00.240		TX00.240		TX00.240		TX00.240		TX00.242	

See following pages for description of crimp tool and positioner.

CRIMPING TOOLS

CRIMP TOOL
ULTRA PRECISION

FOR CLOSED C CRIMP TERMINATION

Part number	Contact dia.	C crimp tool
TX00.240	0.5	BALMAR 18 - 000 or DANIELS MH - 800
	0.7	
	0.9	
	1.3	
TX00.242	1.6	ASTRO TOOL 615708

The best choice of precision crimp tools for highly reliable eight indenter crimping per US-MIL, IEC and DIN Specifications. Positioners have to be ordered according to contact.

Standards
IEC 60203 / DIN 41 611, Part 3 / MIL-C-22520, Class I, Type 1

POSITIONER

SUITABLE FOR CRIMP TOOL TX00.240

SUITABLE FOR CRIMP TOOL TX00.242

For the choice of Fischer Connectors' positioner, please refer to section "Tooling", page B 9-3.

FOR CRIMP CONTACTS

CONTACT INSERTION TOOL

Part number	Contact dia.	Description
TX00.214	0.5	Tool for inserting male and female removable crimp contacts into the contact block. Especially recommended for small gauge and fragile wires.
TX00.210	0.7	
TX00.211	0.9	
TX00.273	1.3	

Material
Handle: black POM (Delrin®)
Fork: tool steel, chrome plated

CONTACT EXTRACTION TOOL

Part number	Contact dia.	Description
TX00.213	0.5	Tool for extracting male and female removable crimp contacts from the contact block. The sleeve of this tool is pushed over the contact, to release the contact retaining mechanism. The tool plunger is then pushed to eject the contact.
TX00.200	0.7	
TX00.205	0.9	
TX00.212	1.3	
TX00.201	1.6	

Material
Housing and plunger: black POM (Delrin®)
Sleeve: stainless steel
Slide: tool steel

All dimensions and images shown are in millimeters and are for reference only.

SPANNERS & NUTDRIVER

DOUBLE-END OPEN SPANNER
EXTRA THIN

Part number	Opening across flats	Length	Fork thickness
TX00.010	10	104	2.5
TX00.014	14	130	3.0

Material – Chrome alloy steel, chrome plated, fork angles – 15° and 75°

OPEN-END SPANNER
EXTRA THIN

Part number	Opening across flats	Length	Fork thickness
TX00.015	15	145	5.2
TX00.016	16	160	3.2
TX00.017	17	160	5.5
TX00.022	22	196	6.5
TX00.032	32	270	8.0

Material – Chrome vanadium steel, chrome plated, fork angle – 15°

HOOK SPANNER

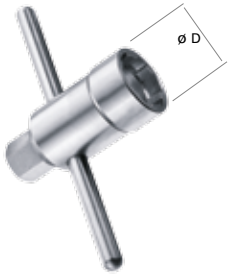
FOR SIDE SLOTTED NUTS

Part number	Thread size	Nut outer dia.
TX00.107	M35x1 / M36x1	39 – 43

Material – Hardened tool steel, gunmetal finish

NUTDRIVER WITH T-HANDLE
AND HEX DRIVE

FOR DECORATIVE SLOTTED NUTS



Part number	Thread size	Nut outer dia.	D	Hex drive
TG00.001	M14 x 1	18	21	10

Material – Hardened tool steel, nickel plated

MATERIAL & SURFACE TREATMENTS

Metal parts

Metal parts		Material			Finish	
		Designation	ISO	Standard	Designation	Standard
Shell (Housing), clamp nut, decorative slotted nut		Stainless steel	X2CrNiMo17-12-2	316L/1.4404	-	-
Cable clamp, inner sleeve, spacers and rings, nuts and washers		Brass	CuZn39Pb3	CW614N / UNS C 38500	Nickel	SAE-AMS-QQ-N-290 / SAE-AMS2404
Contacts	**Male (solder)**	Brass	CuZn39Pb3	CW614N / UNS C 38500	1 µm Gold over Nickel	MIL-DTL-45204D /Type 1 + ASTM B488
	Female, Male (crimp)	Bronze	CuSn4Zn4Pb4	CW456K / ASTM B 139 / UNS C 54400		

Other material and surface treatments are available on request.

Insulator and sealing

Contact blocks and other insulators for our standard connectors are manufactured from high performance engineering plastic materials. The standard materials of each connector series are listed under Electrical & contact configurations in pages C 7 through C 10. Ceramics and other dielectrics are available on special order.

Insulator and sealing	International symbol	Flammability
Insulator	PEEK	UL 94 V-O
Interface O-rings (receptacles)	FPM (Viton®) / EPDM	-
Sealant material (receptacles) - IP68	Silicon compound	UL 94 V-O
Sealant material (receptacles) - Hermetic	Epoxy compound	UL 94 HB
Cable sealing (plugs) - IP68	TPE-S	UL 94 HB

Our products are RoHs compliant and conform with the EC Directives 2002/95/EC.

All dimensions and images shown are in millimeters and are for reference only.

ENVIRONMENTAL & MECHANICAL DATA

Characteristic	Product type	Value	Standard
Sealing performance	Unsealed connectors (mated)	IP50	IEC 60529
	Plugs (mated) with general purpose sealed clamps[1)]	IP68 IP69	
	Receptacles "U" body style	IP68	
	Receptacles "E" body style	Hermetic: Tested: <10^{-8} mbar l/sec.	IEC 60068-2-17 test Qk method 3, alternative b
		IP69	IEC 60529
Operating temperature range	See details on page A 15	See details on page A 15	IEC 60512-6-11 i+j / IEC 60068-2-14-Nb
Corrosion resistance		Salt mist, 1,000 hours, 5% salt solution, 35°C	IEC 60068-2-11 test Ka MIL-STD-202 method 101 condition A
Endurance		5,000 mating cycles	IEC 60512-5-9a / EIA-364-09
Vibration		10 to 2000 Hz, 1.5 mm or 15g, 12 sweep cycles per axis, 20 minutes per 10-2000-10 Hz sweep cycle, no discontinuity > 1us	MIL-STD-202 method 204 condition B
Radiation resistance[2)]	Unsealed connectors	PEEK: 10^7 Gy(=1000M Rads)	
	Sealed receptacles "E"	FPM (Viton®) O-rings 10^5 Gy (=10M Rads)	

[1)] The sealing performance can be affected by the long term quality of the cable.
[2)] For information only. Not tested by Fischer Connectors.

Most of our connectors are completely sterilizable in autoclave, Cidex® , EtO, gamma radiation, Steris® or Sterrad®. Please contact us for more details.
For more information visit: **www.fischerconnectors.com**.

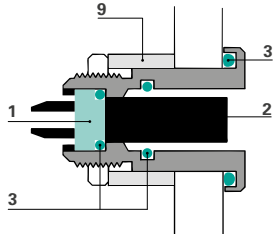
ELECTRICAL DATA

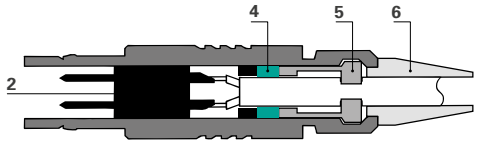
Characteristic	Contact size	Typical values	Standard
Contact resistance 5,000 mating cycles	ø 0.5 mm ø 0.7 mm ø 0.9 mm ø 1.3 mm ø 1.6 mm ø 2.3 mm ø 3.0 mm	5.0 mΩ 5.0 mΩ 4.0 mΩ 2.5 mΩ 2.5 mΩ 2.5 mΩ 1.5 mΩ	IEC 60512-2-2a/b
Insulation resistance		> 10^{10}Ω	IEC 60512-3-1-3a Method C

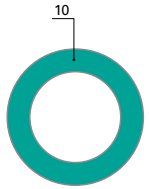
OPERATING TEMPERATURES

The temperature ranges quoted by the manufacturers of the plastic materials are usually the absolute maximum values. When exposed to the mechanical and electrical stresses present in a connector, these values are often unrealistic.

If a composite connector system including accessories is used, then the item with the lowest temperature performance will dictate the operating temperature limit of the system. The table below shows our recommended operating temperature ranges.







Ref.	Component	Material		Operating temperatures
1	Sealant	"U" Type		-55°C to +200°C
		"E" Type		-65°C to +150°C
2	Insulator	PEEK		-65°C to +200°C
3	Standard O-rings	FPM (Viton®)		-20°C to +200°C [1]
	Interface O-rings (option)	EPDM		-50°C to +160°C [2]
4	Cable clamp seal	TPE		-70°C to +130°C
5	Cable clamp	Standard	Brass	
6	Cable strain relief	TPE		-60°C to +100°C
		VMQ - Silicone rubber		-60°C to +180°C
7	Protective Boots	TPE		-60°C to +100°C
8	Sealing Caps	Metallic	Plug: Stainless steel with EPDM O-ring	-20°C to +200°C [1]
			Receptacle: Stainless steel with EPDM O-ring	-30°C to +110°C [1]
		Plastic	POM with FPM O-ring	-20°C to +100°C [1]
		Soft Caps	TPE	-20°C to + 85°C
9	Panel Spacer	Aluminium		
10	Color Coding Washer	PP		-20°C to + 60°C

TEMPERATURE °C

0°C

[1] Minimum mating temperature: 0°C.
[2] Minimum mating temperature: -20°C.