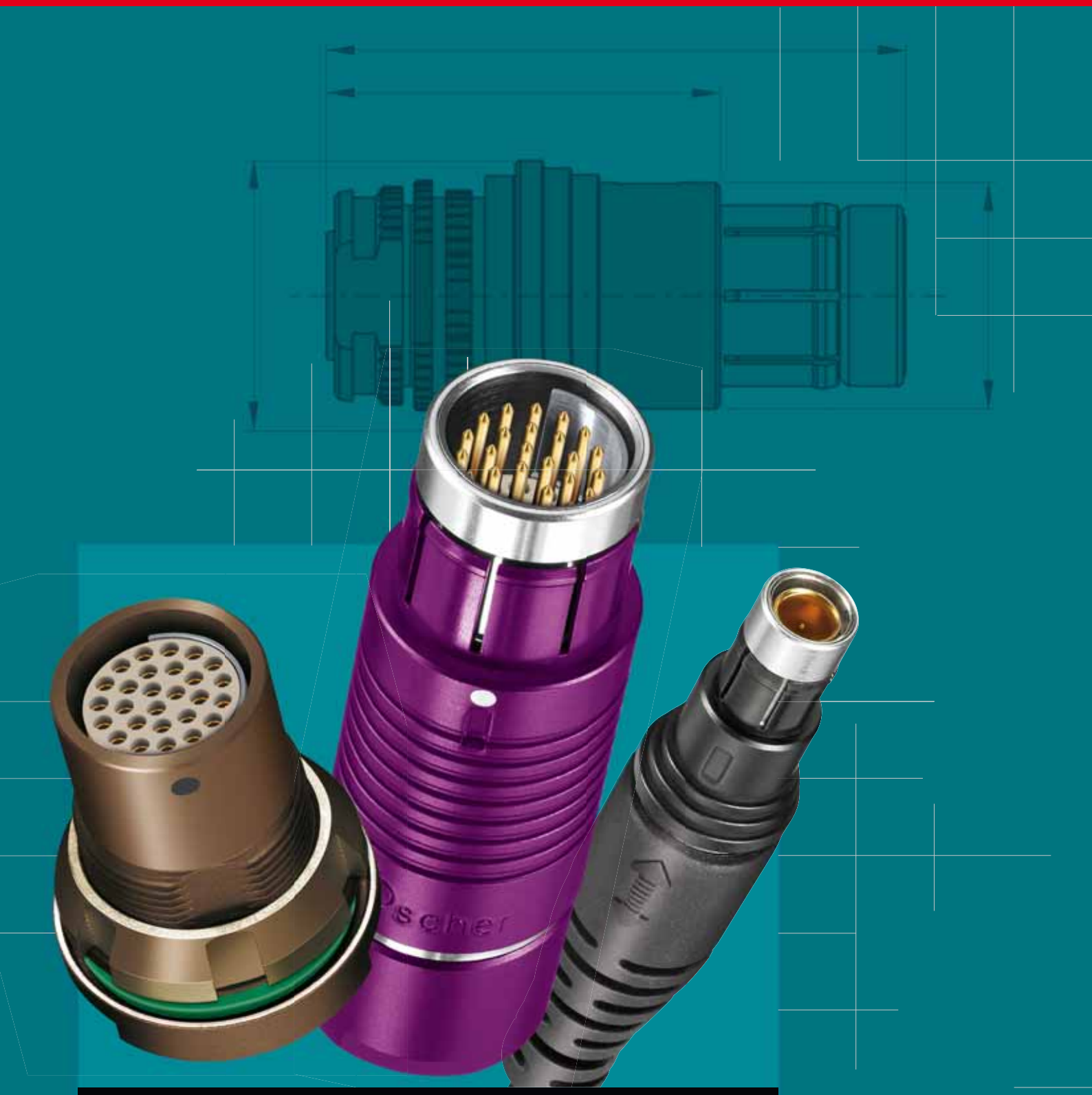
fischer ultralight connectors

AluLite™ series



fischer CONNECTORS

Edition 1.4

fischer ultralight connectors

AluLite™ series
When weight matters

Are weight considerations significant in the design and development of your equipment?
The aluminium engineered Fischer AluLite™ series is ultralight, compact and offers excellent strength to weight ratio.

Available in a range of colors, from bright to camouflage shades, the AluLite™ series smoothly fits in with your product design, while also offering an easy-to-use color-coding system.

Significantly around 50% lighter than typical metal connectors, the AluLite™ series is ideal for mobile equipment, portable systems, or hand-held devices.

Product benefits

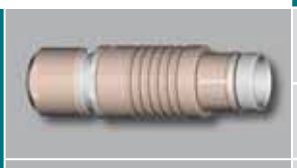
- Ultralight, compact and rugged construction
- Wide color range available
- Easy connect/disconnect operations
- Functional life greater than 10,000 mating cycles
- Push-pull locking mechanism or emergency release system
- 360° EMC shielding
- Sealed up to IP68 or hermetic
- Corrosion resistant
- Operating temperatures from -50°C to +150°C
- Non-magnetic
- High flexibility in contact configurations
- Available in crimp, PCB or solder contacts

RoHS compliant

fischer® CONNECTORS

Connector Styles

Plugs

	Body style	Protection		Locking system		Contact types		Design specifics		Assembly specifics		
		Sealed up to IP68	360° EMC shielded	Push-pull	Emergency release	Crimp	Solder	Colored housing	Shortened body	Cable mounted	Overmoldable	Heat shrinkable
	S	●	●	●		●	●	●		●		
	SC	●	●		●	●	●	●		●		
	SS	●	●	●		●	●	●	●	●	●	●
	SSC	●	●		●	●	●	●	●	●	●	●

Other body styles available on request.

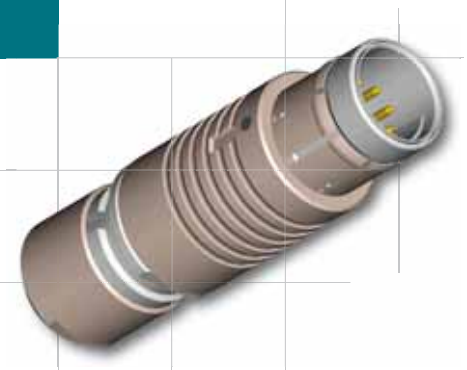
Receptacles

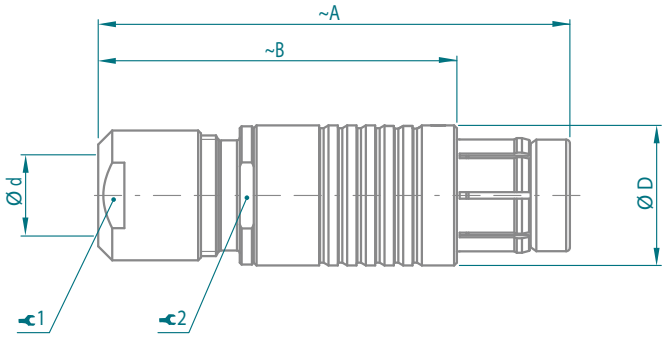
	Body style	Protection			Contact types			Design specifics			Assembly specifics		
		Sealed up to IP68	Hermetic	360° EMC shielded	Crimp	Solder	PCB	Colored housing	Flush	Front projecting	Panel mounted	Front mounting	Rear mounting
	D			●	●	●	●	●	●		●	●	
	DEU	●		●		●	●	●	●		●	●	
	DEE	●	●	●		●	●	●	●		●	●	
	DBPU	●		●		●	●	●	●		●		●
	DBPE	●	●	●		●	●	●	●		●		●
	DBPLU	●		●		●	●	●		●	●		●
	DBPLE	●	●	●		●	●	●		●	●		●

Other body styles available on request.

Plugs
Dimensions

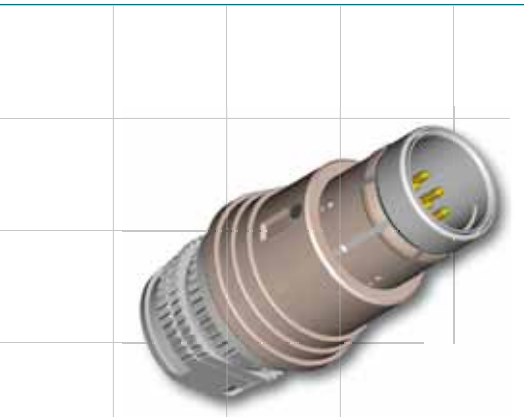
S and SC body styles

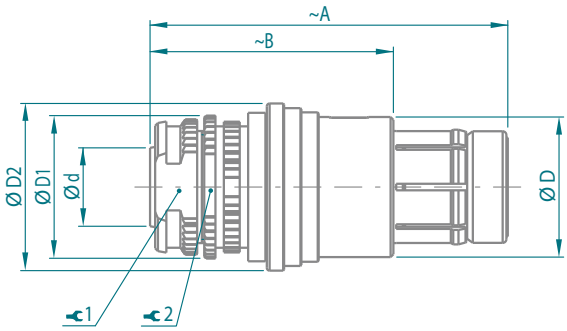




Series	Weight[1] (~g)	A	B	D	d max Unsealed	d max Sealed	1	2
102	3	36	26	9	4.7	4.3	7	7
103	8	46	35	12	6.7	6.2	10	10
1031	8	48	38	13	7.2	6.7	12	11
104	11	50	38	15	8.7	8.7	12	13
105	19	62	47	18	10.7	10.7	15	16

SS and SSC body styles





Series	Weight[1] (~g)	A	B	D	D1	D2	d max[2]	1	2
102	3	30	20	9.0	9.5	12.0	3.8	7	8
103	7	33	22	12.0	12.5	15.0	6.0	10	11
1031	8	33	23	12.4	13.0	15.5	6.2	10	11
104	8	38	26	15.0	15.3	18.0	8.0	12	13
105	16	44	29	18.0	18.4	21.2	10.0	15	16

[1] Weight shown is without cable clamp set, overmolding or heat shrinking.
[2] d = diameter below shield (≠ cable outer diameter).
All dimensions shown are in millimeters and are for reference only.

Part numbers

The configurator below is designed for multipole contact blocks only. For coax or triax blocks, please contact us.
Standard configurations in green; others produced on request.

A. Housing			B. Body style		C. Size	D. Contact blocks				E. Options
AA	AB	AC	BA	BB	CA	DA	DB	DC	DD	EA
AL										

AA. Housing material
AL = Aluminium

AB. Housing color[1]
AC. Housing treatment
11 = Anodized

1211 = Black (anodized)
1311 = Green (anodized)
1411 = Blue (anodized)
1611 = Red (anodized)
1811 = Beige (anodized)
1911 = Olive green (anodized)
2111 = Purple (anodized)
2211 = Natural (anodized)

BA. Connector style
S = Straight plug, standard body length
SS = Straight plug, shortened body length

BB. Locking system
If standard automatic push-pull locking system desired, leave field blank.
Other option possible:
C = Clic Loc, emergency release

CA. Connector size
102, 103, 1031, 104 or 105 = Series
(See Dimensions section)

EA. Clamp nut
For standard body length plugs (S)[3]:
11 = Standard clamp nut, no bend relief

For shortened body length plugs (SS)[4]:
13 = For heat shrinking/boots
14 = For injection/overmolding

DD. Keying code
11 = Code 1
12 = Code 2
13 = Code 3

Other keying codes are available on request.

DC. Contact type
SR = Solder
CP = Crimp

DB. Contact configuration
Three-digit number[2]

DA. Polarity
A = Male contacts on plug
Z = Female contacts on plug

[1] Fischer Connectors can not be held liable for small color variations that may appear from one batch to another
[2] See list of contact configurations available at www.fischerconnectors.com/alulite_contact_configurations
[3] Cable clamp sets are to be ordered separately. See www.fischerconnectors.com/alulite_termination
[4] For more information on heat shrinking and overmolding, see www.fischerconnectors.com/alulite_termination

Front Mounting Receptacles Dimensions

D body style

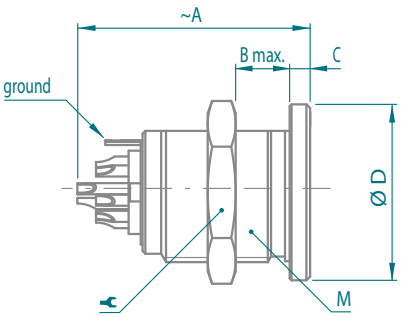


Fig. 1

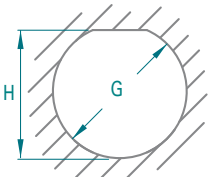
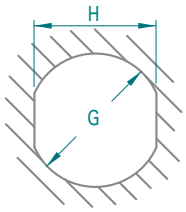


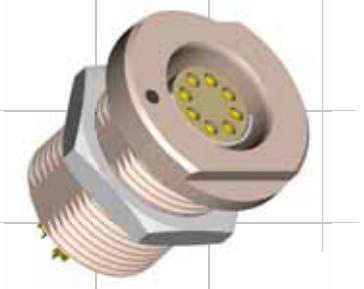
Fig. 2



Panel cut-out

Series	Weight[1] (~g)	A	B *max*	C	D	M		G	H	Fig.
102	3	19	9	1.5	11	9x0.5	11	9.1	8.5	1
103	5	23	8	1.5	14	12x1	14	12.1	11.2	1
1031	8	25	10	2.0	16	14x1	17	14.1	12.1	2
104	9	25	11	2.2	19	15x1	17	15.1	14.2	1
105	18	32	15	2.0	22	18x1	22	18.1	17.3	1

DEU and DEE body styles



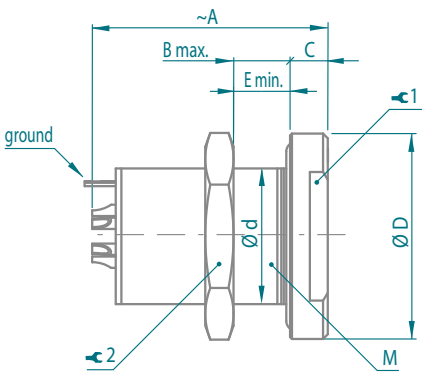


Fig. 2

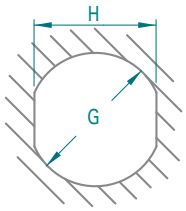
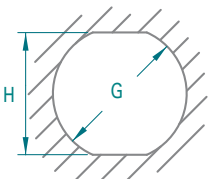


Fig. 3



Panel cut-out

Series	Weight[1] (~g)	A	B *max*	E *min* x ød	C	D	M	1	2	G	H	Fig.
102	4	20	10	8[2]	2.5	14	9x0.5	11	11	10.1	9.2	3
103	9	23	12	0	3.0	18	14x1	14	17	14.1	12.5	3
1031	10	25	12	0	3.0	19	14x1	15	17	14.1	13.0	2
104	13	25	15	0	4.0	22	16x1	17	19	16.1	14.5	3
105	28	33	18	0	4.0	27	20x1	22	25	20.1	18.5	3

[1] Weight includes nut.
[2] In the 102 Series only, the thread does not go all the way to the flange but stops 8 mm away. For panels thinner than 8 mm, spacers are available. See Spacers section.
All dimensions shown are in millimeters and are for reference only.

Part numbers

The configurator below is designed for multipole contact blocks only. For coax or triax blocks, please contact us.
Standard configurations in green; others produced on request.

A. Housing			B. Body style	C. Size	D. Contact blocks				E. Options		
AA	AB	AC	BA	BC	CA	DA	DB	DC	DD	ED	EE	EF
AL			D									

AA. Housing material

AL= Aluminium

AB. Housing color[1]

AC. Housing treatment

11 = Anodized

1211 = Black (anodized)
1311 = Green (anodized)
1411 = Blue (anodized)
1611 = Red (anodized)
1811 = Beige (anodized)
1911 = Olive green (anodized)
2111 = Purple (anodized)
2211 = Natural (anodized)

BA. Connector style

D = Flush (vs. panel) Front Mounting Receptacle

BC. Sealing level

If no sealing level desired, leave field blank.
Other options possible:
EU = Sealed (IP68) even unmated
EE = Hermetic

CA. Connector size

102, 103, 1031, 104 or 105 = Series
(See Dimensions section)

EF. Nut type

11 = Hexagonal
12 = None

EE. Grounding

G =Yes
Z = No

ED. O-ring at plug interface

If 'No sealing level' chosen in section BC, leave field blank. Options possible if you selected 'Sealed (IP68) even unmated' or 'Hermetic':
11 = Viton
12 = EPDM (low temperature)

DD. Keying code

11 = Code 1
12 = Code 2
13 = Code 3

Other keying codes are available on request.

DC. Contact type

Options possible if, in field BC, you selected 'No sealing level':
SR = Solder
CP = Crimp
PB = PCB
Options possible if, in field BC, you selected 'Sealed (IP68) even unmated' or 'Hermetic':
SR = Solder
PB = PCB

DB. Contact configuration

Three-digit number[2]

DA. Polarity

A = Female contacts on receptacle
Z = Male contacts on receptacle

[1] Fischer Connectors can not be held liable for small color variations that may appear from one batch to another

[2] See list of contact configurations available at www.fischerconnectors.com/alulite_contact_configurations

Spacers

For DEU and DEE body styles of the 102 Series

Panel width	Spacer part number
0.5 - 3.0	102.550
2.5 - 5.5	102.551
5.0 - 8.0	102.552

Material: aluminium

Rear Mounting Receptacles Dimensions

DBPU and DBPE body styles

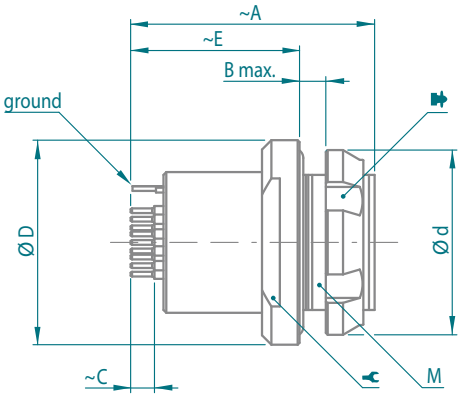


Fig. 2

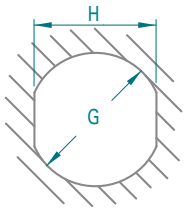
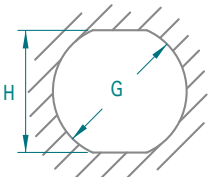


Fig. 3



Panel cut-out

Series	Weight[1] (~g)	A[2]	B *max*	D	d	E[2]	C[2]	M[3]	
102	3	20	3.5	14	12	13	2.54	9x0.5	11
103	8	26	3.0	18	18	18	2.54	14x1	15
1031	8	23	3.0	19	18	15	2.54	14x1	15
104	11	26	4.0	22	20	18	2.54	16x1	17
105	26	30	5.0	27	25	20	2.54	20x1	22

G	H	Fig.
9.1	8.0	3
14.1	12.5	3
14.1	12.1	2
16.1	14.5	3
20.1	18.5	3

DBPLU and DBPLE body styles

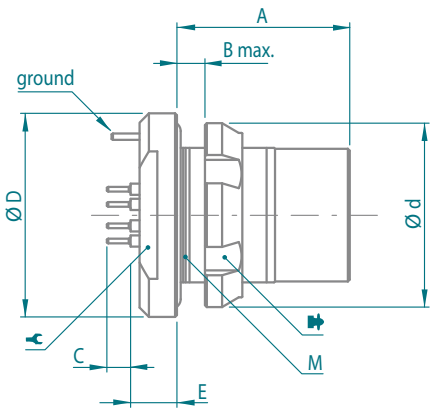


Fig. 2

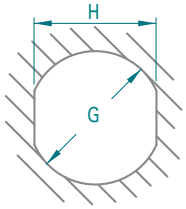
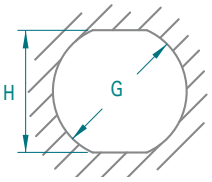


Fig. 3



Panel cut-out

Series	Weight[1] (~g)	A	B *max*	C	d	D	E	M[3]	
102	3	14.2	4.5	2.54	13	14	3.6	10x0.5	11
103	8	16.5	5.0	2.54	18	18	4.2	14x1	15
1031	8	16.0	5.5	2.54	20	19	4.2	15x1	15
104	11	18.5	6.5	2.54	20	22	5.0	16x1	17
105	26	22.5	7.0	2.54	25	27	5.5	20x1	22

G	H	Fig.
10.1	9.2	3
14.1	12.5	3
15.1	13.5	2
16.1	14.5	3
20.1	18.5	3

[1] Weight includes nut.
[2] Pin length and diameter vary according to contact configuration. Contact us for more information.
[3] For information on nutdrivers (➡), see Assembly tool section.
All dimensions shown are in millimeters and are for reference only

Part numbers

The configurator below is designed for multipole contact blocks only. For coax or triax blocks, please contact us.
Standard configurations in green; others produced on request.

A. Housing			B. Body style		C. Size	D. Contact blocks				E. Options		
AA	AB	AC	BA	BC	CA	DA	DB	DC	DD	ED	EE	EF
AL												13

AA. Housing material

AL = Aluminium

AB. Housing color[1]

AC. Housing treatment

11 = Anodized

1211 = Black (anodized)
1311 = Green (anodized)
1411 = Blue (anodized)
1611 = Red (anodized)
1811 = Beige (anodized)
1911 = Olive green (anodized)
2111 = Purple (anodized)
2211 = Natural (anodized)

BA. Connector style

DBP = Flush (vs. panel) Rear Mounting Receptacle
DBPL = Front Projecting (vs. panel) Rear Mounting Receptacle

BC. Sealing level

U = Sealed (IP68) even unmated
E = Hermetic

CA. Connector size

102, 103, 1031 or 104 = Series
(See Dimensions section)

DA. Polarity

A = Female contacts on receptacle
Z = Male contacts on receptacle

DB. Contact Configuration

Three-digit number[2]

DC. Contact type

SR = Solder
PB = PCB

DD. Keying code

11 = Code 1
12 = Code 2
13 = Code 3
Other keying codes are available on request.

ED. O-ring at plug interface

11 = Viton
12 = EPDM (low temperature)

EE. Grounding

G = Yes
Z = No

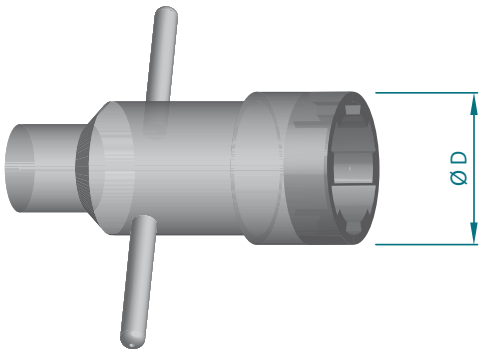
EF. Nut type

13 = Slotted nut

[1] Fischer Connectors can not be held liable for small color variations that may appear from one batch to another
[2] See list of contact configurations available at www.fischerconnectors.com/alulite_contact_configurations

Assembly tool

Nutdriver for slotted nuts



Thread size	D	Part number
M9x0.5	15	TC00.000
M10x0.5	16	TC00.007
M14x1	21	TG00.001
M15x1	22	TK00.000
M16x1	23	TK00.002
M20x1	28	TP00.005

Material: hardened tool steel, Nickel plated.

Technical Specifications

Mechanical & Environmental Data

Parameter	Typical value	Standard
Mating cycles	10,000	IEC 60512-5-9a
Temperature range - Viton O-ring at plug interfawce - EPDM O-ring (Low temp) at plug interface	0°C to +150°C (32°F to +302°F) -50°C to +150°C (-58°F to +302°F)	IEC 60068-2-14
Sealing	IP68	IEC 60529
Hermeticity - DEE, DBPE, DBPLE	Hermetic: Tested: <10^{-8} mbar l/sec.[1] IP69K[2]	
Corrosion, salt spray	5% NaCl, 96 hours	IEC 60068-2-11 Test Ka
Vibration	Contact interruption < 1µs (10-2000Hz/15G)	MIL-STD-202 Method 204, Condition B

[1] If needed, the residual leakage can be tested 1 minute for values <10^{-9} mbar l/s or <10^{-4} Pa cm³/s
[2] Protected against the effects of high pressure liquids. The test requirements for IP69K exist only in DIN 40050-9, the German version of IEC 60529

Material & Surface Treatments

Part	Material				Finish	
		Standards				
	Designation	ISO	UNS	EN	Designation	US standards
Plug housing - Body - Latching sleeve (anodized)	Aluminium Aluminium	AlMgSiSn1Bi AlMgSiSn1Bi	- -	AW-6023 AW-6023	Electroless Nickel Sulfuric anodizing	SAE AMS 2404 MIL-A-8625
Receptacle housing - Receptacle housing (anodized)	Aluminium	AlMgSiSn1Bi	-	AW-6023	Sulfuric anodizing	MIL-A-8625
Grounding -Tag (solder and crimp contacts) - Pin (PCB contacts)	Brass Brass	CuZn39Pb3 CuZn39Pb3	C 38500 C 38500	- -	Electroless Nickel Nickel + Flash Gold	SAE AMS 2404
Contacts - Male contacts - Female contacts	Brass Bronze	CuZn39Pb3 CuSn4Zn4Pb4	C 38500 C 54400	- -	Electroless Nickel 1 µm Gold	MIL-DTL-45204D Type 1 + ASTM B488
Insulator	PEEK	-	-	-	-	-
Potting U/E	High performance thermoset polymer	-	-	-	-	-
Standard O-rings	FPM (Viton®)	-	-	-	-	-
Low temp O-ring at plug interface	EPDM	-	-	-	-	-

Our products are RoHS compliant

Electrical Data

Parameter	Series				
	102	103	1031	104	105
Number of contacts *(Max current per contact[1] in A)*	2 *(9.2)* to 9 *(1.7)*	2 *(13)* to 12 *(2.0)*	10 *(4.5)* to 19 *(2.5)*	2 *(20)* to 27 *(2.0)*	2 *(26)* to 27 *(3.0)*
Contact resistance[2] - Ø 0.5 mm contacts - Ø 0.7 mm contacts - Ø 0.9 mm contacts - Ø 1.3 mm contacts	Typical 5mΩ Typical 5mΩ Typical 4mΩ Typical 2.5mΩ				
Grounding resistance[3] (shell-to-shell)	Typical 45 mΩ	Typical 30 mΩ	Typical 25 mΩ	Typical 20 mΩ	Typical 10 mΩ
EMC shielding	360-degree EMC shielding				

[1] For 40°C temperature rise IEC 60512-3-5b
[2] IEC 60512-2-1-2a; IEC 60512-2-2-2b
[3] IEC 60512-2-6-2f

Medical

Broadcast

Defense & Security

Extreme Environments

Instrumentation

www.fischerconnectors.com

Using state of the art technology, Fischer Connectors designs, manufactures and distributes high-performance connector and cable assembly solutions.

Known for their reliability, precision, and resistance to extreme environmental conditions, our products are used in fields requiring faultless quality, such as medical equipment, instrumentation, measuring and testing devices, broadcast, telecommunication, defense and security applications.

Selecting the right connector and cable assembly system is an important and challenging process. Our specialists are on hand to help you equip your application with the most suitable connector solution. Contact us for more information.

fischer® CONNECTORS

fischer sales network

www.fischerconnectors.com

Headquarters

Fischer Connectors SA

Ch. du Glapin 20
1162 Saint-Prex
Switzerland
Phone +41 21 800 95 95
mail@fischerconnectors.ch

Appendix to AluLite™ Catalogue Termination

www.fischerconnectors.com

This document completes the **AluLite™ Series catalogue**, which can be found in the Library section of our website.

It gives you technical and ordering information on cable clamp sets, heat shrinking and overmolding techniques for the Fischer AluLite™ connectors.

Contents

Cable clamp sets introduction

To guarantee excellent cable retention and strain relief, Fischer Connectors provides robust and high quality cable clamp sets. The collet style clamp system used, retains the cable over a relatively large jacket surface area. This prevents damage to small diameter and delicate conductors.

For multipole connectors, cable clamp sets have to be ordered separately. See following pages to select the one suiting your plug.

For coax, triax or hybrid contact configurations, please contact us.

All sets shown are compatible with the following AluLite connectors:

- S (standard body length plug with push-pull locking system)
- SC (standard body length plug with emergency release system)

U, S and E cable clamp sets

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

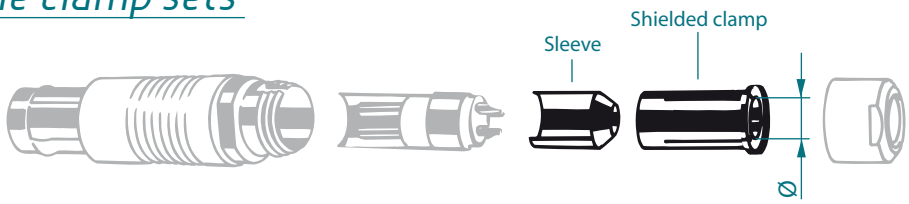
	Do you need the interface between the cable and the connector to be sealed?		Do you need the connector to be terminated to the cable shield?	
Cable clamp sets	**No**	**Yes**	**No**	**Yes**
U type (Unshielded)	•		•	
S type (Shielded)	•			•
E type (Environmental)		•	•	•

AluLite™ Cable Clamp Sets 102 Series

U type cable clamp sets

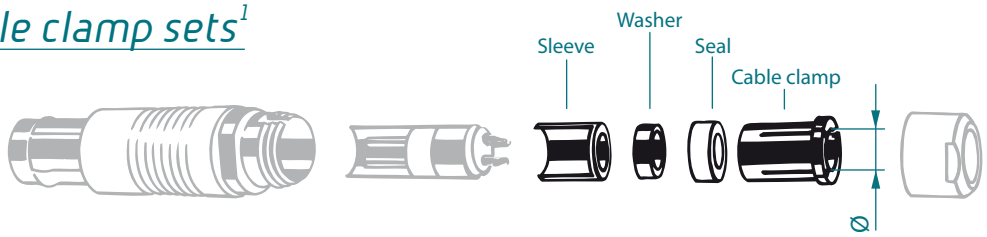
Cable dia range	Collet ø	Cable clamp set part number
1.4 - 2.0	2.0	E3 102.5/2.0
2.0 - 2.7	2.7	E3 102.5/2.7
2.7 - 3.5	3.5	E3 102.5/3.5
3.5 - 4.2	4.2	E3 102.5/4.2
4.2 - 4.7	4.7	E3 102.5/4.7

S type cable clamp sets[1]



Cable dia range	Collet ø	Cable clamp set part number
1.5 - 2.1	2.1	E32 102.1/2.1 + A
2.1 - 2.6	2.6	E32 102.1/2.6 + A
2.6 - 3.1	3.1	E32 102.1/3.1 + A
3.1 - 3.6	3.6	E32 102.1/3.6 + A
3.6 - 4.1	4.1	E32 102.1/4.1 + A
4.1 - 4.3	4.3	E32 102.1/4.3 + A
4.3 - 4.7	4.7	E3 102.248 + A

E type cable clamp sets[1]

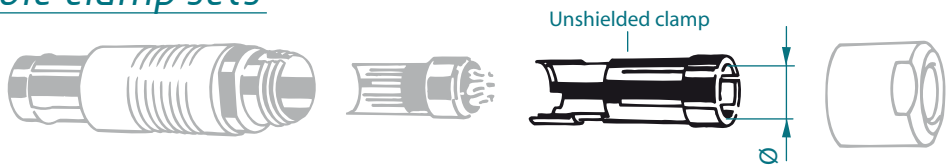


Cable dia range	Collet ø	Cable clamp set part number
1.5 - 2.1	2.1	E31 102.2/2.1 + B
2.1 - 2.6	2.6	E31 102.2/2.6 + B
2.6 - 3.1	3.1	E31 102.2/3.1 + B
3.1 - 3.6	3.6	E31 102.2/3.6 + B
3.6 - 4.1	4.1	E31 102.2/4.1 + B
4.1 - 4.3	4.3	E31 102.2/4.3 + B

[1] For the 102 Series, plugs with crimp contacts must only be used with cable clamp sets of type U.
All dimensions shown are in millimeters and are for reference only.

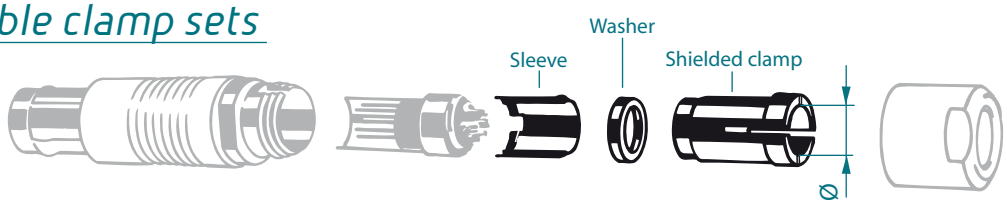
AluLite™ Cable Clamp Sets 103 Series

U type cable clamp sets



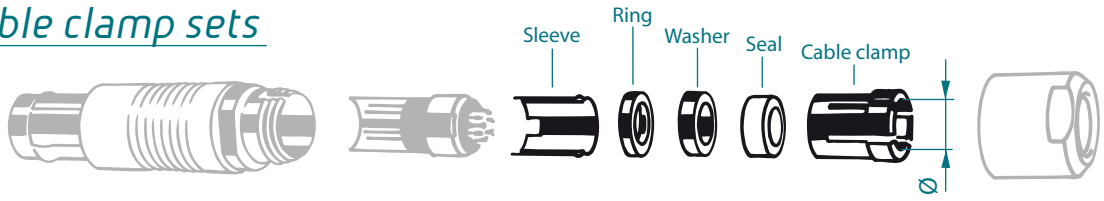
Cable dia range	Collet ø	Cable clamp set part number
2.2 - 3.2	3.2	E3 103.6/3.2
3.2 - 4.2	4.2	E3 103.6/4.2
4.2 - 4.7	4.7	E3 103.6/4.7
4.7 - 5.2	5.2	E3 103.6/5.2
5.2 - 5.7	5.7	E3 103.6/5.7
5.7 - 6.2	6.2	E3 103.6/6.2
6.2 - 6.7	6.7	E3 103.6/6.7

S type cable clamp sets



Cable dia range	Collet ø	Cable clamp set part number
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

E type cable clamp sets

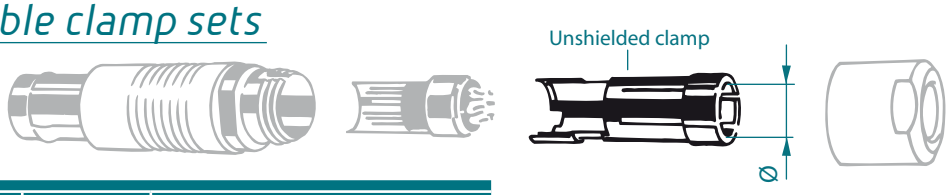


Cable dia range	Collet ø	Cable clamp set part number
1.7 - 2.2	2.2	E31 103.2/2.2 + B
2.2 - 2.7	2.7	E31 103.2/2.7 + B
2.7 - 3.2	3.2	E31 103.2/3.2 + B
3.2 - 3.7	3.7	E31 103.2/3.7 + B
3.7 - 4.2	4.2	E31 103.2/4.2 + B
4.2 - 4.7	4.7	E31 103.2/4.7 + B
4.7 - 5.2	5.2	E31 103.2/5.2 + B
5.2 - 5.7	5.7	E31 103.2/5.7 + B
5.7 - 6.2	6.2	E31 103.2/6.2 + B

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

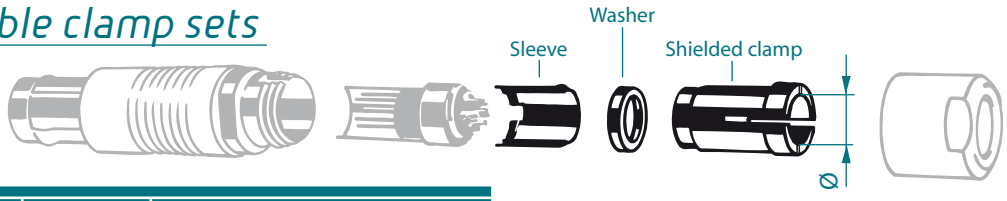
AluLite™ Cable Clamp Sets 1031 Series

U type cable clamp sets



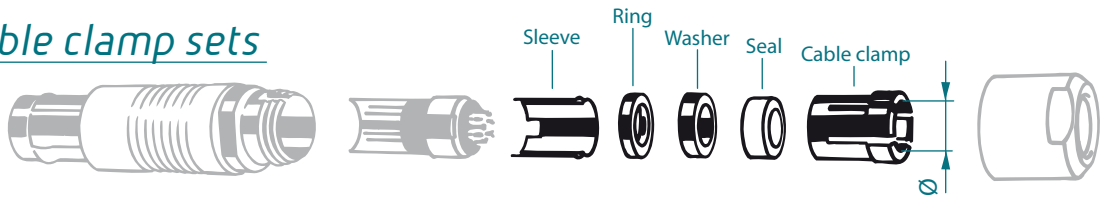
Cable dia range	Collet ø	Cable clamp set part number
2.2 - 2.7	2.7	E3 1031.6/2.7
2.7 - 3.2	3.2	E3 1031.6/3.2
3.2 - 3.7	3.7	E3 1031.6/3.7
3.7 - 4.2	4.2	E3 1031.6/4.2
4.2 - 4.7	4.7	E3 1031.6/4.7
4.7 - 5.2	5.2	E3 1031.6/5.2
5.2 - 5.7	5.7	E3 1031.6/5.7
5.7 - 6.2	6.2	E3 1031.6/6.2
6.2 - 6.7	6.7	E3 1031.6/6.7
6.7 - 7.2	7.2	E3 1031.6/7.2

S type cable clamp sets



Cable dia range	Collet ø	Cable clamp set part number
2.2 - 2.7	2.7	E3 1031.1/2.7
2.7 - 3.2	3.2	E3 1031.1/3.2
3.2 - 3.7	3.7	E3 1031.1/3.7
3.7 - 4.2	4.2	E3 1031.1/4.2
4.2 - 4.7	4.7	E3 1031.1/4.7
4.7 - 5.2	5.2	E3 1031.1/5.2
5.2 - 5.7	5.7	E3 1031.1/5.7
5.7 - 6.2	6.2	E3 1031.1/6.2
6.2 - 6.7	6.7	E3 1031.1/6.7
6.7 - 7.2	7.2	E3 1031.1/7.2

E type cable clamp sets

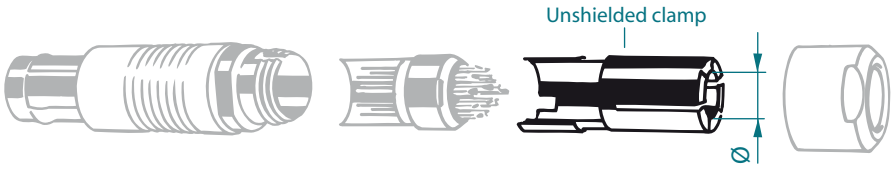


Cable dia range	Collet ø	Cable clamp set part number
2.2 - 2.7	2.7	E3 1031.2/2.7
2.7 - 3.2	3.2	E3 1031.2/3.2
3.2 - 3.7	3.7	E3 1031.2/3.7
3.7 - 4.2	4.2	E3 1031.2/4.2
4.2 - 4.7	4.7	E3 1031.2/4.7
4.7 - 5.2	5.2	E3 1031.2/5.2
5.2 - 5.7	5.7	E3 1031.2/5.7
5.7 - 6.2	6.2	E3 1031.2/6.2
6.2 - 6.7	6.7	E3 1031.2/6.7

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

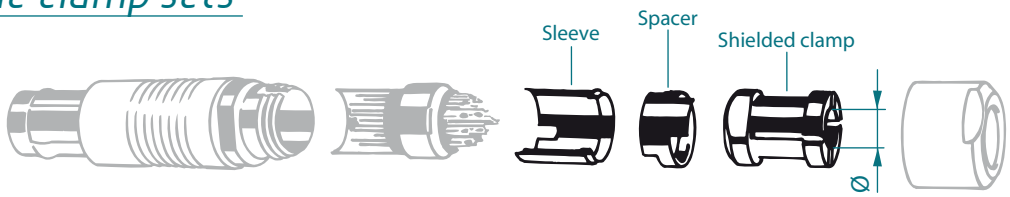
AluLite™ Cable Clamp Sets 104 Series

U type cable clamp sets



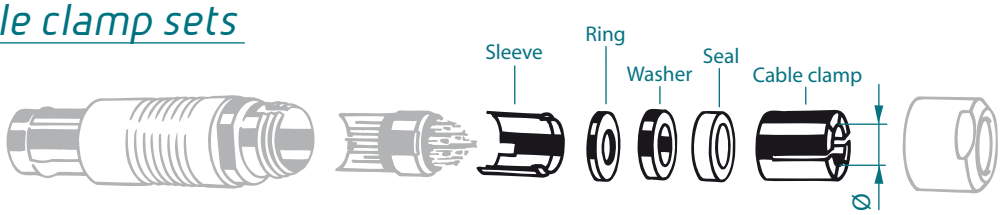
Cable dia range	Collet ø	Cable clamp set part number
4.2 - 4.7	4.7	E3 104.6/4.7
4.7 - 5.7	5.7	E3 104.6/5.7
5.7 - 6.7	6.7	E3 104.6/6.7
6.7 - 7.7	7.7	E3 104.6/7.7
7.7 - 8.2	8.2	E3 104.6/8.2
8.2 - 8.7	8.7	E3 104.6/8.7

S type cable clamp sets



Cable dia range	Collet ø	Cable clamp set part number
2.9 - 4.0	4.0	E3 104.3/4.0 + B
4.0 - 4.7	4.7	E3 104.3/4.7 + B
4.7 - 5.7	5.7	E3 104.3/5.7 + B
5.7 - 6.7	6.7	E3 104.3/6.7 + B
6.7 - 7.7	7.7	E3 104.3/7.7 + B
7.7 - 8.7	8.7	E3 104.3/8.7 + B

E type cable clamp sets

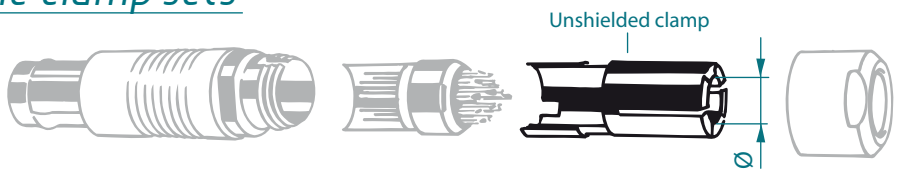


Cable dia range	Collet ø	Cable clamp set part number
2.9 - 4.0	4.0	E3 104.2/4.0 + B
4.0 - 4.7	4.7	E3 104.2/4.7 + B
4.7 - 5.7	5.7	E3 104.2/5.7 + B
5.7 - 6.7	6.7	E3 104.2/6.7 + B
6.7 - 7.7	7.7	E3 104.2/7.7 + B
7.7 - 8.7	8.7	E3 104.2/8.7 + B

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

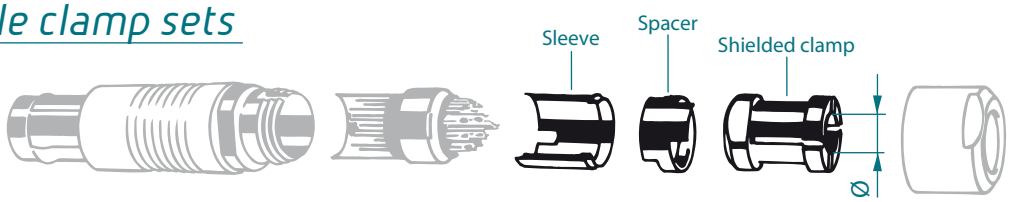
AluLite™ Cable Clamp Sets 105 Series

U type cable clamp sets



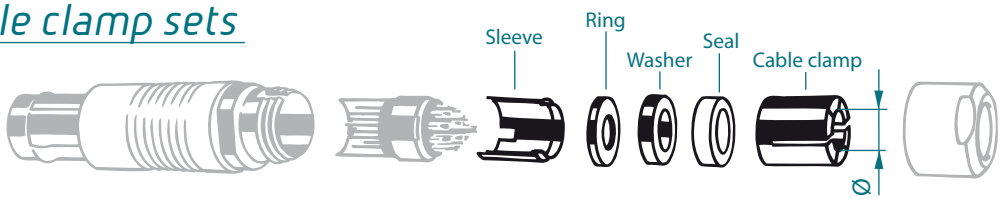
Cable dia range	Collet ø	Cable clamp set part number
2.5 - 3.5	3.5	E3 105.6/3.5
3.5 - 4.5	4.5	E3 105.6/4.5
4.5 - 5.5	5.5	E3 105.6/5.5
5.5 - 6.5	6.5	E3 105.6/6.5
6.5 - 7.5	7.5	E3 105.6/7.5
7.5 - 8.5	8.5	E3 105.6/8.5
8.5 - 9.5	9.5	E3 105.6/9.5
9.5 - 10.5	10.5	E3 105.6/10.5

S type cable clamp sets



Cable dia range	Collet ø	Cable clamp set part number
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

E type cable clamp sets



Cable dia range	Collet ø	Cable clamp set part number
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

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

AluLite™ Termination
SS and SSC Body Styles

Introduction

Cable termination on SS (shortened body length plugs with push-pull locking system) and SSC (shortened body length plugs with emergency release system) can either be done by heat shrinking or overmolding.

Both techniques offer:

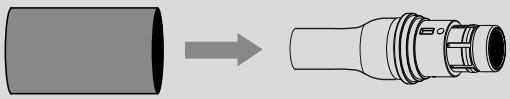
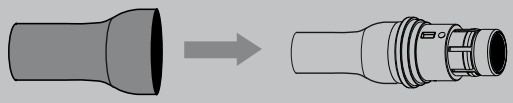
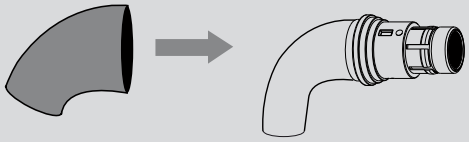
- strong cable retention
- sealing up to IP68
- mechanical protection
- cable insulation
- straight or right angle designs

More advanced designs can be achieved with overmolding, while heat shrinking usually turns out to be more favourable for small volumes and prototypes. However, our specialists are on hand to help you select the termination process that will best suits the specifics of your project.

Multipole, coax, triax or hybrid connectors can be terminated using both techniques.

Heat shrinking

The table below shows the typical options that can be considered for heat shrinking. For optimum material choice, please refer to specialized heat shrink suppliers.

	Schematic representation
Straight tubes	
Straight boots	
Right angle boots	

Overmolding

Overmolding is part of the complete customer package Fischer Connectors can offer. Our techniques enable us to achieve high quality overmolding in various designs. Please, contact us for more information.

Appendix to AluLite™ Catalogue
Contact Configurations

www.fischerconnectors.com

This document completes the **AluLite™ Series catalogue**, which can be found in the Library section of our website.

It gives you technical and ordering information on the multipole contact configurations, available for the Fischer AluLite™ connectors.

For coax, triax and hybrid configurations, please contact us.

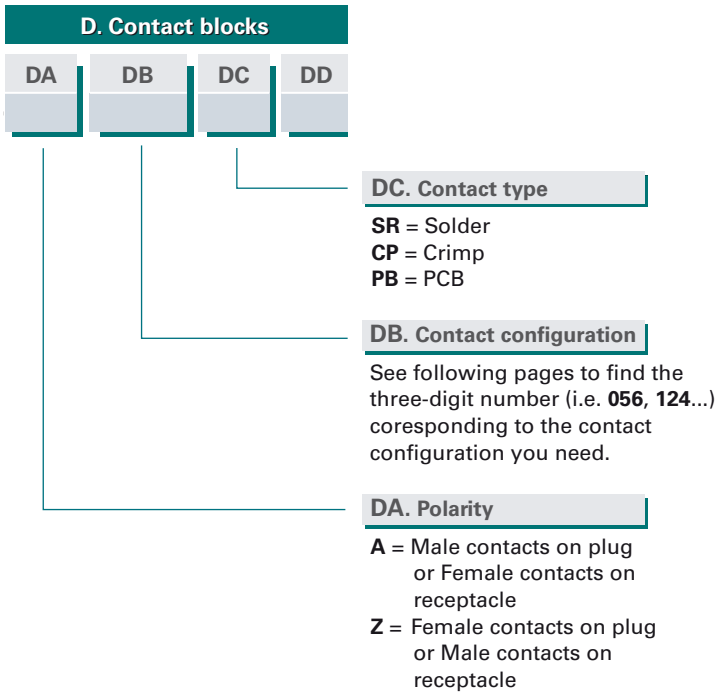
Configurator: Contact blocks section

This document helps you to fill in the Contact blocks section of the AluLite Series configurator, especially fields DA, DB and DC.

DA: Each contact configuration is available in A or Z polarity, see explanations below.

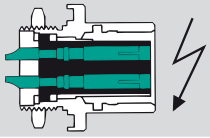
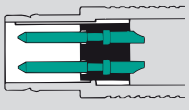
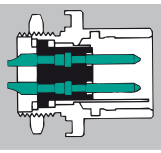
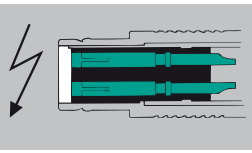
DB: For each series/connector size, find the block part number you need in the following pages.

DC: Contact types options depend on the contact configuration selected. See following pages for more information.



Polarity A and Z

To protect users from contact with dangerous voltages, our contact configurations exist in standard polarity – type A – or inverted polarity – type Z.

	Receptacles	Plugs
TYPE A: Standard Contacts of receptacle are protected. Recommended if voltage comes from the receptacle.	Female contacts 	 Male contacts
TYPE Z: Inverted Contacts of plug are protected. Recommended if voltage comes from the plug.	Male contacts 	 Female contacts

AluLite™ Contact Configurations 102 Series

Multipole for 102 Series

● = Standard ❍ = Option

Type	Pin Layout	Number of Contacts	Contact Termination			Insulating Material	Contact ø [mm]	Wire Size [2]		Test Voltage [kV] in mated position				Rated Voltage [4] r.m.s [V]	Current Rating [3] [A]
										AC rms		DC			
			Solder	Crimp	PCB			Solder Contacts [1]	Crimp Contacts [5]	Contact to Body	Contact to Contact	Contact to Body	Contact to Contact		
102 AZ 051		2	●	●	●	PEEK	0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.83mm min ø0.48mm AWG22-26	1.3	1.7	1.8	2.4	≤ 250	9.2
102 AZ 052		3	●		●	PEEK	0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	–	1.3	1.3	1.8	1.6	≤ 250	8.2
102 AZ 053		4	●	●	●	PEEK	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.62mm min ø0.38mm AWG24-28	1.2	1.2	1.7	1.8	≤ 200	5.5
102 AZ 054		5	●	●	●	PEEK	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.62mm min ø0.38mm AWG24-28	0.8	1.0	1.3	1.8	≤ 160	5.2
102 AZ 056		7	●	●	●	PEEK	0.5	max ø0.43mm AWG26 [1] AWG28 [19/40]	max ø0.43mm min ø0.20mm AWG28-32	0.8	1.0	1.3	1.8	≤ 160	2.0
102 AZ 059		9	●		●	PEEK	0.5	max ø0.43mm AWG26 [1] AWG28 [19/40]	–	0.8	1.1	1.2	1.8	≤ 160	1.7

[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] Recommended max. operating current per contact at 40°C temperature rise measured according to IEC 60512-3-5b.

[4] Recommended operating voltage at sea level measured according to IEC 60664-1.
This rated voltage is a general purpose guideline where no other electrical safety standard applies. In cases where other standards rule a specific use of the connector, the application-specific safety criteria shall be considered first.
This must be evaluated in the framework of equipment engineering. In cases where other calculation methods are preferred, please use the Test Voltage to determine the operating voltage.

[5] Plugs with crimp contacts must be used with unshielded clamp set only.
For more information on termination: www.fischerconnectors.com/alulite_termination.

Multipole for 103 and 1031 Series

● = Standard ❍ = Option

Type	Pin Layout	Number of Contacts	Contact Termination			Insulating Material	Contact ø [mm]	Wire Size [2]		Test Voltage [kV] in mated position				Rated Voltage [4] r.m.s [V]	Current Rating [3] [A]
										AC rms		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
1031 AZ 010		10	●	●	●	PEEK	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.62mm min ø0.38mm AWG24-28	1.4	1.5	2.0	2.2	≤ 250	4.5
1031 AZ 012		12	●	●	●	PEEK	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.62mm min ø0.38mm AWG24-28	1.4	1.5	2.0	2.2	≤ 250	4.2
1031 AZ 019		19	●	●	●	PEEK	0.5	max ø0.43mm AWG26 [1] AWG28 [19/40]	max ø0.43mm min ø0.20mm AWG28-32	1.2	0.9	2.0	1.5	≤ 250	2.5

[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] Recommended max. operating current per contact at 40°C temperature rise measured according to IEC 60512-3-5b.

[4] Recommended operating voltage at sea level measured according to IEC 60664-1.
This rated voltage is a general purpose guideline where no other electrical safety standard applies. In cases where other standards rule a specific use of the connector, the application-specific safety criteria shall be considered first.
This must be evaluated in the framework of equipment engineering. In cases where other calculation methods are preferred, please use the Test Voltage to determine the operating voltage.

AluLite™ Contact Configurations 104 Series

Multipole for 104 Series

● = Standard ❍ = Option

Type	Pin Layout	Number of Contacts	Contact Termination: Solder	Contact Termination: Crimp	Contact Termination: PCB	Insulating Material	Contact ø [mm]	Wire Size [2]: Solder Contacts [1]	Wire Size [2]: Crimp Contacts	Test Voltage [kV] in mated position: AC rms: Contact to Body	Test Voltage [kV] in mated position: AC rms: Contact to Contact	Test Voltage [kV] in mated position: DC: Contact to Body	Test Voltage [kV] in mated position: DC: Contact to Contact	Rated Voltage [4] r.m.s [V]	Current Rating [3] [A]
104 AZ 051		2	● ❍		● ❍	PEEK PTFE	1.6	max ø1.86mm AWG13 [1] AWG14 [7/22]	–	1.8	2.2	2.8	3.2	≤ 500	20
104 AZ 040		3	❍ ●	●	●	PEEK PBT	1.6	max ø1.86mm AWG13 [1] AWG14 [7/22]	max ø1.78mm min ø1.17mm AWG14-18	1.6	2.0	2.6	3.0	≤ 500	18
104 AZ 037		4	●	●	●	PEEK	1.3	max ø1.18mm AWG17 [1] AWG18 [16/30]	max ø1.18mm min ø0.58mm AWG18-24	1.8	2.2	2.5	3.0	≤ 500	12
104 AZ 087		4 (2)	●		●	PBT	2.3	max ø2.48mm AWG11 [1] AWG12 [7/20]	–	1.5	1.6	2.2	2.5	≤ 400	28
		4 (2)					0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	–	2.0		2.8			3.0
104 AZ 053		5	●		●	PEEK	1.3	max ø1.18mm AWG17 [1] AWG18 [16/30]	–	1.4	1.7	2.4	2.7	≤ 320	11
104 AZ 065		6	●	●	●	PEEK	0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.83mm min ø0.48mm AWG22-26	1.7	2.0	2.4	2.6	≤ 400	6.5
104 AZ 054		7	●		●	PEEK	0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	–	1.5	1.8 [5] 2.1	2.2	2.0 [5] 2.8	≤ 320	6.5

[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] Recommended max. operating current per contact at 40°C temperature rise measured according to IEC 60512-3-5b.

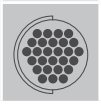
[4] Recommended operating voltage at sea level measured according to IEC 60664-1.
This rated voltage is a general purpose guideline where no other electrical safety standard applies. In cases where other standards rule a specific use of the connector, the application-specific safety criteria shall be considered first.
This must be evaluated in the framework of equipment engineering. In cases where other calculation methods are preferred, please use the Test Voltage to determine the operating voltage.

[5] Test voltages between the contacts with the shortest distance.

AluLite™ Contact Configurations 105 Series

Multipole for 104 Series

● = Standard ❍ = Option

Type	Pin Layout	Number of Contacts	Contact Termination: Solder	Contact Termination: Crimp	Contact Termination: PCB	Insulating Material	Contact ø [mm]	Wire Size [2]: Solder Contacts [1]	Wire Size [2]: Crimp Contacts	Test Voltage [kV] in mated position: AC rms: Contact to Body	Test Voltage [kV] in mated position: AC rms: Contact to Contact	Test Voltage [kV] in mated position: DC: Contact to Body	Test Voltage [kV] in mated position: DC: Contact to Contact	Rated Voltage [4] r.m.s [V]	Current Rating [3] [A]
104 AZ 066		8	●	●	●	PEEK	0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.83mm min ø0.48mm AWG22-26	1.5	1.5	2.5	2.5	≤ 320	6.2
104 AZ 055		9 (1)	●		●	PEEK	1.3	max ø1.18mm AWG17 [1] AWG18 [16/30]	–	2.4	2.2	3.8	3.6	≤ 250	12
		9 (8)					0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	–	1.4	1.5	2.0	2.4		6.0
104 AZ 056		11	●	●	●	PEEK	0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.83mm min ø0.48mm AWG22-26	1.4	1.5	2.1	2.2	≤ 250	5.8
104 AZ 086		16	●	●	●	PEEK	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.62mm min ø0.38mm AWG24-28	1.0	1.5	1.6	2.2	≤ 200	4.0
104 AZ 092		19	●	●	●	PEEK	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.62mm min ø0.38mm AWG24-28	0.8	1.2	1.2	1.8	≤ 200	3.5
104 A124 [5]		27		●	●	PEEK	0.5	–	max ø0.43mm min ø0.20mm AWG28-32	1.2	0.5	1.8	0.5	≤ 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] Recommended max. operating current per contact at 40°C temperature rise measured according to IEC 60512-3-5b.

[4] Recommended operating voltage at sea level measured according to IEC 60664-1.
This rated voltage is a general purpose guideline where no other electrical safety standard applies. In cases where other standards rule a specific use of the connector, the application-specific safety criteria shall be considered first.
This must be evaluated in the framework of equipment engineering. In cases where other calculation methods are preferred, please use the Test Voltage to determine the operating voltage.

[5] This configuration has different environmental performances due to the use of another sealant material.
Please contact us for more information.

AluLite™ Contact Configurations 105 Series

Multipole for 105 Series

● = Standard ❍ = Option

Type	Pin Layout	Number of Contacts	Contact Termination			Insulating Material	Contact ø [mm]	Wire Size [2]		Test Voltage [kV] in mated position				Rated Voltage [4] r.m.s [V]	Current Rating [3] [A]
			Solder	Crimp	PCB			Solder Contacts [1]	Crimp Contacts	AC rms		DC			
										Contact to Body	Contact to Contact	Contact to Body	Contact to Contact		
105 AZ **051**		2	●			PEEK	2.0	max ø2.03mm AWG13 [1] AWG14 [7/22]	–	2.5	3.0	4.0	4.0	≤ 630	26
105 AZ **087**		2	●			PEEK	3.0	max ø3.13mm AWG9 [1] AWG10 [105/30]	–	1.2	1.6	2.3	3.0	≤ 400	30
105 AZ **052**		3	●			PEEK	2.0	max ø2.03mm AWG13 [1] AWG14 [7/22]	–	2.0	2.5	3.0	3.5	≤ 400	23
105 AZ **053**		4	●			PEEK	2.0	max ø2.03mm AWG13 [1] AWG14 [7/22]	–	1.8	1.8	2.6	2.6	≤ 320	20
105 AZ **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 AZ **067**		8	● ❍			PEEK PTFE	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 AZ **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] Recommended max. operating current per contact at 40°C temperature rise measured according to IEC 60512-3-5b.

[4] Recommended operating voltage at sea level measured according to IEC 60664-1.
This rated voltage is a general purpose guideline where no other electrical safety standard applies. In cases where other standards rule a specific use of the connector, the application-specific safety criteria shall be considered first.
This must be evaluated in the framework of equipment engineering. In cases where other calculation methods are preferred, please use the Test Voltage to determine the operating voltage.

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

AluLite™ Contact Configurations 105 Series

Multipole for 105 Series

● = Standard ❍ = Option

Type	Pin Layout	Number of Contacts		Contact Termination: Solder	Contact Termination: Crimp	Contact Termination: PCB	Insulating Material	Contact ø [mm]	Wire Size[2]: Solder Contacts[1]	Wire Size[2]: Crimp Contacts	Test Voltage [kV] in mated position: AC rms: Contact to Body	AC rms: Contact to Contact	DC: Contact to Body	DC: Contact to Contact	Rated Voltage[4] r.m.s [V]	Current Rating[3] [A]
105 AZ **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 AZ **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 AZ **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
			10					0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	–	1.3	1.5	1.8	2.2		1.0
105 A **127**		13	3		●		PEEK	1.3	–	max ø1.18mm min ø0.58mm AWG18-24	3.0	2.8	4.8	3.9	≤ 630	14
			10					0.7	–	max ø0.62mm min ø0.38mm AWG24-28	3.1	1.1	4.7	1.9		1.0
105 AZ **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 AZ **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
			12					0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	–	1.0	1.2	1.5	2.0		1.0
105 AZ **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 AZ **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 AZ **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] Recommended max. operating current per contact at 40°C temperature rise measured according to IEC 60512-3-5b.

[4] Recommended operating voltage at sea level measured according to IEC 60664-1.
This rated voltage is a general purpose guideline where no other electrical safety standard applies. In cases where other standards rule a specific use of the connector, the application-specific safety criteria shall be considered first.
This must be evaluated in the framework of equipment engineering. In cases where other calculation methods are preferred, please use the Test Voltage to determine the operating voltage.

[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.